

7th INTERNATIONAL NEW YORK  
CONFERENCE ON EVOLVING TRENDS IN  
INTERDISCIPLINARY  
RESEARCH & PRACTICES

*PROCEEDINGS BOOK*

1-3 October 2022  
Manhattan, New York City

Editors  
Dr. Hasan YAVUZ  
Dr. Kaldygul ADILBEKOVA

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# PROCEEDINGS BOOK

## Editors

Dr. Hasan YAVUZ

Dr. Kaldygul ADILBEKOVA

By

Institute of Economic Development and Social Research Publications ®

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# **Conference Identification**

## **CONFERENCE NAME**

7th INTERNATIONAL NEW YORK CONFERENCE  
ON EVOLVING TRENDS IN INTERDISCIPLINARY  
RESEARCH & PRACTICES

## **DATE AND PLACE**

October 1-3, 2022  
Manhattan, New York City

## **ORGANIZATION**

IKSAD - Institute of Economic Development and Social  
Research  
&  
Liberty Publishing House

## **PARTICIPANT COUNTRIES-26**

United Kingdom, Türkiye, Philippines, Pakistan, Azerbaijan,  
Portugal, Saudi Arabi, Canada, Morocco, Taiwan, India, Romania,  
North Cyprus, Qatar, Serbia, Georgia, Kazakhstan, Albania, Vietnam,  
Algeria, Brazil, Ukraine, Indonesia, Georgia, Iran, Italy

***NUMBER OF ACCEPTED PAPERS: 189***

***NUMBER OF REJECTED PAPERS: 63***

***TOTAL NUMBER OF PAPERS FROM TURKEY: 85***

***TOTAL NUMBER OF INTERNATIONAL PARTICIPANTS: 104***

## **EVALUATION PROCESS**

All applications have undergone a double-blind peer review  
process

## **CONFERENCE LANGUAGES**

English, Turkish

## **PRESENTATION**

Oral Presentation/ Face to Face and Virtual

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# CONFERENCE GALLERY





# CONFERENCE GALLERY



# CONFERENCE GALLERY

Zoom Toplantı - Hall 3

Dr. Resul Telli (Cukurova Univ... ekranını görüntüyorsunuz

Seçenekleri Görüntüle

Kalan: 09:20:49

Görüntüle

Kaydediyor

Katılımcılar (14)

Q Katılımcı bul

- IKSAD Institute ... (Oturum Sahibi, ben)
- Dr. Resul Telli (Cukurova Uni...)
- Obser... (Ortak oturum sahibi)
- 020304Soltan\_PC
- H-3, LEVLA CUMAYEVA
- h3-assos.prof. Nazile Abdullazade
- H3-ayşenur kör
- h3-BUSE SAYGIN
- HALL 3 Mahruk Raşidi
- Hall-3 Banovsha Hajjiyeva
- HALL-3 Sultan Çakmak
- Merve Erdoğan
- Sümeyya KUŞ GÜRBEY
- Zamanova Nazakat - Hall-3

Bulgular ve Yorum /  
Results and Comments

Referans Üniversiteler ve Referans Olma Dereceleri (λ) /  
Reference Universities and their Degree of Reference (λ)

No	KVB/DMU	Skor	Referans KVB (Lambda-λ) / Reference DMU
1	Orta Doğu Teknik Üniv.	1.0	Orta Doğu Teknik Üniv. 1.0
2	İstanbul Teknik Üniv.	1.0	İstanbul Teknik Üniv. 1.0
3	Bogazici Üniv.	0.4	Orta Doğu Teknik Üniv. 0.1
4	İzmir Yüksek Tek. Enst.	1.0	İzmir Yüksek Tek. Enst. 1.0
5	Yıldız Teknik Üniv.	0.4	Orta Doğu Teknik Üniv. 0.4
6	Ankara Üniv.	0.7	İstanbul Teknik Üniv. 1.0
7	İstanbul Üniv.	0.6	İstanbul Teknik Üniv. 1.0
8	Beyces Üniv.	1.0	Atatürk Üniv. 0.0
9	Hacettepe Üniv.	0.9	Orta Doğu Teknik Üniv. 0.8
10	Gezce Teknik Üniv.	1.0	Gezce Teknik Üniv. 1.0
11	Ege Üniv.	0.6	İstanbul Teknik Üniv. 1.0
12	Marmara Üniv.	0.6	Orta Doğu Teknik Üniv. 0.1
13	Konya Uludağ Üniv.	0.8	İstanbul Teknik Üniv. 0.0
14	Dokuz Eylül Üniv.	1.0	Dokuz Eylül Üniv. 1.0
15	Atatürk Üniv.	1.0	Atatürk Üniv. 1.0
16	Orta Üniv.	0.8	İstanbul Teknik Üniv. 0.8
17	Çukurova Üniv.	0.7	İstanbul Teknik Üniv. 0.1
18	Reut Üniv.	0.8	İstanbul Teknik Üniv. 0.1
19	Karadeniz Teknik Üniv.	1.0	Karadeniz Teknik Üniv. 1.0

Sesi aç Videoyu Başlat Katılımcılar 14 Sohbet Ekran Paylaşımı Kaydet Ara Odaları Reaksiyonlar Uygulamalar Beyaz Tahtalar Odadan Çık

Zoom Toplantı - Hall 4

Ömer Bilgin ekranını görüntüyorsunuz

Seçenekleri Görüntüle

Kalan: 09:23:51

Görüntüle

Kaydediyor

Katılımcılar (8)

Q Katılımcı bul

- IKSAD Institute ... (Oturum Sahibi, ben)
- Ömer Bilgin
- Obser... (Ortak oturum sahibi)
- H-4 GÜL ÖZKAN KIZILMAK
- H4- Mehmet Turan Demirci
- HALL- 4, Hasaneen HOUSSAIN
- H4- Yunus MEŞECİ
- Hall-4, Erdal YESILBAS

Eylemsizlik Matrisleri

```
root@mrbgn:/home/mrbgn/NYork# python3 inertia1.py
Volume = 32.0
Position of the center of gravity (COG) = [0. 0. 1.5]
Inertia matrix at expressed at the COG = [45.33333333 -0. -0. ]
[ -0. 109.33333333 -0. ]
[ -0. -0. 85.33333333 ]

root@mrbgn:/home/mrbgn/NYork#
```

Observer Hall-4

H4- Mehmet Tu...

Sesi aç Videoyu Başlat Katılımcılar 8 Sohbet Ekran Paylaşımı Kaydet Ara Odaları Reaksiyonlar Uygulamalar Beyaz Tahtalar Odadan Çık

# CONFERENCE GALLERY

Zoom Toplantı - Hall 6

Kaydediliyor...

Kalan: 09:49:38 Görüntüle

HALL 6,Sitti Nurani SIRAJUDDIN

IKSAD Institute of Economic Development and Social Researches

Hall 6, Dipali Rajguru

Zalfa Ayudha Pu...

Zalfa Ayudha Putri\_University of Lampung,Indonesia

Hajdin Berisha

Krishna Kant Dave

Krishna Kant Dave

Sesi aç Videoyu Başlat Katılımcılar Sohbet Ekran Paylaşımı Kaydı Duraklat/Durdur Ara Odaları Reaksiyonlar Uygulamalar Beğaz Tahtalar Odadan Çık

Tümünü Sessize Al

Katılımcılar (7)

- IKSAD Instit... (Oturum Sahibi, ben)
- VP Vasyil Puzanov
- Hajdin Berisha
- H6 Hall 6, Dipali Rajguru
- H6 HALL 6,Sitti Nurani SIRAJUDDIN
- KK Krishna Kant Dave
- ZA Zalfa Ayudha Putri\_University of ...

Tümünü Sessize Al

Zoom Toplantı - Hall 6

Orjinal Ses: Kapalı Kaydediliyor...

Kalan: 09:04:57

Hall-6, Observer

H6 - Dr. ALIA SAAD

özlem dagdelen

Hall-6 moujahid chai...

H6-Célestin GBAGUIDI

Hall-6, Firangiz GULIZADA

Sesi aç Videoyu Başlat Katılımcılar Sohbet Ekran Paylaşımı Kaydı Duraklat/Durdur Reaksiyonlar Uygulamalar Daha fazla Odadan Çık

Katılımcılar (10)

Q Katılımcı bul

- H0 H... (Ortak oturum sahibi, ben)
- H6 H6 - Dr. ALIA SAAD
- Hall-6, Firangiz GULIZADA
- A Aygun
- HF H6-Candida Ferreira
- HG H6-Célestin GBAGUIDI
- H6 Hall-6 moujahid chaimae
- HT Hall-6, Tossou Mathieu
- özlem dagdelen
- Y Bhim Nie

Tümünü Sessize Al

# CONFERENCE GALLERY

Zoom Toplantı - Hall 1

Hall-1, Observer

H1 - Bui Man N...


Orjinal Ses: Kapalı

Kaydediliyor...

Kalan: 09:00:27

## INTRODUCTION

- The development of technology alone does not direct human behavior. At the same time, people's wishes and demands are fueling the progress in technology.
- It is possible to talk about a mutual interaction in both change and development processes.



Sesi aç

Videoyu Başlat

Katılımcılar

Sohbet

Ekran Paylaşımı

Kaydı Duraklat/Durdur

Reaksiyonlar

Uygulamalar

Daha fazla

Odadan Çık

Katılımcılar (7)

- HO H... (Ortak oturum sahibi, ben)
- Hall-1 Harun Yiğit ALKAN
- HI H-1, Dr. Ivan Pavlovic
- Furkan BALTACI
- H H1 - Bui Man Nghi
- H H1 - Dao Thanh Tam
- HA Hall-1 Aygün Azizova

Tümünü Sessize Al

Zoom Toplantı - Hall 6

Hall-6, Observer

Kalan: 08:24:46

Aygün jafarova HALL 6

Hall-6, Observer

HEAD OF SESSION: H-6, Dr. Merve ERDOĞAN

Hall-6, Ayşe Gul INCE

h6 Feda Aral

HALL-6, Polathan KÜSBECİ

Hall-6 Yunus Emre...

Suzan URGAN

Sesi aç

Videoyu Başlat

Katılımcılar

Sohbet

Ekran Paylaşımı

Kaydı Duraklat/Durdur

Reaksiyonlar

Uygulamalar

Daha fazla

Odadan Çık

Katılımcılar (8)

Q Katılımcı bul

- HO H... (Ortak oturum sahibi, ben)
- HA Hall-6, Ayşe Gul INCE
- HEAD OF SESSION: H-6, Dr. ...
- Aygün jafarova HALL 6
- HF h6 Feda Aral
- HY Hall-6 Yunus Emre Aşar
- HALL-6, Polathan KÜSBECİ
- SU Suzan URGAN

Tümünü Sessize Al

# CONFERENCE GALLERY

Kaydediliyor... Kalan: 09:56:21

Observer H-1

Adil Geybulla

Observer H-1

Hall:1 (Esra Ergin)

HALL-1 Gizem YILDIZ

Kamala Namazova

H1-Hilal Gul Boyraz

Hall 1, Aynur Kulyeva

H-1 Cemre Hoşcan Gökber

HALL-1 Lala SHIRINOVA

Gunay Salehova

Tehmin Mustafayev Hall-1

Kaydediliyor... Kalan: 09:48:54 Görüntüle

Hall 5 - Syaidatul Nur Azyyati ekranını görüntüleyorsunuz Seçenekleri Görüntüle

Buns With Bilimbi  
Sauce As Fillings

BEN DAME ALFRED  
AZRY EIZROL  
NURFATIN FARHANNA WEE  
EVY EDITH JUBILEH  
SYAIDATUL NUR AZYYATI

Hall 5 - Syaidatul Nur Azyyati

Hall 5 - Observer

Hall 5 - Ben Dame Alfred

Hall 5 - Sirhajwan Idek

Hall 5 - Nurfatin Farhanna

Sesi aç Videoyu Başlat Katılımcılar 16 Sohbet Ekran Paylaşımı Kaydı Duraklat/Durdur Yardım İste Reaksiyonlar Uygulamalar Odadan Çık

# 7th INTERNATIONAL NEW YORK CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

October 1-3, 2022  
Manhattan, New York City



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## CONGRESS PROGRAM

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Participating Countries

### **Önemli, Dikkatle Okuyunuz Lütfen**

- Kongremizde Yazım Kurallarına uygun gönderilmiş ve bilim kurulundan geçen bildirimler için online (video konferans sistemi üzerinden) sunum imkanı sağlanmıştır.
- Online sunum yapabilmek için <https://zoom.us/join> sitesi üzerinden giriş yaparak “Meeting ID or Personal Link Name” yerine ID numarasını girerek oturuma katılabilirsiniz.
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- Uygulama tablet, telefon ve PC’lerde çalışıyor.
- Her oturumdaki sunucular, sunum saatinden 5 dk öncesinde oturuma bağlanmış olmaları gerekmektedir.
- Tüm kongre katılımcıları canlı bağlanarak tüm oturumları dinleyebilir.
- Moderatör – oturumdaki sunum ve bilimsel tartışma (soru-cevap) kısmından sorumludur.

### **Dikkat Edilmesi Gerekenler - TEKNİK BİLGİLER**

- Bilgisayarınızda mikrofon olduğuna ve çalıştığına emin olun.
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- Katılım belgeleri kongre sonunda tarafınıza pdf olarak gönderilecektir.
- Kongre programında yer ve saat değişikliği gibi talepler dikkate alınmayacaktır.

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- The Zoom application is free and no need to create an account.
- The Zoom application can be used without registration.
- The application works on tablets, phones and PCs.
- The participant must be connected to the session 5 minutes before the presentation time.
- All congress participants can connect live and listen to all sessions.
- Moderator is responsible for the presentation and scientific discussion (question-answer) section of the session.

### **Points to Take into Consideration - TECHNICAL INFORMATION**

- Make sure your computer has a microphone and is working.
- You should be able to use screen sharing feature in Zoom.
- Attendance certificates will be sent to you as pdf at the end of the congress.
- Requests such as change of place and time will not be taken into consideration in the congress program.

**\*\*\***

Zoom'a giriş yapmadan önce lütfen örnekteki gibi salon numaranızı, adınızı ve soyadınızı belirtiniz  
**Before your login to Zoom please indicate your hall number, name and surname**  
**exp. H-5, Ahmet TURCANLAR**



Meeting ID: 841 9811 2047

Passcode: 010203

# FACE TO FACE PRESENTATIONS

Venue: New York

01.10.2022



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Prof. Dr. Cevat Celep**

AUTHORS	AFFILIATION	TOPIC TITLE
Prof. Dr. S. Serpil Aytac Lecturer H. Gizem Akalp	<i>Fenerbahçe University, Turkey Bursa Uludag University, Turkey</i>	WORKLOAD AND BURNOUT AS A RISK FACTOR FOR OCCUPATIONAL HEALTH AND SAFETY: A STUDY ON SOCIAL WORKERS
Burçak Şahan	<i>Atılım University, Ankara, Turkey</i>	CHALLENGES OF ONLINE TEACHING AND SOME SOLUTIONS
Nebahat Seren Akdamar	<i>Atılım University, Ankara, Turkey</i>	DIGITAL STORYTELLING IN ENGLISH LANGUAGE TEACHING
Özlem EKİNCİ Prof. Dr. Cevat CELEP	<i>Girne American University, Girne, Republic of Turkish Nord Cyprus</i>	TEACHER ABOUT SCHOOL ADMINISTRATORS 'SCATHING MANAGER-LEADER BEHAVIOR (KYRENIA DISTRICT EXAMPLE)





01.10.2022 / HALL-1



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Assoc. Prof. Dr. Tora Mammadova**

Bahar Doğan	<i>Avcılar District Directorate of National Education, İstanbul, Türkiye</i>	ACCORDING TO TEACHER'S PERCEPTIONS, THE SERVANT LEADERSHIP BEHAVIORS OF SCHOOL PRINCIPALS AND NEPOTISM IN SCHOOL ADMINISTRATION
Adem KARA	<i>Bolu Abant İzzet Baysal University, Bolu, Turkey</i>	LAND OF EXILE CYPRUS
Adem KARA	<i>Bolu Abant İzzet Baysal University, Bolu, Turkey</i>	SNUFF IN CYPRUS
Zekirja Shabani	<i>Albanological Institute, Prishtina, Kosovo; Istanbul University, Modern History, İstanbul, Türkiye</i>	OTTOMAN-ERA MOSQUES IN PRIZREN
Doç. Dr. Tora Mammadova	<i>Sumgait State University, Sumqayıt, Azerbaijan</i>	ELABORATION ON THE THEME OF REPRESSION IN THE CONTEMPORARY NOVEL
Fatma Tombak	<i>Aydın Adnan Menderes University, Aydın, Turkey</i>	LETTERS OF A BULGARIAN INTELLECTUAL VASIL KINCHOV, SHEDDING LIGHT ON OTTOMAN-BULGARIAN TRADE
Naride Gasimli	<i>Baku Girls University, Baku, Azerbaijan</i>	MOTHERLAND IS A MEMORIAL SOUVENIR OF GENIUS AND WISE ANCESTORS
Assoc. Prof. Dr. Fahri ÖZTEKE	<i>Batman University, Turkey</i>	TRANSFORMATION IN RELIGIOUS INSTITUTIONS IN THE MODERNIZATION PROCESS
Assoc. Prof. Dr. Ramazan UYKUR	<i>Manisa Celal Bayar University, Manisa, Turkey</i>	THE FIRST ISLAMIC COINS in HISTORICAL SOURCES: RELIGIOUS AND POLITICAL DISCOURSE
Assist. Prof. Dr. Tülay Köseoğlu	<i>National Defense University Military Academy, Ankara, Turkey</i>	FINAL CLEANING: FEYZULLAH HOCAYEV IN THE SOVIET COURT (1896-1938)
Mustafa Koç	<i>Istanbul University, İstanbul, Turkey</i>	INDIVIDUAL SPECIFIC EXCEPTION IN ISTANBUL: TRAVEL ALLOWANCES BY THE OTTOMAN GOVERNMENT TO GREEK CITIZENS WHO NEED HEALTHCARE SERVICES (JULY 1917-AUGUST 1918)

(All speakers required to be connected to the session 10 min before the session starts)

Moderator is responsible for ensuring the smooth running of the presentation, managing the group discussion and dynamics.



01.10.2022 / HALL -2



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Dr. FROILAN D. MOBO**

FROILAN D. MOBO, DPA, Ph.D. ANA LIZA R. GARCIA, MBA	<i>Assistant Director, DRDE Philippine Merchant Marine Academy, Philippines International Human Rights Movement, Philippines</i>	CHALLENGES IN HYBRID LEARNING IN THE PHILIPPINES
Büşra Öziç Merve Peköz	<i>Ordu University, Faculty of Science and Letters, English Language and Literature, Ordu, Turkey</i>	TURKISH EFL TEACHERS' PERCEPTIONS ABOUT THE EFFECT OF VIRTUAL REALITY ON L2 VOCABULARY TEACHING
S. Fatima Irfan, Noel Ayesha Ahmed, S. Marriyah Irfan	<i>Pakistan International School English Section (PISES), Riyadh, Saudi Arabia York University, Honours Biomedical Science, Toronto, Canada</i>	DETERMINANTS OF COVID-19 VACCINE ACCEPTANCE AMONG STUDENTS: A WEB-BASED GLOBAL SURVEY
Assoc. Prof. Dr. Yunus Doğan, Assoc. Prof. Dr. Veli Batdı, Elif Tanrikulu	<i>Fırat University, Elazığ, Turkey. Gaziantep University, Gaziantep, Turkey</i>	FACTORS AFFECTING TEACHERS' AND STUDENTS' PREFERENCES FOR DISTANCE EDUCATION: A META-THEMATIC ANALYSIS
Assoc. Prof. Dr. Yunus Doğan, Assoc. Prof. Dr. Veli Batdı, Fatma Kayıklık	<i>Fırat University, Elazığ, Türkiye Gaziantep University, Gaziantep, Turkey</i>	A REVIEW ON PROJECT-BASED LEARNING
Irina-Ana DROBOT	<i>Technical University of Civil Engineering Bucharest, Bucharest, Romania</i>	CONSEQUENCES OF ENGLISH BEING AN INTERNATIONAL LANGUAGE
Dr. Issa Djimet	<i>Assistant Professor in Applied Linguistics, University of Doba, Chad</i>	LANGUAGE USE AS A MEANS TO CONSTRUCT REALITIES: THEME PATTERNS IN JOE BIDEN'S SPEECH ON THE ANNIVERSARY OF THE CAPITOL ATTACK
Dr. Daniel Tchorkpa Yokossi	<i>University of Abomey-Calavi, Benin</i>	EXPLORING CONVERSATIONAL IMPLICATURES IN CHINUA ACHEBE'S THINGS FALL APART: A PRAGMATIC PERSPECTIVE
Aynur Isayeva	<i>Azerbaijan University of Languages, Baku, Azerbaijan</i>	THE POLITICAL INFLUENCE OF NON-GOVERNMENTAL ORGANISATIONS IN THE MODERN INTERNATIONAL RELATIONS
Muntazar Mehdi Maaz Hussain	<i>National University of Modern Languages Islamabad</i>	GENDER REPRESENTATION IN THE ESL POSTMODERN CLASSROOM IN PAKISTAN: A CRITICAL PERSPECTIVE
Emmanuel Mmaduabuchi IKEGWU, Abiose Ekpe AKHADEME, Uneke OKORAFOR	<i>Yaba College of Technology, Yaba Lagos, Nigeria</i>	THE EFFECT OF PERSONAL SOCIAL INTERACTION ON ACADEMIC ACHIEVEMENTS OF TERTIARY INSTITUTION STUDENTS: A STATISTICAL INVESTIGATION

01.10.2022 / HALL-3



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Assoc. Prof. Dr. Nazile Abdullazade**

Ayşenur Kör, Öznur Semiz	<i>Atatürk University, Erzurum, Turkey Karadeniz Technical University, Trabzon, Turkey</i>	A QUANTITATIVE APPROACH TO STUDENT ENGAGEMENT IN ONLINE EDUCATION
Leyla Jumayeva	<i>Azerbaijan National Conservatory, musicologist, Baku, Azerbaijan</i>	APPLICATION OF LEITMOTIF SYSTEM IN RAMIZ MUSTAFAYEV'S OPERA "VAQIF"
Dr. Resul TELLİ	<i>Cukurova University, Pozanti Vocational School, Accounting and Tax Applications Program, Adana, Turkey</i>	DETERMINING OF SOCIAL CONTRIBUTION POLICY EFFECTIVENESS OF STATE RESEARCH UNIVERSITIES IN HIGHER EDUCATION QUALITY PROCESS IN TURKEY
Nazakat İbrahim Zamanova	<i>Teacher at Azerbaijan State Pedagogical University</i>	RƏQƏMSALLIĞIN ELMƏ VƏ TƏHSİLƏ TƏSİRİ
Soltan Huseynoghlu Nazile Abdullazade	<i>Azerbaijan State Pedagogical University, Faculty of Philology, Department of literature and teaching methods</i>	CLASSIFICATION OF TRAINING METHODS AS A PROBLEM
Mahruk RASHIDI, Sultan ÇAKMAK, Buse SAYGIN	<i>Istanbul Gelisim University, Istanbul, Turkey</i>	EVALUATION OF UNIVERSITY STUDENTS' ATTITUDES TO ELDER PEOPLE
Sümeyya KUŞ GÜRBEY, Prof. Dr. Uğur BÜYÜK	<i>Erciyes University, Kayseri, Turkey</i>	UNDERGRADUATE SCIENCE EDUCATION PROGRAM FROM THE PERSPECTIVE OF PRIVATE SCHOOLS
Sümeyya KUŞ GÜRBEY, Prof. Dr. Uğur BÜYÜK	<i>Erciyes University, Kayseri, Turkey</i>	VIEWS OF SCIENCE TEACHERS ON THE USE OF TECHNOLOGY IN EDUCATION
Banovsha Hajiyeva	<i>Baku State University, Baku, Azerbaijan</i>	LEXICAL - SEMANTIC AND GRAMMATICAL FEATURES OF IDIOMATIC EXPRESSIONS IN TURKISH LANGUAGE
Prof. Dr. Mustafa KARABULUT	<i>Adiyaman University, Adiyaman, Turkey</i>	THE THEME OF "ESCAPE" IN EDIP CANSEVER'S POEMS

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01.10.2022 / HALL - 4



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Assist. Prof. Dr. Bülent DEMİRAĞ**

Merve KAPLAN, Bülent DEMİRAĞ, Sinan ÇAVUŞOĞLU	<i>Gaziantep University, Gaziantep, Turkey</i>	THE RELATIONSHIP BETWEEN TRUST AND ORGANIZATIONAL INNOVATIVENESS: AN APPLICATION ON TECHNOLOGY RETAIL BUSINESSES
Mehmet Latif HAYDANLI	<i>Dokuz Eylül University, Izmir, Turkey</i>	DOES BIG DATA TRIGGER THE SIXTH KONDRATIEFF WAVES?
Seza Özge GÖNEN, Ali ÖZDEMİR	<i>Yeditepe University, Istanbul, Turkey Anadolu University, Eskisehir, Turkey</i>	SECOND HAND ZERO KILOMETER LIGHT COMMERCIAL VEHICLE SELECTION PROBLEM DURING THE GLOBAL CHIP CRISIS: A CASE STUDY WITH THE USE OF MULTI-CRITERIA DECISION-MAKING TECHNIQUES
Assist. Prof. Dr. Mustafa ÖZYEŞİL	<i>İstanbul Aydın University, Anadolu Bil Higher Vocational School, Business Management (English) Department</i>	REMARKABLE CONTINUOUS BULLISH TREND IN TURKISH STOCK MARKET. PRICE BUBBLE OR FINANCIAL ILLUSION? HOW SUSTAINABLE IS THE NEARLY 3-YEAR BULL MARKET IN BORSA ISTANBUL?
Hasanlı Nargiz	<i>Baku/ Azerbaijan Azerbaijan State University Of Economics</i>	FEATURES OF MODERN DEVELOPMENT OF INTERNATIONAL TRADE AS THE MAIN FORM OF INTERNATIONAL ECONOMIC RELATIONS
Gizem YAYLI	<i>Bursa Uludag University, Turkey</i>	TRAVEL SERVICE COMPETITIVENESS ANALYSIS: SELECTED COUNTRIES AND TURKEY COMPARISON
Nurdan Asadova	<i>Baku State University, Baku, Azerbaijan</i>	THE EFFECT OF THE ARAB SPRING ON THE US-TURKIYE RELATIONS
Can Mavruk	<i>Niğde Ömer Halisdemir University, Niğde, Türkiye</i>	IMPLICATIONS OF ENERGY CRISIS IN EUROPE
Niran Cansever, Nilüfer Negiz	<i>Süleyman Demirel University, Isparta, Turkey</i>	READING LOCAL POLITICAL DEVELOPMENT AND URBAN DEVELOPMENT IN THE CONTEXT OF WOMEN
Av. Seyran GÜMÜŞOĞLU	<i>Marmara University, Istanbul, TURKEY</i>	METHODS OF COMBATING CYBERBULLYING FOR CHILDREN AND YOUNG PEOPLE, CRIMES CAUSED BY CYBERBULLYING AND LEGAL MEASURES
Yunus Emre KAHRAMAN	<i>Osmaniye Korkut Ata University</i>	A FINANCIAL PERSPECTIVE ON THE LOAN SITUATION IN TURKEY



01.10.2022 / HALL -5



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

## HEAD OF SESSION: Assist. Prof. Dr. Elif ÖZDOĞLAR

Gizem Nur Özcan	<i>Munzur University, Architecture Department, Tunceli, Türkiye</i>	CONTEMPORARY METHODS OF PRESENTATION OF CULTURAL ASSETS
Arş. Gör. Dr. Bahar Hoşcan	<i>Trakya University, Trakya, Turkey</i>	WILLIAM GRANT STILL: THE DEAN OF AFRICAN-AMERICAN CLASSICAL COMPOSERS (1895-1978)
Elif ÖZDOĞLAR, Çağrı YALÇIN, Kadir BİNGÖL	<i>Kütahya Dumlupınar University, Kütahya, Turkey</i>	FANTASTIC SPACES, IN THE WORKS OF SALVADOR DALI AND HIS WORK ON LEWIS CARROLL'S BOOK "ALICE IN WONDERLAND"
Leyla DİLEK	<i>independent researcher</i>	ANALYSIS OF THE ART OF SIMILE IN GAGAUZ LITERATURE IN SEMANTIC ORBIT
Mahsum AVCI	<i>Bingol University, Bingol, Turkey</i>	CAN EMDR THERAPY CURE A COMPLEX TRAUMA?
Lect. Fatih Memet Karakurt, Assoc. Dr. Kübra Özdemir	<i>Atatürk University, Erzurum, Turkey Kafkas University, Kars, Turkey</i>	EVALUATION OF SARIKAMIŞ WINTER SPORTS TOURISM CENTER IN TERMS OF SAFETY MEASURES
Burak Koçak, Mücahit Bektaş	<i>Recep Tayyip Erdogan University, Rize</i>	REFORMS OF THE TANZIMAT PERIOD IN THE OTTOMAN EMPIRE: CONSTRUCTION OF THE NEW? OR CONTINUATION OF TRADITION?
Dr. Aytekin Zeynalova	<i>Baku State University</i>	HISTORICAL DEVELOPMENT STAGES OF THE STATE INFORMATION POLICY OF AZERBAIJAN
Dr. Ethem İlhan Sahin	<i>Adana Alparslan Türkeş Science and Technology University, Adana, Türkiye</i>	PRODUCTION OF FREQUENCY SELECTIVE ULEXITE: CHOPPED STRANDS COMPOSITES FOR ELECTROMAGNETIC SHIELDING APPLICATIONS
Dr. Emrah SOFUOĞLU, Adem Alver, Nagihan BOZALİ	<i>Kırşehir Ahi Evran University, Kırşehir, Turkey Çankırı Karatekin University, Çankırı, Turkey</i>	AN EMPIRICAL STUDY ON THE IMPACT OF URBANIZATION ON ENVIRONMENTAL QUALITY IN TURKEY

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01.10.2022 / HALL -6



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Firangiz Gulizada**

Cândida Ferreira	<i>Lisbon School of Economics and Management of the Universidade de Lisboa</i> <i>UECE - Research Unit in Complexity and Economics</i> <i>REM – Research in Economics and Mathematics</i> <i>LISBOA, PORTUGAL</i>	THE INFLUENCE OF BANK PERFORMANCE, MARKET CONDITION AND ECONOMIC GROWTH ON NON-PERFORMING LOANS
Assoc. Prof. Fahrettin Atıl BİLGE Assoc. Prof. Semih BÜYÜKİPEKÇİ PhD Student Özlem DAĞDELEN	<i>Selçuk University, Konya, Turkey</i>	PERCEPTION AND ATTITUDES OF TOTAL QUALITY MANAGEMENT APPLICATIONS ON EMPLOYEES IN ACCOMODATION ESTABLISHMENTS: ANTALYA SAMPLE
Alia Saad	<i>Information Science, Imam Abdulrahman Bin Faisal University, Saudi Arabia</i>	SUATAINABLE DEVELOPMENT AS DETERMINANT OF HUMAN FERTILITY IN AFRICA
Chaimae Moujahid, Jack E. Turman, Jr. Loubna Amahdar	<i>Higher institute of health sciences, Hassan 1st University, Settat, Morocco.</i> <i>Indiana University Fairbanks School of Public Health, Indianapolis, IN</i>	WOMEN'S EXPERIENCE OF MISCARRIAGE: A QUALITATIVE STUDY AMONG MARRIED WOMEN IN RURAL AREA IN MOROCCO
Y Bhim Nie	<i>Dega people activist &amp; Independent scholar</i>	THE DEGA PEOPLE'S GENOCIDE
Firangiz Gulizada	<i>Hamad Bin Khalifa University, Doha, Qatar</i>	INTERSECTIONAL ROLE OF GENDERED NORMS AND SOCIO-ECONOMIC STATUS IN WOMEN'S POLITICAL PARTICIPATION: CASE OF TURKEY
Célestin GBAGUIDI & Mathieu Demondji TOSSOU	<i>University of Abomey-Calavi (UAC), BÉNIN</i>	EXPLORING AFRICAN CULTURAL NATIONALISM AND THE EMERGENCE OF CHRISTIANITY

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01.10.2022 / HALL -7



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

## HEAD OF SESSION: Biybinaz Almanova

Assist. Prof. PhD. Carmen Gabriela Lăzăreanu PhD. Candidate Vlad Leontie	<i>"Alexandru Ioan Cuza" University of Iași, ROMANIA</i>	POWER, THE ORIGINS OF AGGRESSION AND WAR IN SOCIETY.ECONOMIC AND PSYCHO-SOCIAL EFFECTS
PhD Roland Subashi	<i>Head of Administration Sciences Department, Metropolitan University, Tirana, Albania</i>	ISLAMIC FINANCE IN ALBANIA
Bhupendra Kushwaha	<i>Jawaharlal Nehru University, New Delhi, India</i>	CHINESE DEBT AND LAOS' LOSS OF SOVEREIGNTY
Dr. Selin Başer	<i>Independent Researcher, İstanbul, Türkiye.</i>	VIOLENCE AGAINST WOMEN IN TIMES OF WAR AND ITS APPEARANCE IN THE LATEST RUSSIA-UKRAINE CONFLICT
David Wortley	<i>360in360 Immersive Experiences, Alderton, United Kingdom</i>	THE ROLE OF SERIOUS GAMES AND GAMIFICATION IN ADDRESSING GLOBAL CHALLENGES
Biybinaz Almanova	<i>Al-Farabi Kazakh National University, Almaty, the Republic of Kazakhstan</i>	STUDENT MIGRATION AND SUSTAINABLE DEVELOPMENT



02.10.2022 / HALL- 1



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

## HEAD OF SESSION: Prof. Dr. Adil Geybulla

Gizem Yıldız, Hilal Gül Boyraz, Nülüfer Erbil	<i>Ordu University, Ordu, TURKEY</i>	COMPLEMENTARY AND ALTERNATIVE THERAPY METHODS USED IN HYPEREMESIS GRAVIDARUM
Gizem Yıldız, Hilal Gül Boyraz, Nülüfer Erbil	<i>Ordu University, Ordu, TURKEY</i>	USE OF LOW-LEVEL LASER THERAPY FOR EPISIOTOMY PAIN
Dr. Cemre HOŞCAN GÖKBER	<i>Center For Brain Exercises-Director and Founder</i>	MUSIC AND EMOTIONS: THE DIFFERENCES IN EXPRESSION AND PERCEPTION BETWEEN THE COMPOSER AND THE LISTENER
Büşra Ergin, Esra Ergin, Nergis Aksoy Sönmez, Mehmet Ali Eryılmaz	<i>Selcuk University, Konya, Turkey KTO Karatay University, Konya, Turkey Konya City Hospital, Konya, Turkey University of Health Sciences, Konya, Turkey</i>	THE ROLE OF PSYCHOLOGICAL RESILIENCE IN PREDICTING THE PERCEPTIONS OF PARENTAL SELF- EFFICIENCY OF PATIENTS APPLICATION TO BREAST POLYCLINIC
Kamala Namazova, Azer Aslanov, Fuad Hasanov, Nizami Muradov, Rashad Kuliyev, Machruch Abbasova, Lala Shirinova	<i>Scientific Center of Surgery Name of Acad. M. Topchubashov, Department of Anesthesiology-reanimation, Baku, Azerbaijan. Baku State University, Student of Biology Faculty, Baku, Azerbaijan.</i>	CENTRAL VEIN CATHETERIZATION, INDICATIONS FOR IT, METHODS AND COMPLICATIONS
M.D., Prof. Adil Geybulla, Nigar Geybulla	<i>Azerbaijan Medical University, Department of surgery-I, Baku, Azerbaijan</i>	PREVENTION MEASURES FOR DIABETIC FOOT ULCERS
Abeer Mohsin, Zehra Hashim	<i>Dr. Zafar H. Zaidi Center for Proteomics, University of Karachi, Karachi 75270, Pakistan</i>	OXIDATIVE STRESS INDUCED THERAPEUTIC APPROACH FOR HEPATOCELLULAR CARCINOMA
Hilal Gül Boyraz, Gizem Yıldız, Nülüfer Erbil	<i>Ordu University, Ordu, TURKEY</i>	USE OF MEDIA AND INTERNET FOR PREGNANCY, BIRTH AND CESAREAN SECTION INFORMATION
Hilal Gül Boyraz, Gizem Yıldız, Nülüfer Erbil	<i>Ordu University, Ordu, TURKEY</i>	PSYCHOLOGICAL INTERVENTIONS IN UNWANTED PREGNANCIES
Y.GASIMOVA, G.SALEKHOVA	<i>Scientific Research Institute of Pediatrics named after K.Y.Farajova</i>	SEPSIS AND MULTIORGAN FAILURE IN NEWBORNS WITH CRITICAL CONDITION
Rodolfo Reda, Alessio Zanza, Dario Di Nardo, Luca Testarelli	<i>University of Rome La Sapienza, 00161 Rome, Italy</i>	CYTOTOXICITY ANALYSIS OF TWO DIFFERENT PORCINE DERMAL MATRICES

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02.10.2022 / HALL- 2



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

## HEAD OF SESSION: Assoc. Prof. Dr. Ahmet Fevzi Kekeç

Tuğba PAMUK, Nülüfer ERBİL	<i>Ordu State Hospital, Coronary Intensive Care Unit, Ordu, TURKEY Ordu University, Ordu, TURKEY</i>	THE EFFECT OF ATTITUDE TOWARDS SEXUALITY OF PREGNANT WOMEN ON SEXUAL FUNCTION
Emced ELUBEYD, Fatma GÜDÜCÜ TÜFEKÇİ	<i>Erzurum Eğitim ve Araştırma Hastanesi, Erzurum, Türkiye Erzurum Atatürk University, Erzurum, Türkiye</i>	DEVELOPMENT OF THE TONSILLITIS KNOWLEDGE ATTITUDE SCALE
Ahmet Fevzi Kekeç	<i>Necmettin Erbakan University, Meram Medical Faculty, Orthopaedics and Traumatology, Konya, Turkey</i>	RADIOLOGICAL AND FUNCTIONAL OUTCOMES IN CALCANEUS FRACTURES TREATED WITH MINIMAL INVASIVE SURGERY USING NEW EXTERNAL REDUCTION TOOL
Nurgül Bölükbaş, Zeliha Yöndem	<i>Ordu University Health Science Faculty, Ordu, TÜRKİYE Professor Doctor A. İlhan Özdemir State Hospital, Giresun/TÜRKİYE</i>	THE IMPORTANCE OF CARE BUNDLES IN PREVENTING SURGICAL SITE INFECTIONS IN ORTHOPEDIC SURGERY
İpek CİGER, Fatma GÜDÜCÜ TÜFEKÇİ	<i>Ağrı İbrahim Çeçen University, Ağrı, Türkiye Erzurum Atatürk University, Erzurum, Türkiye</i>	DEVELOPMENT OF TOILET TRAINING KNOWLEDGE AND ATTITUDE SCALE
Uzm.Fzt. Berna Calp Prof. Dr. Melek Güneş Yavuzer	<i>Özel Tuşba Özel Eğitim Ve Rehabilitasyon Merkezi, Van, Türkiye Haliç University, İstanbul, Türkiye</i>	THE EFFECTS OF MIRROR THERAPY ON HAND FUNCTIONS OF ADULTS WITH HEMIPLEGIC SEREBRAL PALSY
Senay YILDIRIM-KAHRIMAN	<i>Health Sciences Faculty, Demiroglu Bilim University, İstanbul, Türkiye</i>	ION CHANNEL EXPRESSION AS A CANCER BIOMARKER IN PROSTATE CANCER
Haydar Hoşgör	<i>Uşak University, Uşak, Turkey</i>	REFLECTIONS OF NOMOPHOBIA ON ACADEMIC PERFORMANCE: A REVIEW
Sevinj SULEYMANOVA, Nigar ABASQULIYEVA, Fizza HAJIZADA, Sabina HAGVERDIYEVA, Mekhruban Muradova	<i>Scientific Research Institute of Medical Prophylactic named by V.Y.Akhundov, Baku, Azerbaijan</i>	SENSITIVITY TO ANTIBIOTICS OF SECONDARY INFECTIONS DURING COVID-19 AMONG THE POPULATION OF BAKU

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02.10.2022 / HALL- 3



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

## HEAD OF SESSION: Prof. Dr. Gela Kipiani

Roxana Ciorteanu, Catalina I. Ciobanu, Ionel I. Mangalagiu, Ramona Danac	<i>“Al. I. Cuza” University of Iasi, Romania</i>	SYNTHESIS OF NEW INDOLIZINIC DERIVATIVES AS POTENTIAL ANTITUMOR AGENTS
Ketevan KORKIA	<i>Technical University of Georgia, Georgia</i>	CALCULATION OF LAMINATED PLATES AND MEMBRANES FOR BENDING
Prof. Dr. Gela Kipiani, Vasili Beruashvili, Ioseb Giorgobiani	<i>Georgian Technical University, Georgia Kutaisi International University, Georgia</i>	STABILITY CALCULATION OF DISCONTINUOUS PARAMETRIC LAYERED PLATE STRUCTURES
Prof. Dr. Gela Kipiani, Zaza Jangidze, Elina Kristesiashvili	<i>Georgian Technical University, Georgia</i>	SEISMIC ISOLATION WITH KINEMATIC SUPPORTS
Khatia gabadze	<i>Georgian Technical University, Georgia</i>	COBIAX SYSTEMS IN CONSTRUCTION
Mustafa TUNÇ	<i>Firat University, Elazig, Turkey</i>	A STATISTICAL ANALYSIS USING PREVIOUS METHODS FOR DISCHARGE COEFFICIENT OF THE WEIRS
Mustafa TUNÇ	<i>Firat University, Elazig, Turkey</i>	AN ALTERNATIVE STATISTICAL METHOD TO DEVELOPED PREVIOUS EQUATIONS FOR SCOUR DEPTH AT DOWNSTREAM OF DAMS
Esra TUĞRUL TUNÇ	<i>Firat University, Elazig, Turkey.</i>	DEVELOPING A STATISTICAL METHOD FOR THE ESTIMATION OF COMPRESSIVE STRENGTH OF RECYCLED AGGREGATE CONCRETE FOR DIFFERENT CURING TIMES
Esra TUĞRUL TUNÇ	<i>Firat University, Elazig, Turkey.</i>	APPLICATION AN ALTERNATIVE STRENGTH TEST TO PRODUCE EARTHQUAKE RESISTANT RECYCLED AGGREGATE CONCRETE: BOHME ABRASION TEST
Subhashish Dey	<i>Gudlavalleru Engineering College, Andhra Pradesh, India</i>	APPLICATIONS OF PLASTIC WASTE MATERIALS IN BITUMINOUS MIXES PAVEMENT FOR INCREASING THE STRENGTHEN OF PAVEMENT MATERIALS

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02.10.2022 / HALL- 4



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

## HEAD OF SESSION: Assist. Prof. Gül ÖZKAN KIZILIRMAK

Erdal Yesilbas, Prof. Dr. Tugrul Oktay	<i>Graduate School of Natural and Applied Sciences, Faculty of Aeronautics and Astronautics, Aeronautical Engineering Department, Kayseri, Turkey</i>	ANALYSIS OF AIRCRAFT RAMP INSPECTION RESULTS AS AN INDICATOR OF THE OPERATIONAL SAFETY PERFORMANCE LEVEL IN CIVIL AVIATION: THE EU RAMP INSPECTIONS CASE
Ömer BİLGİN	<i>Institute of Natural Sciences, Engineering Faculty, Engineering Management Department, Sakarya, TURKEY</i>	3D FACE RECOGNITION WITH INERTIA MATRIXES
Kemal Furkan Sökmen, Erol Kocabıyık, Can Gürsoy, Yunus Meşeci	<i>Bursa Technical Universtiy, Bursa, Turkey. Feka Automotive Products Industry and Trade Inc., Bursa, Turkey.</i>	INVESTIGATION OF THE MECHANICAL DESIGN AND VIBRATION ANALYSIS OF ELECTROMAGNETIC COMPATIBLE BACK-FOG-SHIFT LED MODULE
Kemal Furkan Sökmen, Erol Kocabıyık, Can Gürsoy, Taylan Topaloğlu	<i>Bursa Technical Universtiy, Bursa, Turkey. Feka Automotive Products Industry and Trade Inc., Bursa, Turkey.</i>	OPTICAL DESIGN AND OPTICAL ANALYSIS OF ELECTROMAGNETIC COMPATIBLE BACK FOG LED MODULE
Serkan Islak, Hasaneen Houssain	<i>Kastamonu University, Kastamonu, Turkey</i>	NEW APPROACHES TO THE MATRIX OF DIAMOND CUTTING TOOLS USED IN NATURAL STONE CUTTING WORKS
Serkan Islak, Hasaneen Houssain, Hacer Cemre Danacı	<i>Kastamonu University, Kastamonu, Turkey</i>	CHARACTERIZATION OF MICROSTRUCTURE AND HARDNESS PROPERTIES OF Ti-Cu/B4C COMPOSITES
Assist. Prof. Dr. Mehmet Turan Demirci	<i>Selçuk University, Konya, TURKIYE</i>	INVESTIGATION OF BENDING DAMAGE BEHAVIOR OF NOMEX HONEYCOMB COMPOSITE SANDWICHES WITH E-GLASS/CARBON HYBRID FACE-SHEET
Asst. Prof. Dr. Gül ÖZKAN KIZILIRMAK	<i>Gazi University, Faculty of Science, Department of Mathematics, Ankara, Turkey.</i>	(a,b)-NIRMALA INDEX OF LUCAS-SUM GRAPH

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02.10.2022 / HALL- 5



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Dr. Amina Mumtaz**

Eman Al-Abbad, Fadi Alakhras	<i>Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia</i>	REMOVAL OF DYE ACID RED 1 FROM AQUEOUS SOLUTIONS USING CHITOSAN-ISO-VANILLIN SORBENT MATERIAL
Priyanka Gupta	<i>Indian Institute of Technology, PhD Scholar, Kanpur, India.</i>	EFFICIENT CONVERSION OF AQUEOUS CARBON DIOXIDE TO FORMATE WITH SOLAR TO FUEL CONVERSION EFFICIENCY OF 1.48%
Sardar, Shantanu, Joint with A. Kuber and E. Gupta	<i>Indian Institute of Science Education and Research (IISER) Pune</i>	ON THE FACTORIZABLE SYSTEM, RECURSIVE TERMS AND THE STABLE RANK OF A STRING ALGEBRA
Mehmet Ozdemir, Ayse Aytac	<i>Kocaeli University, Kocaeli/Turkey DYO Boya Fabrikalari Inc., R&amp;D Department, 41380, Kocaeli, Turkey</i>	INVESTIGATION OF IRON OXIDE-ZINC OXIDE-COLLOIDAL SILICA HYBRID PIGMENT EFFECT ON STYRENE ACRYLIC COATINGS
Kamar ZAIEM, Hichem BOURAS, Mohamed Faouzi RACHEDI	<i>Badji-Mokhtar Annaba University, Annaba, Algeria</i>	BEARING FAULT DIAGNOSIS INVESTIGATION WITH THE USE OF DIFFERENT EMPIRICAL SIGNAL PROCESSING METHODS
Amina Mumtaz	<i>PCSIR Laboratories Complex, Ferozepur Road, Lahore-Pakistan.</i>	TRANSITION METAL COMPLEXES OF DRUG BASED SCHIFF LIGAND: SYNTHESIS, CHARACTERIZATION AND IN VITRO BIOLOGICAL EVALUATION
Edson Aparecido Felix, Professor Gilmar Cordeiro da Silva	<i>Pontific Catholic University Of Minas Gerais, Brazil</i>	EVALUATION OF MECHANICAL PROPERTIES OF ASTM 6082 ALUMINUM ALLOY AFTER ANGULAR EXTRUSION IN EQUAL CHANNELS IN THE MANUFACTURE OF PINS, BARS AND TUBS

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02.10.2022 / HALL- 6



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Dr. Merve ERDOĞAN**

Erdem Çoban	<i>Halic University, İstanbul, Turkey</i>	DETERMINATION OF TRENDS OF RIVER FLOWS IN THE BÜYÜK MENDERES DISCHARGE
Assist. Prof. İbrahim Feda ARAL, Assist. Prof. Mehmet Timur CİHAN, Res. Assist. Yunus Emre AVŞAR	<i>Namık Kemal University, Tekirdağ, Turkey</i>	INVESTIGATION OF PHYSICAL AND MECHANICAL PROPERTIES OF MORTARS CONTAINING WASTE STEEL SLAG WITH REPLACEMENT TO STANDARD SAND
Assist. Prof. İbrahim Feda ARAL, Res. Assist. Yunus Emre AVŞAR, Assist. Prof. Mehmet Timur CİHAN	<i>Namık Kemal University, Tekirdağ, Turkey</i>	PHYSICAL AND MECHANICAL PROPERTIES OF MORTARS CONTAINING WASTE STEEL SLAG INSTEAD OF PORTLAND CEMENT
Asst. Prof Dr. Polathan KÜSBECİ Asst. Prof. Dr. Suzan URGAN	<i>Cappadocia University, Turkey Ondokuz Mayıs University, Turkey</i>	A CONCEPTUAL STUDY ON COLLAR CLASSIFICATION IN EMPLOYEES
Asst. Prof Dr. Polathan KÜSBECİ Dr. Mehmet Fatih BURAK	<i>Cappadocia University, Turkey Beykent University, Turkey</i>	USE OF INTERNET OF THINGS TECHNOLOGY IN HEALTHCARE
Jafarova Aygun Mirdamad Mohamad Alsayed Alasaas	<i>Azerbaijan Medical University, Baku, Azerbaijan</i>	CORRELATION INDICATORS OF EEG SPATIO-TEMPORAL ANALYSIS OF VARIOUS BRAIN FORMATIONS IN A CONDITION OF A "NON - SIGNAL" AND "SIGNAL" SITUATION
Ayşe Gul Ince, Mehmet Karaca	<i>Akdeniz University, Antalya, 07059 Turkey</i>	DIFFERENTIAL EFFECTS OF INTRASPECIES AND INTERSPECIES GRAFTING ON SEED FATTY ACIDS
Mehmet Karaca, Ayşe Gul Ince	<i>Akdeniz University, Antalya, 07059 Turkey</i>	UPLAND AND PIMA COTTON HAVE DIFFERENT RELATIONSHIPS WITHIN FIBER TECHNOLOGICAL PROPERTIES

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02.10.2022 / HALL- 7



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Assist. Prof. Dr. Vaibhav Kant Singh**

Ouail MJAHEDE, Salah EL HADAJ, El Mahdi EL GUARMAH, Soukaina MJAHEDE	<i>Faculty of Sciences and Technology, Department of Computer Sciences, L2IS, Marrakech, Morocco. Royal Air School, Mathematics and Informatics Department, Marrakech, Morocco.</i>	NEW NEURAL NETWORK-BASED INTRUSION DETECTION SYSTEM DESIGN BY USING BAT AND ANT COLONY ALGORITHMS
Seemant Tiwari	<i>Southern Taiwan University of Science and Technology, Taiwan</i>	ARTIFICIAL INTELLIGENCE TECHNOLOGIES FOR THE POWER SYSTEM
Vaibhav Kant Singh	<i>Central University, Bilaspur, India</i>	A PYTHON BASED OBJECT DETECTION BY YOLO V1
Vaibhav Kant Singh	<i>Central University, Bilaspur, India</i>	A SECURITY SYSTEM MAKING USE OF FACE IDENTIFICATION & VERIFICATION VIA FINGERPRINT RECOGNITION
SALAMI Hamzat, AMINU Yakubu Ojo & DAVID Omeiza Jacob	<i>Prince Abubakar Audu University, Anyigba, Kogi State, Nigeria University of Abuja, FCT-Nigeria</i>	ARTIFICIAL INTELLIGENCE (AI) AND MANUFACTURING SECTOR APPLICABILITY IN AFRICA COUNTRIES FOR TRADE ADVANTAGES
Vaibhav Kant Singh	<i>Central University, Bilaspur, India</i>	A PYTHON BASED APPROACH TOWARDS COVID-19 A DATA ANALYSIS AND VISUALIZATION REPORT
Vaibhav Kant Singh	<i>Central University, Bilaspur, India</i>	PYTHON BASED MOVIE RECOMMENDER SYSTEM
Vaibhav Kant Singh	<i>Central University, Bilaspur, India</i>	USING STACKED LSTM PREDICTION OF INDEX PRICE
Kabyken Magzhan	<i>Master of Engineering (Information Systems). Kazakhstan</i>	TECHNICAL PROTECTION OF PERSONAL DATA FOR COMMERCIAL ORGANIZATIONS

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03.10.2022 / HALL- 1



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Dr. Ivan Pavlović**

Dr. Bindu Bharathi	<i>Northern Border University, Arar, Kingdom of Saudi Arabia</i>	AN EXPLORATORY STUDY TO ASSESS THE COMMUNICATION PATTERN, SKILLS, STYLE, AND PROBLEMS OF COMMUNICATION AMONG THE PROFESSIONAL NURSES
Ivan Pavlović, Vlada Antić, Dragana Petković, Nikola Nedeljković, Vladimir Terzin, Dragana Terzin, Igor Učajev, Bojana Učajev, Danijel Savić, Stanko Minić	<i>Scientific Veterinary Institute of Serbia, Belgrade, Serbia Veterinary Ambulance Djole and Prle, Belgrade, Serbia</i>	PARASITES INFECTIONS OF PETS DOGS IN BELGRADE AREA DURING 2021
Bui Man Nghi Dao Thanh Tam Bui Anh Tuan	<i>Ho Chi Minh City, Viet Nam Can Tho University, Viet Nam</i>	DESIGNING PUBLIC PARKS WITH FENG SHUI AND MATHEMATICS: A CASE STUDY
Jaafar Nozad Aakef Aakef, Zehranur Yuksekdog, Berat Cinar Acar	<i>Gazi University, Ankara, Türkiye</i>	THE ABILITY OF THE PREBIOTIC EPSJD2 AND POSTBIOTIC CFSJD2 OF PICHIA KUDRIAVZEII JD2 TO FERMENT AND REGULATE THE GROWTH OF LACTIPLANTIBACILLUS PLANTARUM SUBSP. PLANTARUM DSM20246 AND SACCHAROMYCES CEREVISIAE BU19 AND THEIR COMPARISON WITH COMMERCIAL INULIN
Assist. Prof. Dr. Furkan BALTACI, Res. Assist. Harun Yiğit ALKAN	<i>Hasan Kalyoncu University, Gaziantep, Turkey</i>	CHALLENGES LEAD TO ENTREPRENEURSHIP: A REVIEW ON COVID-19 AND GHOST KITCHENS
Aygun Azizova	<i>Azerbaijan Ministry of Agriculture Veterinary Research Institute, Baku, Azerbaijan</i>	THE ASSOCIATIVE INVASIONS -THE HELMINTHS, PRIMARY INTESTINAL PARASITES, PIROPLASMIDS OF THE SMALL RUMINANTS IN AZERBAIJAN

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03.10.2022 / HALL- 2



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

## HEAD OF SESSION: Assoc. Prof. Dr. A.Engin Özçelik

Halime Pehlivanoglu, Assist. Prof. Dr. Aslı Aksoy	<i>Tekirdag Namik Kemal University, Tekirdag, Turkey Haliç University, İstanbul, Turkey</i>	MULTIDISCIPLINARY EVALUATION OF STREET FOODS
Assist. Prof. Dr. Aslı Aksoy, Süleyman Can Sümerkan	<i>Haliç University, İstanbul, Turkey</i>	ALTERNATIVE PROTEIN SOURCES FOR SUSTAINABILITY
Mustafa Yılmaz, Cenk Burak Şahin, Necmi İşler	<i>Oil Seed Research Institute, Osmaniye, TÜRKİYE Hatay Mustafa Kemal University, Hatay, TÜRKİYE</i>	EFFECT of LEAF DAMAGE on PRODUCTION and QUALITY of PEANUT VARIETIES
Gülay YILDIRIM	<i>School of Health, Nursing, Edirne, Turkey</i>	USE OF HERBAL PRODUCTS IN PATIENTS WITH TYPE 2 DIABETES
Ali AYCI, Cansu ERGENÇ	<i>Ankara Yıldırım Beyazıt University, Ankara, TÜRKİYE</i>	PURCHASING PERCEPTION OF GENERATION Z STUDENTS TO TOGG CARS
Taha Ceylani, Hikmet Taner Teker	<i>Muş Alparslan University, Muş, Turkey Ankara Medipol University, Ankara, Turkey</i>	OLD BLOOD PLASMA FACTORS INCREASE ANXIETY- LIKE BEHAVIOR IN YOUNG RATS
Assoc. Prof. Dr. A.Engin Özçelik, Buse Sergek	<i>Selçuk University, Konya, Türkiye</i>	ADVANCES IN ECO-FRIENDLY LUBRICANTS FOR TRIBOLOGIC APPLICATIONS
Asst. Prof. Dr. Firdevs Korkmaz Turgud, Assoc. Prof. Dr. Doğan Nariç	<i>Akdeniz University, Antalya, Turkey.</i>	EFFECT OF ADDING PASSIONFLOWER EXTRACT TO DRINKING WATER OF JAPANESE QUAILS ON PERFORMANCE AND CARCASS CHARACTERISTICS
Asst. Prof. Dr. Firdevs Korkmaz Turgud, Assoc. Prof. Dr. Doğan Nariç	<i>Akdeniz University, Antalya, Turkey.</i>	EFFECT OF IN OVO FEEDING OF N-ACETYL-L- GLUTAMATE ON INCUBATION RESULTS AND PERFORMANCE TRAITS IN JAPANESE QUAIL

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03.10.2022 / HALL- 3



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

## HEAD OF SESSION: Professor Olga Boyko

Dr. Gerald U. Nwabuisi	<i>Lecturer, Trinity Theological College, Umuahia, Abia State</i>	SOCIAL JUSTICE AND INTEGRITY: A HEALTHY MÉLANGE FOR A WEALTHY NIGERIAN SOCIETY
Professor Olga Boyko, Ass. Professor Larysa Otroshchenko	<i>Sumy State University, Foreign Languages Department, Ukraine</i>	SELF-MANAGEMENT AS A KEY COMPETENCE OF THE FUTURE SPECIALISTS
Mercurius Broto Legowo, Fangky Antoneus Sorongani, Steph Subanidja	<i>Perbanas Institute, Jakarta, Indonesia</i>	MODEL OF BANKING AND FINTECH COLLABORATION IN INDONESIA: PRESENT AND FUTURE CHALLENGES
Lemiyana Muhammad Rusdi Muhammad Said	<i>Universitas Islam Negeri Raden Fatah Palembang, Indonesia</i>	OPTIMIZING THE ROLE OF THE INVESTMENT GALLERY AS A MILLENNIAL INVESTOR'S LIFE STYLE TO INVEST IN SHARIA THROUGH DIGITAL LITERACY
Dwi Irianti Hadinigyah, Juwita, Muhammad Said	<i>State Islamic University Syarif Hidayatullah, Jakarta</i>	ISLAMIC FISCAL POLICY: STATE SUKUK IMPLEMENTATION IN INDONESIA
Ahmad Almasyhur, M. Fachri Farhansyah, Albertus Agung Arnold, Mercurius Broto Legowo	<i>Perbanas Institute, Jakarta, Indonesia</i>	DIGITAL BUSINESS INNOVATIONS DEVELOPMENT FOR INDONESIA SMEs
Nada Shaffa Audriary, Asih Nurul Khamidah, Wibowo Dwi Anggoro, Mercurius Broto Legowo	<i>Perbanas Institute, Jakarta, Indonesia</i>	DIET AND HEALTH CONSULTATION SERVICES SYSTEM BASED ON A DIGITAL PLATFORM
Shreyash Singhal	<i>Kirit P. Mehta School of Law, Mumbai</i>	EFFECTS OF COVID-19 ON MARUTI SUZUKI
Lanke Benedict AWOMAILO Sejoro ZANNU	<i>Yaba College of Technology, Yaba, Lagos, Nigeria</i>	EXAMINING THE EFFECT OF CREATIVITY AND INNOVATION ON BUSINESS GROWTH

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03.10.2022 / HALL- 4



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Dr. Faisal Zulhumadi**

Bilal Karroumi, Abdelfettah Sedqui	<i>National School of Applied Sciences, Tangier, Morocco</i>	HOW TO ACHIEVE FRUGAL INNOVATION APPROACH?: METHODS AND PLACES OF INNOVATION
Anoke, Amechi Fabian; Eze, Solomon Uchechukwu; Onuzulike-Chukwuemeka, Nkechi	<i>Nnamdi Azikiwe University, Awka Anambra state, Nigeria</i>	CORPORATE GOVERNANCE AND PERFORMANCE OF QUOTED INSURANCE FIRMS IN NIGERIA
Rudi Aryanto, Siti Mardiah, Abdullah Sahroni	<i>State Islamic University Syarif Hidayatullah Jakarta</i>	STRENGTHENING ISLAMIC MICRO-FINANCE INSTITUTIONS IN SOUTH SUMATRA
Faisal Zulhumadi, Nurdina Wahida Idris	<i>Universiti Utara Malaysia, Sintok, Kedah, Malaysia</i>	ACCEPTANCE OF EDIBLE WATER ORBS: TECHNOLOGY STUDENT PERSPECTIVE IN NORTHERN MALAYSIA
Saif Ahmed Md. Ibrahim Khalil Binoy Chowdhury Dr. Rasheedul Haque	<i>MAHSA University, Malaysia</i>	MALAYSIAN TEACHERS' MOTIVATING AND DEMOTIVATING FACTORS OF ARTIFICIAL INTELIGENT (AI) BASED TEACHING SOLUTION
Saif Ahmed Md. Ibrahim Khalil Binoy Chowdhury Dr. Rasheedul Haque	<i>MAHSA University, Malaysia</i>	STRUCTURAL PATH ANALYSIS OF CUSTOMERS PERSPECTIVE TOWARDS ARTIFICIAL INTELLIGENCE BASED SUGGESIONS
Putra Pangestu, Christine Wulandari, Dewi Sri Wahyuni, Qodri, Hari Kaskoyo, Indra Gumay Febryano, Susni Herwanti, Dian Iswandar, Rahmat Safei, Yulia Rahma Fitriana, Novriyanti, Arief Darmawan	<i>Jurusan Kehutanan, Universitas Lampung</i>	PENDUGAAN NILAI CADANGAN KARBON PADA LAHAN AGROFORESTRI DAN MONOKULTUR DI KPH BATUTEGI, PROVINSI LAMPUNG, INDONESIA
Ms. Sanghpriya Ray Prateek Kumar Dinkar Ashutosh Kumar	<i>Sharda University, Greater Noida, India</i>	A CRITIQUE OF K.S. PUTTASWAMY JUDGMENT OF THE SUPREME COURT OF INDIA
Surnayanti, Christine Wulandari, Slamet Budi Yuwono, Rahmat Syafe'i	<i>University of Lampung</i>	ECONOMIC BENEFITS OF COMMUNITY FORESTRY GROUP MEMBERS FROM COFFEE-BASED AGROFORESTRY: A CASE STUDY IN THE SUKA MAKMUR GROUP, WEST LAMPUNG, INDONESIA
Clipa Flavian, Clipa Raluca-Irina	<i>Iasi University of Life Sciences (IULS), Romania Alexandru Ioan Cuza Iasi, Romania</i>	CHALLENGES OF NATIONAL SAIS IN THE CONTEXT OF THE COMMON AGRICULTURAL POLICY 2023-2027

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03.10.2022 / HALL- 5



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

**HEAD OF SESSION: Dr. Sergiy Lavrenko**

Olubanjo-Olufowobi, Olufunso Egberongbe, Tijani Taiwo Fabiya, Oluwafunmilayo Omolola	<i>Mountain Top University Olabisi Onabanjo University</i>	HUMANISTIC CAPITALISM THE PATHWAY TO ECONOMIC SUSTAINABILITY IN NIGERIA: A CRITIC OF KARL MARX SOCIALISM
Ben Dame Alfred, LNurfatin Farhanna Wee, Evy Edith Jubileh, Syaidatul Nur Azyyati Juhairi, Azry Eizrol Khairol	<i>Keningau Vocational College, Bakery &amp; Pastry department, Keningau, Sabah, Malaysia</i>	MAKING WESTERN BREAD TASTE BETTER WITH TROPICAL FLAVOUR
Dr. C.Vijai, Mr. M. Elayaraja	<i>Vel Tech Rangarajan Dr. Sagunthala R&amp;D Institute of Science and Technology, INDIA St.Peter's Institute of Higher Education and Research, INDIA</i>	CUSTOMERS PERCEPTION TOWARDS MOBILE BANKING
Dr. C.Vijai, Mr. M. Elayaraja		A STUDY ON THE FACTORS INFLUENCING CONSUMER'S INTENTION TO ADOPT MOBILE WALLET IN INDIA
Luthfi Aprilia, Alfatahturrahmi, Yoshitaka Terada, Mercurius Broto Legowo	<i>Perbanas Institute, Jakarta, Indonesia</i>	STUDY OF ACADEMIC INFORMATION SYSTEM SUCCESS MODELS
Nadia Khumairatun Nisa, S.Sos, Dandri Garda Varna, S.IP, Dr. Pitojo Budiono, M.Si, Dr. Ari Damastuti, M.A	<i>University of Lampung, Indonesia</i>	AZERBAIJAN (CAUCASUS-CENTRAL ASIA) TOURISM STRATEGY IN FOREIGN TRADE AND LOGISTICS
Gvantsa Geliashvili	<i>Caucasus International University, Tbilisi, Georgia</i>	GEORGIAN WINE EXPORT IN GERMANY _ SUPPLY CHAIN AND RISK MANAGEMENT
Sergiy Lavrenko, Ivan Turchyn, Nataliia Lavrenko	<i>Kherson State Agrarian and Economic University, Ukraine</i>	ECONOMIC EFFICIENCY OF EXTENSIVE GROWING OF PLEUROTUS OSTREATUS ON STUMPS
Stanislav Babych, Sergiy Lavrenko, Oleksander Averchev	<i>Kherson State Agrarian and Economic University, Ukraine</i>	IMPACT OF DEVELOPMENT OF LOGISTICS ON THE DEVELOPMENT OF AGRICULTURAL ENTERPRISES
Daria Kovtun, Sergiy Lavrenko	<i>Kherson State Agrarian and Economic University, Ukraine</i>	LOGISTICS IN THE AGRO-INDUSTRIAL COMPLEX

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03.10.2022 / HALL- 6



New York Local Time: 10:00–12:30



Ankara Local Time: 17:00–19:30

## HEAD OF SESSION: Vasyl Puzanov

Serhii Turpak, Oleksiy Kotov, Serhii Boiko, Vasyl Puzanov	<i>National University Zaporizhzhia Polytechnic, Zaporizhzhia, Ukraine Zaporizhzhya National University, Zaporizhzhia, Ukraine</i>	ANALYSIS OF PROSPECTS FOR THE DEVELOPMENT OF THE NETWORK OF HELICOPTER SERVICE POINTS BASED ON A LOGISTICS APPROACH
Zalfa 'Ayudha Putri, Christine Wulandari, Wahyu Edi Chandra Pratama, Novriyanti Novriyanti, Dian Iswandar	<i>Lampung University, Agriculture Faculty, Forestry Department, Lampung, Indonesia</i>	KAJIAN IMPLEMENTASI KEBIJAKAN RESTORASI GAMBUT DALAM UPAYA KONSERVASI LAHAN GAMBUT
Ebenezer Akinniyi Akinyemi,	<i>Ladoke Akintola University of Technology</i>	HUMAN CAPITAL DEVELOPMENT AND ECONOMIC GROWTH NEXUS IN NIGERIA
Sitti Nurani Sirajuddin, Amidah Amrawaty, Siti Nurlaelah, Nur Dwiana Sari Saudi	<i>Hasanuddin University</i>	PUBLIC PERCEPTION OF THE LEVEL OF AIR POLLUTION FROM BUFFALO FECES WASTE AT THE BOLU ANIMAL MARKET, NORTH TORAJA REGENCY, INDONESIA
Dipali Rajguru, Dr. Krishnkant Dave, Dr. Sameer Nanivadekar	<i>PAHER University, PHD Student, Management, Udaipur, India</i>	THE ASSESSMENT OF SUCCESSFUL INNOVATIVE PRODUCTS ON THE BASIS OF CROWD FUNDING
Muhammad Asif, Malik Fahim Bashir	<i>COMSATS University Islamabad, Abbottabad Campus, Abbottabad, Pakistan</i>	EXCHANGE RATE VOLATILITY AND ECONOMIC GROWTH
Abdallah RHIHIL, Saadia MAROUANE and Maha MOUADNI	<i>Hassan II University of Casablanca (Morocco)</i>	POST-COVID-19 SITUATION OF THE MOROCCAN AERONAUTICAL SECTOR
Dr. Hajdin Berisha, Dr. Agron Hoxha	<i>Riinvest College, Prishtina, Republic of Kosovo Heimerer College, Republic of Kosovo</i>	INSTITUTIONAL POLICY RESPONSES AND ORGANIZATIONAL STRATEGIC CHOICES TO MANAGE INFLATION ON INTERNATIONAL TRADE CONTRACTS
BALAMURUGAN V., ARUNKUMAR R., SUJAIVELU T.	<i>Tamil Nadu Agricultural University, Coimbatore, India Annamalai University, Chidambaram.</i>	SMART AGRICULTURE: INTERNET OF THINGS FOR FUTURE FARMING

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THE IMPACT OF DIGITIZATION ON SCIENCE AND EDUCATION

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**Tora Mammadova**

ELABORATION ON THE THEME OF REPRESSION IN THE CONTEMPORARY NOVEL 344

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### WORKLOAD AND BURNOUT AS A RISK FACTOR FOR OCCUPATIONAL HEALTH AND SAFETY: A STUDY ON SOCIAL WORKERS

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#### **Abstract**

Workload is the amount of work that needs to be done at a given quality at a given time. If the workload is less or more than it may have negative effects on the employees. Burnout, which is defined as fatigue and disappointment resulting from prolonged stress, intense activity, and overwork, leads to low motivation and performance in employees, and the health and safety of individuals may be endangered. The social work practices have traditionally given priority to the most vulnerable members of society, those exposed to social injustice, discrimination and oppression. For this reason, the health of social workers is extremely important for the service they provide. In this study, it was aimed to examine the workloads and burnout levels of social workers working in child welfare institutions serving under the provincial directorates of family and social policies in a province. In this study, in which the relational screening model was used, data were collected from a total of eighty-one social workers. Analysis of variance (ANOVA) and independent sample t test were used to evaluate the questions created within the scope of the research. According to the findings, more than half of the participants (60.5%) stated that they would like to work in a field other than social work, if they had the opportunity, due to their workload and the responsibilities brought by the profession. The vast majority (87.7%) reported that they needed professional help and support during their work and that they mostly received help from their colleagues. More than half of the social workers (68.8%) stated that they were recording and writing reports between 1 hour and 4 hours a day, and 78.4% of them mentioned that they were spending at least an hour on the way to work. The personal accomplishment burnout scores of social workers were found to be high, and no significant results were observed in terms of emotional exhaustion and depersonalization burnout.

**Keywords:** Workload, Burnout, Psycho-social risk, Social Workers

#### **INTRODUCTION**

Considering that people spend a significant part of their daily lives at work, it is known that the workload and the work itself might cause exhaustion at a level that can negatively affect the health of the individual. Thus, it is true that there is a relationship between workload and burnout. In particular, it can be said that the increase in workload leads to burnout, and the physical and psychological health of the person is negatively affected. It would be appropriate to briefly clarify the concepts of workload and burnout within the scope of this study.

Professionals working in the service sector have intense relationships with the people they serve and spend most of their working lives under stress. Social work is one of the professions approved by the society, trying to improve the quality of human life, such as medicine, nursing, psychology, physiotherapy, guidance and psychological counseling. According to the definition of the International Association of Social Workers, the social work profession provides freedom and power for the welfare



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of people, supports social change, problem solving in human relations, and interacts with people's environment (IFSW, 2004). Human rights and social justice principles are the foundation of social work (Healy, 2008). Social workers assume the role of intermediary in the provision of services to the disadvantaged groups of the society and make important decisions about the problems of these groups. For this reason, the work of social workers who strive for the construction of a healthy society is quite tiring, stressful and intense. Because social workers try to intervene in problem areas. The profession appears to have a significant physical, mental and psychological impact on employees.

Workload is the amount of work that needs to be done with Physical working conditions, internal communication problems were expressed by 32% of the people. 36% stated that they worked outside of working days and hours certain quality at a given time. While workload means productivity for organizations, it is also, time and energy spent for individuals to do the work (Ardıç and Polatçı, 2008; ;Johari et al., 2017; Liu and Lo, 2017). Another definition of workload is “the amount of work that needs to be done at a certain time and with a certain quality” (Cain, 2007). Workload refers to productivity in terms of the organization, and the time and energy spent to do the work individually (Bakırtaş et al. 2016; Erdem et al., 2016; İnan, 2017). Workload can be defined in at least two ways: quantitative and qualitative workload. Quantitative workload indicates the amount of work required for a particular task (Spector and Jax, 1988). In other words, workload occurs when too many tasks are imposed on the individual or when the individual does not have enough time to accomplish these tasks. Qualitative workload refers to the complexity of the tasks assigned for a particular job (Glaser et al, 1999; Uğur and Erol, 2015), the difficulty of the job in relation to a person's capacity. Kalakoski (2020) defines mental workload as aligning human cognitive functioning and the conditions that affect it, and human-system interaction at work with human cognitive abilities and limitations. Jex (1988) defines it as the evaluation of the attention load between the mental capacity required to complete the task and the task demands. Especially due to the difficulty of directly observing the mental workload, the measurement of individual behaviors, psychological and physiological processes have become important. Therefore, physiological, performance-based and subjective scales have been used in various studies in order to determine these behaviors and processes (Chang et al. 2011; Yavuz et al., 2020).

Excessive quantitative or qualitative workload is caused by factors such as lack of work control, low social support, lack of autonomy and time pressure (Kulaklıkaya, 2013; Zoer, 2011). The most common organizational stress factor is excessive workload. Excessive workload can lead to negative consequences such as behavior change, low motivation, dependence on alcohol, smoking, depression, burnout and heart diseases. (Işıkhani, 2009; Karasek et al.1987).

Burnout is one of these negative consequences. Burnout, which is defined as physical, mental, emotional fatigue, disappointment and insensitivity resulting from prolonged stress, intense activity, overwork, was first put forward by Freudenberg, but it has been the burnout scale developed by Maslach, which is the most used for measurements related to the subject. Maslach defined burnout with three sub-dimensions. These are emotional exhaustion, depersonalization and personal failure (Maslach and Jackson, 1981-1986). Burnout is a loss of enthusiasm, energy, idealism, perspective, and purpose. It is a state of physical, emotional and mental exhaustion that causes chronic stress, hopelessness and helplessness. (Hablemitoğlu and Özmete, 2012; Konakay, 2010). When occupational health is mentioned, the protection of health of employees and work environment should be considered. Therefore, the risks that may affect psychological health should be determined, and minimized or even eliminated (Karahasan, 2019)

The effects of the work environment on the psychological health of people can harm both the health of the person and the work system by reducing the performance of the employees over time. Today, negative situations such as excessive working hours, workload, increased responsibilities and obligations can negatively affect the health of individuals. Such known but unresolved problems reduce employee engagement and job satisfaction, and as a result increase their intention to leave. (Arı and Bal, 2008, Bowling and Kirkendall, 2012; İlçin, 2019).

In the last century, many countries have created legal measures to prevent physical, chemical, biological and ergonomic risks for occupational health and safety, but psycho-social risks have not been taken into account. Psycho-social risks are an adverse situation arising from interactions between work



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organization and management and the social environment, with the potential to cause psychological or physical harm, which can affect a person's health, job performance, and job satisfaction. It includes numerous potential stressors (Chirico et al., 2019).

The World Health Organization (WHO) and the European Agency for Occupational Safety and Health (EU-OSHA) have stated that psycho-social risks are linked to the experience of work-related stress and burnout and are the second most common work-related health problem (Bergh et al., 2018). Labor productivity and continuity are disrupted due to psycho-social risks (Seilerova, 2019). Therefore, in recent years, many studies have been conducted on psycho-social factors and how they relate to psychological and physiological outcomes (Bergh et al., 2018).

Understanding that the psychology of the individual directly affects his work performance and his relationship with the environment has increased the number of studies. We have not encountered study in our country that deals with the workload of social workers and burnout as a psycho-social risk. Yet, many studies conducted abroad on workload and burnout show that social workers have a high workload. It has been determined that they experience burnout (Baginsky, et al. 2010; Huang et al., 2021; Lloyd et al., 2002; Söderfeldt et al., 1995; Yurur and Sarikaya, 2012; Wang et al., 2021). In this study, it was aimed to reveal the workload and burnout levels of social workers, which appear as a source of psycho-social risk with the occupational health dimension. Thus, it is expected that the data obtained as a result of the research will be beneficial to administrators and academicians in the field of social work.

### MATERIALS AND METHODS

The main aim of this study is to determine the workload and burnout levels of social workers working in the units and institutions affiliated to the Ministry of Family and Social Policies in a province as psycho-social risk factors in terms of occupational health. This study is a descriptive and quantitative study based on a single measurement (Reid and Smith, 1981). The model of the research was determined as the relational screening model. Relational screening models are research models that aim to determine the existence and/or degree of change between two or more variables (Karasar, 2012). In this study, the research questions were:

1. What is the workload of Social Workers?
2. What are the working conditions of Social Workers?
3. What are the burnout levels of Social Workers?
4. Do the burnout levels of Social Workers differ according to gender, age and working time?

In the research, "purposive sampling method", which one of the non-probability sampling methods was used. The survey form, activity plan and burnout scale prepared online by the researchers were sent to the e-mail addresses of the social workers from the relevant provincial directorate, and 110 people were reached, but 81 responses were received (the response rate was 91%). The data obtained from 81 people were statistically evaluated and analyzed with the SPSS (22.0) program. ANOVA and "t" tests were used to analyze the data.

"Personal Information Form" includes demographic information (age, gender, working time, etc.).

"Maslach Burnout Inventory"; The scale, which was developed by Christina Maslach and Susan Jackson (1981) in order to measure the level of burnout perceived by social workers, and its Turkish adaptation and validity-reliability study was carried out by Çapri (2006), consists of 22 items. The 7-point Likert-type scale in its original form was reduced to five options in the adaptation study conducted by Ergin (1992).

"Event Plan List"; The Activity Plan List used in the "Social Workers' Workload Survey" conducted by Mary Baginsky et al. (2010), to determine the workload of the experts is the Activity Plan List of the social workers participating in the research for the last week. It is an information form in which the participants show how much time they spend for which work during their working hours. The main tasks related to the work of social workers in general are detailed and they are asked to be marked by giving a code. In this research, workload is defined as the amount of work that social workers are



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expected to do in a certain time and at a certain quality in order to meet the needs of their clients and to reach the goal of solving their problems in accordance with the characteristics of the institution they work in and the roles, functions and responsibilities expected from them.

### RESULTS

64% of the social workers participating in the research are women and 36% are men, and their average age is 32.85, with a minimum age of 23 and a maximum of 52. 53% are married. The working period of social workers varies between 3 months and 27 years, and they have an average of 9 years of work experience. 94% undergraduate and 6% graduate. Weekly working hours average 41.46 hours. 27% of them do not have an office of their own at their workplaces. 87.7% of them stated that they needed professional help and support during their work and that they mostly received help from their colleagues. 48% of them mentioned that they would like to work in another institution if they had the opportunity. This answer expresses the desire of the participants to work in an institution that they believe they will be happier. However, the rate of experts who stated that they want to work in a different field should not be underestimated (60.5%). Two out of every three people are considering moving from their field of work to another field or another sector. Social Workers both cite the challenges of the social work field and are not happy in their jobs. It is found that the group that social workers work with the most is children under care and protection. While 25% of them complained about excessive workload, the rate of those who complained about policies and practices was 23%. Physical working conditions, internal communication problems were expressed by 32% of the people. 36% stated that they worked outside of working days and hours. On average, social workers spend just over an hour each day interacting directly with their clients. It is noteworthy that social workers, on average, devote more than two hours a day to record keeping and reporting. More than half of the experts (68.8%) stated that they wrote reports between 1 hour and 4 hours a day, while 78.4% of them said that they traveled at least one hour a day for home visits etc. In the evaluation made over one-week shifts of the experts, working directly with their clients fills 31% of their overtime, record keeping and report writing related to these studies fills 29% of their working hours, and the work done with the client within the organization fills 20% of their overtime. When the participants were questioned about their emotional state, 32% stated that they were under stress, 20% stated that they felt anxious and anxious, and 9% stated that they were unhappy at work. 79% of the participants expressed that they felt professionally exhausted.

**Table 1.** Descriptive statistics and Reliability Coefficients of the Burnout Scale

With Sub Dimensions	N	Mean	Std. Deviation	C. Alpha
Personal accomplishment	81	<b>3.7500</b>	.69922	.817
Emotional Exhaustion	81	<b>2.8957</b>	.78535	.895
Depersonalization	81	2.3926	.74461	.835
Burnout (General)	81	2.9883	.46643	.798

When the mean scores of the participants from the burnout scale were evaluated; While personal accomplishment scores ( $3.75 \pm .70$ ) one of the dimensions of burnout, were determined to be “high”, emotional exhaustion ( $2.90 \pm .79$ ) and depersonalization scores ( $2.40 \pm .74$ ) “moderate/low”. The reliability of the scale and subscales is accepted because of greater than .70 (Taber, 2018).

When the independent sample t-test was used to examine whether burnout changed according to gender, it was determined that burnout in the depersonalization subscale differed in terms of gender, and in this dimension, women experienced significantly more burnout than men.

**Table 2.** T-test for Burnout Dimensions by Gender

Burnout	Gender	N	Mean	St. Deviation	<i>p Value</i>
Personal accomplishment	Woman	52	2.7284	.50532	.605
	Man	29	2.7888	.49450	
Emotional Exhaustion	Woman	52	1.9679	.66388	.271
	Man	29	1.7663	.96561	
Depersonalization	Woman	52	1.5500	.70946	<b>.01*</b>
	Man	29	1.1103	.73404	



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\* $p < .05$ , \*\* $p < .001$

When the table 2 is examined, no significant difference was found between the sub-dimensions of personal accomplishment and emotional exhaustion and gender. However, there is a statistically significant difference at the 5% significance level between gender and depersonalization ( $p = .01 < .05$ ). In the depersonalization sub-dimension, burnout is significantly higher in women than in men.

ANOVA test was conducted to measure whether there was a difference in the burnout scores of the participants regarding age. As a result of the analysis, it was determined that there was no significant difference between the scores of the social workers regarding the burnout levels according to their age ( $p = .51$  ( $p > .05$ )). In addition, when the relationship between the working time of the Social Workers in the institution and the perception of burnout was examined, no significant relationship was found ( $p = .13$  ( $p > .05$ )).

**Table 3.** One-Way Analysis of Variance (ANOVA) Results on Burnout of Social Workers by Workload

Source of Variance	Sum of Squares	df	Mean Squares	F	p
Between Groups	17.916	2	8.958	11.893	.000*
Within Groups	100.912	132	.751		
Total	118.828	134			

\*  $p < .05$

According to the Tukey test performed in addition to the ANOVA test; it was determined that there was a significant difference ( $p < .05$ ) in terms of burnout between those with higher workload scores (Mean = 2.57) and those with lower workload scores (Mean = 1.45). In short, there is a significant difference in burnout scores with regard to the level of workload. We can say social workers with a relatively higher workload experience more burnout than those with a lower workload.

### DISCUSSION

Nowadays, individuals living in a very fast and active life with industrialization and modernization; they have become obliged to live with stress in their school life, working life, family life and daily life. Continuous exposure to high-stress situations can lead to burnout. Although burnout is basically expressed as a gradual decrease in emotional energy, the slope of this decrease may differ with regard to individuals, professions, organizations, sectors and even national cultures (Lee and Ashford, 1993). On the other hand, the workload, which is among the organizational factors that cause burnout, can cause not only physical but also psycho-social problems in terms of occupational health and safety. The study findings reveal that workload is a major issue for social workers and more than half (68%) experience restlessness and burnout due to the characteristics of the profession. As a result of the research, social workers' sense of personal accomplishment burnout scores was found to be high, and no significant results were observed in terms of emotional exhaustion and depersonalization burnout. Especially in the depersonalization dimension of exhaustion, there was a significant difference according to gender. Another important finding is that workloads are especially related to the recording and reporting processes, indicating that these issues are an important part of the work processes that need to be improved by social workers. When they experienced problems, social support reduced burnout.

In many international and national studies on the workload, burnout, and job satisfaction of social workers; high levels of stress and emotional exhaustion and low levels of job satisfaction; unhappiness, feeling worthless, and a decrease in life satisfaction was observed (Berkün, 2010; Calitz et al., 2014; Evans et al., 2005; Hablemitoğlu and Özmete, 2012; Keser et al., 2019; Padyab et al., 2013). On the other hand, there is a positive relationship between workload and burnout, especially when burnout due to lack of personal achievement is high, they experience problems, and social support reduces burnout were observed to show higher levels of burnout symptoms when role ambiguity increased (Baginsky et al. 2010, Cicos, 2010; Huang et al., 2021; Işıksan, 2011; Turpin et al., 2020; Yürür and Sarıkaya, 2012,





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2011;). The results of this study support the findings of previous research on the relationship between workload and burnout.

### CONCLUSION

Occupational health and safety studies, conducted all over the world, are systematic and scientific studies carried out to protect employees from all dangers and risks they face. While conducting these studies, psychological evaluations should be made as well as the physical conditions of the individual. As there may be different physical hazards and risks in different work areas, there are potential psycho-social risks for individuals working in different sectors. It is also inevitable for social workers to encounter with psycho-social risks and hazards. Due to the major changes at work life in recent years psycho-social risks faced by employees have changed, and we encounter stress and burnout more often at work life. Past and current research on this subject aim to reduce psycho-social risks, contribute to mental health and well-being. Social workers experience stress and burnout due to their workload and problems in time management, and as a result they experience emotional discharge and inefficiency causes various problems in work environments (Calitz et al., 2014). Stress, exhaustion, heavy workload/tempo, insufficient participation of employees in decisions, poor career development, violence, harassment, mobbing, weak feedback, inadequate evaluation, difficulties in communication processes, inadequacy in job security, social isolation, overworking hours and insufficient corporate culture have been identified as psycho-social factors. In addition to such difficulties, some problems encountered in the social environment of the person negatively affect his work life and working level, and as a result, both the performance of individuals decreases and the institutions they work for may suffer. Creating an organizational climate by considering these problems, giving awards, providing supervision and support, organizing knowledge and skill development programs will provide opportunities for social workers to cope with burnout and to keep their interest and excitement in their work alive.

Eliminating psycho-social risks, taking effective occupational health and safety measures would increase work satisfaction and performance of this occupational group that is responsible of providing support to others. Ensuring the sustainability of occupational health safety and promotion of psycho-social health is also essential for the peace and welfare of the society.

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### INDIVIDUAL SPECIFIC EXCEPTION IN ISTANBUL: TRAVEL ALLOWANCES BY THE OTTOMAN GOVERNMENT TO GREEK CITIZENS WHO NEED HEALTHCARE SERVICES (JULY 1917-AUGUST 1918)

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#### **Abstract**

This study discusses the demands of Greek citizens residing in the Ottoman Empire to access healthcare services and explains the orientation towards the behavior of travel and the mutual relationship between the actors (individual-state) through the concept of public control. Method of the study is case analysis, while source material consists of documents accessed through the Ottoman archive. Chronology is limited to the beginning of Spanish flu epidemic in Istanbul with Greece taking part in the First World War. Analytical fiction answers the questions "What are the recorded health problems? What does the treatment of diseases say about medical development in the Empire? Is there a «foreigner patient» for Ottoman bureaucracy?" Travel allowance, which is defined as "geřt-ü güzar" in archive documents, refers to the partial or total restriction of urban motility at the discretion of policy maker. Its legal framework was prepared in accordance with the conditions of war with Legal Status and Passport Law (March 1915). Soon after, it was forbidden for foreigners to travel without the approval of the Ministry of Internal Affairs within the Ottoman borders. The main motivation of this foreign sensitivity was to take counter-intelligence measures. As a matter of fact, in 1917 when the diplomatic relations with Greece were cut, around fifty thousand Greek citizens whose rights were defended by Spanish Consulate were in the Ottoman geography. The documents currently examined have a rather superficial narrative. The most striking aspect is occupational differences: such as Ottoman bank manager, Bomonti factory employee, Merchant, broker, etc. Health problems or solutions were explained with concepts such as sick leave, surgery and treatment; apart from gender, family ties (daughter, son, mother) and name, physical characteristics and age information of the individuals were not specified, except a few exceptional examples. In addition, contrary to assumptions, demands do not have an instrumental effect on the formation of urban identity or improvement of health services. The results show that Ottoman administration did not discriminate between nationalities in terms of health and although healthcare services were not considered as a birth right, no bureaucratic obstacles were made to travel demands.

**Key Words:** Istanbul, travel allowance, Greek citizen, health services.

#### **Introduction**

#### **PROCEEDINGS BOOK**



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Ottoman internal passport application was called *mürûr tezkeresi* (trip permission)<sup>1</sup> until the Young Turk Revolution, and "*geşt-ü gûzar için seyahat varakası*" (internal passport for travel)<sup>2</sup> after the start of the First World War. Basically, it means exemption from travel restriction or individual exclusion. The legal framework of the application was regulated by "*Instructions on Travel Documents*".<sup>3</sup> Ottoman Government thought that they could prevent espionage activities against the government by stopping the mobility of the population (regardless of nationality) within the borders of the empire and by controlling compulsory trips. This sensitivity of the government lasted until the last months of the war. In fact, in August 1918, the General Directorate of Security was still suggesting the administrators that an air attack to İstanbul could only be organized through spies.<sup>4</sup> For this reason, travel permits were held under the responsibility of the Ministry of Internal Affairs and the documents were prepared by the administrative chiefs of settlements (district governor or governor) after individual application. Every document request is examined by police units; it is used not only for leaving, but for both leaving and coming back and when asked, it is compulsory to show the document.<sup>5</sup> Travel documents include identity information, information on physical characteristics, occupation, reason/route of travel, vehicle to be used and the information of accompanying family members. For example, "*Aleksandros; father's name Efhos, Born in 317, Ottoman citizen; hazel eyes, black hair. Travel from İstanbul to Alpullu by train and alone. Reason for travelling: return to where he came from.*"<sup>6</sup> The format of document is similar to military personnel documents issued by the Military Passport Centre in İstanbul.<sup>7</sup> The only travel document issued differently is the passport-like notebooks which were given to senior officials (such as Inspector Rifat Bey)<sup>8</sup> for a certain period of time under the

<sup>1</sup> Mübahat Kütükoğlu, "Mürur Tezkiresi", *TDVİA*, vol. XXXII, Ankara 2006, pp. 60-61.

<sup>2</sup> *Minutes of the Ottoman Chamber of Notables* (Meclis-i Ayan Zabıt Ceridesi), period 3, assembly year 3, vol. 1/24, (January 12, 1916), p. 317.

<sup>3</sup> Caner Kalkan, "*Internal passport application in the last period of The Ottoman Empire (1914-1921)*", (Mimar Sinan Fine Arts University, thesis), 2021, pp. 23-32.

<sup>4</sup> From the Interior Ministry's General Directorate of Security to the Inspectors of Security, dated 15 August 1918. BOA, *DH.EUM.SSM.*, 2/30, document 1.

<sup>5</sup> *Instructions on Travel Documents*, dated 16 December 1916. BOA, *ML.EEM.*, 1216/4.

<sup>6</sup> Travel document for civilians (from Alpullu to İstanbul), passenger name record: Aleksandros, dated 2 January 1917. BOA, *DH.EUM.SSM.*, 9/48. On this topic, for some examples, see. Travel document for civilians (from İstanbul to Kuleliburgaz), passenger name record: Subhi Bey, dated 2 January 1917. BOA, *DH.EUM.SSM.*, 9/49. ; Travel document for civilians (from İstanbul to Hadımköyü), passenger name record: Salih Efendi, dated 3 January 1917. BOA, *DH.EUM.SSM.*, 9/52. ; Travel document for civilians (from İstanbul to Çatalca), passenger name record: Fehim Ağa, dated 4 January 1917. BOA, *DH.EUM.SSM.*, 9/58.

<sup>7</sup> See. Travel document for military personnel, (document-mentioned person: Soldier Estaliyo), effective date: 22 January 1918, expiry date: 1 February 1918. BOA, *DH.EUM.SSM.*, 16/121. ; Travel document for military personnel, (document-mentioned person: Captain Şükrü Efendi), effective date: 23 January 1918, expiry date: 26 January 1918. BOA, *DH.EUM.SSM.*, 17/4. ; Travel document for military personnel, (document-mentioned person: Soldier Osman), effective date: 24 January 1918, expiry date: 29 January 1918. BOA, *DH.EUM.SSM.*, 17/9. ; Travel document for military personnel, (document-mentioned person: Soldier Hafız Rıza), effective date: 24 January 1918, expiry date: 7 February 1918. BOA, *DH.EUM.SSM.*, 17/10.

<sup>8</sup> Travel document (undated). BOA, *DH.EUM.SSM.*, 56/45.



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name of permanent. Civil servants whose duties have expired have to return their travel documents to the Ministry of Internal Affairs.<sup>9</sup> Archival research shows that civilians (such as Merchant Yusuf Ziya Bey from Lüleburgaz, Member of Adapazarı Car Factory Executive Committee Salim Bey or Merchant Nafiz Bey from Erzurum)<sup>10</sup> who requested could also get permanent travel document. However, it is not known through which criteria merchants obtained exemptions. Especially the expression of "*Rıza Bey and Nafiz Bey, who requested permanent travel document in Ankara, were found to be credible individuals in the investigation conducted by the police*" in the December 17, 1917 dated report sent to the Ministry of Internal Affairs from Ankara province shows that the application should be approached with caution.<sup>11</sup> In addition to credibility's not being measurable, being a credible citizen may also vary according to period and regime. As such, these examples bring to mind the question "*does permanent travel permit mean freedom of travel for credible bourgeois?*".

As can be seen, the subject has a huge archive data base. The diversity of documents has made it almost imperative to have case analysis as study method. Only the documents with a clear emphasis on citizenship were used. The use of the concept of citizenship (instead of subject) in the title and text is a methodological preference. Archival funds used include Sublime Porte Documents Office (*BEO*), Ministry of the Interior (*DH.*) and Ministry of Foreign Affairs (*HR.*). The most serious problem encountered in the study was the lack of İstanbul travel statistics for Greece. No systematic statistics were found in both literature and archive records. However, there is detailed data on travels of allied Bulgarian, German and Austrian-Hungarian citizens to İstanbul or from İstanbul.<sup>12</sup> There is still no original literature on the subject. Among the existing works, Gutman's article "*Travel Documents, Mobility Control, and the Ottoman State in an Age of Migration 1880-1915*"<sup>13</sup> and Ispahani's dissertation "*Building Sovereignty in the Late Ottoman World: Imperial Subjects, Consular Networks and Documentation of Individual Identities*"<sup>14</sup> are remarkable. In terms of urban modernity, "*The City in the Ottoman Empire: Migration and the Making of Urban Modernity*", one of the editors of which was Nora Lafi, has a different significance.<sup>15</sup> The most serious study in Turkish literature belongs to Yılmaz.<sup>16</sup>

<sup>9</sup> From the Interior Ministry's General Directorate of Security to the Ministry of Education, dated 14 May 1917. BOA, *MF.MKT.*, 1226/81.

<sup>10</sup> Travel document (undated). BOA, *DH.EUM.SSM.*, 17/45. ; Delivered Document, dated 21 January 1918. BOA, *DH.EUM.SSM.*, 16/117. ; Travel document (undated). BOA, *DH.EUM.SSM.*, 66/15.

<sup>11</sup> From the Province of Ankara to the Ministry of Interior, dated 12 December 1917. BOA, *DH.EUM.SSM.*, 15/28, document 1.

<sup>12</sup> Travel statistics (January-August 1918), dated 26 September 1918. BOA, *HR.İD.*, 89/67, document 2.

<sup>13</sup> David Gutman, "Travel Documents, Mobility Control, and the Ottoman State in an Age of Migration 1880-1915", *Journal of Ottoman and Turkish Studies Association*, vol. 3/2, 2016, pp. 347-368.

<sup>14</sup> Merve Ispahani, "*Building Sovereignty in the Late Ottoman World: Imperial Subjects, Consular Networks and Documentation of Individual Identities*", (Columbia University, thesis), 2018.

<sup>15</sup> *The City in the Ottoman Empire: Migration and the Making of Urban Modernity*, (ed. Nora Lafi et al.) London: Routledge, 2011.

<sup>16</sup> İlkey Yılmaz, *In Pursuit of Vagrants, Anarchists, and Agitators Security Policies, Passports, Internal Passports, and Hotel Registries in the Hamidian Era*, İstanbul: Tarih Vakfı Yurt Yayınları, 2014.



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The dissertation of Samasti with Tokgöz and Faroqi also has a different construct in the same context – over the concepts of identity and security.<sup>17</sup> Sezer's article "Traveling permission in the Ottoman Empire" is also one of the foremost studies that stand out.<sup>18</sup> The first researcher to narrow the subject of travel permit in literature was Turna with his article "Internal Passports and Women in the Late Ottoman Empire".<sup>19</sup> The study which was cited the most on the legal framework of the subject belongs to Çadircı.<sup>20</sup>

**Photograph 1.** Treatment in Istanbul<sup>21</sup>



### 1. Suspended War!

Greece's decision to enter the First World War was the most difficult and complicated one in Southeast Europe. Strong domestic political elements both supported and opposed intervention. At the same time, fighting alliances exerted considerable influence in the country. Pressures on Greek political

<sup>17</sup> Fatmanur Samastı, "History of identification in the Ottoman lands: From the security of the person to the security of the state: Implementation of Mürur Tezkeresi in the nineteenth century", (Boğaziçi Universtiy, thesis), 2010.

<sup>18</sup> Hamiyet Sezer, "Traveling permission in the Ottoman Empire (18-19th century)", *The Journal of Historical Research*, vol. 21/33, 2003, pp. 105-124.

<sup>19</sup> Nalan Turna, "Internal Passports and Women in the Late Ottoman Empire", *Journal of Ottoman Legacy Studies*, vol. 6/4, March 2019, pp. 155-177.

<sup>20</sup> Musa Çadircı, "Tanzimat Döneminde Çıkarılan Men-i Mürur ve Pasaport Nizamnameleri", *Belgeler*, vol. 15/19, 1993, pp. 169-182.

<sup>21</sup> *Bibliothèque nationale de France*, département Estampes et photographie, EI-13, Rol, 25156, (December 1912).





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establishment delayed Greece's entry in the war until 1917.<sup>22</sup> On June 11, 1917, France began to seize various strategic points in South Greece and gave an ultimatum to Greek government demanding the immediate resignation of Constantine. The King was forced to accept France's demand and abdicate his throne; however, before resigning formally, he declared his second son Alexander as his successor.<sup>23</sup> One of the first acts of the new administration was to break the relations with central empires.<sup>24</sup> The decision was not surprising for the Ottoman Empire. Greece's relationship with the Allies was known. During the war, many Greek spies who did not deny their duty and identity (such as Mişel Peridi Lagazyo,<sup>25</sup> Niko Dimitri Yorgola<sup>26</sup>) were captured. Especially the illegal passports given by Greek officials to Allied officials were one of the important agendas of Ottoman Ministry of External Affairs.<sup>27</sup> Fakiolas is right: "*Constantine who was neither Enremophil nor Ententophobe, continued to identify his standing and the safety of the dynasty with the interests of Greece.*"<sup>28</sup> Just like the institutional memory of Greece continues. I think the most appropriate evaluation on the issue belongs to Venezilos with the expression "*suspended war*": "*With Turkey we were already in a state of suspended war, war for the islands, in the prosecution of which it was in our interest to have such powerful allies; and if we took no part in a war in which Turkey was involved, it meant that if Turkey was victorious one result of her victory would be the complete destruction of Hellenism in Asia Minor, and the loss to Greece of the islands adjacent to the Asiatic coast; while if Turkey was defeated the question of Asia Minor would be settled without any reference to Greek interests.*"<sup>29</sup>

According to the statistics of the Foreigners Branch of General Directorate of Security, there were a total of 86.543 foreigners, 53.764 of whom were Greek citizens, in Ottoman lands in 1917.<sup>30</sup> In other words, five out of every eight foreigners were Greek citizens. Therefore, just before Venizelos's return to Athens as the prime minister, Ottoman empire declared that the travels of Greek citizens would

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<sup>22</sup> Richard F. Hamilton-Holger H. Herwig, *Decisions for War, 1914-1917*, Cambridge University Press, 2004, p. 179.

<sup>23</sup> *The Great Events of the Great war*, vol. V, (edited by Charles Francis Horne and Walter F. Austin), New York: The National Alumni, 1920, p. 236. ; Hervert Adams Gibbons, *Venizelos*, Boston: Houghton Mifflin and Company, 1923, p. 302.

<sup>24</sup> William Miller, *Greece*, New York: Charles Scribner's Sons, 1928, p. 59.

<sup>25</sup> From the Grand Vizierate to the Ministry of Foreign Affairs, dated 11 June 1916. BOA, *BEO*, 4418/331323, document 2.

<sup>26</sup> From the High Command to the Ministry of Foreign Affairs, dated 14 November 1916. BOA, *HR.SYS.*, 2169/18, document 1.

<sup>27</sup> Intelligence report from Bucharest, dated 12 April 1916. BOA, *HR.SFR.04..*, 651/69. ; From the Ministry of Interior to the Ministry of Foreign Affairs, dated 1 January 1917. BOA, *HR.SYS.*, 2390/38, document 1.

<sup>28</sup> Efstathios T. Fakiolas, *How a Small State Expands*, New York: Nova Science Publishers, 2012, p. 159.

<sup>29</sup> Michael Llewellyn Smith, "Venizelos' Diplomacy, 1910-23: From Balkan Alliance to Greek-Turkish Settlement", *Eleftherios Venizelos: The Trials of Statesmanship*, (edited by Paschalis M. Kitromilides), Edinburgh University Press, 2006, p. 153.

<sup>30</sup> Salim Gökçen-Abdülkadir Gül, "Kapitülasyonlar Kaldırıldıktan Sonra Osmanlı Devleti'ndeki Ecanibin Durumu (R.1333/M. 1917 Senesi Ecanib İstatistikleri)", *Tarihin Peşinde*, iss. 3, 2010, p. 164.



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be evaluated within the category of "enemy country"<sup>31</sup> and reported the changing Greece relations to public administrators in a short telegram on July 2, 1917.<sup>32</sup> On July 7, 1917, the Ministry of Internal Affairs requested information from provinces and governorships about male Greek citizens in administrative units<sup>33</sup> and the next day, the travels of Greek citizens in provinces were restricted.<sup>34</sup> In some telegrams sent in response to the Ministry, it was recorded that there were no Greek citizens in Diyarbakır, Mamuretülaziz and Mosul;<sup>35</sup> there was only one Greek municipality engineer in Zor; there were 7 men in Fethiye, 20 men in Karahisar, 109 men in Bolu and 11.135 men in Edirne.<sup>36</sup> After the restrictions, it was found that some Greeks in Adana and Bolu applied to the government with the desire to change to Ottoman nationality.<sup>37</sup> These applications were not specific to Greek citizens. Before Greece's first month in the war was over, travels of Ottoman citizens to Sweden, Norway, Denmark, Netherlands and Switzerland were stopped as a counter-intelligence measure.<sup>38</sup> In the case of İstanbul, Greek citizens –like the citizens of other hostile countries- were banned from going out after 9 p.m.<sup>39</sup> Ottoman Empire was not the only example of this restriction. Bulgarian government had implemented the same measure in Varna in July 1917.<sup>40</sup> This decision of Bulgaria appears for the second time in a

<sup>31</sup> From security inspector in Eskişehir to the Provincial District of Karesi (Balıkesir), dated 23 June 1917. BOA, *DH.EUM.SSM.*, 11/52, document 2.

<sup>32</sup> Coded telegram from the Interior Ministry's General Directorate of Security to the Provinces of Edirne, Erzurum, Adana, Ankara, Aydın, Bitlis, Baghdad, Beirut, Aleppo, Hüdâvendigâr (Bursa) Syria, Sivas, Trabzon, Kastamonu, Konya, Mamuretülaziz, Mosul, Yemen, and to the Provincial Districts of Urfa, İzmit, Bolu, Canik, Çatalca, (Der) Zor, Karesi (Balıkesir), Jerusalem, Kale-i Sultaniye (Çanakkale), Menteşe, Teke, Kayseri, Karahisâr-ı Sahib (Afyon Karahisar), Eskişehir, İçel, Kütahya, Maraş, Niğde, dated 2 July 1917. BOA, *DH.ŞFR.*, 78/7.

<sup>33</sup> Coded telegram from the Interior Ministry's General Directorate of Security to the Provinces of Edirne, Adana, Ankara, Aleppo, Hüdâvendigâr (Bursa) Syria, Sivas, Kastamonu, Konya, Mamuretülaziz, Mosul, and to the Provincial Districts of Urfa, Bolu, Canik, (Der) Zor, Karesi (Balıkesir), Kale-i Sultaniye (Çanakkale), Menteşe, Teke, Kayseri, Karahisâr-ı Sahib (Afyon Karahisar), Eskişehir, İçel, Kütahya, Maraş, Niğde, dated 7 July 1917. BOA, *DH.ŞFR.*, 78/52.

<sup>34</sup> Coded telegram (Province of Aleppo), dated 8 July 1917. BOA, *TŞR.HL.*, 6/76.

<sup>35</sup> Coded telegram from the Province of Diyarbakır to the Ministry of Interior, dated 10 July 1917. BOA, *DH.ŞFR.*, 561/1. ; Coded telegram from the Province of Mamuretülaziz to the Ministry of Interior, dated 5 August 1917. BOA, *DH.ŞFR.*, 561/83. ; Coded telegram from the Province of Mosul to the Ministry of Interior, dated 6 August 1917. BOA, *DH.ŞFR.*, 561/93.

<sup>36</sup> Coded telegram from the Provincial District of Zor to the Ministry of Interior, dated 10 July 1917. BOA, *DH.ŞFR.*, 559/11. ; Coded telegram from the Provincial District of Muğla to the Ministry of Interior, dated 12 July 1917. BOA, *DH.ŞFR.*, 559/37. ; Coded telegram from the Provincial District of Karahisar to the Ministry of Interior, dated 19 October 1917. BOA, *DH.ŞFR.*, 566/27. ; Coded telegram from the Provincial District of Bolu to the Ministry of Interior, dated 19 October 1917. BOA, *DH.ŞFR.*, 566/39. ; Coded telegram from the Province of Edirne to the Ministry of Interior, dated 17 October 1917. BOA, *DH.ŞFR.*, 565/114.

<sup>37</sup> Coded telegram from the Province of Adana to the Ministry of Interior, dated 4 August 1917. BOA, *DH.ŞFR.*, 561/55. ; Coded telegram from the Provincial District of Bolu to the Ministry of Interior, dated 15 July 1917. BOA, *DH.ŞFR.*, 560/46.

<sup>38</sup> From the High Command to the Ministry of Education, dated 22 July 1917. BOA, *MF.MKT.*, 1228/14, document 1.

<sup>39</sup> From the Director General of the Police to the Ministry of Interior, dated 17 September 1917. BOA, *DH.EUM.3.Şb.*, 29/51.

<sup>40</sup> Report from Atif Bey to Nesimi Bey, dated 13 July 1917. BOA, *HR.SYS.*, 2437/54, document 3.



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document sent from the Ministry of Foreign Affairs to the Ministry of Internal Affairs on August 4, 1917 – on the same date as the impassioned speech of the new Greek king Alexander to the Greek parliament.<sup>41</sup> The new king, Alexander: "*Indeed, it would have been sufficient for little Greece to remember her traditions, her history, and her duty in order not to hesitate spontaneously to offer her feeble forces to that group in the conflict whose war aim was to defend the rights of nationalities and the liberty of peoples. But more imperious obligations called Greece into the same camp, and she has therefore now adopted an attitude which duty and honour imposed upon her toward the brave and chivalrous ally - the defence of the rights of Hellenism and the debt of gratitude contracted for her original liberation and for the protection which she has always enjoyed.*"<sup>42</sup>

### 2. His family says his health is ruined!<sup>43</sup>

Doctor reports come to the fore as a control mechanism in travel applications of Greek citizens. In fact, the prevention of population mobility is not a foreign issue to Ottoman administration. A significant part of the people living within the borders of the Ottoman Empire (agricultural-urban workers and large numbers of nomadic) was constantly on the move in very period of the empire.<sup>44</sup> When the examples are examined, it can be seen that travel permission was given by the Ottoman Empire to a resident of Edirne Filipos Eskilici who wanted to have his mother Mariya's eye disease treated,<sup>45</sup> to the sick son of (documented as insane) pharmacist Haralambos living in İzmit,<sup>46</sup> to Edirne resident Yorgi,<sup>47</sup> to Patrikos who could not have the disease in his eyes treated because there were no specialists in İzmit.<sup>48</sup> Those who were in exile were directly treated by the doctors of the state. Nikola Dimitrokapolo, who was transferred to Maraş when he was the manager of Beirut branch of Austrian Orient Trade Company (*Doyçe Oryantalist Müessesesi*) and who requested to be transferred to İstanbul

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<sup>41</sup> From the Ministry of Foreign Affairs to the Ministry of Interior, dated 4 August 1917. BOA, *DH.EUM.5.Şb*, 41/9.

<sup>42</sup> King Alexander's Coronation Address to Greek Parliament, dated 4 August 1917. *The Great Events of the Great war*, vol. V, pp. 240-242.

<sup>43</sup> From the Spanish Embassy in İstanbul to the Ministry of Foreign Affairs, dated 11 January 1918. (Légacion de España en Turquía, no. 4). BOA, *HR.SYS.*, 2152/27, document 1.

<sup>44</sup> Reşat Kasaba, *A Moveable Empire: Ottoman Nomads, Migrants, and Refugees*, Seattle: University of Washington Press, 2009, pp. 3-4.

<sup>45</sup> From the Province of Edirne to the Ministry of Interior, dated 29 April 1918. BOA, *DH.EUM.5.Şb*, 59/2. ; From the Interior Ministry's General Security Directorate to the Province of Edirne, dated 12 May 1918. BOA, *DH.EUM.5.Şb*, 60/1, document 1.

<sup>46</sup> Correspondence about Bandırma (Fifth Department of General Security of the Interior Ministry), dated 19 June 1918. BOA, *DH.EUM.SSM.*, 25/50, document 3.

<sup>47</sup> From the Ministry of Interior to the Istanbul Police Department, dated 10 May 1918. BOA, *DH.EUM.5.Şb*, 82/11.

<sup>48</sup> Petition from Patrikos to the Ministry of Interior, dated 22 June 1918. BOA, *DH.EUM.5.Şb*, 64/1, document 2.



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declaring that the weather in Maraş was not good for his health was treated by military doctor.<sup>49</sup> In addition, if the health service requested in the application was available in a closer city, travel permission to İstanbul was not given. The transfer of tobacco broker Aristidi Yorgiyadis in Samsun who wanted permission to travel to İstanbul was deemed appropriate to Sivas instead of İstanbul.<sup>50</sup>

**Table 1.** Some travel requests approved by the Ottoman Empire

Name	Location (→)		Descriptive Information
Yanko Niyakagidi	Müfrete	İstanbul	(and wife) Change of air. (Address: Beyoğlu, Aynalı Çeşme apartment number 10 ) <sup>51</sup>
Dimitri Triyandafilis	Vienna	İstanbul	Eye treatment. (Duration of stay: 5-6 months, Address: Beyoğlu, Parmak Kapı) <sup>52</sup>
Madam Efroy	İstanbul	Bursa	Therapeutic spa visit. Recommended by a doctor with report. (Address: Beyoğlu, Abanoz, 29) <sup>53</sup>
Şihab Sermed	İstanbul	Vienna	The son of Zübeyde Hanım from Thessaloniki. (Address: Şişli, Doktor Tahsin Bey Apartment) *Zübeyde Hanım's daughter Zarife also accompanied. <sup>54</sup>
Mariya	İstanbul	Bursa	Yorgi's wife. (son of Lalakosti) Therapeutic spa visit. (Address: Aynalı Çeşme) <sup>55</sup>

Institutionally, travel requests or business follow-ups of Greek citizens were carried out through Spain. After the cessations of diplomatic relations between the Ottoman and Greek governments (July 1917), the Spanish embassy in İstanbul undertook the interests of Greek citizens in İstanbul.<sup>56</sup> However,

<sup>49</sup> Petition from Nikola to the Ministry of Interior, dated 10 January 1918. BOA, *DH.EUM.5.Şb*, 54/46, document 4. ; From the Provincial Districts of Maraş to the Ministry of Interior, dated 26 February 1918. BOA, *DH.EUM.5.Şb*, 54/46, document 2.

<sup>50</sup> From the Interior Ministry's General Security Directorate to the High Command, dated 7 March 1918. BOA, *DH.EUM.3.Şb*, 26/1, document 4.

<sup>51</sup> From the Ministry of Interior to the Directorate of Police, dated 21 January 1918. BOA, *DH.EUM.5.Şb*, 56/29, document 5.

<sup>52</sup> From the Interior Ministry's General Security Directorate to the Uzunköprü Border and Security Department, dated 5 February 1918. BOA, *DH.EUM.SSM*, 17/44, document 1.

<sup>53</sup> Petition from Efray to the Ministry of Interior, dated 22 May 1918. BOA, *DH.EUM.5.Şb*, 60/39, document 2.

<sup>54</sup> From the Ministry of Foreign Affairs to the Ottoman Consulate in Vienna, dated 7 May 1918. BOA, *HR.SYS.*, 2138/5, document 2. ; From the Ministry of Foreign Affairs to the Ottoman Consulate in Vienna, dated 18 June 1918. BOA, *HR.SYS.*, 2138/27, document 2.

<sup>55</sup> Petition from Yorgi to the Ministry of Interior, dated 20 June 1918. BOA, *DH.EUM.5.Şb*, 64/25, document 3.

<sup>56</sup> From the Ministry of Foreign Affairs to the Ministry of Interior, dated 14 August 1917. BOA, *DH.EUM.5.Şb*, 52/33, document 24.



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it is not possible to consider this Spanish representation as ineffective. As a matter of fact, in September 1917, 27 officers were working in the Greek Service of the Embassy, including consuls such as Macheras, Armiriotis, Papapavlov and Adomidis<sup>57</sup> and the requests of the embassy were sent directly to the Ottoman Ministry of Foreign Affairs. One of these requests is a request for travel permission for medical care that can be provided only in İstanbul by Yani, the fourteen-year-old sick son of Madam Magdalini E. Grigoraki living in Samsun: "*Since this authority cannot be given without an order from the Ministry of Internal Affairs, the Royal Embassy requests the Ministry of Foreign Affairs to act as an intermediary.*"<sup>58</sup> Although the Ministry of Internal Affairs allowed the patients and their relatives to travel to Istanbul, the family decided not to go to İstanbul due to Yani's death.<sup>59</sup> Another issue monitored closely by the Embassy was the health status of exiled Greek citizens. For example, the Embassy conveyed the concerns and sorrow of the family members of Nicolas Xanthi who was in exile for five months in Bozkır to Ottoman administration and requested his transfer to İstanbul for treatment.<sup>60</sup> The same request can be seen in the note written as "*he absolutely needs special treatment... his return (to Bursa) is a favour Royal Embassy has been expecting*"<sup>61</sup> about the treatment of Lawyer Jean Coidan who was exiled to a faraway village of Bursa and if possible for the improvement of his exile conditions: "*Greek lawyer Jean Coidan was exiled to Bursa a month ago, after staying here for a few days and with the order of the authorities of this second city, he was transferred to Adranis...The Embassy of his Majesty the King of Spain for protecting Greek interests is expecting the necessary steps to be taken from the Ottoman Empire Ministry of Foreign Affairs regarding the permission to be given for Bay Coidan to return to Bursa.*"<sup>62</sup>

### Conclusion

1. In Ottoman Empire, the practice of internal passport was started to control the population mobility and to prevent espionage activities. The difference in the practice provided to senior civil servants was kept under control by the obligation to return and it was prevented for notebooks to be recirculated.

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<sup>57</sup> Fonctionnaires Hellènes au service de la Legation Royale d'Espagne, dated 5 September 1917. BOA, *HR.SYS.*, 2972/18, document 8.

<sup>58</sup> From the Spanish Embassy in Istanbul to the Ministry of Foreign Affairs, dated 1 April 1918. (Légacion de España en Turquía, no. 154). BOA, *HR.SYS.*, 2137/7, document 1.

<sup>59</sup> From the Provincial District Canik to the Ministry of Interior, dated 10 June 1918. BOA, *DH.EUM.5.Şb*, 62/13, document 1.

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<sup>61</sup> From the Ministry of Foreign Affairs to the Ministry of Interior, dated 15 June 1918. BOA, *HR.SYS.*, 2154/9, document 2.

<sup>62</sup> From the Spanish Embassy in Istanbul to the Ministry of Foreign Affairs, dated 1 June 1918. (Légacion de España en Turquía, no. 231). BOA, *HR.SYS.*, 2154/9, document 1.



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2. Issuing permanent travel document by taking the initiative raises questions from various perspectives. "Being a good citizen" and "being honoured with the initiative of officers providing travel document" can be given as two examples from micro and macro perspective.

3. According to the data obtained from archive scanning, some of the approved causes for travel are as follows: change of air, eye treatment, therapeutic spa visits. The only controversial example is the sick son of pharmacist Haralambos residing in İzmit. The current equivalent of the definition (physiological/psychological) is not known.

4. The results show that the Ottoman government and Greek citizens do not have a relationship that can be explained only with systematic violence. However, the data are not enough alone to form a counter-thesis.

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### APPENDICES

#### APPENDICE-1: Health report example<sup>63</sup>



<sup>63</sup> BOA, DH.EUM.5.Şb, 60/39, dated 23 May 1918, document 3.



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### KIBRIS'TA ENFİYE SNUFF IN CYPRUS

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#### **Özet**

Tütünün ilk olarak Kristof Kolomb tarafından Amerikan yerlilerinden öğrenilerek Avrupa'ya getirildiği, oradan da Osmanlı coğrafyasına geçtiği kabul edilmektedir. Osmanlı coğrafyasında ilk kullanım izlerini on altıncı yüzyılda gözlemlemekteyiz.

17. yy. başından itibaren kahveden sonra en çok tüketilen madde olarak tütünün kısa sürede Osmanlı ülkesinde üretimi, ticareti ve tüketimi yayılmaya başlamıştır. Bu nedenle 1609 yılında devlet tarafından yasaklanacak, fakat konulan yasağa IV. Murad dönemi hariç pek fazla uyulmamış ve üretimi, ticareti, tüketimi yayılarak devam etmiştir. Şeyhülislam Bahâi Efendi'nin 1649'da tütünün mubah olduğuna dair fetva vermesi ardından, devlet tütün yasağını resmen kaldırmasa da kontrolü giderek kayboldu.

Çalışmamızda Kıbrıs özelinde enfiye ve tütün konusunda belgelere yansımış belgeleri inceleyerek ifade etmeye çalışacağız.

**Anahtar Kelimeler:** Osmanlı Devleti, Kıbrıs, Enfiye

#### **Abstract**

It is widely assumed that Christopher Columbus learnt about tobacco from Native Americans and took it to Europe before transferring it to Ottoman territory. In the sixteenth century, we may see the earliest signs of usage in Ottoman geography.

The seventeenth century Tobacco production, sale, and consumption, which was the most popular item after coffee, began to grow quickly throughout the Ottoman country from the start. As a result, it will be outlawed by the state in 1609, but IV. With the exception of the Murad era, it will continue to be produced, traded, and consumed. Although the state did not formally relax the tobacco ban when Sheikh al-Islam Bahai Efendi issued a fatwa indicating that tobacco was permitted in 1649, the state's control steadily faded.

We shall try to express ourselves in our research by looking at papers related to snuff and tobacco in Cyprus.

**Keywords:** Ottoman Empire, Cyprus, Snuff

#### **Giriş**

Anavatanı Güney Amerika'daki geçmişi oldukça eski olan, yerliler tarafından başta dış çürüklerinde ağrı kesici olmak üzere tedavi aracı ve keyif verici olarak kabul edilen tütün, daha çok dinî ayinlerde halüsinasyon aracı olarak kullanılmıştır. Amerika'nın keşfinden sonra 16. yüzyıl başlarında Avrupa'ya getirilen tütün, bu yüzyılın sonlarından itibaren Avrupa'nın tamamıyla beraber Uzakdoğu, Hindistan, Sibiryaya ve Afrika'ya kadar yayılmış, 17. ve 18. yüzyıllarda üretimi ve tüketimi gittikçe artan, ticareti bizzat devlet eliyle yapılan bir ürün haline dönüşmüştür. İlk zamanlar üst sınıfin kullandığı bir madde olan tütün, ilerleyen süreçte yetişkin, kadın, çocuk hatta hamileler tarafından da içilen bir ürün olarak yaygınlık kazanmıştır. Tütün içenlerin kullandığı lüle, pipo ve enfiye kutusu gibi araçlar üzerinden de tütün içme sosyal statü sembolü olarak görülmeye başlanmıştır. (Yılmaz, 2005:2)





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Tütünün ilk olarak Kristof Kolomb tarafından Amerikan yerlilerinden öğrenilerek Avrupa'ya getirildiği, oradan da Osmanlı coğrafyasına geçtiği kabul edilmektedir. Osmanlı coğrafyasında ilk kullanım izlerini on altıncı yüzyılda gözlemlemekteyiz. Osmanlı Devleti'ne ilk geldiği yıllarda önce tabaka sonraki dönemlerde resmi dilde duhân, halk arasında tütün diye adlandırılmıştır. Evliya Çelebi'nin Seyahatnâmesinde ise hem Arapça kökenli olan duhân hem de Türkçe kökenli tütün kelimelerinin kullanıldığı görülmektedir. (Yıldırım, 2020, 1026.)

Osmanlı topraklarına getiriliş tarihini Hezârfen Hüseyin Efendi 1598, Peçuyulu İbrâhim 1600, Kâtib Çelebi 1601, Naîmâ 1606 olarak kaydeder. Mısırlı âlim İbrâhim el-Lekanî ise tütünün XVII. yüzyılın sonlarında ortaya çıktığını ve Anadolu'ya "Cil" adlı bir İngiliz tarafından getirildiğini belirtir. Halbuki söz konusu tarihler tütünün ilk ithal tarihi değil özellikle İstanbul'a yoğun biçimde getirilmeye başlandığı yılları gösterir. İlk getiriliş tarihi ise en geç 1570'ler olmalıdır. (Yılmaz, 2012)

Osmanlı tarihinde tütün yasaklarının en önemlisi ve dikkat çekeni IV. Murat'ın uygulamalarıdır. Padişah'ın bizzat tebdili kıyafetle denetimler yaptığına dair pek çok hikâyenin anlatıldığı bu yasaklama döneminde çok sayıda kişinin katledildiği bilinmektedir. Tütün, daha çok bir müskirat olmak yönüyle yasaklanmış gibi algılsa da kaynaklarda bazı büyük yangınların bunun ateşinden meydana geldiği belirtilmektedir. Dolayısıyla da tütünün yasaklanma sebebi olarak bu konuda ifade edilmektedir. Fakat belki de en önemlisi, tütün içen insanların kahvehane gibi belli mekanlarda toplaşmaları ve sarayla ilgili dedikodu yapmalarının buna neden olduğudur. Yoksa ciddi anlamda vergi geliri olan tütünün yasaklanması söz konusu olamazdı. İnalçık, *IV. Murad döneminde, 26 Ağustos 1633'teki büyük İstanbul yangını akabinde, 16 Eylül'de tüm kahvehanelerin yıkılmasına ferman çıktı. Üç gün sonra da tütün (duhân-i bed-huy) yasağı ilan edildi. Siyasi dedikoduların odağı sayılan bu yerlerin yangına neden olduğu, ileri sürülen nedenlerden biridir.* (İnalçık, 2010: 298) diyerek bu gerçeğe vurgu yapmaktadır.

Asırlardır süregelen ve üzerinde gerek sözlü gerek yazılı alanda önemli bir külliyat oluşan ve keyif ehli insanların önemli bir içeceği olan kahve,<sup>63</sup> kahvehanelerin ortaya çıkmasında belirleyici olmuştur. Siyaset, sanat, edebiyat, din, oyun ve eğlence gibi birçok konunun konuşulduğu, tartışıldığı ve oynandığı kahvehaneler, toplumun farklı kesimlerinin buluşma noktasıydı. Sosyal tabakaların farklı kesimlerinin bir araya geldiği bu yerler, farklı zaman dilimlerinde farklı özelliklere sahip olmasından dolayı önemli bir kurum olmuştur. Toplumun özelliklerini yansıtmaya ve toplumsal değişimin temel dinamikleri hakkında fikir vermesi açısından da kahvehaneler önem arz etmektedir. (Yolal, 2021:111)

17. yüzyılın başında Osmanlı topraklarına bazı hastalıklara şifa olduğu vurgusuyla İngilizler tarafından sokulduğunu belirten İbrahim el-Lekkânî (ö. 1631), tütünün İslam dünyasına giriş serüveni ile ilgili şöyle söyler: "*Anadolu'ya el-Cil adlı bir İngiliz tarafından; Magrib'e, tütünün faydaları hakkında nesir ve şiirleri olan ve hekim zannedilen bir Yahudi tarafından; Sudan'a bir Mecusî; Mısır'a ise, Ahmed b. Abdullah el-Hâricî adlı kan dökmesiyle meşhur bir Mağrib'li tarafından getirilmiş, buradan da Hicaz, Yemen ve Hind'e yayılmıştır.*" (Saylan, 2020:29) Osmanlı'da tütüne dair ilk yasak Sultan I. Ahmed döneminde 1609 yılındaki bir fermanla yürürlüğe konmuştur. Tütünün ekiminin, ticaretinin ve tüketilmesinin yasaklandığı bu fermanla yasağa uymayanların da şiddetle cezalandırılacağı belirtilmiştir. (Kalaycı, 2017:11) Şeyhülislam Bahâî Efendi'nin 1649'da tütünün mubah olduğuna dair fetva vermesi ardından, devletin tütün yasağını resmen kaldırmasa da kontrolü giderek kayboldu.

Kendisi de tütün içen ve bu sebeple 1633 yılında Halep Kadılığından azledilen Bahai Efendi'nin 1649 yılında şeyhülislâm olması ve onun tütünün mübah olduğuna dair fetva vermesi ile tütün yasağı fiilen göz ardı edilmeye başlanmıştır. (İpşirli, 2017:3) Meselenin artık ticarî boyutunun öne çıkması, Osmanlı yöneticilerinin meseleye bakışını değiştirmiş ve II. Süleyman döneminde tütün ekiminin devlet gözetiminde ve denetiminde gerçekleştirilmesi amacıyla bir ferman yayımlanmıştır.<sup>53</sup> Bu sayede tütünün hem tarımından hem de ticaretinden yüksek miktarda yıllık vergi elde edilmiştir.<sup>54</sup> Ancak tütün etrafındaki tartışmalar yasağın fiilen kaldırılması ile sona ermemiş; sonraki asırlarda da hatta günümüzde bile bir tartışması konusu olarak varlığını sürdürmüştür. (Kalaycı, 12)

Tütünün helal ya da haram olduğuna dair pek çok eserde tartışma bulunmakla beraber, haram olduğunu iddia edenler tütünün pis, selim tabiatlı kişilerin tiksindiği bir nesne olduğunu iddia etmiş, israf ve bidat gerekçelerini de ekleyerek insan ruhunu ve cesedini tiksindirici bir maddeyle zihni ve bedenini kirlettiğine kanaat getirmiştir. Bu bakış açısına göre tütün kullanmakta misvak vb. yöntemlerle ağız ve dişleri temiz tutmayı amaçlayan sünnete açıkça bir muhalefet söz konusudur. Mubahlığını savunanlar



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ise haram veya mekruh olduğunu söyleyenlerin iddialarını çürütmenin yanında; tütünün faydalı ve bazı hastalıkları tedavi edici olduğu, eşyada asıl olanın mubahlık olduğu, “*Ümmetim hata üzerinde birleşmez*” hadisinden hareketle toplumda çok fazla yaygınlık kazanmasını tütünün mubahlığında sükutî bir icma bulunduğu kanaatine ulaşmışlardır. (Teber, 2021: 456)

Tütünün, II. Mahmut döneminde özellikle askeri alanlarda yapılan reformlar ile savaş giderlerini karşılamada önemli bir ek kaynak olarak görüldüğü ve görüleceği daha belirgin hale gelerek, ilk defa bu dönemde telaffuz edilmeye başlanan “*tütünün zorunlu ihtiyaçlardan olmayıp keyif verici bir madde olduğu, fiyatı her ne olursa olsun, tüketicinin bu maddeyi kullanmaya devam edeceği, bu nedenle vergileri arttırmanın tütün çiftçisini ve tüccarını pek fazla etkilemeyeceği*” düşüncesi, bundan sonraki dönemlerde hazine için gerekli olan ihtiyaç her neden kaynaklanırsa kaynaklansın, tütüne yapılacak vergi zamlarında devletin en önemli mali dayanaklarından birisi olacağını gösterdi.

Tütün tüketim şekli Avrupa’da bölgelere, zamana ve sosyal gruplara göre değişiklikler göstermiştir. Güney Avrupalılar dumsuz tütünü, yani enfiyeyi tercih ediyordu. 17. yy.’da Portekiz ve İspanya’da olduğu gibi, İtalya’da da enfiye çekmek yaygındı. Fransızlar da bu gruba dahildi. Şöyle ki, 1785’te, Fransa’da tütün satışlarının %85’ini enfiye oluşturdu. Bu durum, 19. yy.’ın ikinci yarısında sigaranın yaygınlaşmasına kadar devam etti. Avrupa’nın Akdeniz Bölgesi öğütülüp toz haline getirilen tütünü tercih ederken, Batı ve Orta Avrupalılar enfiye geleneğine yabancı olmamakla birlikte, içilen tütünü yeğliyorlardı. Avusturya’da 18. yy.’ın sonlarına doğru tütün yapraklarının 14’i enfiye olarak işleniyordu. Tütün tüketiminde sosyal bir seçicilik mekanizması, yerleşmiş gibi görünmektedir. Özellikle saray halkı pipo kullanmak yerine, enfiye çekerek toplum içindeki tüketim alışkanlıklarından kendilerini ayırmaya çalışıyorlardı. Asiller, toplumsal sınırlar çizmek gayretiyle pipo içmeyi halka özgü bir adet olarak görüp küçümsüyordu. Kuzey Avrupa ülkelerinde ise, tütün çiğnenerek tüketilmekteydi. Bu tür tüketim, genel olarak denizciler, askerler ve çiftçiler, yani ellerini kullanan, ağır işlerle uğraşan insanlar arasında yaygındı. Genel olarak Avrupa’da, toplumun bütün sosyal grupları içerisinde tüketim şekli nasıl olursa olsun, erkekler kadar kadınların ve hatta çocukların da tütün tükettiği görülmektedir. (Yılmaz, 2005: 14)

Tütün, Osmanlı toplumunda lüle veya nargile yardımıyla yakıp içilerek, toz halinde (enfiye) burundan çekilerek ya da ağızda çiğnenerek tüketilmekte idi. Bunlardan en yaygın bir ucunda tütünün yerleştirilmesi için küçük haznesi olan, diğer ucunda ise yakıldıktan sonra dumanı çekmek için bir deliği bulunan çamurdan yapılmış lüle olarak adlandırılan basit bir aletle olanıydı. Bu nedenle zamanla tütün tüketiminin yayılımına paralel bütün imparatorluk çapında özellikle İstanbul başta olmak üzere büyük şehir ve kazalarda tütüncülüğe bağlı yan sektör olarak lüle imal eden yeni bir esnaf grubu ortaya çıktı. (Yılmaz, 2005, 120.)

### Kıbrıs’ta Enfiye Kullanımı

Kıbrıs Şeriyye sicillerinde duhân ya da enfiye kullanımına dair belgeler mevcut olup bilhassa Kıbrıs’a ticaret amacıyla başka yerlerden gelmiş fakat burada vefat etmiş kişilerin terekelerinde görmek mümkündür.

Bu konuda sicillerde bahsi geçen bahsedeceğimiz ilk belge 1610 yılına aittir. Belgede; Hüseyin bin Hasan’ın kırk beş okka tütün yaprağı karşılığında bir merkep verdiği Mustafa adlı şahsın adı geçen tütünü zamanında getirmemesi sebebiyle kendisine kefil olan Halil bin İsmail’den tütün yaprağını talep ettiği görülmektedir. (KŞS, 3/1005, 11 Rebiülâhir 1019- 3 Temmuz 1610)

24 Eylül 1634 tarihli belge ülkede tütün yasağına ilişkin olup, bütün memlekette olduğu gibi Karaman eyaletinde de tütün ekip biçmek, alıp satmak yasaklandığından ekip biçenlerin ve alıp satanların cezalandırılacağına herkese ilan edilmesi, bu emri uygulamakta gevşeklik gösteren veya kusuru olan görevlilerin de cezalandırılacakları ifade edilmektedir. (KŞS, 4/257, 1 Rebiülâhir 1044)

Kahvelerde tüketiminin bile yasaklandığı gerçeği yanında özellikle kadınların dışarıda tüketiminin mümkün olmadığı gerçeğine uygun olarak evlerde tüketiminin şikâyet konusu olduğu görülmektedir. Lefkoşa Subaşı Ali Bey ile Asesbaşı Mehmed bin Osman’ın şikâyeti üzerine, Tribyodi mahallesinden Hasan bin Salih’in evinde yabancı kimselerle hanımı Fatıma olduğu halde içki ve sigara içtiklerinin gönderilen heyet tarafından tespit edildiği kayda geçirilmiştir. (KŞS, 4/257, 1 Muharrem 1045- 17 Haziran 1635)



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Devletin para ihtiyacı, artan vergiler ve yeni ihdas edilen vergilerle elbette duhân kullanımını konusunda gevşeme ile devletin bunu kontrol atma teşebbüslerini görmekteyiz. 1699 yılına gelindiğinde Kıbrıs Duhân Gümrüğü ve Duhân Dönümü'nün Duhân Gümrüğü Emimi olan Hasan tarafından tayin edilen görevliye tahsil ettirilip görevine kimsenin müdahale etmemesi istenmiştir. (KŞS, 6/458, 7 Zilhicce 1110- 6 Haziran 1699) 1699 yılı için, Kıbrıs'taki hasıl olan duhânların keşf ve muayene edilerek kalitesinin düşük olduğu tespit edildiği için her vukiyyesinden otuz akçe tahsil edilmesi uygun görülmüştür. (KŞS, 6/459, 5 Safer 1111- 2 Ağustos 1699)

İlginç bir belgede 1721 tarihli olup, Aslen Antakyalı olan Cerrah Ebubekir Beşe bin Murad'ın, aslen Antalyalı olup Lefkoşa'da misafir olarak bulunan Hasan Beşe bin Ahmed isimli şahıs aleyhinde, Adana'da kendisine Süleyman bin Abdullah isimli şahsı sanki kendi kölesiymiş gibi sattığı oysa adı geçen şahsın Çerkes Mehmed Bey'in azatlısı olduğunu mahkemede ispat ederek hakim kararıyla serbest kaldığı, bu sebeple bu şahsı köle diye satın almak için Hasan Beşe'ye verdiği malın veya bedelinin kendisine iadesi iddia ve talebiyle açtığı davada bu alış verişte yüz gurusluk duhân verdiği görülmektedir. (KŞS, 10/425, 5 Cemâziyelâhir 1133-3 Nisan 1721).

Zaman içerisinde zaman zaman kısıtlama ve yasaklamalar olsa dahi Tütünden elde edilen gelirin devlet için önemli bir yekûn haline gelmesinde paralel uygulamada yumuşatıldığı, Kıbrıs gibi ahalisinde gayri müslimin çok olduğu bölgelerde bu konuda daha çok serbestlik tanındığını ifade etmek çokta yanlış bir çıkarım olmayacaktır. Zaten bu minvalde 1791 senesine ilişkilendirebileceğimiz emirde, İslam beldelerinde içki satışının yasaklanması nedeniyle vilayetler dahilinde reayanın ürettiği içkilerden senede bir defa rüsûm-ı zecriye tahsil edileceğine dair emir çıkarılmıştır. (KŞS, 21/504-505, 1206-1791).<sup>1</sup> Kıbrısta Tütün ziraati yapılmakta olup buna dair vergi ihdasına ilişkin belgeler bulunmaktadır. Örneğin, 1725 tarihli belgede Baf ve Girne sancakları ile Lekvanik ekradı perakendeleri ile Kıbrıs'ta ziraat edilen boya, pamuk, ipek ve tütün mukataası ile çeşitli gümrük eşyalarının vergileri Kıbrıs Muhassılı Murtaza Efendi'ye ihale edildiğinden zamanında bu vergilerin tahsil edilip imzalı defteriyle birlikte Hazine-i Amire'ye gönderilmesi emri verilmiştir. Belgede II. Süleyman (Kanuni) döneminde Çukurova bölgesinde iskân edilmiş olduklarını bildiğimiz bir Türkmen aşireti olan Lekvanik aşiretinin Kıbrıs'a da iskân edilmiş olduklarını görmekteyiz. (KŞS, 13/155, 9 Mart 1725-9 Muharrem 1138). Belgede toplamda üç bin beş yüz yirmi gurus verginin toplanacağı ifade edilmektedir.<sup>2</sup> Kıbrıs Muhassıllığı ile Baf ve Girne sancakları mahsulü ve Lekvanik ekradı perakendesi ile Kıbrıs duhân gümrüğü mukataalarının 1139 H. Muharrem ayı itibari ile bir seneliğine Kıbrıs Muhassılı Murtaza Efendi'ye ihale edilecektir. (KŞS, 13/225, 28 Şevval 1138- 29 Haziran 1726). 1739 yılına gelindiğinde Kıbrıs adasından toplanarak İstabl Amireye gönderilen duhân vergisi yüz kırk dört bin akçedir. (KŞS, 15/411, 19 Safer 1152-28 Mayıs 1739).

Bazen geçim zorluğu çeken ahali içinde bu vergilerden tahsisat yapıldığını görmekteyiz. Devlet Kıbrıs'a sürülen Kralzade Süleyman'ın geçimi için duhân-ı cezire-i Kıbrıs mukataasından günlük üç kuruş verilmesi için emir göndermiştir. (KŞS, 15/629, 29 Cemaziyelevvel 1156-21 Temmuz 1743).

Sicillerde duhân kullanımını ile duhân kalemi, tablası, torbası, kisesi, bıçağı ve kağıdında insanların

<sup>1</sup> "...hattâ ecdâd-ı izâmımdan şürb-i duhânı ehl-i İslâm ve re'âyâdan ale'l-umûm men' iden pâdişâhlar duhân yasağının istikrâr ve istimrârları için bunca te'kidât-ı şedîde icrâsına şürû' itmişler iken ol vakt de duhân zer'i ticâretinden halkı men' kâbil olmamaktan nâşî terk-i zer'-i duhândan melhûzları olan menâfi'-i mülkiyeye bedel nef'an li'l-mîrî ve zecren lehüm ağır gümrükler ve resmler bağlamış oldukları ve şürb-i hamrın men'i ise fakat tavâif-i ehl-i İslâma mahsûs olup hasbe's-şer' ehl-i zimmet her yerde mücâz ve me'zûn ve efrenc tâ'ifesi nakl ü ticâretine me'lûf olmak takribiyle..."

<sup>2</sup> "...Baf ve Girinye sancaklarının senevî iki bin iki yüz altmış beş gurus ve Kıbrıs cezîresinde vâki' Lekvanik ekradı perâkendelerinin elli beş gurusu ve Kıbrıs cezîresinde zer' ve hars olunan duhân dönümü ve gümrük mukâta'asının bin iki yüz gurus ki üç bin beş yüz yigirmi gurus idüp ve bundan mâ'adâ cezîre-i mezbûrede müceddeden vaz' olunan mîzân-ı harîr ve penbe ve kırmızı boya ve kutnî ve yeşimî ve dimi ve sâ'ir rüsûmâtlarını mûmâ-ileyh tarafından cem' ve tahsil oluna gelmeğin zikr olunan Baf ve Girinye sancakları maktû'u ve ekrâd-ı Lekvanik perâkendesini ve dönüm ve gümrük-i duhân mukâta'alarının yüz otuz sekiz senesi Muharremi guresinden zabt ve mâlları olan üç bin beş yüz yigirmi gurus mâl ve kal'amiyyelerin verüp ve mîzân-ı harîr ve penbe ve boya-i sürh rüsûmâtların ve kutnî ve yeşimî ve dimi ve sâ'ir eşyânın resm-i damgaların ve cezîre-i mezbûr iskelelerine müste'men ve tüccâr sefinelerinin iştirâ ve sefâ'înlere tahmil eyledikleri revgan-ı zeytinden kadîmi gümrüklerinden..."



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terekelerinde yer aldığını görmek mümkündür. 1795’li yıllarda 60 kıyyesi 60 guruş olarak kayıtlarda görülmektedir. Devletin Ada’da vergilerin toplanmasına aracılık eden yazıcı ve kolculara verdiği ücret, duhân ve kahve için 10.000 guruş ayırdığı, (KŞS, 21/643, 1210-1795) tahsildar ve kolcularada ücret, kahve ve duhân için 11930 guruş gider ayırmış olduğu kayıtlanmıştır. (KŞS, 21/644, 14 Muharrem 1210-31 Temmuz 1795).

20 Kasım 1827 tarihli belgede ise, Devletin Kıbrıs Adası esnafından aldığı ihtisâb vergisi Duhân kıyıcuların beherden dörder, üçer, ikişer para olarak belirlenmiştir. Tersane-i Amire Hazinesi için 1245 H.’de toplanan ihtisab vergisi listesinde İskele-i mezbûreden diyâr-ı âhara giden yüz vukıyye duhânın beher vukıyyesinden iki paradan 200 para tahsil edilmiş olduğu görülmektedir. (KŞS, 33/53-221, 9 Cemâziyelevvel 1245- 20 Kasım 1827)

### Sonuç

Osmanlı Devleti’nin alkol ve tütün içeren mamullere bakışı oldukça baskılayıcı olmuştur. Osmanlıda ulemanın, bir Arap şairin, “uykunun ve aşkın kara düşmanı” olarak nitelendirdiği kahve gibi bunu yasak içki şarapla bir tutarak, insanları suça yönelten birçok davranışın sebebi olarak görmüşlerdir. Bu bağlamda elbette insanların bir araya geldikleri kahvehanelerde bu yasaklanmadan payını alacaktır.

Nihayetinde Osmanlı Devleti’nde kahvenin yasal hale gelişi 17. Yüzyılda gerçekleşmiş ise ulema ve toplumda tütün ve enfiyeye karşı baskının daha bir müddet zaman alacağı kuşkusuzdur. Dönem içinde zaman zaman yasakların, şiddet ve baskının ayyuka çıktığı zamanlarda dahi insanların bir şekilde tütün kullanımı konusunda gizlide olsa devam ettiği görülmektedir. Bu noktada şer’i hükümlerin kısıtlamaları ya da sultanların çıkardığı emirlerin dahi bunun önüne geçemediği aşıkardır.

Kıbrıs’ta ise ahalinin sosyo-kültürel yapısı ve çeşitliliği bu yasağın gelen emirlere rağmen çok sert olmayan uygulamalarla sürdürüldüğünü fakat gelen şikayetlerin değerlendirildiğini söyleyebiliriz. Kıbrıs’ta tütünün dışardan tedarik edildiğini, devletin limanlarda gerekli kontrolleri ve vergilendirme konusunda gereğini yaptığı görülmektedir. Ada’da tütün tedarikini iş edinmiş esnaf zümreside bulunmaktadır.

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### LAND OF EXILE CYPRUS

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#### **Özet**

Bir kişinin veya bir topluluğun ceza yahut güvenlik tedbiri olarak yaşadığı yerden başka bir yere belli bir süre ya da ömür boyu kalmak üzere isteği dışında gönderilmesi ve orada ikamet etmeye mecbur tutulmasıdır.

Sürgün kelimesi, hakkında bu ceza veya tedbirin uygulandığı kişi ve gönderildiği yeri de ifade eder. Sürgün bir ülkeden başka bir ülkeye olabileceği gibi aynı ülke içinde kişinin doğup yaşadığı veya yerleştiği yerden başka bir bölgeye gönderilmesi biçiminde de gerçekleşebilir. Sürgün bir ülkeden başka bir ülkeye olabileceği gibi aynı ülke içinde kişinin doğup yaşadığı veya yerleştiği yerden başka bir bölgeye gönderilmesi biçiminde de gerçekleşebilir.

Osmanlı Devleti'nde sürgün uygulaması sistematik bir tarza dönüşmüştür. Kıbrıs, XVII. yüzyılın son yansı ile XVIII. yüzyılda, daha çok emirleri dinlemeyen ve yerleşik halka zarar veren aşiretlerin sürgün yeri olarak kullanılmıştır.

Kıbrıs Şer'iyeye Sicillerine baktığımızda Kıbrıs Adasının, Osmanlı Devleti zamanında önemli bir sürgün yeri olarak tercih edildiğini görmekteyiz. Rüşvet, sahtekârlık, zina, fuhuş, iftira, yalancı şahitlik, hırsızlık, tehdit ve küfür, emre itaatsizlik, kız kaçırma vb. suçlardan pek çok kişi sürgün edilmiştir. Ayrıca görevden alınan devlet adamları İstanbul'dan uzaklaştırılıp sürgüne yollanmıştır.

Belgelere yansıyan pek çok sürgün hadisesi vardır. Çalışmamızda elde ettiğimiz belgelerden hareketle yapılan sürgünleri ve nedenlerini ifade etmeye çalışacağız.

**Anahtar Kelimeler:** Osmanlı Devleti, Kıbrıs, Sürgün.

#### **Abstract**

It is the forcible relocation of a person or community to another location for an extended length of time or permanently as a form of punishment or security.

The individual to whom this punishment or measure was administered and the location to which he was exiled are both included in the definition of exile. Exile can occur inside a country or involve being removed from the area in which one was born, raised, or established and transported to another location within the same country. Exile can occur inside a country or involve being removed from the area in which one was born, raised, or established and transported to another location within the same country.

In the Ottoman Empire, banishment became a custom that was followed systematically. Cyprus, in the second part of the eighteenth century. For the tribes that disobeyed orders and mistreated the settlers in the 19th century, it served as a place of exile.

According to the Cyprus Court Records, the island of Cyprus was a popular choice for exile throughout the Ottoman Empire. Slander, perjury, theft, threats and swearing, disobedience, abduction, adultery, prostitution, bribery, fraud, etc. For their sins, several people were banished. The expelled statesmen were also expelled from Istanbul and put into exile.

The papers contain several instances of exile. Based on the papers we were able to access, we will attempt to describe the exiles and their motivations in our research.



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**Keywords:** Ottoman Empire, Cyprus, Exile.

### Giriş

Sürgün, bir kişinin veya bir topluluğun ceza yahut güvenlik tedbiri olarak yaşadığı yerden başka bir yere belli bir süre ya da ömür boyu kalmak üzere isteği dışında gönderilmesi ve orada ikamet etmeye mecbur tutulmasıdır. Sürgün bir ülkeden başka bir ülkeye olabileceği gibi aynı ülke içinde kişinin doğup yaşadığı veya yerleştiği yerden başka bir bölgeye gönderilmesi biçiminde de gerçekleşebilir. Sürgün bir ülkeden başka bir ülkeye olabileceği gibi aynı ülke içinde kişinin doğup yaşadığı veya yerleştiği yerden başka bir bölgeye gönderilmesi biçiminde de gerçekleşebilir. Toplu sürgün uygulamasına genellikle siyasal veya sosyal gerekçelere bağlı olarak doğabilecek zararlara karşı önlem niteliğinde ve bilhassa kamu düzeninin korunması amacıyla başvurulur; literatürde bu tür sürgün uygulamaları daha çok “tehcîr” kelimesiyle ifade edilir. İskân amaçlı sürgünler, yerleşik hale getirilmesi istenen göçebe toplulukların belli bir yerde ikamete zorlanması şeklinde tarihte sıkça rastlanan uygulamalardır. Toplu sürgünlerin bir diğer örneği, özellikle savaşlar sonunda yenilen taraf halkının yaşadığı yerden başka yere gitmek zorunda bırakılmasıdır. Gönüllü sürgünde de kişi yaşadığı yeri terk etmediği zaman hukukî ya da sosyal başka bir yaptırımla karşılaşacağı için doğrudan veya dolaylı bir zorunluluk hali sürgünün temel unsurudur. (Türcan, 2010, 164)

Osmanlı Devleti’nde sürgün uygulaması, ülkenin farklı yerlerindeki aşiretlerin şakvetlerini önlemek, harap yerleri tekrar şenlendirmek ve güvenliği sağlamak amacıyla uygulanmıştır. Ayrıca ülke içindeki göçebe unsurların denetim altına alınması ve yerleşik hayata geçirilmeleri de hedeflenmiştir. Bu noktada XVIII. yüzyılda, Osmanlı Devleti’nin cezalandırmak istediği aşiretleri özellikle Rakka ve Kıbrıs gibi bölgelere iskân ettirmiştir.

Osmanlı Devleti’nde sürgün uygulaması sistematik bir tarza dönüşmüştür. Kanunnâmelerde ve arşiv belgelerinde Osmanlı ceza hukukunda ta’zîr cezaları arasında yer alan sürgünle ilgili hükümler bulunmaktadır. Sürgün, belgelerde genellikle “nefiy” şeklinde geçer, sürgün yeri için de “menfâ” kelimesi kullanılır. Osmanlı ceza hukukunda sürgün cezasının süresi belirtilmemekle birlikte özellikle ırza karşı işlenen suçlarda uygulanan sürgün bir yıl ile sınırlandırılabilir. Kanunnâmelerde geçen bu bilgiler, ilk devirlerde toplu şekilde yapılan sürgün faaliyetlerinde uyulması gereken kurallara yönelik olarak hazırlanmıştır. Bunun yanında bireysel sürgünlerle ilgili ferman, buyrultu vb. hükümler de bulunmaktadır. Osmanlı Devleti’nde değişik amaçlar için yapılmakla birlikte sürgünün başlıca iki uygulaması vardır. Birincisi kişilerin cezalandırılıp olay mahallinden veya buldukları yerden uzaklaştırılması, ikincisi bütün toplumu etkileyen sosyo-ekonomik bir politikanın, yani iskân siyasetinin gereği olarak toplu sürgün uygulamasıdır. Özellikle sosyal ve ekonomik sebepler yüzünden bireylere yönelik sürgün cezalarının Osmanlı Devleti’nde sıkça uygulandığı görülmektedir. Rüşvet, sahtekârlık, zina, fuhuş, iftira, yalancı şahitlik, hırsızlık, tehdit ve küfür, emre itaatsizlik, kız kaçırma vb. suçlardan pek çok kişi sürgün edilmiştir. Ayrıca görevden alınan devlet adamları İstanbul’dan uzaklaştırılıp sürgüne yollanmıştır. Sürgün yeri olarak merkeze yakın mahaller yanında özellikle ulaşımı zor olan uzak sınırlardaki şehir veya kasabalar, mahfuz kaleler ve adalar tercih edilmiştir. (Daşcıoğlu, 2010, 168).

Kıbrıs, XVII. yüzyılın son yansı ile XVIII. yüzyılda, daha çok emirleri dinlemeyen ve yerleşik halka zarar veren aşiretlerin sürgün yeri olarak kullanılmıştır. Adaya özellikle İçel bölgesinde suç işleyen aşiretlerin sürgün edildiği görülmektedir. Anadolu’da yerleşik hayata zarar verenler buradan uzaklaştırılmak suretiyle Rakka ve Kıbrıs’a sürülmüşlerdir. Teke yöresinden de adaya sürülen insanların çoğu sorun yaratan konar-göçerlerdi. Sürgün yeri olarak adaların tercih edilmesinin nedenleri arasında elbette buralardan kaçmanın güçlüğü ve adalardaki yaşamın normale göre daha zor olmasıdır. İncelenen dönem kayıtlarından da anlaşıldığı üzere Kıbrıs adasının özellikle de Mağusa’nın özel mahkûmların sürgüne gönderildiği bir yer olduğu görülmektedir. Kıbrıs’a yapılan sürgünler adada yaşamaya mahkûm edilme olan cezîre- bent, kalede veya zindanda yaşamaya mahkûm edilme olan kale-bent veya zindan-bent şeklinde gerçekleşmektedir. (Özku, 2016, 23).

Osmanlı imparatorluğunda sürgün usulü ile iskân işi, hiç şüphesiz diğer büyük Türk devletlerinden ve hatta Bizans’tan gelme çok eski bir geçmişi olan bir usulü temsil etmekte ve başarılı bir iskan ve idareciliğin şartı olan her türlü tedbirleri de bu devletlerde yapılmış olan tecrübelerle dayanarak almış



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gözükmektedir. Kıbrıs adasının fethinden sonra Anadolu'nun muhtelif yerlerinden buraya sürgün gönderilmesi hususunda fermanlar sadır olmuştur. (Arslan, 2001: 342).

### Kıbrıs'ta Sürgün

İşkân noktasında hassasiyet ortada olmakla birlikte, Kıbrıs'ın coğrafi şartları sebebiyle önemli bir sürgün yeri olduğunu belgelerden açıkça görebilmekteyiz. Belgelerden yola çıkarak pek çok adı suçlunun yanında, eşkıyalık, asayiş bozmak, rüşvet, sahtekarlık, zina, iftira, dini meseleler yüzünden ulemadan bazı kimselerin, bürokrasiden devlet adamlarının yanı sıra bazı gayrimüslimlerinde adaya sürgün edildiğini söyleyebiliriz.

Kıbrıs'ın fethi sonrası Müslüman-Türk nüfusun Adaya iskanı ve bölgenin şenlendirilmesi önem arzeden bir konu olmuştur. Bu konuda yazılan fermanlarda, Kıbrıs'ın eskiden olduğu gibi yeniden mamur hale gelmesi için beylerbeyi, kadı ve defterdar tarafından hukukun uygulanmasında, mîrî hizmetlerde ve vergi vs. tahsilinde adalet üzere olunması, tefrika çıkartacak işlerden kaçınılması ve reâyânın refah ve güvenliği için gerekli gayretin gösterilmesi istenilmiştir.<sup>1</sup> (BOA,12 Num. Mühimme, 1996:268).

<sup>1</sup> "Ce

Cemâ'at-i Karahacılı					
Çerkes Ağa'nın Hâne 1 aded kendü ve iyâli 8 nefer	Ve karındaşı Mehmed'in Hâne 1 aded kendü ve iyâli 6 nefer	İbrahim Ağa oğlunun Hâne 1 aded kendü ve karındaşı ve hizmetkârı 6 nefer	Mehmed Bey'in Hâne 1 aded kendü ve iyâli 8 nefer	Mustafa Bey'in Hâne 1 aded kendü ve iyâli 4 nefer	
Ahmed Bey'in Hâne 1 aded kendü ve karındaşı ve iyâli 7 nefer	Habib Halife'nin Hâne 1 aded kendü ve iyâli 3 nüfûs	Hasan'ın Hâne 1 aded kendü ve iyâli 7 nüfûs	Abdülahad'ın Hâne 1 aded kendü ve iyâli 8 nüfûs	Keşşaf nâm öksüzlerinin Hâne 1 aded kendü ve iyâli 8 nefer	
Bıyıklı Halil'in Hâne 1 aded kendü ve iyâli 7 nefer	Tönbeki nâm kimesnenin Hâne 1 aded kendü ve iyâli 8 nefer	Kocaoğlan'ın Hâne 1 aded kendü ve iyâli 2 nefer	Hacı Kerim oğlu Mehmed'in Hâne 1 aded kendü ve iyâli 4 nefer	Dul avret 2 nefer	
Resul'ün Hâne 1 aded kendü ve karındaşı ve iyâli 4 nefer	Koca Musa'nın Hâne 1 aded kendü ve karındaşı ve iyâli 4 nefer	Abdüllatif'in Hâne 1 aded kendü ve karındaşı 2 nefer	Hasan'ın Hâne 1 aded kendü ve iyâli 5 nefer	Ve ammisinin öksüzleri Hâne 1 aded 2 nefer	
Koca Hasan'ın Hâne 1 aded 1 nefer	Durali'nin öksüzleri Hâne 1 aded 3 nefer	Menla Kerim'in Hâne 1 aded 2 nefer	Abbas'ın Hâne 1 aded kendü ve iyâli 4 nefer	Yediş'in Hâne 1 aded Sıbyânı 3 nefer	
Sahib'in Hâne 1 aded kendü ve iyâli 4 nefer	Abdullah'ın Hâne 1 aded kendü ve iyâli 4 nefer	Yusuf'un Hâne 1 aded kendü ve iyâli 4 nefer	Musa Bey'in Hâne 1 aded kendü ve iyâli 4 nefer	Ali'nin Hâne 1 aded kendü ve iyâli 2 nefer	
Mustafa'nın Hâne 1 aded kendü ve iyâli ve karındaşı 5 nefer	Hasan'ın Hâne 1 aded Öksüzleri 6 nefer	Mevlûd Ebla(?) oğlu Ahmed'in Hâne 1 aded kendü ve iyâli 4 nefer	Ömer'in Hâne 1 aded kendü ve iyâli 2 nefer	Veli'nin Hâne 1 aded kendü ve iyâli 2 nefer	

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Meşkli Koca'nın Hâne 1 aded kendü ve iyâli 6 nefer	Mümin'in Hâne 1 aded kendü ve iyâli 2 nefer	Abdulazim'in Hâne 1 aded kendü ve iyâli 2 nefer	İsa'nın Hâne 1 aded kendü ve iyâli 6 nefer	Ali Koca'nın öksüzleri Hâne 1 aded 2 nefer
Himmet'in öksüzleri 3 nefer	Süleyman'ın Hâne 1 aded kendü ve iyâli 4 nefer	Bektaş'ın öksüzleri Hâne 1 aded 2 nefer	Sarı Kaya'nın? uşakları 2 nefer	Bodohi Mahmud'un kendü ve iyâli 3 nefer
Karaca'nın uşakları 2 nefer	Abdülbaki'nin 2 nefer	Abdülvahhab'ın Hâne 1 aded kendü ve iyâli 5 nefer	Diğer Abdülbaki'nin Hâne 1 aded kendü ve iyâli 5 nefer	Nasuh'un Hâne 1 aded kendü ve iyâli 4 nefer
Yusuf'un Hâne 1 aded kendü ve iyâli 2 nefer	Mehmed'in Hâne 1 aded kendü ve iyâli 3 nefer	Musa'nın Hâne 1 aded kendü ve iyâli 3 nefer	Abdülkerim'in Hâne 1 aded kendü ve iyâli 3 nefer	Memiş'in Hâne 1 aded kendü ve iyâli 3 nefer
İsmihan nâm avretin Hâne 1 aded 2 nefer	Halime nâm dul avretin Hâne 1 aded 2 nefer	Kara Musa'nın Hâne 1 aded kendü ve iyâli 8 nefer	Yusuf'un Hâne 1 aded kendü ve iyâli 6 nefer	Abdülkadir'in Hâne 1 aded kendü ve iyâli 4 nefer
Mahmud'un Hâne 1 aded kendü ve iyâli 5 nefer	İsa'nın Hâne 1 aded kendü ve iyâli 6 nefer	Öksüzleri 3 nefer	Ahmed'in öksüzleri 3 nefer	Kaya Hızır'ın Hâne 1 aded kendü ve iyâli 3 nefer
Bıyıklı Veli'nin Hâne 1 aded kendü ve iyâli 4 nefer	Mahmud'un Hâne 1 aded kendü ve iyâli 2 nefer	İbrahim'in Hâne 1 aded kendü ve iyâli 3 nefer	Süleyman'ın Hâne 1 aded kendü ve iyâli 4 nefer	Musa'nın Hâne 1 aded kendü ve iyâli 2 nefer
Hacı Hızır'ın Hâne 1 aded kendü ve iyâli 5 nefer	Deli Veli'nin Hâne 1 aded kendü ve iyâli 4 nefer	Kara Ahmed'in Hâne 1 aded kendü ve iyâli 5 nefer	Menla Ali'nin Hâne 1 aded kendü ve iyâli 5 nefer	Mahmud Ali'nin Hâne 1 aded Öksüzleri 3 nefer
Hüseyin'in Hâne 1 aded kendü ve iyâli 5 nefer	Delioğlan'ın öksüzlerinin Hâne 1 aded kendü ve iyâli 5 nefer	Hacı Abdülganioglu'nun Hâne 1 aded kendü ve iyâli 6 nefer	Resul'ün öksüzlerinin Hâne 1 aded kendü ve iyâli 8 nefer	Damad'ın Hâne 1 aded kendü ve iyâli 7 nefer
Çerkes nâm kimesnenin Hâne 1 aded kendü ve iyâli 6 nefer	Kara Hüseyin'in Hâne 1 aded kendü ve iyâli 6 nefer	İmâmoğlu'nun Hâne 1 aded kendü ve iyâli 8 nefer	Nasuh'un öksüzlerinin Hâne 1 aded kendü ve iyâli 4 nefer	Araboğlu'nun Hâne 1 aded kendü ve iyâli 3 nefer





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Osmanoğlu'nun Hâne 1 aded kendü ve iyâli 6 nefer	Mehmed'in Hâne 1 aded kendü ve iyâli 7 nefer	El-Hâc Osman öksüzleri Hâne 1 aded kendü ve iyâli 6 nefer	Kara Veli'nin Hâne 1 aded kendü ve iyâli 5 nefer	Selam'ın öksüzleri Hâne 1 aded kendü ve iyâli 5 nefer
Sarı Hasan'ın Hâne 1 aded kendü ve iyâli 4 nefer	Topal Abdülkerim öksüzlerinin Hâne 1 aded kendü ve iyâli 12 nefer	El-Hâc İbrahim'in Hâne 1 aded kendü ve iyâli 4 nefer	Mehmed'in Hâne 1 aded kendü ve iyâli 6 nefer	Ahmed'in Hâne 1 aded kendü ve iyâli 3 nefer
Küçük oğlunun Hâne 1 aded kendü ve iyâli 3 nefer	Hüseyin'in öksüzlerinin Hâne 1 aded kendü ve iyâli 7 nefer	Topaloğlu'nun Hâne 1 aded kendü ve ehli 2 nefer	El-Hâc Hamza öksüzlerinin Hâne 1 aded kendü ve iyâli 4 nefer	Abdülkerim'in Hâne 1 aded kendü ve iyâli 4 nefer
Kara Abdülkerim'in Hâne 1 aded kendü ve iyâli 6 nefer	Sıbyân 22 nefer	Mehmed Bey'in Hâne 1 aded kendü ve iyâli 3 nefer	Resul oğlu Mehmed'in Hâne 1 aded kendü ve iyâli 5 nefer	Abdülcelil'in Hâne 1 aded kendü ve iyâli 4 nefer
Solakoğlu öksüzlerinin Hâne 1 aded kendü ve iyâli 10 nefer	Topal Yusuf'un Hâne 1 aded kendü ve iyâli 3 nefer	Hasan Ağa'nın Hâne 1 aded kendü ve iyâli 3 nefer	İlyas'ın Hâne 1 aded kendü ve iyâli 5 nefer	Ömer'in Hâne 1 aded kendü ve iyâli 4 nefer
Mehmed'in Hâne 1 aded kendü ve iyâli 4 nefer	Ahmed'in Hâne 1 aded kendü ve iyâli 6 nefer	Eski Veli oğlu İlyas'ın Hâne 1 aded kendü ve ehli 2 nefer	Dul avretin Hâne 1 aded 1 nefer	Hamzanın Hâne 1 aded kendü ve iyâli 3 nefer
Bedlik nâm Hâne 1 aded kendü ve iyâli 3 nefer	Benli Veli'nin Hâne 1 aded kendü ve iyâli 5 nefer	Kara Mehmed'in Hâne 1 aded kendü ve iyâli 5 nefer	Hasan'ın Hâne 1 aded kendü ve iyâli 6 nefer	Dul avretin Hâne 1 3 nefer
Abdi'nin Hâne 1 aded kendü ve iyâli 5 nefer	Mümin'in Hâne 1 aded kendü ve iyâli 4 nefer	Musa'nın öksüzleri Hâne 1 aded 4 nefer	Mehmed'in Hâne 1 aded kendü ve iyâli 3 nefer	Durmuş Ali'nin Hâne 1 aded kendü ve iyâli 4 nefer
Süleyman'ın Hâne 1 aded kendü ve iyâli 8 nefer	Mustafa öksüzlerinin Hâne 1 aded iyâli 5 nefer	Ali'nin Hâne 1 aded kendü ve iyâli 2 nefer	Ahmed'in Hâne 1 aded kendü ve iyâli 2 nefer	Abdülgani'nin Hâne 1 aded kendü ve iyâli 7 nefer
Ali'nin Hâne 1 aded kendü ve iyâli 4 nefer	Öksüzlerin Hâne 1 aded 4 nefer	Veli'nin Hâne 1 aded kendü ve iyâli 6 nefer	Koca Hüseyin'in Hâne 1 aded kendü ve iyâli 3 nefer	
Yekûn-i neferan: 608				
An-cemâ'at-i Cerîd				



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Süleyman Verdi Hâne 1 aded kendü ve iyâli 6 nefer	Solak İsa Hâne 1 aded kendü ve iyâli 2 nefer	Hüseyin Hâne 1 aded kendü ve iyâli 5 nefer	Veli Hâne 1 aded kendü ve ehli 2 nefer	Hüseyin Hâne 1 aded kendü ve karındaşı 2 nefer
Musa Hâne 1 aded kendü ve iyâli 3 nefer	İsa Hâne 1 aded kendü ve iyâli 3 nefer	Mustafa Hâne 1 aded kendü ve iyâli 3 nefer	Abdurrahman Hâne 1 aded kendü ve iyâli 5 nefer	Mehmed'in Hâne 1 aded kendü ve iyâli 6 nefer
Hasan Hâne 1 aded kendü ve iyâli 8 nefer	Ahmed'in Hâne 1 aded kendü ve iyâli 6 nefer	Toytrak avret Hâne 1 aded kendü ve evlâdı 3 nefer	Ayşe Hâtûn Hâne 1 aded kendü ve evlâdı 3 nefer	Hardi nâm hâtûn Hâne 1 aded kendü ve evlâdı 3 nefer
Yusuf Hâne 1 aded kendü ve evlâdı 3 nefer			Yekûn-i nefer: 63	
An-cemâ'at-i Eski Yörükân				
Halil'in Hâne 1 aded kendü ve iyâli 4 nefer	El-Hâc Mahmud'un öksüzleri 4 nefer	Hasan 1 nefer	Karındaşı 2 nefer	Abdullah'ın Hâne 1 aded kendü ve iyâli 3 nefer
Hasan'ın Hâne 1 aded kendü ve iyâli 5 nefer	Veli'nin 1 nefer	Himmet'in Hâne 1 aded 1 nefer	Mehmed'in Hâne 1 1 nefer	Abdüllatif'in kendü ve karındaşı ve vâlidisi 3 nefer
Ömer'in 1 nefer	Hüseyin'in Hâne 1 aded kendü ve iyâli 2 nefer	Kara Veli'nin öksüzleri Hâne 1 aded 5 nefer	Ahmed'in öksüzleri 2 nefer	İbrahim'in Hâne 1 1 nefer
Mahmud'un karındaşları 5 nefer	Mustafa'nın karındaşı Hâne 1 aded 1 nefer	Musa'nın karındaşı 4 nefer	Mahmud'un Hâne 1	Veli'nin Hâne 1 aded kendü ve iyâli 5 nefer
Ahmed'in Hâne 1 aded kendü ve iyâli 3 nefer	Ömer'in kendüsi ve karındaşları 5 nefer	Şa'ban'ın 1 nefer	Karındaşı 1 nefer	Ahmed'in 1 nefer
Karındaşı 1 nefer	Hasan'ın 1 nefer	Karındaşı 1 nefer	Şa'ban'ın 1 nefer	Hasan'ın 1 nefer
Nasuh'un kendüsi ve karındaşı ve iyâli 5 nefer	Hüseyin'in Hâne 1 aded kendü ve iyâli 2 nefer	Asiye avretin kendüleri 2 nefer	Musa'nın Hâne 1 aded 1 nefer	Ahmed'in Hâne 1
Ca'fer'in kendü ve iyâli 4 nefer	Ahmed'in Hâne 1 aded 1 nefer	Receb'in Hâne 1	Abdülhay'ın kendü ve iyâli 4 nefer	Ahmed'in Hâne 1 kendü ve iyâli 4 nefer
Mehmed'in Hâne 1 aded kendü ve iyâli 2 nefer	Veli'nin kendü ve iyâli 3 nefer	Hasan'ın kendü ve karındaşı 4 nefer	Hâcı oğlu Hüseyin'in Hâne 1 kendü ve iyâli 4 nefer	Ali Koca'nın kendü ve iyâli 8 nefer



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İvaz ve Kıl İsa'nın Hâne 1 aded kendü ve iyâli 8 nefer	Gök Veli'nin Hâne 1 kendü ve karındaşı ve iyâli 4 nefer	Hasan'ın Hâne 1 kendü ve iyâli 5 nefer	Hüseyin'in Hâne 1 aded kendü ve iyâli 2 nefer	Süleyman'ın Hâne 1 kendü ve iyâli 6 nefer
Mustafa'nın Hâne 1 kendü ve iyâli 2 nefer	Halil'in Hâne 1 aded kendü ve iyâli 3 nefer	Mahmud'un Hâne 1 aded kendü ve iyâli 4 nefer	Ahmed'in Hâne 1 aded kendü ve iyâli 6 nefer	Halil'in Hâne 1 aded kendü ve iyâli 3 nefer
Yusuf'un Hâne 1 aded kendü ve iyâli 3 nefer	Muslı'nun Hâne 1 aded kendü ve iyâli 2 nefer	İbrahim'in Hâne 1 aded kendü ve iyâli 3 nefer	Ali Halife'nin Hâne 1 aded kendü ve iyâli 5 nefer	Halil'in Hâne 1 aded kendü ve iyâli 4 nefer
Öksüzlerin Hâne 1 4 nefer	Diğer öksüzlerin Hâne 1 aded 3 nefer	Ali'nin Hâne 1 aded kendü ve iyâli 5 nefer	Karabıyık'ın Hâne 1 aded kendü ve iyâli 4 nefer	Dul avretin Hâne 1 Aded 5 nefer
Kara Ahmed'in Hâne 1 aded kendü ve iyâli 5 nefer	Halil'in Hâne 1 aded kendü ve iyâli 6 nefer	Koca Veli'nin Hâne 1 aded kendü ve iyâli 5 nefer	Koca Hasan'ın Hâne 1 aded kendü ve iyâli 4 nefer	Öksüzün Hâne 1 aded 2 nefer
Diğer öksüzün Hâne 1 aded 3 nefer	Köse Mustafa'nın Hâne 1 aded kendü ve iyâli 5 nefer	Öksüzün Hâne 1 aded kendü ve iyâli 6 nefer	Öksüz Veli'nin Hâne 1 aded kendü ve iyâli 3 nefer	Diğer öksüz Hâne 1 aded İyâli 3 nefer
Diğer öksüzler Hâne 1 aded 3 nefer	Menla Abdurrahman Hâne 1 aded kendü ve iyâli 2 nefer	Hacı Osman'ın Hâne 1 aded kendü ve iyâli 5 nefer	Hüseyin'in Hâne 1 aded kendü ve iyâli 5 nefer	Mehmed'in Hâne 1 aded kendü ve iyâli 3 nefer
Ömer'in Hâne 1 aded kendü ve iyâli 3 nefer	Hasan'ın Hâne 1 aded kendü ve iyâli 5 nefer	Diğer Hasan'ın Hâne 1 aded kendü ve iyâli 5 nefer	Menla Hızır'ın Hâne 1 aded kendü ve iyâli 3 nefer	Ali'nin Hâne 1 kendü ve iyâli 4 nefer
Halil'in Hâne 1 aded kendü ve iyâli 3 nefer	Abdülhay'ın Hâne 1 aded kendü ve iyâli 8 nefer	Musa'nın Hâne 1 aded kendü ve iyâli 4 nefer	Hasan'ın Hâne 1 kendü ve iyâli 4 nefer	Baki'nin Hâne 1 aded kendü ve iyâli 4 nefer
Osman'ın Hâne 1 aded kendü ve iyâli 5 nefer	Ali'nin Hâne 1 aded kendü ve iyâli 6 nefer	Musa'nın Hâne 1 aded kendü ve iyâli 4 nefer	Durali'nin Hâne 1 aded kendü ve iyâli 3 nefer	Diğer Musa'nın Hâne 1 aded kendü ve iyâli 5 nefer
Kara Mehmed'in Hâne 1 aded kendü ve iyâli 8 nefer	Halil'in Hâne 1 aded kendü ve iyâli 4 nefer	Mustafa'nın Hâne 1 aded kendü ve ehli 2 nefer	İbrahim'in Hâne 1 aded kendü ve iyâli 4 nefer	Evliya'nın Hâne 1 aded kendü ve iyâli 3 nefer



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El-Hâc Himmat'in Hâne 1 aded kendü ve iyâli 6 nefer	Ali'nin Hâne 1 aded kendü ve iyâli 5 nefer	Nasuh'un Hâne 1 aded kendü ve iyâli 4 nefer	İsmail'in Hâne 1 aded kendü ve ehli 2 nefer	Hasan'ın Hâne 1 aded kendü ve ehli 2 nefer
Ali'nin Hâne 1 aded kendü ve iyâli 5 nefer	Abdi'nin Hâne 1 aded kendü ve iyâli 4 nefer	İsa'nın Hâne 1 aded kendü ve iyâli 3 nefer	Yakub'un Hâne 1 aded kendü ve iyâli	Ali'nin Hâne 1 aded kendü ve iyâli 4 nefer
Dul avretin Hâne 1 aded 4 nefer		Yekûn-i nefer: 381		
An-cemâ'at-i Batralı				
Durali'nin Hâne 1 aded kendü ve iyâli 4 nefer	Çalık Hasan'ın Hâne 1 aded kendü ve iyâli 5 nefer	Pir Ali'nin Hâne 1 aded kendü ve iyâli 5 nefer	Ahmed'in Hâne 1 aded kendü ve iyâli 3 nefer	Dul avretin Hâne 1 aded kendü ve evlâdı 3 nefer
Diğer dul avretin Hâne 1 aded kendü ve evlâdı 3 nefer	Diğer dul avretin Hâne 1 aded kendü ve evlâdı 3 nefer	Diğer dul avretin Hâne 1 aded kendü ve evlâdı 2 nefer	Dul avret 1 nefer	Mehmed'in Hâne 1 aded kendü ve ehli 2 nefer
Musa'nın Hâne 1 aded kendü ve hemşiresi 2 aded	Mümin Efendi'nin Hâne 1 kendü ve iyâli 5 nefer	Mustafa'nın Hâne 1 aded kendü ve ehli 2 aded	Celil Koca'nın Hâne 1 aded kendü ve iyâli 3 nefer	Karındaşının Hâne 1 aded kendü ve iyâli 3 nefer
Menla Ali'nin Hâne 1 aded kendü ve iyâli 6 nefer	Ahmed'in Hâne 1 kendü ve iyâli 3 nefer	Mümin'in Hâne 1 aded kendü ve ehli 2 nefer	Abdülkadir'in Hâne 1 aded kendü ve iyâli 5 nefer	Yekûn-i neferan: 62
An-cemâ'at-i Toslaklı				
El-Hâc Mustafa'nın Hâne 1 aded kendü ve iyâli 6 nefer	Abdülkerim'in Hâne 1 kendü ve iyâli 4 nefer	İbrahim'in kendü ve iyâli 3 nefer	Koca Mehmed'in kendü ve iyâli 3 nefer	Ahmed Kocaoğlu 1 nefer
El-Hâc Mehmed'in kendü ve iyâl 3 nefer	Osman'ın kendü ve iyâli 3 nefer	Abdülgani kendü ve ehli 2 nefer	Hasan 1 nefer	Şa'ban'ın kendü ve iyâli 3 nefer
Parmaksız'ın kendü ve iyâli 5 nefer	Yusuf 1 nefer	Karındaşı 1 nefer	Abdurrahman kendü ve iyâli 3 nefer	Abdülgaffar'ın kendü ve ehli 2 nefer
Diğer Abdülgaffar'ın kendü ve ehli 2 nefer	Ali kendü ve ehli 2 nefer	İbrahim'in kendü ve iyâli 4 nefer	Kocaoğlan'ın Hâne 1 aded kendü ve iyâli 3 nefer	Ammisi oğlu Hasan'ın Hâne 1 aded kendü ve ehli 2 nefer
Öksüz sıbyân 4 nefer		Yekûn-i neferan: 58		
An-cemâ'at-i Burhan				



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*Kıbrıs'ın Osmanlı topraklarına katılması ile iskân ya da sürgün yoluyla bölgeye pek çok insan gönderilmiştir. Bu belgede ise 1714 yılında, Kıbrıs'a sürgün olarak iskân edilen Yörüklerin cemaat, hane sayısı, kadın, erkek, dul, öksüz ve çocuk nüfusunu ayrıntılı olarak gösterildiğini ve Karahacılı cemaatinden 608, Cerid cemaatinden 63, Eski Yörükân cemaatinden 381, Batralı cemaatinden 62, Toslaklı cemaatinden 58, Burhan cemaatinden 73 olmak üzere toplam 1245 kişinin bölgeye sürgün edildiğini görmekteyiz. (KŞS, 8/517, 10 Ramazan 1126-19 Eylül 1714).*

Belgelerden hareketle ifade ettiğimiz konularda yaşanan sürgünleri örneklendirecek olursak öncelikle adı suçlara verilmiş olan sürgünler konusunda şunları ifade edebiliriz.

Osmanlı Devleti XVII. yüzyıl boyunca hem dâhili hem de harici pek çok problemlerle mücadele etmek zorunda kalmıştır. Problemlerin doğurduğu karışıklıklar, doğal olarak sosyo -ekonomik düzeni altüst etmiştir. Düzeni ve asayışı temin için birtakım önlemler alınmış fakat bunlar kısa vadeli çözümler getirmiştir. XVIII. yüzyılda devlet, eski siyasi, askeri ve iktisadi gücünden çok şeyler kaybetmiştir. Gerek

Kara Nebi'nin Hâne 1 aded kendü ve iyâli 3 nefer	Ammisi Mehmed'in Hâne 1 aded kendü ve iyâli 4 nefer	Kör Ahmed'in Hâne 1 aded 1 nefer	Belhi nâm kimesnenin Hâne 1 aded kendü ve iyâli 3 nefer	Boz Veli'nin Hâne 1 aded kendü ve iyâli 3 nefer
Karındaşı Adülatif'in kendü ve iyâli 2 nefer	Kara Mustafa'nın Hâne 1 aded kendü ve iyâli 2 nefer	Fakih oğlu Mehmed'in Hâne 1 aded kendü ve iyâli 6 nefer	Fakih Veli'nin Hâne 1 aded kendü ve iyâli 2 nefer	El-Hâc Hasan oğlu Abdülkerim'in kendü ve ehli 2 nefer
Ali Dede oğlu Hâne 1 aded kendü ve iyâli 5 nefer	Koca Mehmed'in Hâne 1 aded kendü ve iyâli 2 nefer	Kara Ahmed'in kendü ve iyâli 3 nefer	Resul Mustafa'nın Hâne 1 aded kendü ve iyâli 4 nefer	Abdi'nin Hâne 1 aded kendü ve iyâli 2 nefer
Ahmed'in kendü ve iyâli 3 nefer	Abdülkerim'in kendü ve iyâli 2 nefer	Veli'nin kendü ve iyâli 3 nefer	Abdülhalim'in Hâne 1 aded kendü ve iyâli 3 nefer	Abdülkadir'in kendü ve iyâli 3 nefer
Abdülkerim'in Hâne 1 aded 1 nefer	Abdurrahim'in Hâne 1 aded kendü ve iyâli 2 aded	Diğer Abdülkerim'in Hâne 1 aded 1 nefer	Abdülkerim 1 nefer	Dul avret 1 nefer
Sabileri 2 nefer	Dul avret 3 nefer	Veli'nin kendü ve iyâli 3 nefer	Yekûn-i neferan: 73	
Cem'an yekûn-i neferan: 1245				

*zîre-i Kıbrıs kuvvet-i kâhire-i husrevânem ile yenile fetholunmis memleket olup re'âyâsına dahî nev'an za'f târi olup cezîre-i mezbûre re'âyâsına zulm ü te'addî olunmayup adâlet olunup eger icrâ-i ser'-ı serîfde ve eger tahsil-i emvâl-i Beytü'l-mâl'de ve eger sâyir tekâlif-i örfiyye ve avârız-ı dîvâniyyede himâyet ü sıyânet olunup takviyet virilmekle memleket ü vilâyet eski hâli üzre ma'mûr u âbâdân olmak mühimmâtdan olmagın **buyurdum ki:***

*Bu bâbda her biriniz bi'z-zât mukayyed olup tâyife-i re'âyâ bana(?) vedâyi'-ı Hâlk-ı berâyâdur; mehmâ-emken himâyet ü sıyânet eyleyüp kimesneye zulm ü te'addî itdirmeyüp eger icrâ-i ahkâm-ı ser'-ı serîfde ve eger mîrî hidemâtda ve eger Beytü'l-mâl cem' u tahsilinde tedric ü adâlet ile tutup re'âyâya tefrika vü ihtilâl virür husûslardan ihtiyât eylesesiz ki, eyyâm-ı hümayûn-ı adâlet-makrûnumda her biri ferâğ-ı bâl ve huzûr-ı hâl ile kâr u kisblerinde olmagla cezîre-i mezbûre eski hâli üzre ma'mûr u âbâdân ola. Cezîre-i mezbûrenün ma'mûr u âbâdân ve re'âyâ vü berâyâsı emn ü emân ve refâhiyyet ü itmînân üzre olması nihâyet-i âmâl-i behcet-me'âbumdur. Bu husûsda gereği gibi her biriniz mukayyed olup her vechile seneldüp ma'mûr u âbâdân olması bâbında mesâ'î-i cemîlenüz vücûda getürüp bâb-ı ikdâmda dakîka fevteylemeyesiz. Söyle ki; re'âyâya zulm ü te'addî olunup fevka'l-had tekâlif ile müte'ezzî olmagla mâbeynlerine tefrika vü ihtilâl virildüğü istimâ' oluna, beyân olunan özrinüz kabul olmak ihtimâli yokdur; ana göre gaflet eylemeyesiz. (Mühimme; 12/2, Hüküm: 1215 23 Z 979/ 07 Mayıs 1572).*

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uzun süren savaşların tesiri gerekse devlet teşkilatının bozulması sebebiyle Anadolu'nun muhtelif yerlerinde karışıklıklar meydana gelmiştir, bunun yanında idarecilerin emir ve fermanları dinlememesi otoritenin iyice zayıflamasına sebep olmuş, halk bu sorunların paralelinde ortaya çıkan eşkıyalık vs. sorunlar karşısında korunamamıştır. (Daşçioğlu, 2007:88)

Kıbrıs'ın fethini müteakip tarihlendirilmiş olan 12 numaralı mühimme defterinde o tarihten itibaren Adanın gerek iskân gerekse sürgün yeri olarak önemli olduğudur. Bu belgelerden birisinde Kocaili Beyine ve İznikmid kadısına gönderilen hükümde, kanunsuz hareketleriyle bulunduğu yerlerin insanların rahatsız eden ve bu yüzden Üsküdar'dan Beşiktaş'a oradan da Eyüp'e sürgün edilmiş olmasına karşın Üsküdarlı Hamza'nın İznikmid'de de aynı tarzda davranışlarına devam ettiği, fitne ve fesattan vazgeçmediği bilgisi üzerine Kıbrıs'a sürgün edilmesi ve Kıbrıs beğlerbeğine teslim edildiğine dair belge alınması istenmiştir. (Mühimme,1046:181.29 L. 979-15 Mart 1572)

Bir başka belgede ise Musul'da oturan ve İran'la ilişkileri olduğu bildirilen yirmiden fazla şahsın Kıbrıs'a sürülmesi, ayrıca halka baskı yaptığı bildirilen şahısların da hapsedilmesi istenmiştir. (Mühimme, 674:411. 3 Safer 979-27 Haziran 1571).

Çok geniş topraklarda hüküm süren Osmanlı Devleti'nin idari, iktisadi, askeri ve sosyal teşkilatlarında görev yapan pek çok memurlarının olduğu aşikârdır. Devletin gelişme ve genişleme dönemlerinde bu teşkilatların işleyiş ve uyumları da buna paralel olarak düzenli gitmiştir. Ancak duraklama ve gerileme dönemlerinde her alanda olduğu gibi bozulmalar başlamıştır. Bununla birlikte devlet görevlilerinin yetkileri dışında işlere karıştığı, halka kötü davrandığı, zulüm yaptığı, usulsüz vergi topladığı vb. gibi olaylara sıkça rastlamak mümkündür. İşte bu durumlar karşısında devlet halktan veya o bölgenin ileri gelenlerinin şikâyet ve talepleri doğrultusunda görevlilere gerekli cezaları uygulama yoluna gitmiştir. Bunlarla bağlantılı olarak suç işleyen birçok devlet görevlisinin sürgünle cezalandırıldığı görülmektedir. (Daşçioğlu: 123).

Ulema sınıfının ceza hukuku açısından bir kısım imtiyazlarının olduğu bilinmektedir. Osmanlı Devleti'nde şer'i ve örfi hukuk birlikte kullanılmaktadır. İslâm Hükümdarları örfi hukuk yetkisini İslâm hukukunun sınırları içinde icra ederler. Bu konuda onlara yol gösteren ulema olmaktadır. Ulema Kuran, sünnet ve diğer kaynakları yorumlayarak hükümdarlara yol gösterirler. Bu nedenle egemen güç her zaman ulemayı kollamak zorundadır. Hiçbir hükümdar bu sınıfı karşısına almak istemez. Osmanlı Devletinde de durum böyle gelişmiştir. İlk devirlerde padişahın örfi yetkisi ulema sınıfı tarafından şekillendirilmiştir. Daha sonra kul sistemi gelişince ulema yönetim görevinden çekilip, yargı ve eğitim görevini üstlenmiştir. (Daşçioğlu:136-137).

Osmanlı Devleti'nde hukukun uygulayıcısı olan ulema mensupları, işledikleri suçlar yüzünden, diğer askerilerin tersine keyfi cezalardan ve ağır cezalardan kurtuldular. Böylece ulema sınıfına pek çok imtiyazlar sağlanmıştır. İşledikleri suçlar dolayısıyla ulemaya teamül olarak azil ve sürgün cezaları verilmiştir. Bunun haricinde ihtar gibi hafif cezalar ile pek az uygulaması görülen idam ve müsadere cezaları uygulanmıştır. (Mumcu:221-226).

Birkaç kez görevden alındığına dair kendisine emir yollanmış olmasına rağmen bu emre itaat etmeyen Homa Kazâsı Nâibi Hacı Halife'nin görevden alındığı halde görevi bırakmak istemediği bildirilmiş verilen emirle ailesiyle birlikte Kıbrıs'a sürgün edilmesi kararı verilmiştir. (Mühimme,1062:190. 3 Zilkade 979-18 Mart 1572).

Başka bir belgede ise yapmış olduğu fesad sebebiyle Rodos Adasına sürülmüş olmasına rağmen bir yolunu bulup buradan kurtulduğu ifade edilen Azak Kalesi Süvarileri Ağası Hasan bin Bahadır'ın gerçekten ehl-i fesad ise aile efradıyla birlikte Kıbrıs'a sürgün edilmesi emri verilmektedir. (Mühimme, 1135:227. 29 Zilkade 979-13 Nisan 1572).

Sicillerde de pek çok devlet görevlisinin Kıbrıs'a sürgün edilmiş olduğu görülmektedir. Kıbrıs Beylerbeyi Mustafa'ya gönderilen ferman ile beytü'l-mâl emîni olup Kıbrıs'a sürgün edilmiş olan Şekercioğlu Murad Çavuş'un adamları ile acilen orduya katılmasının temin edilmesi istenmektedir. (KŞS, 2/113, 29 Safer 1016-25 Haziran 1607). Yine İstanbul Kadısı iken azledilen Abdülaziz'in, Kıbrıs'a sürgün edildiğinden Lefkoşa Kalesi'nde hapsedilip, emir gönderilmedikçe serbest bırakılmaması emredilmiştir. (KŞS,4/561, 1 Safer 1044- 27 Temmuz 1634).

Elbette sürgün edilmiş şahısların affedilerek geri dönmelerine de müsaade edilmiştir. Sürgün



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Cezasından Kurtulma Şekilleri; Yerleri Değiştirilerek Ailevi ve Sağlık Sebepleri, Siyasi Sebeplerle, İdari İşlere Karışmak ve Huzuru Bozmak Sebebiyle, Eş, Çocuklarına ve Yaşlarına Hürmeten affedilmek suretiyle sürgünden kurtulmak mümkün olmuştur. Örneğin, Vefat eden hekimbaşının hanımı olup beş yıldır devam eden Kıbrıs'ta sürgün halinin sadakati ve iyi hali nedeni ile af dilediği bunun üzerine Saraylı Handan Hatun'un cezasının affedildiğinden serbest bırakılması emri verilmiştir. (KŞS,7/172, 29 Rebiulahir 1121-8 Temmuz 1709). Bir başka belgede, Amidi Muhassılı Nasuh Paşa tarafından Muğla'da işlediği pek çok suç ve eşkıyalık yaptığı için şikâyet konusu olduğu hakkında verilen dilekçe üzerine Kıbrıs'ta sürgüne gönderilmiştir. Dergâh-ı Muallâ yeniçeri çavuşlarından Abdi Çavuş'un bir daha ahali arasında fesada sebebiyet vermemek ve vilayet işlerine karışmamak şartıyla cezasının affedildiğinden serbest bırakılıp memleketinde ikamet etmesine izin verildiği görülmektedir. (KŞS,7/310, 1 Ramazan 1120-14 Kasım 1708). Üç senedir iftira suçlaması ile Kıbrıs'ta sürgünde bulunan İstanbullu Fatma'nın yapmış olduğu başvuru olumlu karşılanacak cezasının affedildiğinden serbest bırakılmasına karar verilmiştir. (KŞS, 13/151, 1 Şaban 1138-4 Nisan 1726).

Bu konu da bir başka örnek ise Denizli'de yeniçerilik iddiasında bulunan ve ahaliye zarar veren Hacı İvaz'ın ıslâh-ı nefis için Kıbrıs'a sürgün edilmiştir.(KŞS, 11/163, 11/20 Ramazan 1135-15/24 Haziran 1723), Lazkiye-i Denizli Kadısı Mevlana Seyyid Salih Efendi ve ahalinin talebi üzerine Kıbrıs'ta sürgünde bulunan Lazkiye-i Denizli kasabasından Hacı İvaz'ın, sürgün hayatında göstermiş olduğu tutum ve davranışlar<sup>2</sup> sonrasında kalan cezasının affedildiğinden serbest bırakılması için emir verilerek, Lazkiye-i Denizli kadısından da Hacı İvaz'ın evine dönmesine karşı kimsenin muhalet etmemesi için gereğini yapması istenmiştir. (KŞS, 13/183, 29 Rebiulevvel 1136-27 Aralık 1723). Görüleceği üzere devlet cezalandırma ve affetme konusunda oldukça adil olup, her iki halde de gereğinin yapılması konusunda titiz davranmaktadır.

Fesad çıkaran huzuru bozanlara ilişkin pek çok sürgünün Kıbrıs Adasına gerçekleştiği belgelerden anlaşılmaktadır. Mora züamâsından olup Balyabadra'da ikamet etmekte olan Lütfi'nin sürekli fesat çıkarmasından dolayı ailesiyle birlikte Kıbrıs'a sürgün edilmesi kararlaştırılmıştır. (Mühimme,1160: 239. 29 Za 979-13 Nisan 1572). "...Kıbrıs'a varup teslim eyledüklerine beglerbegisinden temessük alup Südde-i Sa'âdetüm'e gönderesin." ibaresi ile sürgün edilenlerin mutlaka teslim edildiğine dair belgenin alınması gerekliliği de her belgede vurgulanmaktadır.

Osmanlı Devleti'nde idari ve sosyal alandaki işler için bir görev dağılımı yapılmıştır. Herkes kendi işi ve göreviyle meşgul olmakla yükümlü kılınmıştır. Dolayısıyla başka işlere karışan ve kendi sorumluluklarını yerine getirmeyenlere belli ölçülerde cezalar verilmiştir. (Daşcıoğlu:95).

Osmanlı idari sistemi belli bir düzen ile birbirine bağlıdır. Bu düzen içerisinde verilen emir ve görevleri yerine getirmeyenlere gerekli cezalar verilmiştir. Konuyla ilgili belgelerden anlaşıldığına göre, emre itaatsizlik nedeniyle yapılan sürgünlere oldukça sık rastlanmaktadır. (Daşcıoğlu: 96) Yine adi suçlar boyutunda Tehdit, küfür, kız kaçırma gibi hadiselerinde sürgün ile cezalandırıldığını görmekteyiz.

Rüşvet ve sahtekârlıkta Osmanlı toplumunda ciddi suçlardan birisidir. Rüşvet, bütün insan topluluklarında geçmişten günümüze varlığını sürdüren en eski sosyal dertlerden birisidir. Rüşvet suçu için toplumun geri veya ileri gelişmişlik düzeyinde olmasının bir önemi yoktur. Çünkü her insan önce kendi menfaatlerini düşünür. Bu da rüşvet suçu için önemli psikolojik sebeplerden birisidir. Her suç gibi rüşvet de insanla alakalı sosyal bir olaydır. Bu nedenle özellikle sosyal düzenin bozulduğu dönemlerde bu suçun arttığı görülür. Büyük ekonomik krizler, savaşlar vb. olaylar toplum hayatını temelden etkilediği için, bu tür suçların artmasını sağlar. Böylece ekonomik şartların ağırlığı veya hafifliği rüşvet suçunun işlenmesini artırıp çoğaltmaktadır. (Mumcu, 1985:1-20) Rüşvet tespit edildiği takdirde değişik cezaların uygulandığını görülmektedir. Bu cezalar görevden almaktan katle kadar gidebilmektedir. Örneğin, Kalyonlar halifesi Ahmet Efendi ve Peksimetçibaşı, rüşvet aldıkları, hıyanet ve şekavet içinde olmaları sebebiyle azledilmişler, yerlerine başkaları atandıktan sonra, devlete vermekle yükümlü oldukları meblağlar tahsil edilerek Kıbrıs'a sürgün edilmişlerdir. (BOA, HH. nr. 9671 / 1206 (1791)

Asayiş bozan huzursuzluk yaratanlara ilişkin sicillerde pek çok belge bulunmaktadır. Kıbrıs'ta sürgünde bulunan Adanalı Mustafa Paşa oğullarının voyvodası Kara Ahmed'in cemiyette çıkarmış olduğu fesat

<sup>2</sup> "...cezîre-i mezbûrede tâ'ib ve müstağfir olup ıslâh-ı nefis olduğu cümleye zâhir ve mübeyyin olmağla mezbûr cezîre-i mezbûreden ıtlâk ve menziline sâkin olması..."



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ve mâl-ı mîrî tahsiline engel olma gibi suçlarla Kıbrıs Adasına cezîre-bend edilmiş iken, Adana Alaybeği Mehmed ve Adana sükkânından bazı ileri gelenlerin devreye girerek kendisine isnat olunan suçlara ilişkin affını talep ettiklerini ve Adana'ya dönmemesi şartıyla cezasının affedildiğinden serbest bırakılması emrinin verildiği görülmektedir. (KŞS, 7/69, 29 Zilkade 1120-9 Şubat 1709)

Divle kazasından, kendi halinde olmadığı ve eşkiya Köse Veli'ye yataklık ederek ahaliye zulüm yapıp mallarını gasp ettiği bildirilen Püsküllü Seyyid Mustafa'nın muhakemesinin yapılarak hak sahiplerinin hakları alınıp kendilerine verildikten sonra hapsedilmek üzere Kıbrıs'a kal'a-bend olarak sürgün edildiğinden orada hapsedilip emir gönderilmedikçe serbest bırakılmaması emri verilmiştir. (KŞS, 7/70, 15 Zilkade 1118-18 Şubat 1707)

Sürgün cezası verilmiş olanlar arasında yüz kızartıcı ve adî suçlardan pek çok kimsenin cezalandırılmış olduğunu görüyoruz. Zina, insanlık tarihinin en eski suçlarından biridir. Bu nedenle bütün toplumlarda ve dolayısıyla da Türk-İslam devletlerinde de bu sorunla karşılaşmıştır. Bu suçu işleyenlere karşı uygulanan cezalarda İslam hukuku çerçevesinde olmuştur. Ancak bu suçun tespitindeki zorluklardan dolayı genellikle ta'zir cezaları uygulanmıştır. (Daşçioğlu: 104-105). Osmanlı ceza hukukuna göre iftira etmek ve yalancı şahitlik yapmak ta'zir cezaları içinde yer almaktadır. Bu cezaların verilmesi ve uygulanması bilindiği gibi ulûl-emre aittir. Mahkemeler de yargılanma sırasında da yalancı şahitlik yaptığı anlaşılmalara da sürgün cezaları verildiği görülmektedir. Bu grup suçlarda kişiler arası davalarda daha çok sürgün cezası uygulanırken, devleti ilgilendiren hususlarda daha ağır cezaların verildiği anlaşılmaktadır. (Daşçioğlu: 118). Engürülü Fatma ile kocası Haşan İstanbul'da bazı evlere girerek hırsızlık yaptıkları için önce zindana atılmışlar, çaldıkları mallar sahiplerine verildikten sonra Kıbrıs'a sürgün edilmişlerdir. (BOA, C. ZAB. nr. 2925 / 7.L.1174 (12.05.1761). Dekatlı Fatma ve diğer Fatma ile Hatice adlı hırsızlık yapan üç kadının Kıbrıs'a sürgün edilmesi (KŞS, 11/306, 1 Cemâziyelevvel 1135-7 Şubat 1723), Kırşehir'de eşkiyâlık yapan Ali ve İbrahim'in aileleriyle birlikte Kıbrıs adasına sürgüne gönderilmeleri gibi pek çok örnek vermek mümkündür. (KŞS, 11/309, 29 Şevval 1134-12 Ağustos 1722).

Kale-bend şeklinde yapılan sürgünlerde oldukça fazladır. Birkaç örnek vermek gerekirse, adamları ile Lefkoşa'da çorbacı, zuama ve ayan olan beş-on kişiye baskı yapan, eski muhassıl Ahmed ağanın kethüdasını öldürüp mallarını yağmalayan Tuzlalı Odun Mustafa ve Enbiyaoğlu Ali adındaki eşkiyaların, Avret Adası'nda kalebend olunmak üzere sürgün edilmesi emri verilmiştir. (KŞS, 12/342, 15 Ramazan 1137-28 Mayıs 1725). Bir başka belgede de Tercümanlık iddiasıyla reayaya zulmettiği şikayet edilen Koca Kostantin'in reaya ile muhakemesinin yapılarak suçunun tespit edildiği taktirde Girne Kalesi'nde kalebend olunmak üzere sürgün edilmesi istenmektedir. (KŞS, 12/346, 29 Cemaziyelahir 1137-15 Mart 1725).

Cezîre-bend olarak Kıbrısta sürgün olan, kendi halinde olmadığı fesad içinde olduğu ifade edilen Esirci Seyyid Kasım'ın serbest bırakılmasına dair çıkarılan emrin iptal edildiğini, Kıbrıs'tan tahliyesi için üç sahlı ferman ve sadrazam mektubu olmadıkça serbest bırakılmaması emredilmiştir. (KŞS, 12/347, 29 Şaban 1137-13 Mayıs 1725). Yine Kıbrıs'da cezîre-bend olarak sürgünde bulunan Veli Paşa'nın ıtlakı için ferman ve sadrazam mektubu ve buyruldu gönderilmedikçe serbest bırakılmaması istenmektedir. (KŞS, 12/348, 5 Şaban 1137-19 Nisan 1725).

Bir başka belgede ise devlete karşı görevlerini yerine getirmemiş olan Gölgelioğlu Osman'ın yakalanarak Kıbrıs'a cezîre-bend olarak sürgün edilmesi ve devlete olan borçlarına karşılık mallarına el konulması ve satılarak bedelinin hazineye gönderilmesi emredilmiştir. (KŞS, 12/351, 1 Şevval 1137-13 Haziran 1725).

İslam dinine uygun olmayan hal ve işlerde tespiti halinde gereği yerine getiriliyordu. Örneğin, Sihir işleriyle uğraştığı tespit edilen Makrili Mustafa'nın Kıbrıs'a sürgün edildiğinden orada ikâmet ettirilip emir gönderilmedikçe serbest bırakılmaması (KŞS, 13/160, 15 Şaban 1138-18 Nisan 1726), yine görevine devam etmeyip sihir ve uygunsuz işlerle uğraştığı gibi sâbık Topçubaşı İbrahim'in öldürülmesine sebebiyet verdiğinden Kıbrıs'ta sürgünde bulunan Tophane Ruznamçecisi Kız Mehmed'in, bundan sonra Sakız Kalesi'nde mahpus edilmesine karar verildiğinden Sakız'a nakledilip orada ikâmet ettirilip emir gönderilmedikçe serbest bırakılmaması. (KŞS, 13/163, 29 Ramazan 1138-31 Mayıs 1726).

Tesadüf ettiğimiz ilginç bir belgede İstanbul'da Balizâde İbrahim Efendi'nin kızının damadı olan





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Abdullah Efendi'nin bir hizmetçisini ayartıp evdeki eşyalarla birlikte kaçarken yakalanan Salih'in, Kıbrıs'a sürgün edildiğinden orada ikâmet ettirilip emir gönderilmedikçe serbest bırakılmaması emredilmiş iken (KŞS, 13/164, 29 Şevval 1138-30 Haziran 1726), altı yedi aya yakın sürgünde kalan Salih'in, cezasının affedildiği ve serbest bırakılması için emir verilmiş olduğunu görüyoruz..(KŞS, 13/165, 29 Cemaziyelahir 1139-21 Şubat 1727).

Osmanlı Devleti içindeki dini cemaat liderlerinin kendi cemaatlerine bağlı gayrimüslim Osmanlı uyruğu üzerinde sürgün, hapis, vergileri kaldırmak, piskoposları, din adamlarını görevden almak aforoz etmek, sansür koymak, sivil ve politik hayata etki eden bazı yükümlülükler koymak gibi yaptırımları uygulama yetkilen vardır. Böylece Osmanlı hukuku gayrimüslim dini cemaat liderlerine kendi hukuklarını ve bu hukuka bağlı cezaları uygulama yetkisini tanımıştır. Bununla beraber devlet başka hak ve imtiyazlar da tanıyarak cemaatleri üzerinde dini liderlerin otoritelerini artırmıştır. (Özbilgen, 2003: 37)

Sadece Müslümanların değil Gayr-i müslim reyanında uygunsuz ve kanunsuz haller sonrası sürgüne varan boyutta cezalara maruz kaldığını görmekteyiz. Örneğin, Lefkoşa'nın Kabadez köyü ahalisinin<sup>3</sup> uygunsuz hareketlerinden şikayetçi oldukları İlya veled-i İlya'nın köyden sürgün edilmesine karar verilmiştir. (KŞS,13/381, 29 Şevval 1141-28 Mayıs 1729).

### Sonuç

Osmanlı Devleti'nde iskân ve ceza usulü olarak uygulandığını gördüğümüz sürgünlerin, nasıl bir seyir takip ettiğini ifade etmeye çalışırsak, devletin genişlediği dönemde ele geçirilen yeni bölgelerin şenlendirilmesinin asıl amaç olarak gönüllü veyahut zorla sürgün şeklinde iskân olduğunu rahatlıkla ifade edebilirken, 17 yüzyıldan itibaren bu eylemin içe dönük olarak cezalandırma boyutunda icra edildiğini görmekteyiz. Aralarında husumet olan aşiretlerden, devlete ya da şahıslara karşı işlenmiş suçlara değin pek çok sürgün hadisesinin kayıtlara yansımış olduğunu görmekteyiz.

Duraklama ve gerileme dönemlerinde fetihlerin durması, askeri başarısızlıklar, iktisadi ve sosyal alandaki buhranlar nedeniyle ülke içinde aşiretlerin sürgünleri dışında, bireysel olarak yapılan sürgünlere de sıkça rastlanılmaktadır. Ayrıca yapılan sürgünlerin pek çoğu ceza niteliği taşımaktadır ki, bu belgelerden açıkça anlaşılmaktadır.

Sürgün sebepleri pek çok belgede uygunsuz hareketlerinden dolayı, kendi hallerinde olmadıkları için gibi ifadelerle belirtildiği için asıl sebepler anlaşılamamaktadır. Bununla birlikte sürgün sebeplerini açıkça veren şekavet, rüşvet, fuhuş, hırsızlık, zulüm gibi ifadelerin yer aldığı daha anlaşılır belgeler de vardır.

Osmanlı Devleti sürgünü ıslah açısından iyi kullanmış ve sürgüne gönderdiği kişileri mutlaka takip etmiş ve bu noktada azami gayret göstermiştir. Sürgün uygulamaları Osmanlı sınırları içindeki Müslim gayrimüslim herkes için uygulanmıştır.

Sürgünler daha çok kötü hareketleri ıslah etmek, ülke içinde huzuru sağlamak, toplum içinde görülen mali ve ahlaki sorunları gidermek için yapılmıştır. Çalışmamızda Kıbrıs özelinde ifade etmiş olduğumuz sebeplerden kaynaklı sürgünlere değinilmeye çalışılmış, yapılan sürgünler ve süreçlere dair bilgi verilmeye çalışılmıştır.

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KŞS, DN:2, Hüküm:113. DN:4 Hüküm:561. DN:7, Hüküm: 69-70-172-310. DN: 8, Hüküm:517.

DN:11, Hüküm: 163-309. DN:12, Hüküm: 342-346-347-348-351. DN:13, Hüküm: 151-160-163-164-

<sup>3</sup> “...Cezîre-i Kıbrıs'da medîne-i Lefkoşa'ya tâbi' Kabadez nâm karye ahâlîsinden işbu ashâbu'r-rakîm Papa Nikola veled-i Kostantin ve Kostantin veled-i Zovani ve Piyeri veled-i Luizu ve Yani veled-i Mihail ve Luizu veled-i Salamo ve Braşkoga veled-i Hristofo ve Gavrilî veled-i Luizu ve Anderya veled-i Mihail ve Zovani veled-i Tomasi ve Yorgi veled-i Filori ve Kadsira veled-i Nikolo nâm zimmîler meclis-i şer'î şerîf-i enverde karye-i mezbûrede sâkin İlya veled-i İlya nâm zimmî muvâcehesinde mezbûr İlya kendi hâlinde olmayup karye-i mezbûrede sâkin nice ehl avretlere fi'l-i şeni' kasdıyla ta'arruz ve nice kimesneleri şütüm-i galîza ile şetm ve niceleri bi-gayr-i hakkın ehl-i örfe gamz ile tecrîm etdirmek âdet-i müstemirresi olup ve'l-hâsıl ibâdullâh şerr u mazarratından âciz olmuşlardır deyü...”



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### GÜVEN VE ÖRGÜTSEL İNOVASYON ARASINDAKİ İLİŞKİNİN İNCELENMESİ: TEKNOLOJİ PERAKENDE İŞLETMELERİNDE BİR UYGULAMA

THE RELATIONSHIP BETWEEN TRUST AND ORGANIZATIONAL INNOVATION: AN  
APPLICATION ON TECHNOLOGY RETAIL BUSINESSES

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#### ÖZET

Türkiye’de teknoloji perakende sektöründe önemli işletmeler yer almaktadır. Bu işletmelerin, ülkenin birçok bölgesinde mağazaları bulunmaktadır. Dolayısıyla bu işletmeler oldukça büyük bir çalışan kitlesine sahiptirler. Sektördeki rekabet her geçen gün artmakta ve işletmelerin başta insan kaynakları olmak üzere güçlü stratejilere sahip olmaları gerekmektedir. Bu kapsamda araştırma örgütsel güven ve örgütsel inovasyona odaklanmaktadır. Diğer ifadeyle, bu araştırma, örgütsel güven boyutlarının, örgütsel inovasyon üzerindeki etkilerini incelemek amacıyla gerçekleştirilmiştir. Örgütsel güven literatürde kişilerarası ve kişilerarası olmayan güven olarak kategorize edilmektedir. Kişilerarası güven (yatay ve dikey güven), kişilerarası olmayan güven (kurumsal güven) olarak kabul edilmektedir. Yatay güven, çalışanlar arasındaki güveni; dikey güven ise çalışanlar ve liderler arasındaki güveni yansıtmaktadır. Kurumsal güven ise örgüt üyelerinin, örgütün sahip olduğu (örneğin vizyon ve stratejisi) örgütsel uygulamaları ve süreçlere ilişkin algılarını yansıtmaktadır. Örgüt çalışanlarının farklı güven türleri bağlamındaki algılarının örgütsel inovasyona yönelik etkisinin incelenmesi önemli görülmektedir. Örgütlerin varlığına etki eden ve geleceği açısından oldukça önemli olan örgütsel inovasyon belirleyicilerinin araştırılması, örgütlere mevcut durumları hakkında önemli bilgiler sunacaktır. Ayrıca, gelecekteki insan kaynakları stratejilerinin belirlenmesi ve uygulanmasına yönelik kazanımlar sağlayacaktır. Bu kapsamda araştırma, yatay güven, dikey güven ve kurumsal güvenin, örgütsel inovasyon ile ilişkisinin incelenmesine odaklanmaktadır. Araştırmanın evrenini Türkiye’de teknoloji perakende işletmelerindeki çalışanlar oluşturmaktadır. Örneklem sayısı ise 405 anket formunda yer alan verilerden yola çıkarak değerlendirilmiştir. Önerilen yapısal modeli test etmek için Smart PLS kullanılmıştır. Yol analizi sonuçları incelendiğinde yatay, dikey ve kurumsal güvenin, örgütsel inovasyon ile pozitif ilişkili olduğu sonucuna ulaşılmıştır. Araştırmada, teknoloji perakende işletmelerine birtakım çıkarımlarda bulunulmuştur.

**Anahtar Kelimeler:** Güven, Örgütsel güven, Örgütsel inovasyon.

#### ABSTRACT

There are important enterprises in the technology retail sector in Turkey. These businesses have stores in many parts of the country. Therefore, these enterprises have a very large employee base. Competition



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in the sector is increasing day by day and businesses need to have strong strategies, especially human resources. In this context, research focuses on organizational trust and organizational innovation. In other words, this research was carried out to examine the effects of organizational trust dimensions on organizational innovation. Organizational trust is categorized as interpersonal and impersonal trust in the literature. Interpersonal trust (lateral and vertical trust) is considered as impersonal trust (institutional trust). Lateral trust, trust between employees; vertical trust reflects the trust between employees and leaders. Institutional trust reflects the organizational members' perceptions of the organizational practices and processes that the organization has (for example, its vision and strategy). It seems important to examine the effects of organizational employees' perceptions in the context of different types of trust on organizational innovation. Investigation of organizational innovation determinants, which affect the existence of organizations and are very important for their future, will provide important information to organizations about their current situation. In addition, it will provide gains for the determination and implementation of future human resources strategies. In this context, the research focuses on examining the relationship between lateral trust, vertical trust and institutional trust and organizational innovation. The universe of the research consists of employees in technology retail businesses in Turkey. The number of samples was evaluated based on the data in the 405 questionnaire forms. Smart PLS was used to test the proposed structural model. When the path analysis results were examined, it was concluded that lateral, vertical and institutional trust were positively related to organizational innovation. In the research, some implications were made for technology retail businesses.

**Keywords:** Trust, Organizational trust, Organizational innovation.

### 1. GİRİŞ

İşletmeler, belirledikleri amaçlara ulaşmak ve rekabette avantaj elde etmek adına güçlü lider/yöneticilerin yanı sıra kuruluşuna güven duyan çalışanlara ihtiyaç duyarlar. Bir çalışanın içerisinde yer aldığı kuruluşuna güven duyması oldukça önemlidir. İşyerinde güven, çalışanlar açısından temel ihtiyaçlar kadar önemlidir ve bir çalışanın işletmesiyle olan ilişkisinin sürekliliği, işyerindeki performansı, motivasyonu vs. birçok duruma etki edebilir. Bir çalışanın, çalışma arkadaşlarına, lider/yöneticisine, içerisinde yer aldığı örgüte veya bir bütün olarak kuruluşuna güven duyması muhtemeldir. Örgütsel güvenin anlaşılması, çalışanların güvenini yönelttiği nesnenin anlaşılmasını zorunlu kılmaktadır. Diğer ifadeyle örgütsel güven, güvenin çok boyutlu yapısına odaklanmayı gerektirmektedir (Ellonen vd., 2008).

İnovasyon, bir fikrin yeni bir ürün, süreç veya uygulamaya dönüştürülmesi veya mevcut bir ürün, süreç veya uygulamada iyileştirmeler için ilgili bilgi ve kaynakları kullanarak değer yaratılmasını yansıtmaktadır (Varadarajan, 2018). İnovasyon, işletmelerin hem mevcut konumu hem de gelecekteki konumu açısından oldukça önemlidir. Literatürde inovasyonu örgütsel düzeyde inceleyen araştırmalar yer almaktadır (Baldrige ve Burnham, 1975; Hage, 1999; Boer ve Daring, 2001). İnovasyonun, örgütsel düzeyde incelenmesi mevcut örgütsel durumun analizini ve örgüt stratejilerinin geliştirilmesine katkı sağlayacaktır.

Bu kapsamda bu araştırma, örgütsel güven ve örgütsel inovasyon arasındaki ilişkinin incelenmesi amacıyla gerçekleştirilmiştir. Örgütsel güven; yatay, dikey ve kurumsal olarak ele alınmıştır. Böylelikle örgütsel inovasyona yönelik etkilerin daha ayrıntılı incelenmesi amaçlanmaktadır. Araştırmanın sonuçlarının uygulayıcılara birtakım yararlı sonuçlar sunacağına inanılmaktadır.

### 2. KAVRAMSAL ÇERÇEVE

#### 2.1. Örgütsel Güven

Güven, diğer tarafın iyi niyetli davranacağına ilişkin inancı ve yardımsever davranış beklentisini yansıtır. Ayrıca güven, taraflar arasındaki bağımlılığı içerir, bu da bir tarafın performansının diğerinden etkilendiği anlamına gelir. Bu kapsamda örgütsel güven, “güvenen tarafın”, “güvenilene” yönelik tutumlarını yansıtmaktadır. Örgüt içerisinde güven, güvenilen diğer tarafa, örneğin işverene, yöneltilmiş olabilir (Lämsä ve Puçétaité, 2006: 131). Örgütsel güven, duruma ve örgütsel bağlama dayandığından çalışanların örgüte ilişkin algılarını (deneyimlerinin hatırlanır olmasını) yansıtmaktadır (Adams ve



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Wiswell, 2008). Örgütsel güvenin irdelenmesi, güvenin çok boyutlu yapısına odaklanmayı gerektirir. McCauley ve Kuhnert (1992), bir çalışanın, kendi çalışma arkadaşlarına güven duyarken, üst yöneticilerine karşı aynı güven duygusuna sahip olamayacağını ifade etmektedir. Örgütsel güven, kişiler arası ve kişiler arası olmayan güven türleriyle ele alınmaktadır. Buna göre kişiler arası güven, yatay ve dikey güveni; kişiler arası olmayan güven ise kurumsal güveni yansıtmaktadır (Ellonen vd., 2008: 161-162). Yatay ve dikey güven genel olarak kişiler arası veya ikili bir güven biçimini yansıtmaktadır. Çoğu çalışan için üst yönetime güvenme kararı, onların karakterinden, söylem ya da eylemlerine ilişkin kişisel deneyimlerden ziyade alınan örgütsel kararların sonuçlarına bağlı olarak gelişmektedir (Costigan vd., 1998: 304). Yatay güven, aynı çalışma ortamını paylaşan çalışanlar arasındaki ilişkileri yansıtmaktadır. Diğer ifadeyle yatay güven, eşitler arası güven ilişkilerini ifade etmektedir. Dikey güven, bireyler ile onların amirleri, üst yönetimi veya bir bütün olarak kuruluşlar arasındaki güven ilişkilerini yansıtmaktadır (McCauley ve Kuhnert, 1992: 269). Kurumsal güven ise üyelerinin, kuruluşun vizyon ve stratejisine, teknolojik ve ticari yeterliliğine, adil süreçlere ve yapılarına ve ayrıca insan kaynakları politikalarına olan güveni olarak ifade edilebilir (Ellonen vd., 2008: 162).

### 2.2. Örgütsel İnovasyon

İnovasyonu; yaratıcılık, yeni fikirlere açıklık, yenilik yapma niyeti, risk alma istekliliği ve yenilik için teknolojik kapasite olarak beş boyutla açıklamak mümkündür (Lynch vd., 2010). Damanpour (1991) inovasyonun, yeni bir ürün veya hizmet, yeni bir üretim süreci teknolojisi, yeni bir yapı veya idari sistem veya organizasyon üyelerine ilişkin yeni bir plan veya program şeklinde gerçekleşebileceğini belirtmektedir. Crossan ve Apaydin (2009), inovasyonun hem bir süreç hem de sonuç olduğunu, inovasyon belirleyicileri olarak liderlik, yönetim etkisi ve iş süreçlerinin örgütsel inovasyonun belirleyici unsurları olduğunu ifade etmişlerdir. Oslo Klavuzu -(Ekonomik İşbirliği ve Kalkınma Örgütü) 2005 yılında örgütsel inovasyon için iş uygulamaları, işyeri organizasyonu ve işyeri dış ilişkilerine dayanarak değerlendirmiştir. Buna göre örgütsel inovasyon; bir firmanın iş uygulamalarında (rutin işleri ve prosedürleri düzenlemek için yeni yöntemler), işyeri organizasyonunda (sorumlulukları dağıtmanın yeni yolları, çalışanlar) veya dış ilişkilerinde (diğer firmalar veya kamu kurumları ile ilişkileri düzenlemenin yeni yolları) yeni bir örgütsel yöntemin uygulanması olarak ifade edilebilir (akt. Alves vd., 2018: 3). İnovasyon, idari, teknik, ürün, süreç, radikal ve artırılmış inovasyon olarak farklı türlere sahiptir (Liao ve Wu, 2010: 1097). Daha ayrıntılı olarak inovasyon, teknik inovasyon (yeni ürün, yeni üretim teknikleri); teknik olmayan inovasyon (yeni pazarlar, yeni örgüt biçimleri); ürün inovasyonu (yeni ürün ve hizmetler); süreç inovasyonu (yeni üretim yöntemleri ve yeni örgütlenme biçimleri) şeklinde gerçekleşebilir ve buradan hareketle örgütsel inovasyon, inovasyonla uyumlu olarak teknik ürün inovasyonları, teknik olmayan hizmet inovasyonları, teknik ve teknik olmayan süreç inovasyonları olarak ele alınabilir (Damanpour ve Evan, 1984; Armbruster vd., 2008).

### 3. Kuramsal Çerçeve

Araştırma örgütsel güveni literatürle uyumlu olarak yatay, dikey ve kurumsal güven olarak ayrıntılı şekilde ele almaktadır. Çalışanların eşitler arası (yatay güven) ve hiyerarşiye bağlı ast-üst ilişkilerinde oluşan (dikey güven) ve kuruluşun yapı ve süreçlerine ilişkin güven (kurumsal güven) algılarının ayrı ele alınması örgütsel güvene ilişkin değerlendirmeleri güçlendirecektir. Bu kapsamda literatürde öncül çalışmalarda farklı güven türlerini açıklayan araştırmalar, bu araştırmadaki model ve hipotezlere güçlü bir altyapı oluşturmaktadır.

Rahmatoullah vd. (2011), Tahran Petrol Rafinerisi Şirketinde hem kişilerarası hem de kişisel olmayan örgütsel güvenin örgütsel inovasyonun çeşitli boyutları üzerindeki etkilerini analiz etmişlerdir. Sonuçlar, yatay güvenin inovasyonun herhangi bir boyutuyla anlamlı bir ilişkisi olmadığını, dikey ve kurumsal güvenin ise örgütsel inovasyon ile pozitif bir ilişkisi olduğunu ortaya koymuştur.

Ellonen vd. (2008), 214 katılımcı ile gerçekleştirdikleri araştırmada; yatay güven ile örgütsel inovasyon arasında anlamlı bir ilişki bulunamamış, ancak dikey güven, kurumsal güven ve örgütsel inovasyon arasında anlamlı bir ilişkinin olduğu sonucuna ulaşmışlardır. Araştırma sonuçlarına göre kurumsal güveninin, örgütsel inovasyonun her boyutuyla pozitif ve anlamlı bir şekilde ilişkili olduğu ve özellikle ürün ve süreç inovasyonu söz konusu olduğunda, katsayı değerlerinin nispeten yüksek olduğu belirtilmiştir.



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Jearey (2012), 189 katılımcı ile gerçekleştirdikleri araştırmada, kişiler arası güvenin bilişsel, duygusal, yatay ve dikey boyutları ile örgütsel inovasyon arasında anlamlı ve pozitif bir ilişki olduğu sonucuna ulaşmıştır.

Huang ve Hu (2020), örgütlerde yatay, dikey ve sistem güveninin yaratıcılık üzerindeki etkisini incelemek amacıyla meta-analiz gerçekleştirmişlerdir. Meta-analiz sonuçları yatay, dikey, sistem güveni ve yaratıcılık arasında anlamlı pozitif ilişki olduğunu ortaya koymuştur.

Bu kapsamda aşağıda yer alan hipotezler geliştirilmiştir:

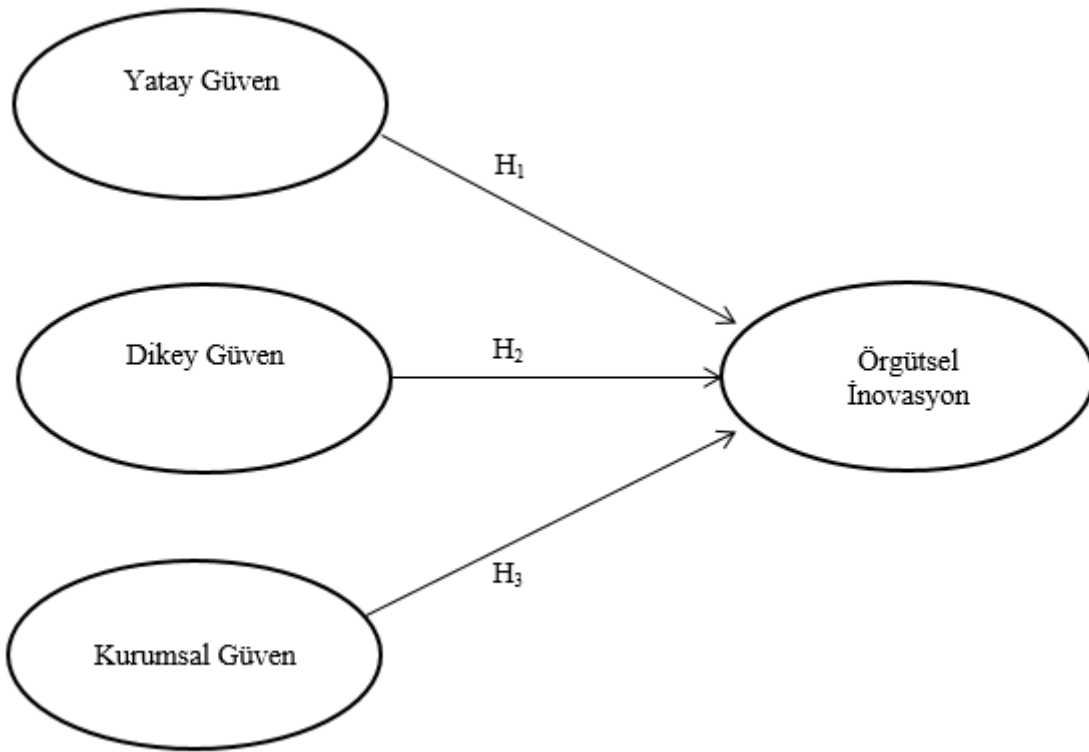
*H<sub>1</sub>: Yatay güvenin örgütsel inovasyon üzerinde pozitif anlamlı etkisi bulunmaktadır.*

*H<sub>2</sub>: Dikey güvenin örgütsel inovasyon üzerinde pozitif anlamlı etkisi bulunmaktadır.*

*H<sub>3</sub>: Kurumsal güvenin örgütsel inovasyon üzerinde pozitif anlamlı etkisi bulunmaktadır.*

### 4. YÖNTEM

Çalışma, örgütsel güven boyutlarının (yatay güven, dikey güven ve kurumsal güven) örgütsel inovasyon üzerindeki etkilerini ölçmek amacıyla gerçekleştirilmiştir. Araştırmanın evrenini Türkiye’de teknoloji perakende işletmelerinde görev yapan çalışanlar oluşturmaktadır.



**Şekil 1: Araştırma Model Önerisi**

Araştırmada, verilerin toplanması anket tekniği kullanılarak gerçekleştirilmiştir. Araştırmada, veri toplamak için Türkiye’de yer alan teknoloji işletmeleri seçilmiştir. Bu işletmelerin seçilmesinde kolayda örneklem yöntemi kullanılmış ve çalışmaya katılmak için gerekli izinler alınmıştır. Verilerin toplanması için araştırmanın detayları çalışanlara anlatılmış ve tüm soruların yanıtlanması sağlanmıştır. Anketler yüz yüze gerçekleştirilmiştir.

Hair vd. (2018) gözlemlenen her ifade için en az 5 katılımcıya sahip olunması gerektiğini belirtmişlerdir. Bu nedenle 65 ifadeden oluşan 4 yapı için gereksinimi karşılayan bir örneklem büyüklüğünü hedeflenmiş ve örneklem sayısı 450 anket formunda yer alan verilerden yola çıkarak değerlendirilmiştir. Eksik ve hatalı veriler neticesinde 45 anket değerlendirmeden çıkartılmış ve çalışmada 405 anket analize tabi tutulmuştur. Çalışma kapsamında veriler, modelde belirlenen yatay güven, dikey güven, kurumsal güven, örgütsel inovasyon ve demografik soruları kapsayan bir anketle oluşturulmuştur. Katılımcıların



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%53,8'i erkek (n: 218), %46,2'si kadındır (n: 187). Katılımcıların yaş aralığının %42'si (n: 170) 25-34 aralığındadır. Katılımcıların %53,1'i bekârdır (n: 215). Çalışanların %40,5'i (n: 164) ön lisans mezunudur. Katılımcıların gelir algılarına bakıldığında, %54,1'i (n: 219) kendisinin çok düşük düzeyde gelire sahip olduğunu belirtmiştir.

### 4.1. Ölçekler

Anket ifadeleri daha önceki araştırmalarda doğrulanmış ve güvenilir olduğu gösterilen çok maddeli ölçümlerden oluşturulmuştur. Araştırmada Mayer ve Davis (1999) ve McKnight vd. (2002) tarafından 15 maddelik yatay güven ve 15 maddelik dikey güven ölçeği kullanılmıştır. Katılımcılar ifadelere 1-kesinlikle katılmıyorum ile 5-kesinlikle katılıyorum arasında değişen beşli likert tipi bir ölçekte cevap vermişlerdir.

Kurumsal güven ölçeği ve örgütsel inovasyon değişkenleri Ellonen vd. (2008) tarafından geliştirilen ölçeklerle ölçülmüştür. Kurumsal güven 19 ifadeden oluşurken örgütsel inovasyon 16 ifadeden oluşmaktadır. İfadeler, katılımcıların 1-kesinlikle katılmıyorum ve 5-kesinlikle katılıyorum şeklinde yanıtlamaları gereken beşli likert tipi bir ölçekle sunulmuştur.

### 4.2. Veri Analizi

Araştırmanın veri analizi için SmartPLS istatistik analizi kullanılmıştır. Veri analizinin gerçekleştirilmesi ölçüm ve yapısal model yaklaşımlarıyla belirlenmektedir. Ölçüm modelinde güvenilirlik katsayıları (Cronbach Alpha, rho-A), iç tutarlık değeri (birleşik güvenilirlik), uyum geçerliliği (Faktör yükleri, ortalama açıklanan varyans) ve ayırım geçerlilik testi (Larcker kriteri) gerçekleştirilmektedir. Yapısal modelde ise hipotezlerin tespitinde yol katsayısı analizi yapılmaktadır.

### 4.3. Ölçüm Modeli Sonuçları

Ölçüm modeli genel olarak ölçeğin güvenilirlik ve geçerlik testlerini belirlemek amacıyla yapılmaktadır. Güvenilirlik ve iç tutarlılığın 0.70'den büyük olması gerektiği belirtilmiştir (Hair vd., 2019). Ölçeğin uyum geçerliliği için hesaplanması gereken faktör yükleri ve ortalama açıklanan varyans değerlerinin ise 0,50'den yüksek olması gerekmektedir (Kaiser, 1974; Hair vd., 2014).

**Tablo 1: Güvenirlik ve Geçerlik**

Değişkenler	CA	CR	rho-A	AVE
Yatay Güven	0.923	0.933	0.937	0.715
Dikey Güven	0.897	0.899	0.901	0.695
Kurumsal Güven	0.865	0.886	0.893	0.642
Örgütsel İnovasyon	0.912	0.918	0.917	0.703

CA: Cronbach Alpha, CR: Composite Reliability (Birleşik Güvenirlik), AVE: Average Variance Extracted (Ortalama Açıklanan Varyans)

Gerçekleştirilen analizler neticesinde değişkenlere ait güvenilirlik ve iç tutarlılık düzeylerinin 0.70'in üzerinde olduğu belirlenmiştir. Değişkenlere ait faktör yüklerinin yatay güven için 0.822-0.896, dikey güven için 0.798-0.917, kurumsal güven için 0.798-0.893 ve örgütsel inovasyon için 0.839-0.913 aralığında olduğu tespit edilmiştir. AVE değerlerinin ise değişkenlerin tamamında 0.50'nin üzerinde olduğu belirlenmiştir. Elde edilen güvenilirlik ve geçerlik sonuçlarının önerilen sınırların üzerinde olduğu tespit edilmiştir (Bkz Tablo 1).

Ayırt edici geçerliliği değerlendirmek için temel bir kural olarak, Fornell ve Larcker (1981), 0,50 veya daha fazla puanla AVE'nin kullanılmasını önermiştir. Yeterli ayırt edici geçerliliği elde etmek için, AVE'nin karekökü, gizli yapılar arasındaki korelasyonlardan daha büyük olmalıdır (Fornell ve Larcker 1981). Tablo 2'de, yapılar arasındaki korelasyonlar, çıkarılan ortalama varyansların karekökü ile karşılaştırılmıştır (değerler kalın harflerle yazılmıştır). SmartPLS'den elde edilen sonuç, çıkarılan



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ortalama varyansların karekökünün, gizli yapılar arasındaki korelasyonlardan daha büyük olduğunu ve bu da yeterli ayırt edici geçerliliği olduğunu göstermektedir (Garson, 2016).

**Tablo 2: Ayrışma Geçerliliği (Fornell-Larcker)**

Değişkenler	1	2	3	4
Yatay Güven	<b>0,845</b>			
Dikey Güven	0,624	<b>0,833</b>		
Kurumsal Güven	0,518	0,612	<b>0,801</b>	
Örgütsel İnovasyon	0,583	0,603	0,591	<b>0,838</b>

#### 4.4. Yapısal Model Sonuçları

Yapısal model, ana ve aracı etkilerle ilgili hipotezlerin test edilmesiyle ilgili bölümü kapsamaktadır. Bu çalışma, yol katsayılarının önemini değerlendirmek için 5.000 önyükleme örneği ve 405 veri ile PLS standart önyükleme prosedürünü uygulamıştır (Hair vd., 2014). Tablo 3, tüm değişkenleri içeren tam yapısal modelin tahminlerini göstermektedir.

**Tablo 3: Yapısal Eşitlik Modeli Sonuçları**

Hipotezler	$\beta$	S.S.	t-değeri	p-değeri
<b>Model</b>				
H <sub>1</sub> Yatay Güven <sup>&gt;&gt;&gt;</sup> Örgütsel İnovasyon	0,434	0,052	6,485	0,000***
H <sub>2</sub> Dikey Güven <sup>&gt;&gt;&gt;</sup> Örgütsel İnovasyon	0,419	0,035	5,920	0,000***
H <sub>3</sub> Kurumsal Güven <sup>&gt;&gt;&gt;</sup> Örgütsel İnovasyon	0,631	0,045	8,156	0,000***

$p < 0.001$ \*\*\*,  $p < 0.01$ \*\* ,  $p < 0.05$ \*

Gerçekleştirilen yapısal eşitlik modeli sonuçlarına göre yatay, dikey ve kurumsal güvenin örgütsel inovasyon üzerinde pozitif anlamlı bir etkisinin olduğu tespit edilmiştir. Dolayısıyla H<sub>1</sub>, H<sub>2</sub> ve H<sub>3</sub> hipotezleri kabul edilmiştir.

#### 5. Sonuç ve Öneriler

Araştırmada ilk olarak, yatay güveninin örgütsel inovasyon üzerinde pozitif anlamlı etkisi olduğu sonucuna ulaşılmıştır. Bu sonuç birtakım çıkarımlar yapmayı olanaklı kılmaktadır. Buna göre çalışanlar, diğer çalışma arkadaşlarının adaletli olduklarına ve tutarlı davranışlar sergilediklerine inandıklarında, çalışanların faaliyetlerinde dürüstlüğü önemli bir değer olduğuna ilişkin algılara sahip olduklarında, sözlerin zamanında yerine getirileceğinden emin olduklarında, çalışma arkadaşlarının bilgili olduklarına inandıklarında ve onları başarılı olarak değerlendirdiklerinde vs. kısaca çalışanlarda yatay güven oluştuğunda bu durum çalışanların inovasyona yönelik değerlendirmelerini diğer ifadeyle örgütün inovasyon düzeyini olumlu yönde etkileyeceğini göstermektedir.

Araştırmada ulaşılan bir diğer sonuç, dikey güvenin örgütsel inovasyon üzerinde pozitif anlamlı etkisi olduğuna ilişkindir. Buna göre çalışanlar, örgütsel hiyerarşi içerisinde lider ve yöneticilerine karşı güven duyduklarında bu durum çalışanların inovasyona yönelik değerlendirmelerini diğer ifadeyle örgütün inovasyon düzeyini olumlu yönde etkileyecektir. Ancak bunun için çalışanların, lider/yöneticilerini adil, tutarlı, sözlerine sadık, açık iletişime sahip, bilgili ve becerileri yüksek, başarılı, çalışan odaklı ve samimi olarak algılamaları kısaca onlara birçok konuda güven duymaları kritik bir önem taşımaktadır. Böylelikle ürün, pazar, davranış, süreç ve stratejik inovasyon düzeylerinin artırılması mümkün olabilir.





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Araştırmada son olarak kurumsal güvenin örgütsel inovasyon üzerinde pozitif anlamlı etkisi olduğu sonucuna ulaşılmıştır. Buna göre çalışanlar, örgütlerini; çalışan odaklı ve güçlü bir vizyona sahip, iletişim etkinliği olan, çalışanların gelişimini destekleyen, teknoloji ve ticari anlamda yetkin bir örgüt olarak algıladıkları zaman bu durum çalışanların örgütsel inovasyon düzeyini olumlu yönde etkileyecektir.

Araştırmada ulaşılan sonuçlar literatürdeki sonuçlarla tutarlılık içermektedir (Ellonen vd., 2008; Rahmatoullah vd., 2011; Jearey, 2012; Huang ve Hu, 2020) literatürde elde edilen sonuçlara katkı sağlamaktadır.

Bu sonuçlara bağlı olarak teknoloji işletmesi lider/yöneticilerine aşağıda birtakım öneriler sunulmaktadır:

- Öncelikli olarak örgüt içerisindeki yatay ve dikey güvenin sağlanması adına, çalışanların güven eğilimlerinin tespit edilmesi ve sorun tespit edilirse güveni olumsuz etkileyen unsurların bertaraf edilmesi yararlı olacaktır.
- Teknoloji işletmelerinde kurumsal güvenin güçlendirilmesi adına, teknolojik yetkinliğe önem verilmesi önem arz etmektedir. Bu kapsamda inovasyon yöneliminin güçlendirilmesi adına örgüt içi yaratıcı fikirlere önem verilmesi yararlı bir strateji olacaktır. Çalışanların inovasyona ilişkin görüş ve değerlendirmelerinin inovasyon sürecine entegre edilmesi kurumsal güvenin oluşumunu sağlayabilir.
- Yöneticilerin kurumsal güveni arttıracak insan kaynakları stratejilerine sahip olmaları önerilmektedir. Bu konuda özellikle dürüstlük ve adalet gibi etik değerleri önemseyen strateji ve politikalar geliştirilmesi yararlı olacaktır. Çalışanların birbirlerine, örgütüne ve kuruluşuna güven geliştirmeleri açısından bu husus önem arz etmektedir.
- Son olarak teknoloji işletmelerinin inovasyon faaliyetlerini arttırarak, işletmelerini rakiplerinden üstün bir konuma taşımaları konusunda gereken gayreti sergilemeleri önerilmektedir. Bu durum, çalışanların kuruluşlarına bakış açılarını olumlu yönde etkileyerek daha fazla güven geliştirmelerine dolayısıyla inovasyonun güçlenmesine katkı sağlayabilir.

### 6. Araştırmanın Sınırlılıkları ve Gelecek Araştırmalar için Öneriler

Araştırmanın ilk sınırı, araştırmanın gerçekleştirildiği sektöre ilişkindir. Sonuçların karşılaştırılması ve genelleştirilmesi adına araştırmanın farklı sektörlerde gerçekleştirilmesi yararlı olacaktır. Ayrıca gelecek araştırmalarda örgütsel güvenin farklı değişkenlerle ilişkilendirilerek incelenmesi yararlı olacaktır. Ayrıca araştırmanın farklı kültür ve coğrafyalarda gerçekleştirilmesi de önem arz etmektedir.

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### ANALYSIS OF AIRCRAFT RAMP INSPECTION RESULTS AS AN INDICATOR OF THE OPERATIONAL SAFETY PERFORMANCE LEVEL IN CIVIL AVIATION: THE EU RAMP INSPECTIONS CASE

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#### **Abstract**

Civil aviation, which started as a passion at first, form the lifeblood of the global commercial transportation system via connecting people and countries. The civil air transport system can only maintain this crucial role as long as it is acceptably safe. Technological development was the main determinant in the early days of civil aviation safety. However, human factors and organizational considerations came to the fore after the high technological levels achieved over time. Followingly, significant improvements have been made in both human factors and organizational safety aspects within past decades. Today's modern civil aviation being a "system of systems", necessitates an integrated management approach to the total safety of the whole system. In this respect, implementation of the aviation safety management systems (i.e., State Safety Programme - SSP and Safety Management System - SMS) has become an obligation under international civil aviation legislation. One of the main components of the safety management systems, which are used as administrative tools in ensuring the safety of the civil aviation activities, is the "Safety Assurance". As part of safety assurance, a mean for oversight of the air operators is aircraft ramp inspections. Through these inspections, factual data on the level of compliance to the safety standards in real operational environment is revealed. Thus, the results of the inspections can be used as an indicator of the air operators' operational safety performance level. In this paper, the globally accepted practice of the European Union (EU) on aircraft ramp inspections is handled as an example. Accordingly, the most recent data provided by the EU Aviation Safety Agency (EASA) regarding the results of the EU ramp inspection programme is analysed. Using the analysis results, important safety issues are being highlighted and some recommendations are being made for improving the level of operational safety performance.

**Keywords:** Aircraft ramp inspection, EU, EASA, operational safety performance, SMS, SSP.

#### **INTRODUCTION**

We live in an age where speed is very important. As the people of this age, access, communication and transportation are areas where mainly we look for the speed. Among them, there is no doubt that transportation is the most important area that modern people want to be as quick as possible in order to use their time in an optimum way. In other words, being able to move from one point to another point in the fastest way in the globalizing world is a must for both social and economic development. However, while providing a fast transportation, the most important requirement is the safe carriage of people without being exposed to any accident.

From the first flight of the Wright brothers to the use of modern aircraft, great technological and operational strides have been made in the field of civil aviation [1]. Civil aviation activities, which started as a passion at first, form the lifeblood of the global commercial transportation system today. In



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this manner, commercial air transport, which is so important in the global transportation system, maintains its sustainability as long as it is acceptably safe.

Since the end of World War II, the aircraft accident rate, measured in losses per 100,000 departures, has been steadily improving. However, over the past ten years, it has levelled off and is now practically stable. Therefore, it makes sense that the overall number of accidents will rise as the industry develops and departures rise. Although the rate of accidents is at a record low, it is expected that the general public would find any noticeable increase in the overall number of accidents unacceptable. We must still lower the accident rate in order to avoid this circumstance [2].

Technological development was the main determinant in the early days of civil aviation safety. However, human factors and organizational considerations came to the fore after the high technological levels achieved over time. Followingly, significant improvements have been made in both human factors and organizational safety aspects within past decades [3]. Today's modern civil aviation being a "system of systems", necessitates an integrated management approach to the total safety of the whole system [4]. In this respect, implementation of the aviation safety management systems (i.e., State Safety Programme - SSP and Safety Management System - SMS) has become an obligation under international civil aviation legislation.

The need for the implementation of safety management frameworks in both State (State Safety Programme - SSP) and service provider (Safety Management System - SMS) levels is not only a legal requirement but also a natural must for the civil aviation ecosystem. This fact has been very well articulated by Patrick Ky, European Union Aviation Safety Agency (EASA) Executive Director, that "Aviation safety needs to be managed proactively by all actors. Safety management benefits the total aviation system by strengthening traditional risk control practices and ensuring safety risks are managed in a systematic way. Safety management allows room for innovation and flexibility: It is less about describing what to 'do' and more about how to 'achieve safety'" [5].

Safety management systems provide an organized method of decision-making for managing safety risks; a way to demonstrate the safety management capacity of the system before it breaks down; enhanced confidence in safety risk controls with the help of well-organized safety systems; a practical procedure for exchanging information between the certificate holder and the regulator; and an organizational structure that promotes a positive safety culture [6].

The ICAO advocates safety management principles to address safety risks proactively and emphasizes the idea of total safety performance in all areas in order to preserve and further improve safety in civil aviation. So, a new Annex (i.e., Annex 19 – Safety Management) was created specifically for safety management. The adoption of a State Safety Programme (SSP) in Contracting States and a Safety Management System (SMS) in industry organizations is central to safety management principles. All safety management criteria that were previously dispersed over several ICAO Annexes are now contained in Annex 19. In support of Annex 19, "ICAO Doc9859 - Safety Management Manual (SMM)" which provides comprehensive guidelines has been published by ICAO. ICAO SMM is a good place to start if you want to learn more about the ICAO's guiding principles related to safety management [7].

One of the main components of the safety management systems, which are used as administrative tools in ensuring the safety of the civil aviation activities, is the "Safety Assurance". This component guarantees that aviation activities are carried out at an acceptable level of safety by utilizing the appropriate means.

The component of the safety management system that deals with the monitoring of risk controls during operations is known as safety assurance (SA). Following the strategic placement of control measures, their performance and effectiveness should be evaluated. Internal audits, investigations, and employee reporting systems are all common safety assurance functions. Operational data sources, such as flight dispatch records, crew schedules, and aircraft discrepancy reports, are especially useful in aviation for continuous monitoring of safety risk controls [8].

Organizations should analyse data that results in fresh insights from routine work across all types of outcomes, even though it will still be critical to identify hazards and manage risks. These insights allow for more frequent, sensitive, and timely learning. Learning from routine operational data and events can



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improve safety management, that is frequently based on a narrow subset of performance data which may introduce avoidable but unrecognised consequences into the aviation system [9].

The provisions of the ICAO Annex 19 and ICAO Safety Management Manual for using proactive safety activities to collect safety information and data, proactive methods for hazard identification, predictive safety indicators focused on processes and activities to improve and maintain safety, and predictive analysis based on current operations are the foundation of this approach.

As part of safety assurance, a mean for oversight of the air operators is aircraft ramp inspections. The Federal Aviation Administration (FAA) of the USA describes a ramp inspection as surveillance of an airman, operator, or air agency during actual operations at an airport or heliport [10].

The ramp inspections may include the control of the licences of the pilots; procedures and manuals that should be carried in the cockpit; compliance with these procedures by flight and cabin crew; safety equipment in cockpit and cabin; cargo carried in the aircraft; and the technical condition of the aircraft [11]. Through these inspections, factual data on the level of compliance to the safety standards in real operational environment is revealed. Thus, it can be clearly stated that the results of the ramp inspections can be used as an indicator of the air operators' operational safety performance level.

In this study, as being one of the main players in civil aviation, the European Union's (EU) globally accepted practice on aircraft ramp inspections is used as an example. Accordingly, the most recent data provided by the EU Aviation Safety Agency (EASA) regarding the results of the EU ramp inspection programme is analyzed. Using the analysis results, critical safety issues are highlighted, and recommendations are made for improving the level of operational safety performance.

In this regard, the first section of the paper gives readers a background understanding of civil aviation safety management and elaborates on the operational, organizational, and systematic requirements that must be put in place in order to achieve an acceptable level of safety.

The second section provides a detailed explanation of the aviation safety management principles used to ensure the level of safety at the State. The State safety assurance, the third component of the State Safety Programme (SSP), is being studied with a focus on its function of safety performance monitoring and oversight. Especially, the measurement of the operational safety performance of the service providers is being highlighted. The emphasis is placed primarily on measuring the operational safety performance of the service providers.

In the third section, as being one of the means for measuring operational safety performance, the concept of aircraft ramp inspections is thoroughly presented including its definition, scope, legal context and connection to operational safety performance assessment. The EU ramp inspection programme is introduced as a best practice and its main features such as evolution, structure and implementation are given to the reader.

Followingly, the most recent data provided by the EU Aviation Safety Agency (EASA) regarding the results of the EU ramp inspection programme is analysed in the fourth section of the paper. Using the analysis results, critical safety issues are discussed to identify the areas need greater concern.

### 1. SAFETY MANAGEMENT IN CIVIL AVIATION

The global administration and control of procedures for international air transport are handled by ICAO, a special agency of the United Nations.

Rapid and dependable air services place a premium on safety, and via ICAO, worldwide collaboration on aviation safety by governments and industry groups has helped make commercial flight the safest mode of transportation. The 193 Member States that collaborate through ICAO are currently pursuing a number of programs and targets pertinent to current core areas of global aviation safety planning, oversight, and risk mitigation in order to achieve their shared global safety target of zero fatalities by 2030, in parallel with the strengthening of their regulatory capacities. Additionally, they are aiming to preserve or enhance overall network performance while enabling the safety standardization required to integrate the exciting advancements in aircraft propulsion, design, autonomous control, and personal mobility that have been made in recent years [12].



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The International Civil Aviation Organization's (ICAO) Strategic Objectives give safety top priority. The primary focus of this strategic objective, which seeks to increase civil aviation safety worldwide, is on a State's ability to effectively manage safety and oversee it. The goal has been established in light of the expanding passenger and cargo flows, as well as the pressing need to address efficiency and environmental sustainability. The economic growth of States and their businesses depends on a safe aviation system [13].

ICAO describes “safety” as “the state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level” [14].

A common definition of safety management is the use of a set of principles, framework, processes, and methods to avoid accidents, injuries, and other negative outcomes that might result from using a service or a product. This function exists to help managers fulfill their duties for operational system design and execution more effectively. It does so by either predicting system deficiencies before errors happen or identifying and fixing system flaws through expert analysis of safety occurrences [15].

“Accident” is described by FAA as “an unplanned event or series of events that results in death, injury, or damage to, or loss of, equipment or property” where “incident” is “an occurrence other than an accident that affects or could affect the safety of operations” [16].

Safety management aims to proactively mitigate safety risks before they cause incidents and accidents in the aviation industry. States can manage their safety efforts in a more structured, integrated, and targeted way by putting safety management into practice. A State and its aviation sector can prioritize steps to address safety issues and more efficiently manage their resources for the best benefit of aviation safety if they have a clear understanding of their role and contribution to safe operations [17].

The “safety risk” is described by ICAO as “the predicted probability and severity of the consequences or outcomes of a hazard which is defined as a condition or an object with the potential to cause or contribute to an aircraft incident or accident” [14].

The main goal of safety management in the aviation industry is to ensure that all flights are safe. This includes all related and support services that may have an effect on safety, such as air navigation services and airport operations management [15]. It is important to note that this study does not address environmental or occupational health and safety issues, which are typically handled by a different management system.

The development of safety management in aviation has taken place in four stages, covering the technical, organizational, human factors, and total system eras [18].

SMSs (Safety Management Systems) are the result of the ongoing development of aviation safety. Early aviation pioneers were not well supported by safety legislation, real-world experience, or engineering expertise. Significant increases in safety have been made over time thanks to careful regulation of aviation activities, operational experience, and technological advancements. Focusing on individual and crew performance, or "Human Factors," during the subsequent significant phase of safety enhancement helped to significantly reduce accidents. Each strategy has produced considerable improvements in safety. Even with these substantial advancements, there are still possibilities for us to prevent accidents before they happen. What comes next is the question facing the aviation industry. An accident may have been avoided if many possibilities for action had been taken, as revealed by a thorough review. The organization's role in accident prevention is represented by these opportunities. Accidents with underlying factors connected to organizational decisions and attitudes are referred to as "organizational accidents." SMS is a strategy for raising organizational safety standards [19].

An approach to total system safety views the entire aviation sector as a system. All service providers are thought of as sub-systems, along with their systems for managing safety. This enables a State to take into account systemic interactions and cause and effect relationships. The development of all safety systems uniformly would either be unfeasible or impractical. Therefore, how to manage the interfaces between different interacting systems is of utmost importance to States and service providers [17].

When executed in a formal and institutionalized manner through a State safety programme (SSP) and through safety management systems (SMSs) for its service providers, a State's safety management



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efforts become more effective. Together with the SMSs of its service providers, a State's safety program systematically addresses safety risks, enhances both the performance of service providers and the State as a whole in terms of safety [17].

In ICAO Annex 19 on safety management the State Safety Programme (SSP) is described as an integrated set of regulations and activities aimed at improving safety [14].

Each State develops and maintains the SSP as a systematic method to help itself in managing its aviation safety performance. The SSP should continue to be built on the conventional compliance-based approach which enabled the current good aviation safety record. States should therefore make sure they have strong safety oversight systems in place as a prerequisite for implementation of their SSPs [17].

It has been demonstrated that the SSP emphasizes the significance of safety management at the State level, enhances safety by consolidating safety management requirements with regard to many aviation domains, and makes it easier for regulations to evolve in parallel with the future needs. An SSP can thus be beneficial for States, the aviation sector, and the general traveling public [20].

A State must require that the service providers listed in Annex 19 that fall under its jurisdiction develop and maintain an SMS in order to continually enhance their safety performance via hazard identification, safety data collection and analysis and continuous assessment and management of safety risks [17].

ICAO describes “SMS” as “a systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures” [14].

This performance-based approach to safety enables improvements because it puts more emphasis on obtaining the desired result than it does on whether or not a State is in compliance with the legislation. However, it should be noted that the implementation of a safety performance approach is a collaborative effort which requires both State and service providers’ involvement. The aviation industry's responsibility is to create the best means for achieving the desired results. On the part of the States, their role is to evaluate each service provider’s approach [17].

Each State must establish and maintain a State Safety Programme (SSP) that is proportionate to the size and complexity of the State's aviation system in accordance with ICAO Annex 19 Safety Management. Additionally, Annex 19 mandates service providers to implement a Safety Management System (SMS) that is commensurate to their size and complexity as well [21].

The aviation community has overwhelmingly endorsed SMS as a practical strategy that can result in substantial financial and safety advantages. SMSs emphasize safety management as a key business activity to be taken into account in the same way as other parts of company management by integrating current safety concepts into repeatable, proactive procedures in a single system. Organizations can gain more understanding of their operational environment because to SMS's structure, which also leads to process improvements and cost savings. Some organizations have discovered that advantages start to show up even during the initial reactive phases of implementation. As organizations advance and incorporate the three phases (i.e., reactive, proactive, and predictive) into their processes, this phenomenon persists [22].

### 2. HOW TO ENSURE THE LEVEL OF SAFETY AT THE STATE

Methods for ongoing surveillance and systems for collecting, analysis, sharing, and exchange of safety data/information are used to guarantee that regulatory safety risk controls are properly integrated into a service provider's SMS. This gives the assurance that the system is functioning as planned and that the regulatory safety risk controls are having the intended outcomes on the safety risk management (SRM) processes of the service provider. Aviation safety data/information can be gathered from a variety of sources including but not limited to surveillance activities and mandatory or voluntary safety reporting initiatives. The collected data/information should feed the safety analysis processes at different levels and the results of the analysis should be the foundation of the well-informed decision-making processes related to surveillance activities and safety in the State’s aviation system [17].

States can guarantee the effective implementation of the safety related ICAO SARPs and associated procedures found in the Annexes to the Convention on International Civil Aviation and related ICAO documents by performing a function known as safety oversight. Additionally, safety oversight makes



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sure that the national aviation industry maintains a level of safety that is at least as good as what is specified by the ICAO SARPs [13].

States are responsible for overall safety oversight, which highlights their dedication to safety in relation to their aviation operations. The following figure shows the eight critical elements (CEs) of a State safety oversight system identified by ICAO [23].



**Figure 1.** The Eight Critical Elements (CEs) of a State Safety Oversight System by ICAO

As prescribed by ICAO, in order to provide effective safety oversight and safety management at the State level, the CE-1 (Primary aviation legislation), CE-2 (Specific operating regulations), CE-3 (State system and functions), CE-4 (Qualified technical personnel) and CE-5 (Technical guidance, tools and provision of safety-critical information) should be established in advance of the implementation of the CE-6 (Licensing, certification, authorization and approval obligations), CE-7 (Surveillance obligations) and CE-8 (Resolution of safety issues).

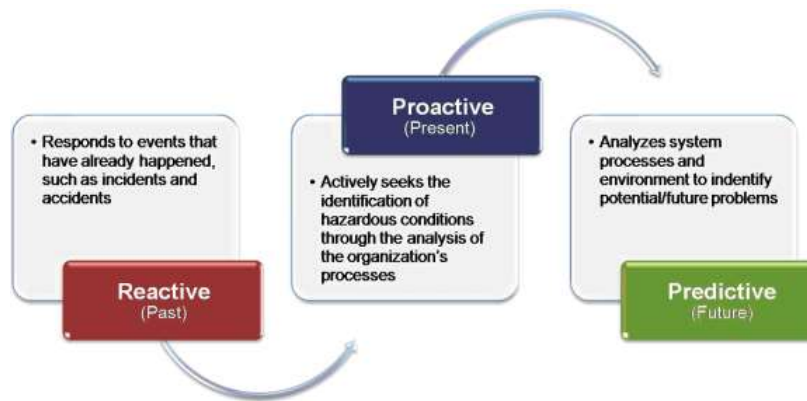
The basis for a safe international air transport system is the duty of each State to exercise appropriate safety oversight and monitoring mechanisms. States that have trouble performing their safety supervision duties may have an impact on the state of international civil aviation. States that have trouble in performing their safety oversight responsibilities may have adverse effects on the state of international civil aviation [23].

Organizations should perform a self-assessment of their operations and the decisions around those operations as required by SMS. An organization can adapt to change, increasing complexity, and limited resources thanks to SMS. Through targeted approaches to anticipate hazards from employee reports and safety data collection, SMS will also encourage the continuous improvement of safety. Then, organizations will use this safety data and information to analyze, assess, and control safety risks. Monitoring the effectiveness of safety risk controls and the system itself will also be a part of the process. By disseminating safety knowledge and information, SMS will assist organizations in adhering to current safety regulations while anticipating the need for future action. Last but not least, SMS has standards that will improve an organization's safety attitudes by altering the safety culture of leadership, management, and employees. All of these changes are intended to assist the organization in integrating reactive, proactive, and predictive concepts of safety thinking which are given in the figure below [24].





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**Figure 2.** The Three Concepts of Safety Thinking

The definitions for the three concepts of safety thinking, according to Burin (2013), that have been used above are provided below. They will be useful as we go on [25]:

- **Reactive** — “Wait until an accident happens then address the risks.”
- **Proactive** — “Do something before an accident happens by utilizing history, data, etc. Safety has a well-earned reputation for being a leader in risk management because of its proven ability to be proactive.”
- **Predictive** — “Do something based on potential risk to avert an accident that has not happened (yet).”

ICAO Annex 19 explains what States need to have as part of their SSP mainly in the form of four components. Respectively, the four components of the SSP are the State Safety Policy, Objectives and Resources; State Safety Risk Management; State Safety Assurance; and State Safety Promotion. The first component presents the commitment of the State towards achieving the highest level of safety. The second component includes the processes and procedures for identification, assessment, analysis, and management of the safety hazards and safety risks. The third component is structured to guarantee that the State has effective mechanisms in place for the management of aviation safety, and it is achieving its planned goals, objectives, and targets for a better safety performance. The fourth and last component for having an effective SSP is the promotion of safety at State level which requires the sharing of safety information both internally and externally to assist the development of a positive safety culture within the aviation community where all stakeholders are aware of their responsibilities [14].

The Convention on International Civil Aviation and its Annexes give Contracting States the legal and practical foundation they need to create a world-wide civil aviation safety system based on mutual respect and cooperation. All Contracting States, who are also the Member States of ICAO, must comply with their commitments under the Chicago Convention and its Annexes to adopt the Standards and Recommended Practices (SARPs) as far as is reasonably possible and to adequately oversee safety [26].

States must design and plan ongoing inspections, audits, and monitoring procedures as part of their documented surveillance processes in order to proactively ensure that holders of aviation licenses, certificates, authorizations, and approvals continue to satisfy the stated standards. This includes checking up on the personnel who have been given permission by the Authority to carry out safety monitoring duties on its behalf [14].

State safety management provisions are included in the ICAO Annex 19 on safety management and are applicable to both the State and service providers. According to these obligations, States must develop methods for monitoring, measuring, and ensuring State safety performance utilizing the SSP standards and recommended practices provided by ICAO [20].

A State conducts surveillance activities to proactively ensure that holders of aviation licenses, certificates, authorizations, or approvals continue to adhere to the established standards and perform at the level of competency and safety demanded by the State. Conducting on-site inspections (including scheduled and unscheduled visits), reviewing the documents provided by the service providers,



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consultation with related parties, and analyzing the safety data that is already available can be counted among these activities [23].

Processes for capturing, managing, and monitoring operational safety data and knowledge of the aeronautical system for which the service provider is accountable must be part of the organization's safety assurance procedures. Safety data and information from sources outside the organization should be taken into account, and if appropriate, collected, for use in system analysis and assessment via monitoring, evaluations, and audits. To assess the performance and effectiveness of safety risk controls both inside the organization and in aviation product/service providers for whom the organization has oversight responsibility, the organization should routinely monitor, evaluate, or audit standards, systems, programs, and processes. Additionally, the organization should perform routine SMS assessments to see whether the SMS as a whole complies with the required standards [16].

The acceptable level of safety performance that must be attained by its SSP shall be established by the State. The implementation and maintenance of the SSP as well as safety performance indicators and targets demonstrating that safety is properly managed and based on the foundation of implementation of current safety-related ICAO SARPs can help the State reach an acceptable level of safety performance [14].

According to ICAO, the operator certification process includes inherent surveillance of an operator by the State of the Operator. In order to provide the general public a safe and dependable commercial air transport service, it is crucial that a State make sure the necessary level of operational safety is maintained [27].

Rose (2005) asserts that aircraft operations are conducted against a background of measures and targets intended to guarantee that the operation is being managed and performed efficiently due to the ongoing quest for operational efficiency. The motivation to measure and monitor safety is high in such a data-driven operation to maintain safety as the top priority. Assessing the frequency of the accidents may be a straightforward way to assess the level of safety where they happen frequently. However, the lack of accidents does not always reflect a high degree of safety performance. Clearly, we need to examine further because managing an aircraft operation by waiting for an accident to conclude that you are not safe is unacceptable. As a result, we must offer a safety metric that is independent of accidents. However, is operational safety a metric that can be measured successfully and consistently [28]?

### 3. AIRCRAFT RAMP INSPECTIONS AND THE PRACTICE IN EU

The State's Civil Aviation Authority (CAA) shall have the power and duty to oversee commercial air transport operations to guarantee that established safety norms and appropriate protocols for the promotion of safety in operations are upheld. Additionally, it needs to carry out ongoing surveillance activities based on periodic random inspections, such as ramp inspections [27].

Ramp inspections are planned inspections conducted at the ramp during scheduled operations to ensure that the standards and regulations established during the operation of commercial air operators are being followed. A team of inspectors from operations, airworthiness, and dangerous goods performs these inspections in accordance with a uniform checklist covering each area [29].

ICAO Assembly Resolution A36-6 on the “State Recognition of the Air Operator Certificate of Foreign Operators and Surveillance of their operations” mandates that in order to ensure that foreign operators flying in their territory do so in complete accordance with any applicable ICAO SARPs, Contracting States are required to conduct effective surveillance over such operators and take appropriate measures when necessary to maintain safety [30].

In this context, it is crucial to note the following provisions from the Chicago Convention and its Annex 6 on the Operation of Aircraft [26] [31]:

- Article 11 – Applicability of air regulations;
- Article 16 – Search of aircraft;
- Article 29 – Documents carried in aircraft; and



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- Annex 6, Part I, Section 4.2.2 – Surveillance of operations by a foreign operator.

Explicitly, the Article 16 of the Chicago Convention on the search of aircraft mandates that “the appropriate authorities of each of the contracting States shall have the right, without unreasonable delay, to search aircraft of the other contracting States on landing or departure, to inspect the certificates and other documents prescribed by this Convention” [26].

Ramp inspectors have the authority to request corrective actions before permitting the aircraft to take off where abnormalities have a direct impact on safety. On the other hand, it should be noted that ramp inspections are confined to on-the-spot assessments and cannot replace appropriate regulatory oversight, making it impossible for them to fully ensure the airworthiness of a specific aircraft.

The European Union (EU) Ramp Inspection Programme is a European program for performing ramp inspections on aircraft flown by operators from third countries (Safety Assessment of Foreign Aircrafts - SAFA) or operators who are subject to another EU Member State's regulatory control (Safety Assessment of Community Aircrafts - SACA). The Program is governed by Commission Regulation (EU) No 965/2012 and provides for the inspection of aircraft suspected of not complying with the relevant requirements [32].

The following countries, particularly referred as Participating States, are involved in the EU Ramp Inspections Programme: Albania, Armenia, Australia, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Canada, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg, Malta, Republic of Moldova, Monaco, Montenegro, Morocco, Netherlands, Norway, Poland, Portugal, Qatar, Romania, Serbia, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, The Republic of North Macedonia, Turkey, Ukraine, United Arab Emirates and United Kingdom [33].

The EU Ramp Inspection Programme (EU RIP), initially named as Safety Assessment of Foreign Aircraft – SAFA, was developed in the EU community in 1996 and is now used as a ramp inspection mechanism by more than 50 States. The European Aviation Safety Agency (EASA), which oversees the EU RIP, keeps an eye on airplanes from the EU and other participating States landing at airports in EU Member States. The likelihood of a ramp inspection is higher for aircraft that may not be in conformity with standards set forth by the International Civil Aviation Organization (ICAO) [34].

The surveillance of foreign operators is performed with the help of the EU RIP which is an effective instrument to check the operators' adherence to the most current aviation safety standards. SACA (Safety Assessment of Community Aircraft) and SAFA (Safety Assessment of Foreign Aircraft) are the two pillars that the programme is built upon. SACA refers to the ramp inspections that EU Member States carry out on aircraft used by operators who are subject to the regulatory control of another EU Member State. These inspections use EU criteria as its regulatory norms, which are at least as strict but frequently more so than ICAO requirements. All other ramp inspections are referred to as SAFA and may be carried out by any of the participating States using ICAO standards as the regulatory guide. It should be noted that when evaluating the technical condition of the aircraft during both SACA and SAFA ramp inspections, manufacturer data is considered in addition to the aforementioned standards [35].

The ramp inspections are conducted using a consistent methodology, and the outcomes are reported in line with a standard format. The operator is asked to take corrective action in the event of significant or major findings, which may involve a root cause analysis to address systemic problems.

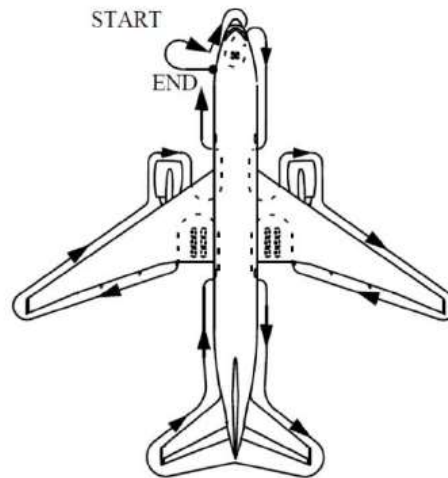
53 items are included in the EU RIP ramp inspection check list. There are 24 operational requirements (A-items) to be checked on the flight crew compartment within the checklist. Remaining checklist items are 14 safety and cabin items (B-items), 11 items related to the condition of the aircraft (C-items), and 3 items (D-items) pertaining to the inspection of cargo (including dangerous goods) and the cargo compartment. The E-item (General) of the checklist may be used to administer any general inspection items that are not covered by the other items.

Ramp inspectors should aim to inspect as many ramp checklist items as feasible without jeopardizing the operator's departure time, allowing for debriefing and addressing potential findings within the turnaround time. If no issues are detected, a usual walk-around inspection should take no more than 10



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to 15 minutes for narrow body aircraft and no more than 20 to 25 minutes for larger wide bodies, excluding the inspection of the cargo compartments/area. A typical inspection route followed during the walk-around check is depicted below [36].



**Figure 3.** A Typical Inspection Route Followed During the Walk-Around Check

As per the EU requirements contained in the “AMC1 ARO.RAMP.125(c)” regarding the conduct of ramp inspections, when the ramp inspection is completed, the pilot-in-command, commander, or, in their absence, another member of the flight crew or a representative of the operator, should be informed of the results of the inspection using the Proof of Inspection (POI) form that is an appendix to the EASA ramp inspection manual [37]. The sample EASA POI form including the items to be checked during ramp inspection is given in appendix for reference.

The competent aviation authority (State of Operator and/or State of Registry) may be involved depending on the nature of the finding to make sure they are satisfied with the corrective measures. According to the significance of the irregularity, there are three categories of findings in this regard. “Category 1” finding is regarded as a minor deviation (operator) and the pilot-in-command (PIC) is notified of it. A “Category 2” finding is regarded as a significant deviation from safety requirements. The operator and the operator's oversight authority are informed of the findings. A finding classified as “Category 3” is one that has major effect on the safety. The reporting criteria are identical as Category 2. Before the aircraft takes off, the operator is expected to address any Category 3 findings, either by resolving the issue or placing operational constraints on the aircraft. The inspecting authority may apply certain restrictions as well [36].

The sharing and exchange of safety data and information is of the utmost importance in promoting safety. EASA uses an online platform for data sharing and exchange between the members of EU RIP programme in order to increase collaborative efforts and developing a common understanding on the outcomes of the programme. Through the subject EU RIP centralized web-based database, which is run by EASA, all report data as well as supplemental data are shared with the concerned parties.

### 4. ANALYSIS OF THE LATEST RESULTS OF THE EU RAMP INSPECTION PROGRAMME (EU RIP) TO GET AN INSIGHT ON THE MAIN SAFETY ISSUES

Safety analysis is the process of checking, examining, describing, transforming, condensing, evaluating, and visualizing safety data and information in order to identify important information, generate conclusions, and facilitate data-driven decision-making. Statistics, graphs, maps, dashboards, and presentations enable organizations develop actionable safety information. The fundamental goal of safety analysis is to provide decision makers with a picture of the safety situation, allowing them to make decisions based on the evidence presented. Data-driven decision-making (also known as DDDM or D3M) is a process-driven approach to decision-making [17].

In this regard, it is of vital importance that States put proper mechanisms in place to collect and process safety data effectively. As part of their SSP, ICAO Annex 19 requires each State to have an SDCPS



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(Safety Data Collection and Processing System) to collect and analyse the data gathered through various sources including the oversight of the air operators via ramp inspection programmes.

Within the scope of the EU Ramp Inspection Programme, the Commission Regulation (EC) No 965/2012 (ARO.RAMP.155 and ARO.RAMP.160) requires EASA to submit to the European Commission a proposal for a public aggregated information report based on information received from EU RIP Participating States on a yearly basis [37]. In accordance with this requirement, the most recent aggregated EU Ramp Inspection Programme Annual Report published by EASA is the 2020 version which has been released on the 21st of April 2021. The information on the EU ramp inspection activities for the time period spanning January 1 to December 31, 2020, is compiled in the subject report named “EU Ramp Inspection Programme Annual Report 2020” [38].

In this section of the study, the latest results of the EU Ramp Inspection Programme contained in the above-mentioned report have been analysed to see the current operational safety performance level of the service providers and get an insight on the operational safety issues. With the help of the safety information derived from the analysis, main operational safety issues have been tried to be identified. The insights gained from the safety information has been discussed to provide a safety picture for the interested parties to assist them in their data-driven decision-making processes. This risk-based and safety informed decision-making process help the aviation community to proactively manage their operational safety risks. It should be noted that all of the safety information provided in this part of the study are based on the analysis of the data released by EASA in their EU Ramp Inspection Programme Annual Report 2020.

### a. General overview of the EU RIP

In accordance with the EASA records, the below table presents the data between the years of 2014 and 2020 on the general overview of the programme mainly including the parameters such as “States of Inspections”, “Inspections Performed”, “Aerodromes of Inspection”, “No. of Tail Number Inspected”, “Operators Inspected”, “Average No. of Inspection per Operator Inspected”, and “State of Operator Inspected” [38].

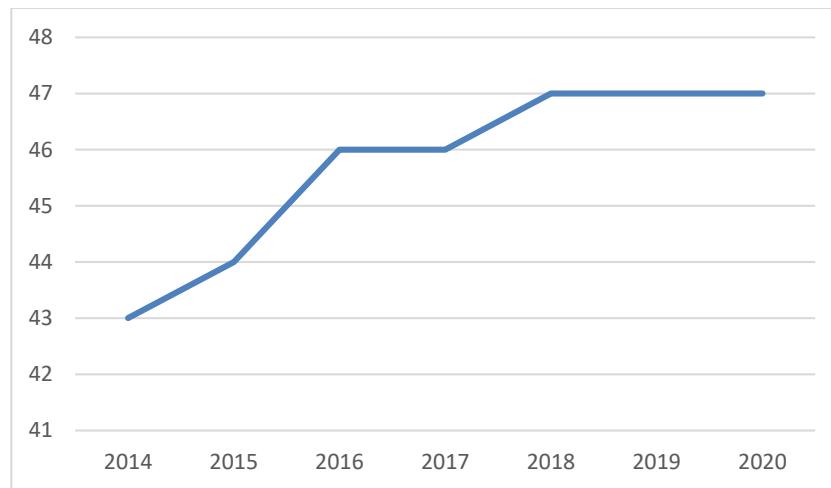
**Table 1.** General Overview of the EU RIP

	2014	2015	2016	2017	2018	2019	2020
<b>States of Inspections</b>	43	44	46	46	47	47	47
<b>Inspections Performed</b>	11630	12040	12475	13156	12232	11657	6081
<b>Aerodromes of Inspection</b>	358	354	364	359	361	375	278
<b>No. of Tail Number Inspected</b>	6554	6791	7218	7594	7372	7177	4358
<b>Operators Inspected</b>	1087	1166	1255	1321	1406	1376	1013
<b>Average No. of Inspection per Operator Inspected</b>	10.7	10.3	9.9	10	8.7	8.5	6
<b>State of Operator Inspected</b>	138	142	147	148	145	143	134

As shown below, the number of “States of Inspection” has been continuously increased in years and reached to the level of 47 which shows the increasing interest, participation and engagement of the States in the EU ramp inspection programme.



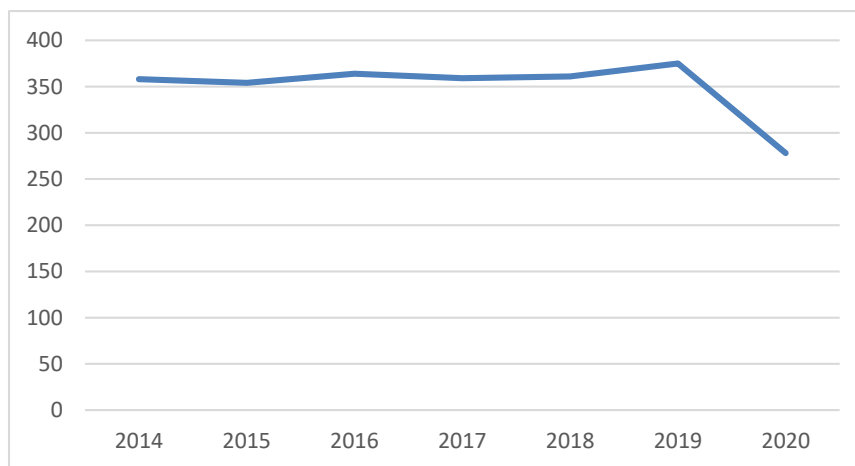
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**Figure 4.** Number of States of Inspections

The data analysis reveals that for the remaining parameters the data trend has abruptly altered in 2020. This is undoubtedly because the Covid-19 has had such a significant impact on aviation operations after the outbreak started in the beginning of the 2020. Therefore, in the evaluation of the parameters below, the drastic change in the trends during 2020 has been disregarded for the sake of the health of the analysis results.

When the data on the “Aerodromes of Inspection” is examined, it is seen that the parameter has a positive trend which is in parallel with the tendency of the “States of Inspection”. This is due to the correlation between the two parameters which means the more participating States the greater number of aerodromes for inspections to take place. Also, as the States gain maturity and confidence in the implementation of the EU ramp inspection programme, they allocate more resources (i.e., inspectors, equipment, time etc.) and increase the number of aerodromes included in their ramp inspections schedule.

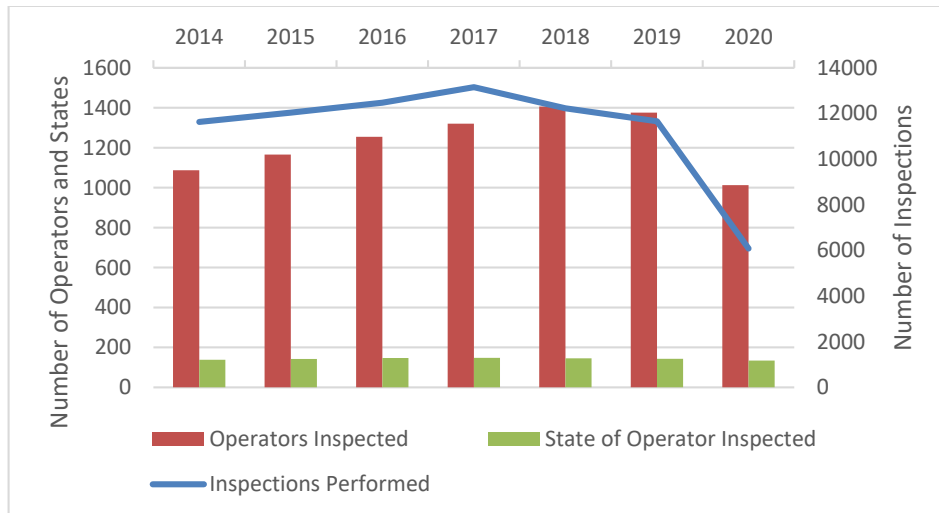


**Figure 5.** Number of Aerodromes of Inspection

From the beginning of the programme until 2017, the number of “Inspections Performed” has regularly increased and reached a figure of above 13000 inspections per year. Then, it decreased a bit and gained a stability which remains around the number of 12000 levels. In parallel, the number of “State of Operator Inspected” has had the same behaviour and became stable around the 145 States per year level. Meanwhile, “Operators Inspected” parameter exhibits the same trend with a nuance which it peaked in 2018 with over 1400 operators inspected per year. Following years, the number of operators who are inspected each year has become constant around the level of 1300 operators per year.



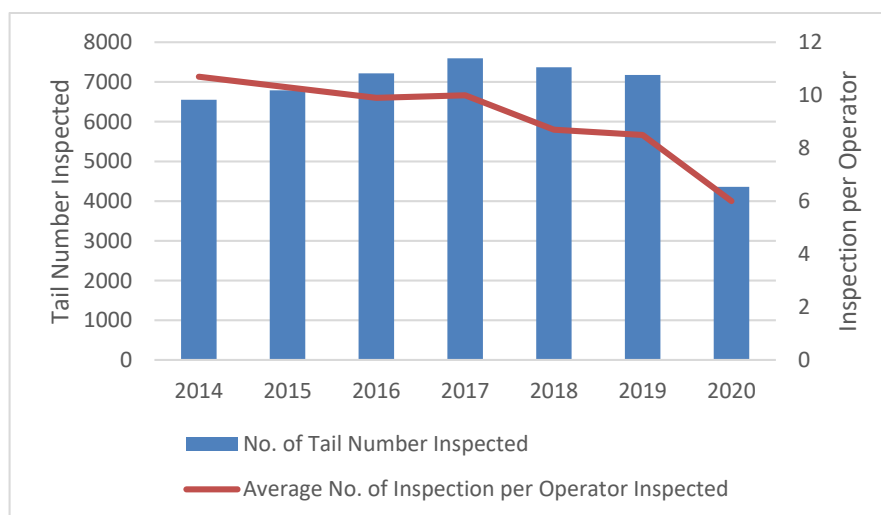
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**Figure 6.** Number of Operators and State of Operators Inspected vs Number of Inspections Performed

It can be asserted that the subject behaviour of the above-mentioned three parameters is due to the introduction of the risk and performance-based oversight methodologies in the ramp inspection processes. These new oversight methods allow a smaller number of inspections but more focus on the areas of greater safety concern or on the operators with less safety performance. As the maturity in the implementation of the risk and performance-based approaches has increased, States have been able to allocate less resources but reap more outcomes from the programme and this has been an absolute benefit in the efficient use of the limited resources.

The change patterns of the remaining two parameters supports the point highlighted above as well. In line with this, “Average No. of Inspection per Operator Inspected” has been optimized to a level where each operator has been subjected to around 10 ramp inspections per year. With a more risk and performance-based mentality, an increase in the number of samples (i.e., aircrafts) inspected has been experienced although the decrease in the number of inspections. Thus, the “No. of Tail Number Inspected” parameter has stabilized at a level around 7200 aircrafts per year. The graph below shows the behaviour of these two parameters.



**Figure 7.** Average No. of Inspection per Operator Inspected vs No. of Tail Number Inspected

### b. World Coverage

In accordance with the EASA records concerning the EU RIP activities in 2020, the below table presents the data regarding the several parameters such as number of States inspected, operators inspected, and inspections performed in different regions [38]. Regarding the regions indicated in the table, it should



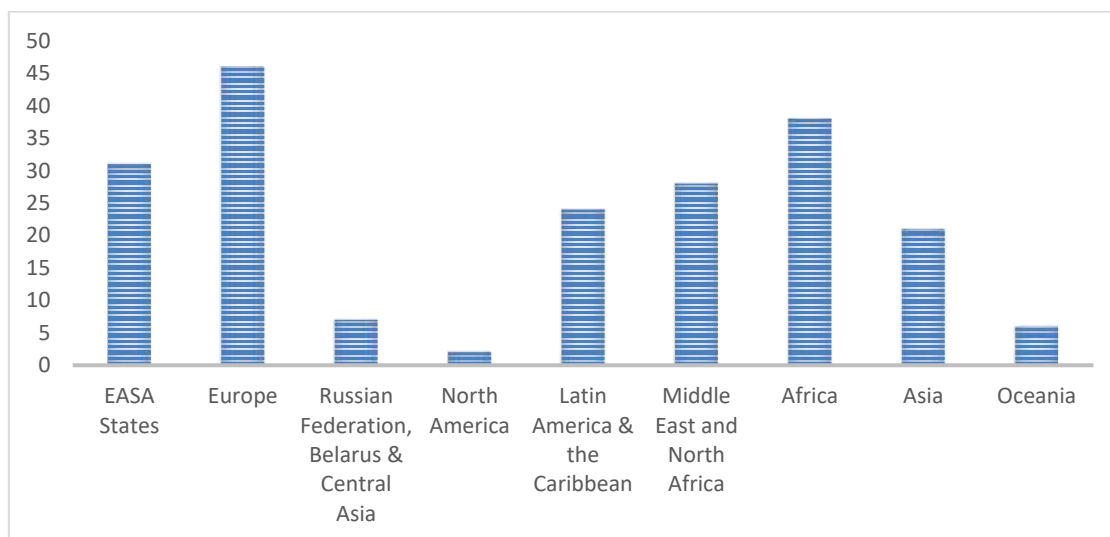
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be noted that “Europe” corresponds to the countries in continental Europe while “EASA States” means the member States of the EASA comprising of the European Union members and three non-EU countries (Switzerland, Iceland and Norway).

**Table 2.** World Coverage

Region	No. of States Inspected	No. of Operators Inspected	No. of Inspections Performed
EASA States	31	587	3500
Europe	46	695	4097
Russian Federation, Belarus & Central Asia	7	62	311
North America	2	13	399
Latin America & the Caribbean	24	42	112
Middle East and North Africa	28	78	402
Africa	38	40	261
Asia	21	69	461
Oceania	6	18	38

When the data analysed, it is seen that the Europe, Africa and EASA States are top three regions covering the greatest number of countries whose operators subjected to a ramp inspection under the EU RIP scheme. As given in below graph, in these regions respectively 46, 38 and 31 States have been inspected in 2020.



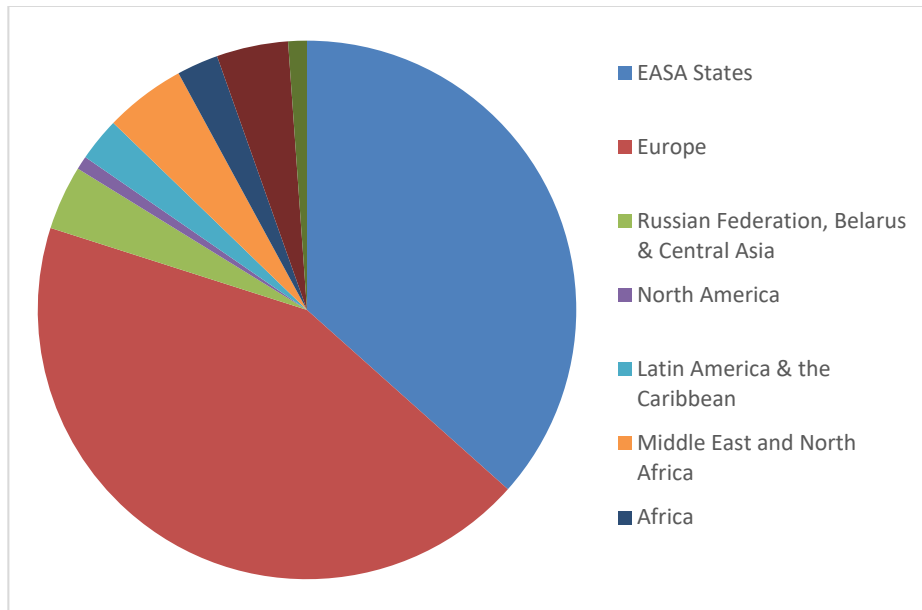
**Figure 8.** Number of States Inspected

In terms of the number of operators subjected to a ramp inspection by EU RIP in 2020, European operators have the highest share with the 43 % of all operators inspected. This means that nearly one of two operators inspected in 2020 is an operator under the authorization of States in continental Europe. Second highest percentage (37%) is shared by the operators under jurisdiction of the EASA States. Middle East and Africa follows these two regions with the 5% of the operators inspected.



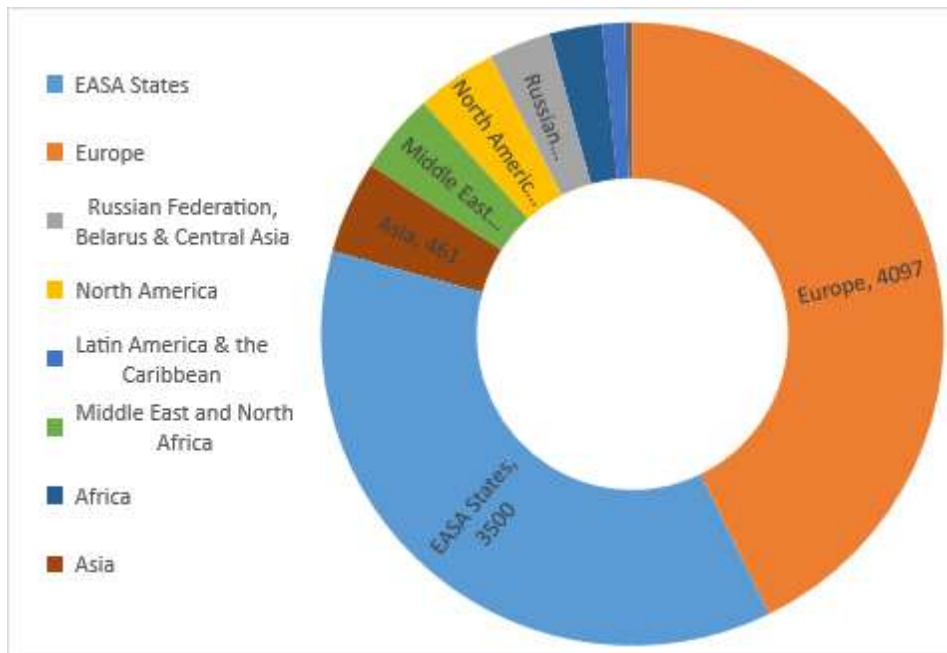


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**Figure 9.** Number of Operators Inspected

Regarding the number of inspections performed, Europe and EASA States have noticeably higher numbers where “Europe” has the highest portion with the number of 4097 ramp inspections performed to its operators in 2020. The second region receiving the greatest number of inspections to its operators is “EASA States” which has received 3500 inspections in the same year. Followingly, “Asia” comes within the top three with 461 inspections performed in 2020 to any operator resided in a country of the region.



**Figure 10.** Number of Inspections Performed

### c. Overview of the Evolution of Ramp Findings

Overview of the evolution of ramp findings within the EU RIP is given in the below table via parameters such as “Total Inspections”, “Total Inspected Items”, “Total Findings”, “Findings/Inspections”,



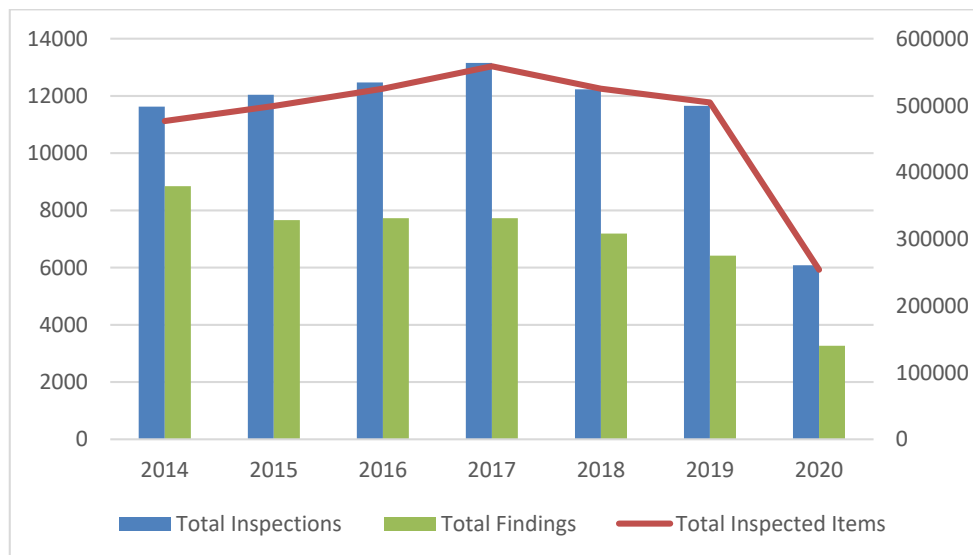
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“Findings/Inspected Items”, and “Total Inspected Items / Total Inspections”. The data has been taken from EASA records and corresponds to the period between the years of 2014 and 2020 [38].

**Table 3.** Overview of the Evolution of Ramp Findings

	2014	2015	2016	2017	2018	2019	2020
<b>Total Inspections</b>	11630	12040	12475	13156	12232	11657	6081
<b>Total Inspected Items</b>	476833	499186	525239	558653	525181	504486	254020
<b>Total Findings</b>	8847	7662	7726	7725	7192	6419	3269
<b>Findings/Inspections</b>	0.76	0.64	0.62	0.59	0.59	0.55	0.54
<b>Findings/Inspected Items</b>	0.019	0.015	0.015	0.014	0.014	0.013	0.013
<b>Total Inspected Items / Total Inspections</b>	41.00026	41.46063	42.10333	42.46374	42.93501	43.27752	41.77273

As can be seen from the below graph, the total number of inspections and total inspected items have same tendency. This is expected because naturally a greater number of inspections results with more inspected items. However, when the data trend of above mentioned two parameters analysed, it is seen that both total number of inspections and total inspected items reach their peak point around 2017 and become stable with the time. This is due to the development of risk-based oversight processes which allow regulators focus on the areas of greater risk and perform less inspections but with a more target-oriented philosophy. Once more, it should be noted that the sharp decrease after 2019 is because of the Covid-19 pandemic. Therefore, the concerning data has not been considered because of its extraordinary nature.

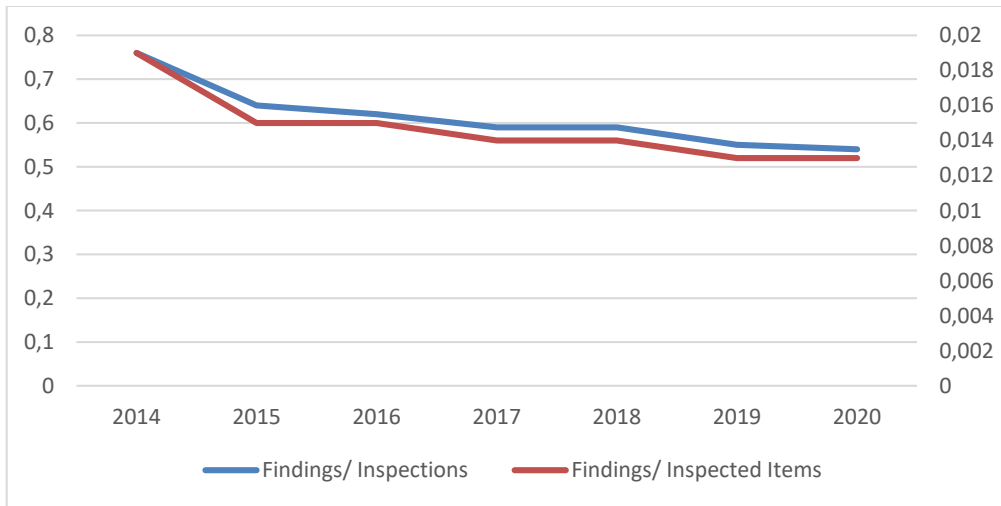


**Figure 11.** Total Number of Inspections, Inspected Items and Findings

Regarding the total number of findings, it is clear that there is a decreasing tendency over the years. This is a good sign which indicates the continuous improvement of the system. Accordingly, finding ratios formulated as the “Findings/Inspections” and “Findings/Inspected Items” as well have a decreasing trend as shown in the following graphic.

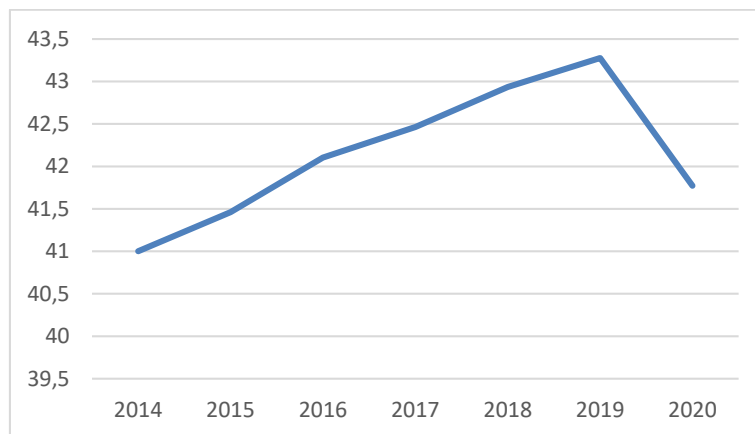


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**Figure 12.** Finding Ratios

According to the results of the data analysis shown in the below graphic, a clear increase in the ratio of the “Total Inspected Items” and “Total Inspections” is noted. This is due to the fact that as the number of inspections increases the ramp inspectors gain more experience in time management during the inspections and they use the time more effectively which also results with an increased number of inspected items.



**Figure 13.** Total Inspected Items / Total Inspections

### d. Distribution of Findings per Category

In accordance with the EASA records concerning the EU RIP, the below table presents the data regarding the distribution of findings via several parameters such as number of inspections, number of inspected items, number of findings, and ratio of findings per inspection [38].

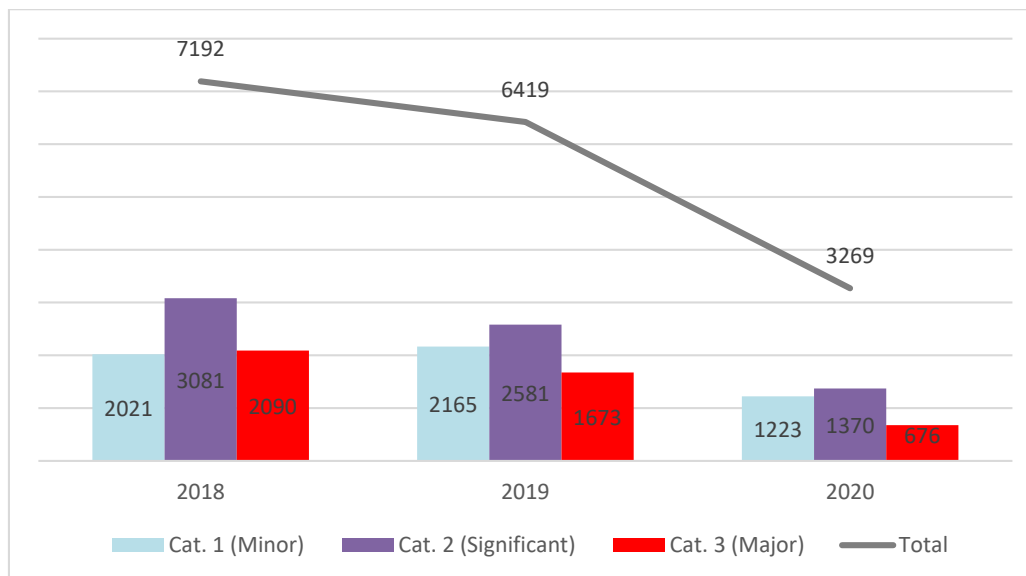


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**Table 4.** Distribution of Findings per Category

Year	No. inspections (I)	No. inspected Items	Number of Findings				Ratio of findings per inspection (F Cat. / I)			
			Cat. 1 (Minor)	Cat. 2 (Significant)	Cat. 3 (Major)	Total	F Cat.1 / I	F Cat.2 / I	F Cat.3 / I	F Total / I
2018	12232	525181	2021	3081	2090	7192	0.165	0.252	0.171	0.588
2019	11657	504486	2165	2581	1673	6419	0.186	0.221	0.144	0.551
2020	6081	254020	1223	1370	676	3269	0.201	0.225	0.111	0.538

When the number of findings per category analysed, it is seen that the number of findings has decreased over time for all three finding categories as shown below.

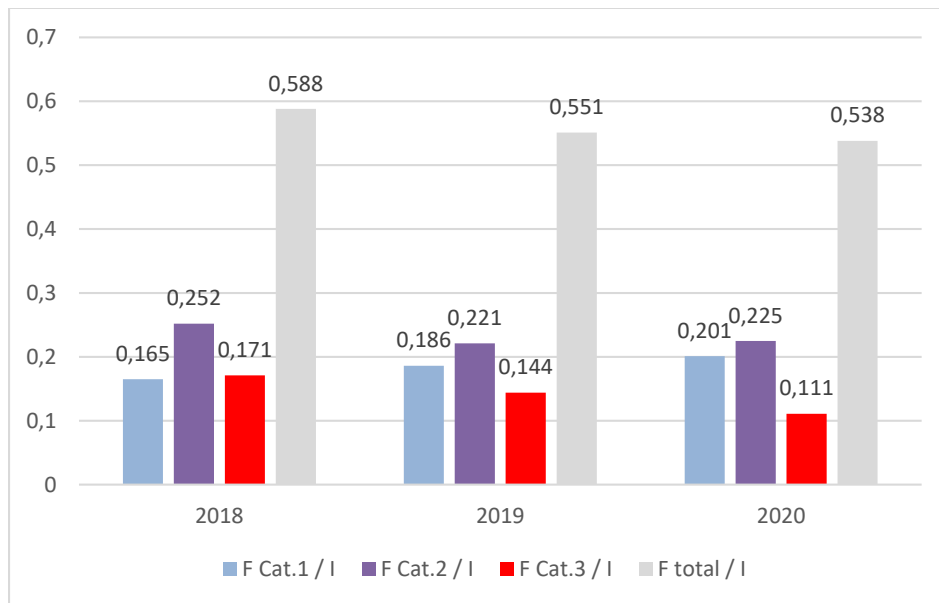


**Figure 14.** Number of Findings Per Category

Accordingly, ratio of the total findings per inspection has decreased over time. However, as shown in the following graphic, it is seen that the ratio of the Category 1 (Minor) findings within the total findings increases where the ratio of the Category 3 (Major) findings decreases. This is a good trend which shows the severity of the safety issues have been transformed from the major to minor deficiencies as time improves.



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**Figure 15.** Ratio of Findings Per Inspection (F Cat / I)

### e. Number of Findings per Inspected Item

In accordance with the EASA records concerning the EU RIP activities in 2020, the following table presents the data regarding the number of findings for each inspected item [38].



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**Table 5.** Number of Findings per Inspected Item

		ITEM	DESCRIPTION	Findings Cat 1 (Minor)	Findings Cat 2 (Significant)	Findings Cat 3 (Major)	Total Findings	No. of times Inspected	No. of times Inspected / 10
<b>FLIGHT DECK</b>	<b>General</b>	A01	General Condition	72	5	32	109	5817	581.7
		A02	Emergency exit	0	0	0	0	4843	484.3
		A03	Equipment	4	32	5	41	4167	416.7
	<b>Documentation</b>	A04	Manuals	3	88	5	96	3381	338.1
		A05	Checklists	9	63	6	78	4248	424.8
		A06	Radio navigation / instrument charts	1	16	33	50	5197	519.7
		A07	Minimum Equipment List	1	70	5	76	3688	368.8
		A08	Certificate of registration	5	1	0	6	5871	587.1
		A09	Noise certificate (where applicable)	6	0	0	6	5690	569
		A10	AOC or equivalent	27	24	0	51	5666	566.6
		A11	Radio licence	8	2	0	10	5791	579.1
		A12	Certificate of airworthiness	21	0	2	23	5881	588.1
	<b>Flight Data</b>	A13	Flight Preparation	10	112	66	188	5290	529
		A14	Mass and balance calculation	2	67	8	77	4871	487.1
	<b>Safety Equipment</b>	A15	Hand fire extinguishers	0	5	7	12	5440	544
		A16	Life jackets / flotation devices	1	2	1	4	4953	495.3
		A17	Harness	12	2	1	15	5102	510.2
		A18	Oxygen equipment	1	2	3	6	4862	486.2
		A19	Independent portable light	1	0	3	4	4522	452.2
	<b>Flight Crew</b>	A20	Flight crew licence / composition	52	32	10	94	5951	595.1
	<b>Journey Log Book / Technical Log or Equivalent</b>	A21	Journey log book or equivalent	3	7	0	10	5268	526.8
		A22	Maintenance release	0	2	2	4	5260	526
		A23	Defect notification and rectification	14	305	25	344	5339	533.9
		A24	Pre-flight inspection	4	14	0	18	4206	420.6
<b>CABIN</b>	<b>Cabin</b>	B01	General Internal Condition	38	54	79	171	5296	529.6
		B02	Cabin crew's station & crew rest area	25	0	7	32	3759	375.9
		B03	First-aid kit / Emergency medical kit	30	14	3	47	4723	472.3
		B04	Hand fire extinguishers	3	12	10	25	4896	489.6
		B05	Life-jackets / flotation devices	2	4	2	8	4401	440.1
		B06	Seat belt and seat condition	15	2	16	33	4794	479.4
		B07	Emergency exit, lighting / marking, independent portable light	9	5	26	40	4232	423.2
		B08	Slides / life-Rafts (as required) / ELT	0	1	0	1	3880	388
		B09	Oxygen Supply (cabin crew and passengers)	1	10	15	26	4177	417.7
		B10	Safety Instructions	10	45	14	69	4391	439.1
		B11	Cabin crew members	0	2	0	2	3278	327.8
		B12	Access to emergency exits	4	7	38	49	4384	438.4
		B13	Safety of passenger's baggage	0	0	9	9	1073	107.3
		B14	Seat capacity	0	0	0	0	1073	107.3
<b>AIRCRAFT CONDITION</b>	<b>Aircraft Condition</b>	C01	General external condition	394	88	12	494	6018	601.8
		C02	Doors and hatches	77	81	4	162	6009	600.9
		C03	Flight controls	16	1	2	19	6009	600.9
		C04	Wheels, tyres and brakes	12	4	8	24	6000	600
		C05	Undercarriage, skids / floats	28	34	2	64	5971	597.1
		C06	Wheel well	7	7	2	16	5474	547.4
		C07	Powerplant and pylon	107	34	13	154	5984	598.4
		C08	Fan blades, propellers, rotors (main & tail)	3	0	0	3	5817	581.7
		C09	Obvious repairs	0	24	1	25	5915	591.5
		C10	Obvious un-repaired damage	1	0	2	3	5863	586.3
		C11	Leakage	2	1	6	9	5923	592.3
<b>CARGO</b>	<b>Cargo</b>	D01	General condition of cargo compartment	116	15	46	177	4989	498.9
		D02	Dangerous Goods	0	5	11	16	793	79.3
		D03	Secure stowage of cargo on board	35	14	119	168	4250	425
<b>GENERAL</b>	<b>General</b>	E01	General	19	0	1	20	1840	184

Below is the graphic showing the trend of the total findings versus the number of times inspected for each inspection item included in the EU RIP ramp inspection checklist. It can be asserted that the frequently inspected items having higher number of findings are more prone in generating findings. Thus, they require more attention as they indicate greater safety concern. Inspection item “C01 – General external condition” is a good example for this. In opposite, the items frequently inspected but not generating many findings might be seen less risky and do not need much attention. For example, items “A02 – Emergency exit”, “A08 – Certificate of registration” and “A09 – Noise certificate” are in this kind. The above-mentioned information should be considered during the planning phase of the



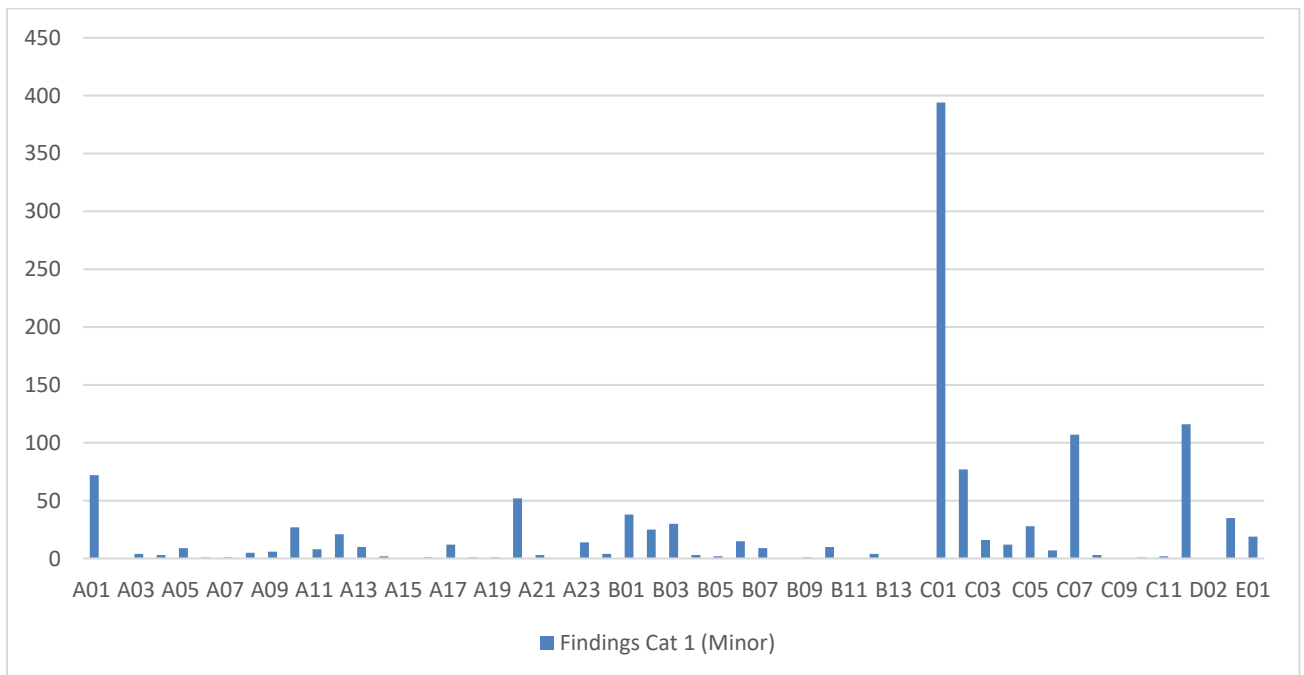
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inspections for the sake of the optimum use of the resources and allow the inspectors allocate their time and efforts more on the areas of greater safety concern.



**Figure 16.** Total Findings vs Number of Times Inspected

According to the analysis of EASA records, the number of Category 1 (Minor) findings for each inspection item is given in the graphic below. As is seen, the top three inspection items generating Category 1 finding are “C01 – General external condition”, “D01 – General condition of cargo compartment” and “C07 – Powerplant and pylon”.

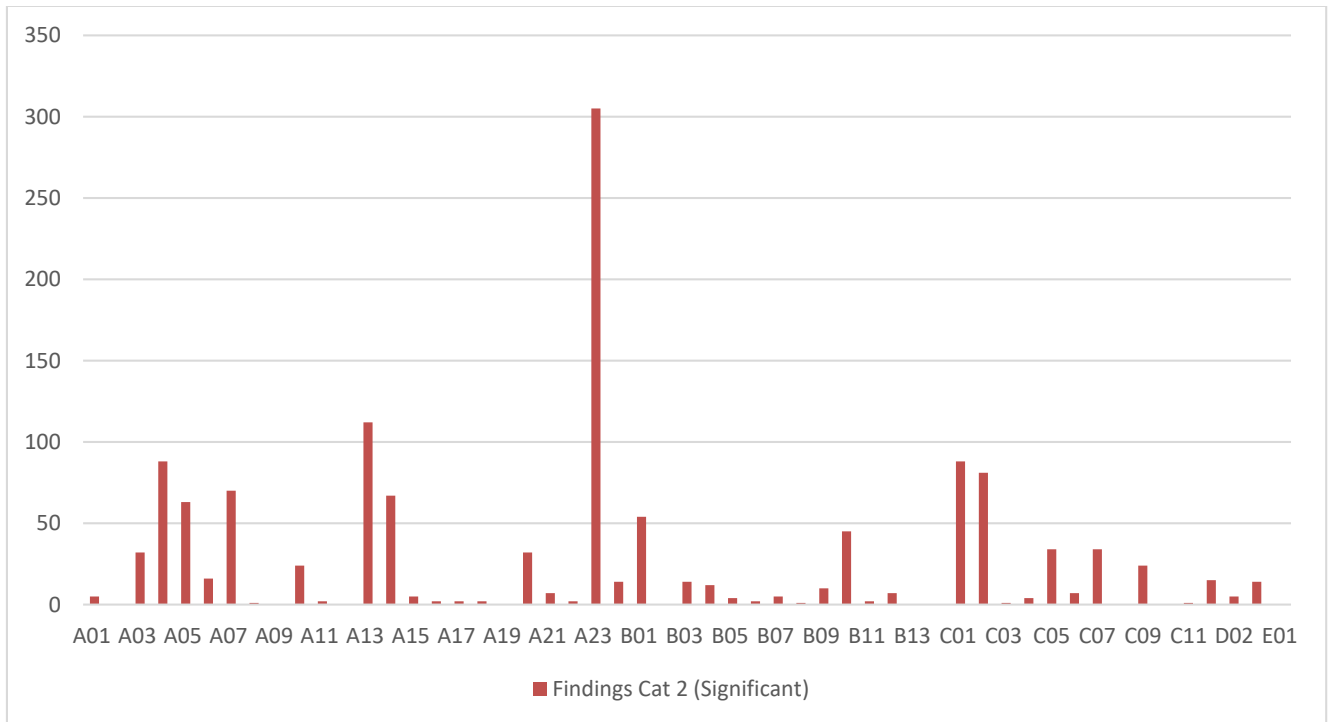


**Figure 17.** Findings Cat 1 (Minor)

The number of Category 2 (Significant) findings for each inspection item is given in the graphic below where the “A23 – Defect notification and rectification” and “A13 – Flight preparation” generate the most Category 2 finding respectively. Followingly, inspection items “A04 – Manuals” and “C01 – General external condition” shares the third place in this category.

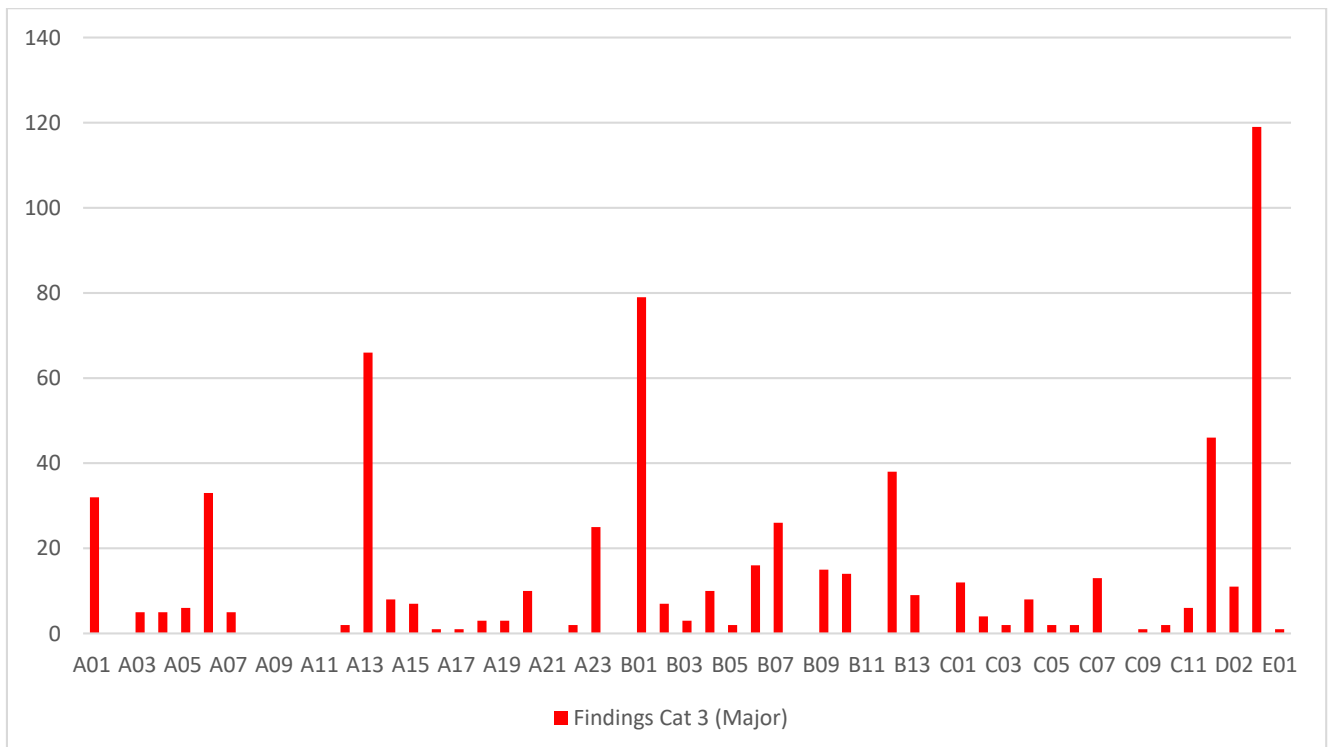


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**Figure 18.** Findings Cat 2 (Significant)

When we examine the numbers of Category 3 (Major) findings for each inspection item, as given in the graphic below, the results indicate that “D03 – Secure stowage of cargo on board”, “B01 – General internal condition” and “A13 – Flight preparation” are the inspection items having the first three place in the generation of the Category 3 findings.



**Figure 19.** Findings Cat 3 (Major)





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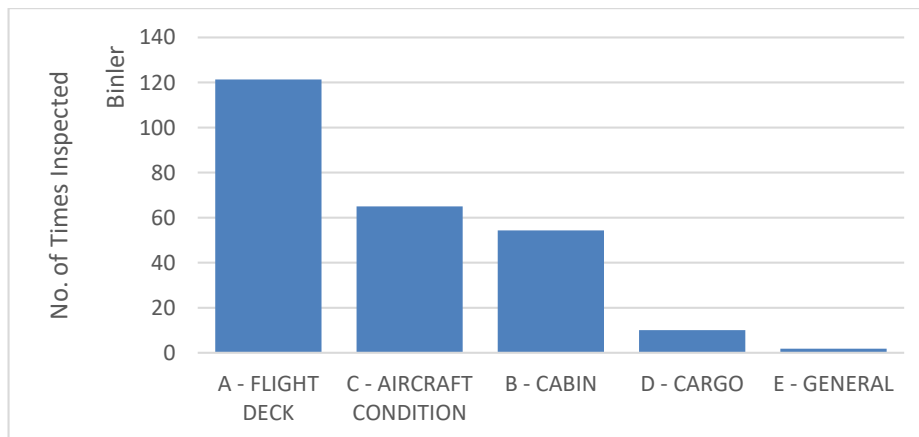
### f. Distribution of Findings per Inspection Area

EASA records on the EU RIP contain the data regarding the total number of findings, number of findings for each finding category and number of times inspected for each inspection area. Below table represents the subject data distributed to each inspection area namely “A – Flight Deck”, “B – Cabin”, “C – Aircraft Condition”, “D – Cargo” and “E – General” [38].

**Table 6.** Distribution of Findings per Inspection Area

	Findings Cat 1 (Minor)	Findings Cat 2 (Significant)	Findings Cat 3 (Major)	Total Findings	No. of Times Inspected
<b>A - FLIGHT DECK</b>	257	851	214	1322	121304
<b>B - CABIN</b>	137	156	219	512	54357
<b>C - AIRCRAFT CONDITION</b>	647	274	52	973	64983
<b>D - CARGO</b>	151	34	176	361	10032
<b>E - GENERAL</b>	19	0	1	20	1840

As can be seen below, flight deck (A items) comes the first in being the area most subjected to an inspection during ramp checks. Aircraft condition (C items) and Cabin (B items) follow the flight deck in regard to the number of times inspected.

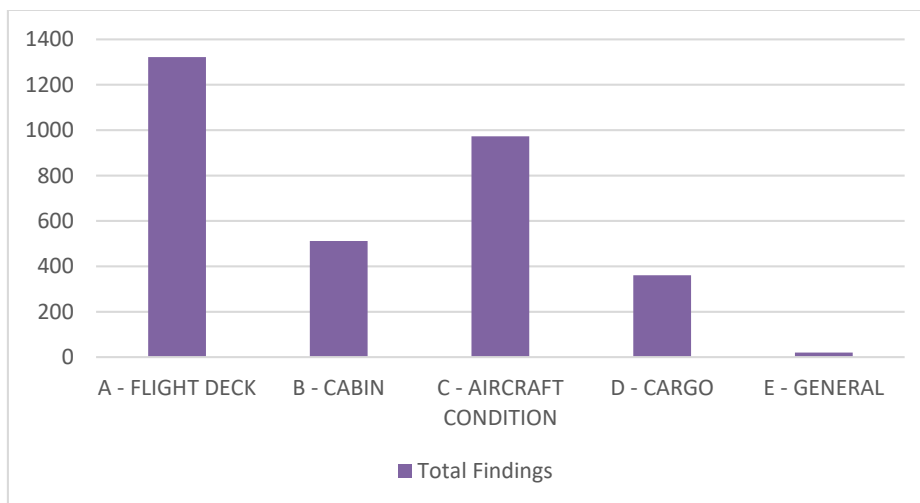


**Figure 20.** Number of Times Inspected by Technical Areas

According to the analysis results, flight deck, aircraft condition and cabin take the first three place respectively in terms of the total number of findings per inspection area as shown in the below graphic.

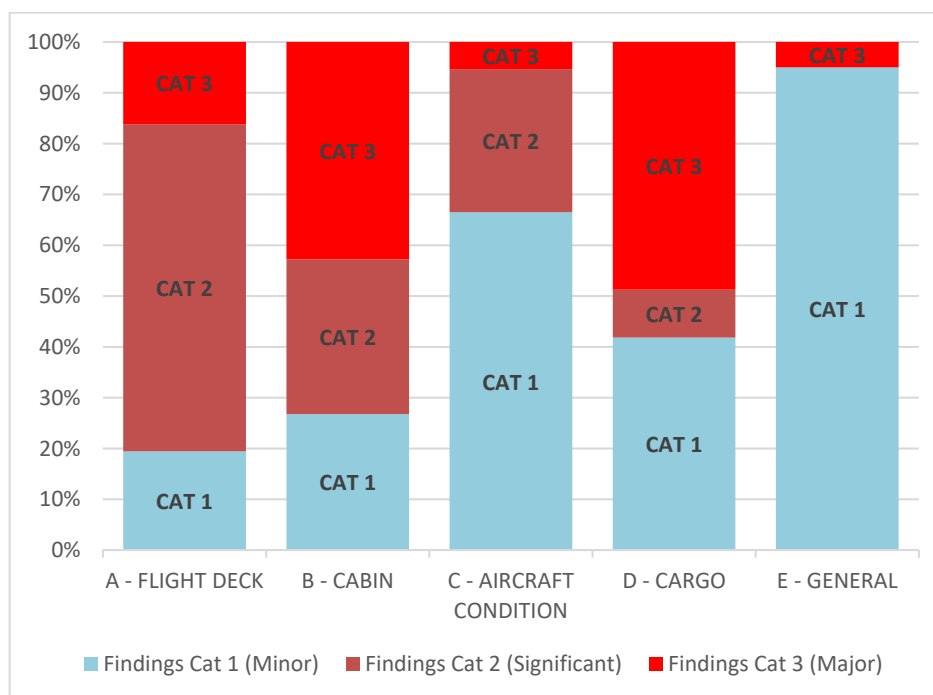


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**Figure 21.** Total Number of Findings per Inspection Area

When the percentage of finding categories within technical areas examined, the results in the below graphic are revealed. As shown below, nearly 50% of the cargo findings are Category 3 (major) highlighting the great importance of the issue. In flight deck, identified findings are mainly Category 2 (significant) which consists of the more than 60% of the findings in the subject inspection area. Besides, Category 1 (minor) findings have the highest share of the findings identified during the inspection of the aircraft condition (C) and general (E) items. For example, 95% of the findings in the “E” items are Category 1 which corresponds to the minor safety issues in nature. Regarding the cabin (B) items, it is seen that more than 70% of the findings are either significant (Category 2) or major (Category 3) which indicates the need for more attention for the effective management of safety risks concerning the cabin area.

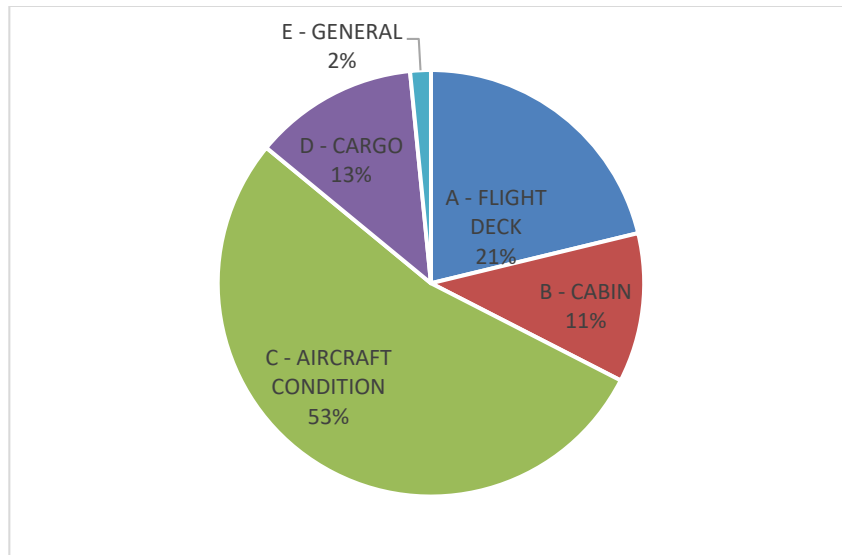


**Figure 22.** Percentage of Finding Categories within Technical Areas

Finally, below three graphics shows the analysis results regarding the percentage of the findings in different inspection areas for each finding category. In this regard, “C” items have the highest percentage (53%) within the Category 1 findings.

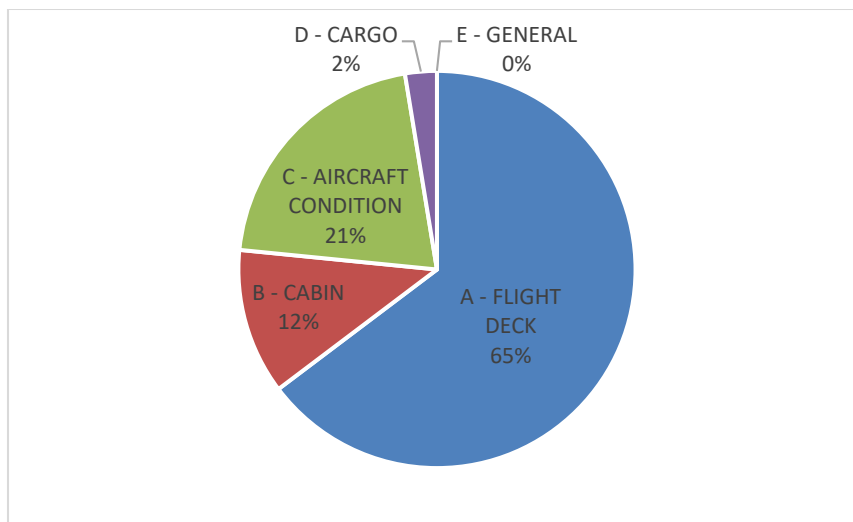


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**Figure 23.** Findings Cat 1 (Minor)

Flight deck items have the 65% share of the Category 2 findings as shown below.



**Figure 24.** Findings Cat 2 (Significant)

Regarding the distribution of the Category 3 findings shown below, it is seen that more than ninety percent of the subject findings are shared by cabin, flight deck and cargo items with the percentages as 33%, 32% and 27% respectively.



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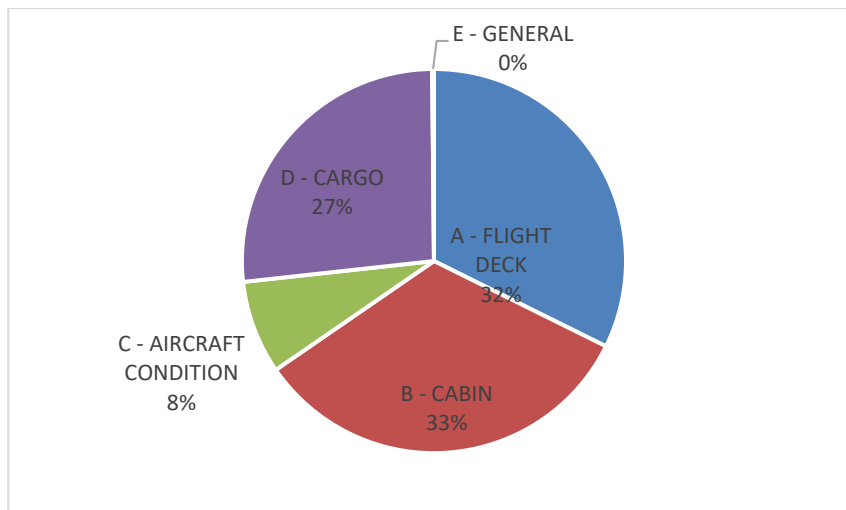


Figure 25. Findings Cat 3 (Major)

### 5. CONCLUSION

Commercial air transport, which is so important in the global transportation system, maintains its sustainability as long as it is acceptably safe. Today's modern civil aviation being a "system of systems", necessitates an integrated management approach to the total safety of the whole system.

In this respect, implementation of the aviation safety management systems (i.e., State Safety Programme - SSP and Safety Management System - SMS) has become an obligation under international civil aviation legislation.

As part of safety assurance function of the aviation safety management, a mean for oversight of the air operators is aircraft ramp inspections through which factual data on the level of compliance to the safety standards in real operational environment is revealed. Thus, the results of the ramp inspections are considered as an indicator of the air operators' operational safety performance level.

In conclusion, the results of ramp inspections present significant areas for future improvement in aviation safety, assisting the decision makers in how to address them and raise operational safety performance level at both the State and service providers.

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### MARAGHA OBSERVATORY

“MOTHERLAND IS A MEMORIAL SOUVENIR OF GENIUS AND WISE ANCESTORS.”

*Naride Gasimli*

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Nakhichevan State University, master degree,  
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Baku, Azerbaijan*

#### Abstract

There is a grave in far Baghdad city. All the guests, the scientists and the travellers coming to Baghdad hurry to see this grave and visit it. It has been written on the grave: “The helper of nation and religion, the shah of science country... Mother time has not born such a son yet”.

Nasiraddin Tusi was born in 1201.

He learned some languages, knew about religion and natural sciences. N. Tusi knew Mathematics and Medicine very well.

N.Tusi managed to build an observatory during Umar Khayyam Nishapuri the reign of Malik Shah. N. Tusi insisted that one of the most important things for us today is to create an observatory.

The building of the observatory was begun in 1259 in Maragha. The observatory was being built for 12 years and it became ready in 1271. Some of these facilities were invented in the observatory. The facilities of Maragha Observatory were also used in other countries. N. Tusi created a rich library in the observatory.

N.Tusi died in 1274 in Baghdad. There is a place in the Moon named after the genius astroger Nasireddin Tusi.

**Keywords:** Nasiraddin Tusi, Maragha Observatory, stars

There is a grave in far Baghdad city. All the guests, the scientists and the travellers coming to Baghdad hurry to see this grave and visit it. It has been written on the grave: “The helper of nation and religion, the shah of science country... Mother time has not born such a son yet”.

It is the grave of Nasireddin Tusi who was a great son of humanity and a genius Azerbaijanian scientist.

Khaja Nasireddin Tusi was born in 1201. Hamdullah Gazvini reports in his work “Tarihi-Gozida” that N. Tusi was originally from the city of Asaba in Azerbaijan. His ancestors migrated and came to the city of Tus, so the city of Tus became his nisba ( Nisba- In Arabs, it is an additional nickname after a person’s name, which indicates which country the person belongs to and where he was born.).

Nasireddin Tusi was born on the 18<sup>th</sup> of February in 1201. It was such a time that science, literature and art were being developed in Azerbaijan. Nasiraddin Tusi got a good education. He learned some languages, knew about religion and natural sciences. Nasiraddin Tusi knew Mathematics and Medicine very well, too.

What was the event that made so deep, so brave, so thoughtful, so knowledgeable Khaja Nasireddin Tusi to complain that he was not perfect that night? That night was one of the ordinary nights of his life. But apparently seemingly ordinary event shook that proud, invincible personality. There are 2 reliable written sources that confirm this story actually happened 8 centuries ago: Sheikh Murtaza Ansari’s



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“Magasib” work dedicated to Astronomy, and Mirza Muhammad’s “Qisasul-Ulama” works. Those 2 books give us the details of that incident. Khaja Nasireddin Tusi, who went on one of his next trips, approached the mill on the outskirts of a village. It was already evening and Khaja Nasireddin Tusi realized that if he continued his journey, he would not be able to reach the next village. Therefore, he knocked on the door and asked the miller to give him a place for the night. The miller replied that you are God’s guest, you are our dear. The miller invited him to supper, set the table, and it was time to sleep. That night was a clear night. The sky was full of stars and the weather was pleasant. Khaja Nasireddin Tusi asked the miller: ‘If possible, put my bed on the roof so I can sleep in such a beautiful weather.’ The miller replied, “No, it is not fit to sleep there, for it will rain heavily tonight.” Khaja Nasireddin Tusi smiled, because he had not introduced himself, “ I am a scientists, I am a scientists of stars, I know the sky.” No matter how much the miller insisted, he saw that his guest wanted to sleep on the roof. Certainly, in the middle of the night lightning flashed, the sky thundered, and it started to rain. Finally, he saw that sleeping here would not only make him completely wet, but he might even get sick. So, in the middle of the night he forced himself to go downstairs, knock on the door, and wake up the miller to appologize. Without saying a word, the miller offered a blanket-mattress that he had prepared inside beforehand.

And before leaving in the morning, Khaja Nasireddin Tusi asks the miller a question that pierces his heart: “After all, how did you know it would rain?” in fact, I should know it. Because I am the knower of the heavens. I am the scientists who investigated those cases. The miller replied, “ I am an illiterate person, how do I know such things. We just have a dog in the yard of this mill. One day that it will rain, the dog not stay in the yard, it just goes inside. He was fussing in the yard that day. I realized that it will rain, and it will rain hard. Khaja Nasireddin Tusi thought: “After working and learning so much throughout our life, we did not have the sagacity and perfection of such a dog.”

Hulaku khan promoted him to the level of vizier. However, he maintained his simplicity. Abu Al Fuwati, one of the authoritative source authors of that time, provides very interesting details about it in his book “Al-hawadis Al-jamiyyah”: “In addition to all these other merits, Khaja Nasireddin Tusi was also a wealthy man. Because Hulaku Khan assigned Khaja Nasireddin Tusi to manage the endowments and 10% of the income from endowments was his share. He paid that wealth for the needs of ordinary people. Ibn Al Fuwati wrote that he would not turn back empty-handed anyone who opened his door with hope. He would take care of everyone’s problems”.

He wrote “Zij-Elkhani” and “Risale-i-dar- herakati akhlag” which were among the most valuable works related to Astronomy in the Middle Ages. “Risale-i-dar-hesab” is his work related to this science, which is up to this day. He has a book on Physics: “Risale-i-dar govsu-guzah”. But at the same time, he was a philosopher, a logician. He wrote “Esasul-igtibas”. On the one hand, N. Tusi created an monumental work like “Meyarul-ashrar” on the Shaykh theory, which is not outdated even today. On the other hand, he wrote beautiful rubais and ghazals, which are the expressions of a gentle and delicate soul.

He wrote the book “Akhlaqi-Nasiri” in order to educate his countrymen well, as he wanted to see his compatriots as sane, religious, and confident in the future. Although Khaja Nasireddin Tusi wrote this book primarily for his children, it remained for new generations.

His work “Akhlaqi-Nasiri” was the first morality textbook. It is about more than 800 years that this book is being used as a textbook in the Muslim countries.

One of the wishes from my heart is that “Akhlaqi-Nasiri” should not remain only on the bookshelves.

There is no concept of uppercase and lowercase letters in the Arabic alphabet. But when we write the names of people like Aristotle, Abu Nasir-Farabi, Khaja Nasireddin Tusi we should write their names in capital letters in our language today. Because their greatness is the greatness of History.

Khaja Nasireddin Tusi was also an exceptional founder.

There is a very strong possibility that the prototype of Molla Naireddin and Khoja Nasireddin in anecdotes is the real image in history of our great scientist. Every year Molla Nasireddin, Khoja Nasireddin holiday is celebrated in Ak city of Turkey.





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According to Fazlullah Rashiduddin's work "Jamiyet Tawaruk", Hulaku khan invited Khaja Nasireddin Tusi to his palace on the recommendation of his brother Manku Gaghan, who was the Mongol king. One day, Manku Gaghan told him that "Khaja Nasireddin Tusi, the Ptolemy of the age, the Euclid of the age, the owner of great intelligence, is now in the hands of the Ismails in the Alamud fortress. Save him, rescue him, and bring him to your palace, take advantage of him and always appreciate him."

In the middle of the XIII century Azerbaijan was included in Elkhanilar state which surrounded a large area. In former times, the capital of this enormous state was Maragha, and then it was Tabriz. In the XIII century Baghdad was the biggest and richest city of the world. Its fame spread entirely the world. Endless wealth, valuable jewellery, foods and other goods were being carried to Baghdad by the caravans from all parts of the world.

Hulaku khan wanted to occupy this wealthy city. Calling his soldiers he consulted with them about occupying Baghdad. All the soldiers told to be ready for supporting him in this attack.

After it Hulaku khan consulted with the main astrologer of the palace. The main astrologer was against of the military invasion of Baghdad. In order to make Hulaku khan to change his mind he told that the order of the stars informed this invasion to be ended with a great danger. If he had marched to Baghdad, the ruler Hulaku khan would die in the same year and other misfortunes would happen.

Then the ruler consulted with Nasireddin Tusi. He asked the scientist: "How will this attack be ended?" Not being afraid Nasireddin Tusi answered shortly and decisively: "It will happen so that Hulaku khan will sit in the place of the caliph". Nasireddin Tusi advised Hulaku khan to attack Baghdad. Really, the ruler's attack to Baghdad ended successfully and in the February of 1258 the city was conquered. After this incident Nasireddin Tusi's respect increased much more at the ruler's palace.

Khaja Nasireddin Tusi made a request to Hulaku khan: "You often have conquests. Make sure that scientists in those countries, especially Star scientists, are not in danger in those battles. Rescue them and bring them to our Maragha Observatory. Hulaku khan conquered Baghdad. Suddenly, one person from the crowd said to the government representatives: "I am a scientist, an astrologer." This man, whose name was Ordi, survived, came to Maragha Observatory and became one of the leading scientists at Maragha observatory.

N. Tusi managed to build an observatory during Umar Khayyam Nishapuri the reign of Malik Shah. Centuries after N. Tusi, Teymurlang's grandson, Ulugbey, built his famous Observatory in Samarkand, and the fame of the Observatory spread to the whole world and the cultural world of that time. The sources about how the Observatory was created provide us with an interesting detail.

The source says that one day Hulaku khan and Khaja Nasireddin Tusi were standing on the mountain, they were preparing for the next trip. The army was also at the foot of the mountain.

Khaja Nasireddin Tusi talks about the need to create an observatory. Hulaku Khan says that it is a job that requires a lot of money. Let's wait, we will return to this issue when we have more opportunities. We have more important things than it to do today. Khaja Nasireddin Tusi insists that one of the most important things for us today is to create an observatory. Hulaku Khan wonders, "Then why?" Meanwhile, a huge, terrible roar breaks out and all the people at the foot of the mountain start running in panic. What scared them was that an empty barrel was rolling down from the top of the mountain. Khaja Nasireddin Tusi prepared this in advance. Khaja Nasireddin Tusi turned to Hulaku Khan and said: "We know, we see that an empty barrel goes round and round, it makes this sound. We are comfortable. And they don't know the reason. That is why they run in panic in fear. The necessity of the observatory for us is similar to this event. The observatory is necessary precisely because we know the sky well. If we know the sky well, we will live comfortably on Earth."

While Nasireddin Tusi was in Baghdad, he had been permitted by the ruler to build a special observatory for observing stars. Nasirreddin Tusi had convinced the ruler that the most suitable place for building the observatory was Maragha city.

The building of the observatory was begun in 1259 in Maragha. Nasireddin Tusi was a guide of the construction work. 16 main and additional buildings were built. But the main tower of the observatory was built in the middle of them. The internal width of the circular tower was equal to 22 meters. The



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facilities for observing stars were set in the main buildings. A madrasa, a library, metal and other workshops, workrooms for scientists were situated in the additional buildings. A mosque was also built in the area of the observatory. During this term scientists and skillful craftsmen were being invited from other cities and countries. Intensive work was being continued here. The students who came from other countries were also getting education together with local the students here.

The observatory was being built for 12 years and it became ready in 1271. There were a lot of facilities in the observatory. Some of these facilities were invented in the observatory. But the others were bought from other countries. The facilities of Maragha observatory were also used in other countries. A star globe was made in Maragha observatory. The globe was made from bronze, silver and gold. Now this globe is being kept in one of the German museums. Maragha was one of the best observatories of its time.

Nasireddin Tusi created a rich library for the scientists who were working in the observatory. There were 400 thousand manuscripts in the library. The work was being carried out here by those who were from China, India, Arabian countries, Mongolia and Europe.

The chronicler Muhammad Ibn Shakir confirms in his work "Tawaful-Wafait" that, this personality-Khaja Nasireddin Tusi created a library in Maragha, which contained more than 400.000 manuscripts. He brought books from Khorasan, China, Damascus, Mosul, and Baghdad. And Muhammad Ibn Shakir also emphasizes that Khaja Nasireddin Tusi read a large majority of those books, he did not just read them, he assimilated them and reflected the knowledge there.

Nasireddin Tusi organized "The House of Science and Wisdom" in Maragha. At that time Maragha observatory and "The House of Science and Wisdom" were the first diversified scientific holly places in the East. About more than hundred scientists were working in this scientific holly place.

While Nasireddin Tusi was in Baghdad he had ordered all valuable books to be sent to Maragha. He was seriously busy with searching for outstanding scientists, too.

He liked to visit Baghdad. Every time he came, he brought many treatises and valuable books to enrich the library in Maragha. But this time there was no luck. He died on June 25, 1274. He was seriously ill, he felt that death was near and he made his will: "Bury me around the grave of Musei Kazim."

Fazlullah Rashiduddin provides a very interesting detail in his work "Jamiyet-Tawariq": "At the foot of Musei Kazim's grave, they dug the ground a little and a relatively new crypt was found. It became clear from the research that Khalifa Nasir Billah built this crypt for himself. However, when he died, his son decided to bury his father in a more solemn mausoleum, somewhere else. That is why he gave instructions, they didn't demolish this tomb, they covered it with soil. The date of construction of the tomb was written on a plaque: February 18, 1201-the date of birth of Nasireddin Tusi."

Our great scientist died in 1274 in Baghdad. They say that, all Baghdad people came to his funeral.

Nasireddin Tusi is a world-wide famous scientist. There is a place in the Moon named after the genius astroger Nasireddin Tusi.

It is saying, "Where there is a will, there is a way". Khaja Nasireddin Tusi was interested in the sky and examined the stars. Great Hussein Javid: "I am the poet of Hosni-Khuda, I am not going down to the ground, I am a heaven poet." Today, one of the minor planets in space is named after H. Javid. One of the craters in the Moon is called Khaja Nasireddin Tusi. Whenever you see the Moon, when you watch the heavens, know that our compatriot Khaja Nasireddin Tusi is there.

Every time when we go to the workshop of a prominent sculptor Akif Askerov, we watch the monument to Khaja Nasireddin Tusi who made it with great love. I wish the monument to Khaja Nasireddin Tusi not only in the capital Baku but also in the city of Maragha where he created Maragha observatory and Maragha Academy or his ancestors' land-in the city of Asaba in the Southern Azerbaijan. We are longing for that dear day.

He had 3 sons: Sadreddin, Asileddin, Fakhreddin. All three of them became great scholars. They worked both at Maragha Academy and Maragha Observatory. After their fathers, they gained great respect in the society as people who were always wanted and needed.



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Translated by Naride Gasimli



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### PERCEPTION AND ATTITUDES OF TOTAL QUALITY MANAGEMENT APPLICATIONS ON EMPLOYEES IN ACCOMODATION ESTABLISHMENTS: ANTALYA SAMPLE

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#### **Abstract**

This research was conducted to assess the perception and attitudes of Total Quality Management applications on those who work in the accomodation establishments. The study was conducted in Antalya province of Turkey, which is one of the most important tourist destinations in the world. The study was carried out with 387 employees working in 15 five-star accommodation establishments operating in Antalya Province and agreed to participate in the survey. In this survey method, analysis of the data was performed with the IBM SPSS Statistical 26 version. Reliability and validity analyzes have been conducted for scales and the overall Quality Management applications scale and sub-dimensions used in the research have been found to be adequate for reliability and validity. Also, descriptive factor analysis and Cronbach Alpha ply numbers have been analyzed. When the data obtained from the study was analyzed, it was determined that the perception and attitude of Total Quality Management applications in the accomodation establishments were prioritized by sub-dimensions such as education level, marital status and management department. In addition, a high level of meaningful relationship has been established between Total Quality Management applications and sub-dimensions such as Job Quality, Leadership, Administrative Environment and the Work Environment. Accordingly, sub-dimensions such as Job Quality, Leadership, Administrative Environment and Work Environment are the leading factors that enable Total Quality Management applications to be successful in the accomodation establishments. Research findings offer recommendations to lodging businesses that implement Total Quality Management, tourism management organizations (DMO), hotel managers and academics working in the context of tourism literature.

**Keywords:** Quality Management in Antalya Hotels, Quality-Employee-Perception Relationship, Quality Leadership and Perception of Employee

#### **1. INTRODUCTION**

With the effect of the Covid-19 pandemic, which has been continuing globally since 2019, competition in the tourism industry is increasing rapidly, as in all sectors. The competition in the hospitality industry, which is the most important point of the tourism industry, requires hotel operators to take an innovative approach to the strategies and management they implement.

It is a form of management that introduces new approaches other than what is known in issues such as customer relations, sales-marketing and personnel management, aims to predetermine all kinds of



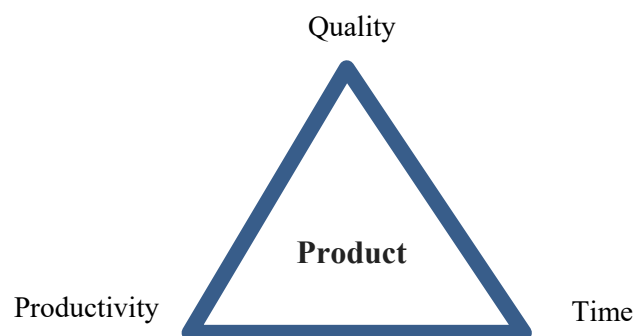
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problems that may occur within the business and to bring them to a conclusion in the most positive way, and aims at continuous development and improvement with a perspective that will take the business forward. It has become a necessity today that Total Quality Management and its applications take place effectively in the accommodation sector. As in all other businesses, the process must be examined and analyzed to ensure the sustainability of Total Quality Management applied in the accommodation sector. Apart from this, there are significant differences in both customer expectations and personnel service potential. Within the scope of the study carried out in this context, it is aimed to determine the perception and attitude created by the Total Quality Management practices applied in the accommodation establishments on the employees. In the study, the sub-dimensions of Total Quality Management and the job quality, leadership, administrative environment, work environment, work safety, image, working time, colleagues and wages were examined in terms of the employee and the perceptions and attitudes of these dimensions on the employee were evaluated.

### 2. LITERATURE

#### 2.1 Total Quality Management Concept, Basic Components and Characteristics

In the middle of the 13th century, the quality management approach, which started with the necessity of the goods produced by the craftsmen to be neat and of high quality, and some rules and sanctions determined and put into practice by the guilds, caused an increase in production with the development of the industry and advancing technological developments after the industrial revolution. Accordingly, the "Taylor Method", which was initiated by Frederick Winston Taylor, especially based in the United States, has been started to be applied quickly to produce quality products with high efficiency (Fischer and Neir, 2009).



**Figure 2.1** Quality, Productivity and Time Management in Production Stages

**Reference:** (Weckennmann vd., 2015).

Total Quality Management (TQM), which can also be defined as a method used by companies in determining their management strategies today, started as "Quality Management" when the products produced and offered for sale between the years 1900 and 1940 were re-checked upon consumer complaints and the errors were corrected and put up for sale. In the 1940s, the development of quality awareness and the progress of the industry developed the idea of making high-quality and more production at an affordable cost. Thus, the importance of quality, productivity and time management (Figure 2.1) in production stages has emerged (Weckennman et al., 2015). Total Quality Management enables businesses to produce quality products with the most appropriate cost and to differentiate in quality. Total quality management is a system that aims to be the leader in the competitive market and contributes to making total quality costs more possible with the participation of all employees in the process. It is also expressed as examining the quality improvement strategies and incorporating the quality phenomenon into all the practices of the enterprise (Tari, 2005). The basic components that make up total quality management are defined as leadership, employee participation, customer relations-oriented management and effective communication, continuous improvement (Kaizen), in-house training, document-based decision making, process development, use of information and analysis, and total quality management strategy (Samson and Terziovski, 1999; Öztoprak, 2017).

In general, the understanding of total quality management in businesses is defined as the aim of providing the highest possible quality service to the consumer or guest. At the same time, it is stated as



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a secondary target to reach this quality with the most appropriate cost. The phenomenon that total quality management is based on is defined as “Kaizen” and is expressed as the understanding of the enterprises to constantly renew and develop themselves (Eroğlu and Solmaz, 2006). There are several elements that involve continuous improvement in the quality management process. These are expressed as understanding customer expectations, supporting employee participation, reducing rework, strengthening relations with suppliers, increasing trust and evaluating results (Shan et al., 2016).

The basic principles in Total Quality Management applications carried out in enterprises are; It is expressed as the approval of the management in terms of planning, realizing the implementation and providing control, creating a strong team by providing training opportunities, strengthening the motivation and capacity of the employee, and applying the kaizen philosophy (Luthra et al., 2020). It is stated that the applicability of the principles, ideas and methods of quality management increases the success rates, especially in service-oriented companies, and is a factor in the wide spread of quality management in the tourism sector (Camison, 1996). Tourism, which is a sector based on guest satisfaction, has a homogeneous structure. Nowadays, there is an intense increase in competition in the developing accommodation sector. In this competitive environment, accommodation businesses have to be innovative and develop flexible sustainable competitive advantages. In this context, total quality management is expressed as a necessity to present the tourism product to guests and customers in an accurate and high-quality manner and to ensure the continuation of demand (Holjevac, 2008; Jalilvand et al., 2018).

It is necessary to examine the factors affecting service quality in total quality management practices applied in the tourism sector. Service quality factors in general; it is defined as being reliable, having a developed sense of responsibility, competence, accessibility, courtesy, correct and quality communication and ease in communication, honesty, and being aware of the wishes and demands of the guest. In addition, it is expressed as making the guest feel special by realizing this awareness, making the guest feel safe in every aspect in the destination and accommodation business, and ensuring that all the equipment used to serve the guest and the general environment is at the service quality standards (Kahraman, 1996).

### **2.2. Employee, Employee Motivation and Service Potential in Accommodation Establishments**

The hospitality industry, which is in close relationship with many sectors, also provides significant employment opportunities. With this feature, it is in an effective position in the economic development of the destinations in which it operates. The organizational structure of an accommodation business consists of various units. For each unit, an employee who has knowledge and equipment is employed (Toker, 2006; Toker, 2006). The human resources department, which implements personnel management strategies in accommodation businesses, is considered the most important point in increasing customer satisfaction and profitability of the business. It is stated that the main factors for the accommodation business to become a pioneer in service quality and customer satisfaction in the competitive market are the quality and performance of its personnel. In addition, the driving force in the increase of personnel performance is accepted as the motivation that emerges as a result of the appropriate working conditions and wage policy provided by the management (Rivaldo, 2021). Personnel management programs implemented within the framework of corporate culture, reward strategies, the ability of the employee to have a say in the decisions taken for the enterprise, job autonomy, the definition and importance of the tasks are defined as the factors that contribute to the increase of employee motivation (Ali and Anwar, 2021).

It is stated that the most important factor that creates quality and ensures customer satisfaction is primarily the employee since service is provided based on the workforce in accommodation establishments. Accordingly, it is necessary to provide training and raise awareness of the hotel employees and guests according to factors such as satisfaction, continuous improvement, management principles, participation of all personnel in the quality process, analysis by applying quantitative or qualitative analysis strategies and complying with the process plan. The customer satisfaction that emerges as a result of these practices will enable the company to become a leader in the quality competitive environment (İnce, 2008).



### 3. METHOD

The scope of the research consists of employees working in five-star hotel businesses operating in the Antalya region. The limited number of five-star hotels in other regions was not included in the scope of the research, as 5-star hotel businesses in the Mediterranean region are mostly concentrated in Antalya Province. The main reason that 4-star hotel businesses are not included in the research is that the departments and the number of middle and lower-level managers in these hotel businesses differ compared to 5-star hotel businesses, and accordingly, it becomes difficult to estimate the research population correctly.

The research was carried out using the survey method with 387 personnel who were employed in 15 hotel businesses operating in the Antalya destination, which constitutes the study universe, and who agreed to participate in the survey. Assuming that there are personnel and managers to be found in each department and that there are chiefs in the lower-level managerial positions, the number of which can vary depending on the nature of the department, it is foreseen that an approximate number representing the total can be reached. The simple random sampling method which one of the probability sampling methods, was used in the selection of the sample. In the implementation phase of the research, five-star accommodation businesses operating in Antalya and the contact information and addresses of these businesses were determined. The internet was used to identify these businesses. As a result of the scanning, 15 businesses were identified. As a result of the interviews with these businesses, approval was obtained from 15 accommodation businesses to apply the questionnaire. Since it would be difficult for hotel staff to spare time to fill out the questionnaires during business hours, those who worked during breaks or rest periods were reached.

The questionnaire method was used as a data collection method in the research. In order to measure the perceptions of the nature of the job, perceptions of leadership, perceptions of the managerial environment, perceptions of the work environment, perceptions of work safety, perceptions of working time, perceptions of the image, perceptions of colleagues and wages, a questionnaire was created by using the scale of İnce (2008). Of the expressions in the scale, 6 of them are the quality of the job, 6 are the leadership dimension, 4 are the managerial environment, 6 are the work environment dimension, 2 are the job security dimension, 3 are the image dimension and 4 are the coworkers' dimension. , 4 are statements intended to measure the wage dimension. In all scales, 1 means "strongly disagree", 2 "disagree", 3 "I am undecided", 4 means "agree" and 5 means "strongly agree".

In this study, which was carried out with the participation of employees working in 15 5-star hotels in Antalya, two research questions form the basis of the study.

H1- There are differences between the data on Total Quality Management Applications and the demographic characteristics of the employees.

H2- There is a relationship between Total Quality Management Applications (Job Quality, Leadership, Administrative Environment, Work Environment, Work Safety, Image, Working Time, Colleagues and Wages) in accommodation establishments and employee perception.

### 4. RESEARCH ANALYSIS RESULTS

#### 4.1 Reliability Analysis

In the study, a reliability analysis of the Total Quality Management Applications Scale (TQMAS) and its sub-dimensions was performed, and Cronbach's Alpha values are shown in Table 4.1. Reliability analysis is a concept that reveals the consistency of all questions in a survey and their homogeneity in measuring the formation under consideration. In the reliability analyses performed, the  $\alpha$  coefficient is expected to be above 0.70 (Pallant, 2020). Accordingly, the reliability of the Total Quality Management Applications Scale and its sub-dimensions used in the study were found to be sufficient.



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**Table 4.1. Cronbach's Alpha Values of the Scale and its Sub-Dimensions Used in the Study.**

Scale and Sub-dimensions	Cronbach's Alpha	N
Total Quality Management Applications Scale	0,951	39
Job Quality	0,888	6
Leadership	0,956	6
Administrative Environment	0,931	4
Job Environment	0,801	6
Work Safety	0,920	2
Image	0,886	3
Working Time	0,762	4
Colleagues	0,952	4
Wage	0,876	4

### 4.2 Analysis of Data

Data analysis was performed with IBM SPSS Statistics version 26. The comparison of the scale and sub-dimension scores according to the marital status of the personnel working in the accommodation establishments is shown in Table 4.2.

**Table 4.2. Comparison of Scale and Sub-Dimension Scores of Personnel Working in Accommodation Establishments According to Marital Status.**

Scale and Sub-Dimensions	Marital Status	N	Mean	S.S	t	p
Total Quality Management Applications (TQMA)	Married	191	3,68	0,62	3,435	<b>0,001**</b>
	Single	196	3,45	0,69		
Job Quality	Married	191	4,24	0,70	3,720	<b>0,000**</b>
	Single	196	3,94	0,90		
Leadership	Married	191	4,11	0,90	2,509	<b>0,013*</b>
	Single	196	3,86	1,06		
Administrative Environment	Married	191	3,82	0,98	2,200	<b>0,028*</b>
	Single	196	3,59	1,10		
Work Environment	Married	191	3,93	0,76	3,164	<b>0,002*</b>
	Single	196	3,68	0,84		
Work Safety	Married	191	3,46	1,30	0,147	0,883
	Single	196	3,44	1,30		
Image	Married	191	3,91	0,97	0,795	0,427
	Single	196	3,83	1,04		
Working Time	Married	191	3,03	1,12	1,236	0,217
	Single	196	2,89	1,13		
Colleagues	Married	191	4,08	0,92	4,827	<b>0,000**</b>
	Single	196	3,54	1,24		
Wage	Married	191	2,53	1,06	2,258	<b>0,025*</b>
	Single	196	2,28	1,08		

\*p<0,05, \*\*p<0,01, t: Independent Sample T test

There were differences in Total Quality Management Applications (TQMA), Job Quality, Leadership, Administrative Environment, Work Environment, Colleagues and Wage scores according to the marital status of the personnel working in the accommodation establishments (p<0.05). It was determined that Total Quality Management Applications (TQMA), Job Quality, Leadership, Administrative Environment, Work Environment, Colleagues and Wage scores of married employees were higher than





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Total Quality Management Applications (TQMA), Job Quality, Leadership, Administrative Environment, Work Environment, Colleagues and Wage scores of single employees.

The comparison of the scale and sub-dimension scores of the personnel working in accommodation establishments according to their educational status is shown in Table 4.3.

**Table 4.3. Comparison of Scale and Sub-Dimensional Scores of Personnel Working in Accommodation Establishments According to Educational Status.**

Scale and Sub-Dimensions	Educational Status	N	Mean	S.S	F	p	Difference
Total Quality Management Applications (TQMA)	High School and Earlier <sup>(A)</sup>	148	3,43	0,72	4,79	<b>0,003**</b>	<b>A&lt;B,C,D</b>
	Associate Degree <sup>(B)</sup>	125	3,59	0,61			
	Undergraduate <sup>(C)</sup>	97	3,68	0,62			
	Postgraduate <sup>(D)</sup>	17	3,90	0,64			
Job Quality	High School and Earlier <sup>(A)</sup>	148	3,96	0,86	2,395	0,068	-
	Associate Degree <sup>(B)</sup>	125	4,21	0,69			
	Undergraduate <sup>(C)</sup>	97	4,10	0,90			
	Postgraduate <sup>(D)</sup>	17	4,29	0,77			
Leadership	High School and Earlier <sup>(A)</sup>	148	3,79	1,12	3,465	<b>0,016*</b>	<b>A&lt;B,C,D</b>
	Associate Degree <sup>(B)</sup>	125	4,09	0,81			
	Undergraduate <sup>(C)</sup>	97	4,08	0,98			
	Postgraduate <sup>(D)</sup>	17	4,32	0,83			
Administrative Environment	High School and Earlier <sup>(A)</sup>	148	3,49	1,18	3,9	<b>0,009**</b>	<b>A&lt;B,C,D</b>
	Associate Degree <sup>(B)</sup>	125	3,77	0,94			
	Undergraduate <sup>(C)</sup>	97	3,88	0,96			
	Postgraduate <sup>(D)</sup>	17	4,06	0,90			
Work Environment	High School and Earlier <sup>(A)</sup>	148	3,66	0,86	3,658	<b>0,013**</b>	<b>A&lt;B,C,D</b>
	Associate Degree <sup>(B)</sup>	125	3,86	0,79			
	Undergraduate <sup>(C)</sup>	97	3,88	0,73			
	Postgraduate <sup>(D)</sup>	17	4,22	0,71			
Work Safety	High School and Earlier <sup>(A)</sup>	148	3,38	1,39	2,667	<b>0,04*</b>	<b>A,B&lt;C,D</b>
	Associate Degree <sup>(B)</sup>	125	3,29	1,27			
	Undergraduate <sup>(C)</sup>	97	3,71	1,15			
	Postgraduate <sup>(D)</sup>	17	3,85	1,30			
Image	High School and Earlier <sup>(A)</sup>	148	3,71	1,07	2,555	0,055	-
	Associate Degree <sup>(B)</sup>	125	3,92	0,98			
	Undergraduate <sup>(C)</sup>	97	3,98	0,91			
	Postgraduate <sup>(D)</sup>	17	4,24	0,91			



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Working Time	High School and Earlier <sup>(A)</sup>	148	2,88	1,21	0,514	0,673	-
	Associate Degree <sup>(B)</sup>	125	2,97	1,09			
	Undergraduate <sup>(C)</sup>	97	3,06	1,05			
	Postgraduate <sup>(D)</sup>	17	3,01	1,09			
Colleagues	High School and Earlier <sup>(A)</sup>	148	3,61	1,22	2,654	<b>0,048*</b>	<b>A&lt;C,D</b>
	Associate Degree <sup>(B)</sup>	125	3,88	1,04			
	Undergraduate <sup>(C)</sup>	97	3,97	1,04			
	Postgraduate <sup>(D)</sup>	17	4,04	1,13			
Wage	High School and Earlier <sup>(A)</sup>	148	2,35	1,11	2,639	<b>0,049*</b>	<b>A,B,C&lt;D</b>
	Associate Degree <sup>(B)</sup>	125	2,31	0,98			
	Undergraduate <sup>(C)</sup>	97	2,49	1,04			
	Postgraduate <sup>(D)</sup>	17	3,04	1,46			

\*p<0,05, \*\*p<0,01, F: One Way ANOVA, Difference: Post Hoc Tests

There was no difference in the Job Quality, Image and Working Time scores according to the educational status of the personnel working in the accommodation establishments ( $p>0.05$ ). In the study, it was observed that as the education level increased, Total Quality Management Applications (TQMA), Leadership, Administrative Environment, Work Environment, Work Safety, Colleagues and Wage scores increased. It has been observed that the wage scores of the employees with a postgraduate education level are higher than the other groups.

The comparison of the scale and sub-dimension scores of the personnel working in the accommodation establishments according to their duties is shown in Table 4.4.

**Table 4.4. Comparison of Scale and Sub-Dimension Scores of Personnel Working in Accommodation Establishments According to Their Duties.**

Scale and Sub-Dimensions	Duty	N	Mean	S.S	t	p
Total Quality Management Applications (TQMA)	Administrator	165	3,77	0,59	5,472	<b>0,000**</b>
	Employee	222	3,41	0,68		
Job Quality	Administrator	165	4,25	0,69	3,325	<b>0,001**</b>
	Employee	222	3,97	0,88		
Leadership	Administrator	165	4,20	0,84	3,830	<b>0,000**</b>
	Employee	222	3,82	1,06		
Administrative Environment	Administrator	165	3,93	0,91	3,774	<b>0,000**</b>
	Employee	222	3,53	1,12		
Work Environment	Administrator	165	3,99	0,67	4,058	<b>0,000**</b>
	Employee	222	3,66	0,87		
Work Safety	Administrator	165	3,61	1,20	1,999	<b>0,046*</b>
	Employee	222	3,34	1,36		
Image	Administrator	165	4,00	0,90	2,174	<b>0,030*</b>
	Employee	222	3,77	1,06		
Working Time	Administrator	165	3,17	1,07	3,272	<b>0,001**</b>
	Employee	222	2,80	1,14		
Colleagues	Administrator	165	4,09	0,91	4,382	<b>0,000**</b>
	Employee	222	3,59	1,22		
Wage	Administrator	165	2,70	1,03	4,768	<b>0,000**</b>
	Employee	222	2,19	1,06		

\*p<0,05, \*\*p<0,01, t: Independent Sample T test



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There were differences in Total Quality Management Applications (TQMA), Job Quality, Leadership, Administrative Environment, Work Environment, Work Safety, Image, Working Time, Colleagues and Wage scores according to the duties of the personnel working in the accommodation establishments ( $p < 0.05$ ). Total Quality Management Applications (TQMA), Job Quality, Leadership, Administrative Environment, Work Environment, Work Safety, Image, Working Time, Colleagues and Wage scores of employees, Total Quality Management Applications (TQMA), Job Quality, Leadership, Administrative Environment, Work Environment, Work Safety, Image, Working Time, Colleagues and Wage scores were found to be higher.

### 4.3 Levels of Relationship Between the Scale and its Sub-Dimensions Applied to the Personnel Working in Accommodation Establishments

The relationship levels between the scale and its sub-dimensions applied to the personnel working in the accommodation establishments were examined and are shown in Table 4.5

**Table 4.5 Relationship Levels between the Scale and its Sub-Dimensions Applied to the Personnel Working in Accommodation Establishments.**

Variable	K	TQMA	JQ	L	AE	WE	WS	I	WT	C	W
Total Quality Management Applications	r	1									
Job Quality	p										
Leadership	r	,710**	1								
Administrative Environment	p	0									
Work Environment	r	,797**	,720**	1							
Work Safety	p	0	0								
Image	r	,817**	,694**	,812**	1						
Working Time	p	0	0	0							
Colleagues	r	,785**	,643**	,680**	,785**	1					
Wage	p	0	0	0	0						
	r	,415**	0,05	,118*	,109*	,104*	1				
	p	0	0,33	0,02	0,031	0,04					
	r	,687**	,637**	,631**	,709**	,670**	-0,038	1			
	p	0	0	0	0	0	0,461				
	r	,461**	0,081	,176**	,178**	,203**	,295**	,119*	1		
	p	0	0,112	0,001	0	0	0	0,019			
	r	,599**	,291**	,388**	,343**	,379**	,102*	,296**	,216**	1	
	p	0	0	0	0	0	0,045	0	0		
	r	,677**	,340**	,359**	,388**	,391**	,399**	,258**	,285**	,479**	1
	p	0	0	0	0	0	0	0	0	0	

$p < 0,05$ , \*\* $p < 0,01$ ,  $r$ : Correlation Coefficient

A high level of positive correlation was found between Total Quality Management Applications and Job Quality, Leadership, Administrative Environment and Work Environment ( $p < 0.05$ ).



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### 5. RESULTS

This research was conducted in Antalya, Turkey, to evaluate the perception of the employees of Total Quality Management Applications in 5-star hotels. According to the results of the analysis obtained in the study, when the scale and sub-dimension scores of the personnel working in the accommodation establishments are compared according to their marital status, it is seen that the perceptions and attitudes of the married participants towards Total Quality Management are at a more conscious level than the single participants. When the scale and sub-dimension scores of the participant employees working in the accommodation establishments are compared according to their educational status, it has been determined that the Total Quality Management Applications (TQMA), Leadership, Administrative Environment, Work Environment, Work Safety, Colleagues and Wage scores increase as the education level increases. This means that the higher the education level, the higher the perception and attitude of Total Quality Management Applications and the success achieved in line with the purpose of these practices.

When the scale and sub-dimension scores of the employees working in 5-star hotels participating in the survey and participating in survey are compared according to the departments they work, the Total Quality Management Applications (TQMA), Job Quality, Leadership, Administrative Environment, Work Environment, Work Safety of the employees in the managerial position. Image, Working Time, Colleagues, and Wage scores were found to be higher than Total Quality Management Applications (TQMA), Job Quality, Leadership, Administrative Environment, Work Environment, Work Safety, Image, Working Time, Colleagues, and Wage scores. A highly significant relationship was found between the Total Quality Management Applications provided by the business to the 5-star hotel employees participating in the survey and the Job Quality, Leadership, Administrative Environment and Work Environment. Accordingly, it is stated that sub-dimensions such as Job Quality, Leadership, Administrative Environment and Work Environment are the leading factors that ensure the success of Total Quality Management Applications in accommodation establishments.

### 6. DISCUSSION

Employee and employee behaviors, which are one of the most important elements that make up a business structure, are defined as one of the cornerstones of the success of the business. The social and psychological dimensions of the employee's attitudes and behaviors should be handled carefully and it is necessary to ensure that the individual feels himself in an environment of trust within the organizational structure. Parallel to this, it is stated that since the element of trust provided in the organizational structure will increase the productivity of the employees, it will also affect the service quality of the business positively. When the relevant literature is examined, it is seen that some studies show parallelism with the results of the research. In this context, Faraj et al. (2021), according to the results of the analysis of the survey conducted with the front office personnel working in 5-star hotels in Iraq, it has been seen that the TQMA implemented by the top management for elements such as rewarding, authorization, training and team integrity are important factors in increasing the creative performance of the personnel.

In the study conducted by Redžić (2018) using interview and questionnaire method with 100 participants in the Serbian capital Belgrade, Novi-Sad cities and Sir town, it was examined how the stakeholders in the tourism sector perceive the quality of hotel services. Accordingly, it has been determined that the guests expect a comfortable room with a beautiful view, caring and smiling staff, delicious and various foods for the price they pay. In addition, when the survey data is analyzed, it has been determined that there are many opportunities to improve the service quality in the accommodation sector. In addition, in the study conducted by Al-Dhaafri and Alosani in Dubai Police in 2020, they investigated the impact of TQM, corporate excellence and entrepreneurship on organizational performance. According to the results of the analysis of the data of the survey study, which was carried out with the participation of 280 employees, it was seen that the management strategies that improve TQM, corporate excellence and entrepreneurship are effective in increasing organizational performance.

### 7. CONCLUSION

According to the results of the analysis obtained in the study, it was seen that the perceptions of the married employees against the Total Quality Management Applications were higher because they had a greater sense of responsibility. Accordingly, it should be ensured that the awareness of the personnel



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working in the accommodation enterprises is increased by increasing the Total Quality Management Applications training for the personnel who are primarily single.

As Total Quality Management Applications to be correctly perceived by the employees in accommodation enterprises, it should be ensured that first of all, it is necessary to work with trained and professionally competent personnel and to ensure that the employees working in all departments receive the necessary training on TQMA. Corporate reward systems that increase job performance and increase the motivation of the personnel for work should be implemented by giving them at certain periods. Employees who have strong professional competencies and at the same time have managerial characteristics that will contribute to the progress of the enterprise should be identified and career support studies should be carried out.

As a result of the analysis obtained from the research, it was determined that Total Quality Management in accommodation enterprises were perceived more strongly by the management department. This situation provides one of the most important conditions for the total quality management applied in an accommodation enterprise to take the enterprise forward and to take leadership in the competitive market. Because conscious business management will be more successful in personnel selection, sales marketing strategies and customer-oriented management approaches, and will ensure more development and improvement of the enterprise. From this point of view, to implement a successful Total Quality Management in the accommodation enterprise, the management department must first have a strong structure. Leadership strategies applied by the management, managerial environment, the successful reflection of the importance of the work done to the employee and the creation of a business environment in which the work of the employee is appreciated, career development opportunities are offered and all the necessary equipment is provided for the employee to fulfill his / her duty, providing easy communication between the manager and the employee, developing fair and positive result approaches in the solution of the problems of the employee, strategies such as ensuring the participation of the employee in the decisions taken and making the employee feel that he is a valuable member of the corporate culture will improve the perception and awareness of the personnel towards TQMA. Thus the quality of service and customer-oriented work will increase. The progress created by all these strategies and approaches in the performance of the service will enable the accommodation business to take a leading position in the competitive environment.

This study offers suggestions to accommodation enterprises that implement Total Quality Management, tourism management organizations (DMO), hotel managers and academicians working in the context of tourism literature. Comparing the findings of the current study with the findings to be obtained with future research in different sample groups is of great importance to expanding the knowledge base of the literature.

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### 3D FACE RECOGNITION WITH INERTIA MATRIXES

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#### **Abstract**

With metaverse applications and 3D systems, data security issues about biometric data and personal information security is getting more important. With laws about personal data security, recognition technics are getting more important and more sensitive. Most of face recognition systems and researchs about 3D image models are making decisions with converting 3D model to 2D images. However, working on 3D models directly is also possible. At this point, evaluating the stl files as a volume and volume parameters for recognition is a new method. In fact, lots of geometrical parameters are similar for a head volume like eye holes, nose, mouth size... etc. However, small differences between heads effects center of gravity, parameters of mess gravity centers and something like that. With developing technology and data mining methods these small differences can be evaluated for face recognition. At this work, we tried to identify head volumes for ID recognition. Evaluating this stl data for point of view personal data preserving, is more reliable because either none of face image is not stored on system for recognition or for nothing else. They are used only for creating 3D model and finding inertia matrixes of that volume. In literal, there 4 main methods for face recognition<sup>[1]</sup>:

1. Geometric Methods
2. Neural Network Supported Methods
3. Ground Sampling Distance Methods
4. Optical Methods

This method can be classified as geometric method and it can be conceivable as totalitarian shape identification.

**Keywords:** 3D Face Recognition, Inertia Matrixes, Center of Mess, Identification, 3D Models from 2D Images

#### **1. INTRODUCTION**

The origin of the study is the development of a method to confirm whether the person who is logged in to the distance education systems is the right person. A validation is proposed based on the comparison of the 3D model, which will be reconstructed with the previously taken images and 3 photographs to be given by the person in real-time whose 3D model is registered in the system, before the session or during the session, with the one registered in the system.

In the creation of the 3D model, the open source Blender software and the FaceBuilder plugin overwritten by this software were used. The results were evaluated by comparing 20 models created with FaceBuilder, a licensed software, with each other and with their 2 different models.

The coordinates of the volume and center of gravity do not change much because the inertia matrices of the 3D models have certain properties of the volume in question and the structures common to all of them (eye socket, mouth, nose, head structure...). However, the coordinates of the inertia matrices differ due to the face and head structure. However, it has been seen in the tests that these matrices alone cannot create definite results. The factors that are effective in this are the details given in the section of introducing the 2D images used in the creation of the 3D model to the FaceBuilder software; more than one component, such as resolutions and detail states of the pictures, selected common points.. However, with the evaluation of inertia matrices, center of gravity and volume data together, a threshold value



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could be determined in the comparison of 2 models belonging to the same person and models belonging to different people.

For the first evaluation of the results, comparisons were made after transferring 2D images from different sources of 20 real people to 3D. In addition, 3D models of celebrities whose photos can be found easily from the internet source were created and inertial matrix values were recorded in the database and stored for future studies.

### 2. CREATING 3D MODELS

In the FaceBuilder plugin used in the creation of 3D models, it was tried to create the models with 3 or 5 2D photos, and it was seen that the models created with 3 photos gave smoother output. This difference arises due to the choices made in the section marking the common points. Since the correlation of the selected points with each other increases in the models with 5 photos, the models with colored .blend extension suffer more distortion. However, this distortion does not have much effect during comparison because the comparison is made with inertial matrices, center of gravity and volume components.

The punctuation studies used in the models created in the Blender software are shown below:



The 3D image obtained with 16 point marking is as follows:





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This 3D model is output as stl and processed in the software. The data of this stl output appears as follows:

```
Volume = 3.573626220713115
Position of the center of gravity (COG) = [-0.00094916 -0.12484378 0.46047006]
Inertia matrix at expressed at the COG = [0.59734958 0.00449887 0.00837239]
                                         [0.00449887 0.27422492 0.02137241]
                                         [0.00837239 0.02137241 1.03740168]
```

Parameters for another model are as follows:

```
Volume = 2.5496135448422277
Position of the center of gravity (COG) = [-0.00322288 -0.19635475 0.41535599]
Inertia matrix at expressed at the COG = [ 0.2361541 0.00237675 -0.00346285]
                                         [ 0.00237675 0.05130056 -0.02381116]
                                         [-0.00346285 -0.02381116 0.57094577]
```

The first of the 2 sample persons considered is a 4-year-old boy and the second is a 34-year-old male. As can be seen, the coordinates of the center of gravity (Position of center of gravity) and volume values vary considerably. When the mean squared error values of the matrices are calculated after the normalization of the values of the inertia matrices and the center of gravity data with the volume data, the following values are seen:



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Eylemsizlik Matrisleri MSE Değeri: 0.044678979953459826  
Ağırlık Merkezi matrisi MSE Değeri: 0.002384755928560829  
İki Model Arasındaki Benzerlik: 18.735242218444988

### 3. CONCLUSION

The similarity between the two models was calculated as 18,735. When this comparison is repeated for 23 different models, the following table appears.

	STL1	STL2	STL3	STL4	STL5	STL6	STL7	STL8	STL9	STL10	STL11	STL12	STL13	STL14	STL15	STL16	STL17	STL18	STL19	STL20	STL21	STL22	STL23	
STL1		45.443	0.38	4.387	26.654	16.243	8.912	3.752	8.297	10.59	50.119	75	0.141	10.239	3.003	11.6	6.117	1.222	5.576	18.845				
STL2	45.443		0.6	0.932	18.735	7.654	6.992	1.964	8.5	6.94	43.686	29.3	1.559	8.08	1.711	9.872	1.347	5.02	7.659	16.034				
STL3	0.38	0.6		1.056	6.335	3.131	11.82	2.509	1.499	2.908	22.694	2.623	0.185	8.293	1.866	20.592	2.358	3.113	5.985	9.434				
STL4	4.387	0.932	1.056		30.779	133.636	10.865	3.795	20.53	9.745	67.193	9.94	3.511	14.298	4.26	15.486	1.141	2.539	3.534	21.043				
STL5	26.654	18.735	6.335	30.779		15.773	0.56	8.929	22.403	57.373	90.59	19.288	95.332	4.316	10.429	3.043	10.526	11.723	8.784	25.723				
STL6	16.243	7.654	3.131	133.636	15.773		7.553	3.366	38.68	4.697	52.714	10.223	12.258	9.592	4.667	12.775	4.508	9.339	5.874	16.487				
STL7	8.912	6.992	11.82	10.865	0.56	7.553		25.79	16.127	4.758	19.491	7.501	9.015	15.712	53.25	8.103	8.73	9.745	7.407	10.058				
STL8	3.752	1.964	2.509	3.795	8.929	3.366	25.79		9.049	5.832	63.663	4.009	3.723	31.364	24.07	14.674	2.605	3.986	4.122	18.635				
STL9	8.297	8.5	1.499	20.53	22.403	38.68	16.127	9.049		4.968	48.269	25.765	2.956	13.444	5.142	44.715	67.5	19.247	9.035	72.056				
STL10	10.59	6.94	2.908	9.745	57.373	4.697	4.758	5.832	4.968		193.764	5.711	25.931	5.872	4.109	6.357	3.824	6.075	4.719	36.244				
STL11	50.119	43.686	22.694	67.193	90.59	52.714	19.491	63.663	48.269	193.764		46.242	94.977	38.487	50.815	26.45	34.224	31.88	23.42	72.056				
STL12	75	29.3	2.623	9.94	19.288	10.223	7.501	4.009	25.765	5.711	46.242		10.244	9.581	4.7	11.603	3.624	7.904	4.087	17.396				
STL13	0.141	1.559	0.185	3.511	95.332	12.258	9.015	3.723	2.956	25.931	94.977	10.244		12.546	2.493	8.998	1.479	0.515	2.37	28.652				
STL14	10.239	8.08	8.293	14.298	4.316	9.592	15.712	31.364	13.444	5.872	38.487	9.581	12.546		25.385	10.421	8.709	10.096	8.172	9.579				
STL15	3.003	1.711	1.866	4.26	10.429	4.667	53.25	24.07	5.142	4.109	50.815	4.7	2.493	25.385		58.794	2.948	4.702	4.804	14.605				
STL16	11.6	9.872	20.592	15.486	3.043	12.775	8.103	14.674	44.715	6.357	26.45	11.603	8.998	10.421	58.794		17.751	15.966	9.945	12.32				
STL17	6.117	1.347	2.358	1.141	10.526	4.508	8.73	2.605	67.5	3.824	34.224	3.624	1.479	8.709	2.948	17.751		22.552	8.021	13.191				
STL18	1.222	5.02	3.113	2.539	11.723	9.339	9.745	3.986	19.247	6.075	31.88	7.904	0.515	10.096	4.702	15.966	22.552		10.326	14.281				
STL19	5.576	7.659	5.985	3.534	8.784	5.874	7.407	4.122	9.035	4.719	23.42	4.087	2.37	8.172	4.804	9.945	8.021	10.326		12.518				
STL20	18.845	16.034	9.434	21.043	25.723	16.487	10.058	18.635	15.089	36.244	72.056	17.396	28.652	9.579	14.605	12.32	13.191	14.281	12.518					
STL21	0.69	1.185	0.255	3.803	14.255	13.397	20.054	7.727	8.051	5.034	40.983	7.0257	0.312	15.134	6.447	83.488	10.259	5.323	5.54	14.52				
STL22	24.514	5.85	1.039	4.062	24.302	12.734	8.225	3.175	14.41	7.293	51.933	391.761	4.537	9.854	2.786	11.129	0.263	4.335	4.118	18.053	2.652			
STL23	0.508	2.656	0.659	1.205	10.498	4.56	6.314	2.198	3.98	5.172	28.452	5.183	0.196	6.791	2.004	7.884	3.05	1.929	29.265	12.714	0.709	1.824		

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### THE ASSOCIATIVE INVASIONS -THE HELMINTHS, PRIMARY INTESTINAL PARASITES, PIROPLASMIDS OF THE SMALL RUMINANTS IN AZERBAIJAN

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#### **Abstract**

The research was carried out for the purpose of learning the helminth fauna, primary intestinal parasites and the species composition of the piroplasmids of the small ruminants were kept in the Shirvan-Salyan and Mountainous Shirvan economic regions of Azerbaijan. The parasitic fauna of the sheep and goats - the endoparasites: the helminths - 32 species, the primary intestinal parasites - the *Eimeria sp.*: 7 species in sheep, 5 species in goats, the piroplasmids: 4 species in sheep, 1 species in goats; the ectoparasites: the ticks - 3 species in sheep and 3 species in goats was determined in the Shirvan-Salyan economic regions. In the Mountainous Shirvan economic regions in sheep and goats: 32 species belonging to the nematodes, 7 species belonging to the cestodes and 4 species belonging to the trematodes were detected with high intensity. The primary intestinal parasites - the *Eimeria sp.*: 7 species in sheep, 7 species in goats, the piroplasmids: 4 species in sheep, 2 species in goats; the ectoparasites: the ticks - 4 species in sheep and 4 species in goats was determined. In the small ruminants the infection with the endo and ectoparasites was noted with the associative forms (helminths-piroplasmids-*Eimeria sp.*-ticks) in the spring, summer and autumn. Transmissible ticks that transmit piroplasmids to small ruminants were species belonging to the genera *Ixodes*, *Boophilus*, *Rhipicephalus*, *Hyalomma* and *Haemaphysalis*. The *Babesia ovis*, *Theileria sp.*, *Anaplasma ovis* parasites were detected in the blood smear samples. Smear samples prepared from internal organs of ticks (salivary gland, ovary, intestine) showed intense *Rickettsia* and low *Coxiella* pathogens.

**Key words:** associative, helminth fauna, primary intestinal parasites, piroplasmids, ticks.

#### **Introduction**

The animal husbandry, one of the main areas of agriculture, was the main occupation of the people in Azerbaijan as early as 300 years ago. The local breeds of sheep and goats - Karabakh, Balbas, Absheron, Mountain merinos, Bozakh, Gala, Lezgi, Shirvan and Garadolag (2.5 million small-ruminants) are bred in the republic. In order to reduce the meat import to the republic (nearly 4 thousand tons of meat is imported during the year), the large animal husbandry complexes were created in the direction of the meat and dairy production, the various breeds of sheep and goats are brought from European countries and are being developed. As well as the ecological and anthropogenic factors influencing the development of the animal husbandry in the Republic, the diseases of invasion and infectious origin are also of particular importance. The agents causing invasive-parasitic diseases have a macro and microscopic structure, and the helminths, protozoa, intestinal and blood parasites, ticks, etc. belong to them. The helminthosis and piroplasmidoses (the blood-parasitic diseases) from these, are widespread in agricultural animals and they are invasions requiring constant attention. In our republic, the planned study of the parasitic diseases of the agricultural animals has been started since the beginning of the last century. The scientific-research works were carried out by scientists, 85 species of the helminths were detected in sheep, 54 species in goats, 83 species in cattles, 53 species in buffaloes, 52 species in zebu, and 23 species in both species of camels. The synanthropic hosts - the dogs and cats also play a big role in the spread of helminthosis in the agricultural animals. So 82 species of helminths parasitize them, of which 32 species are common in humans and 26 species in the agricultural animals. 16 species of main helminths in 3 classes (nematode, cestode, trematode) parasitize in the ruminant domestic animals, all of which cause the serious damage to the animal husbandry.



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The Shirvan region (the Shirvan-Salyan and Mountainous-Shirvan economic regions), where the research works are conducted, covers the landscapes with the favorable conditions for breeding small-ruminants in the Azerbaijan Republic, and the large animal herds are mainly kept in these areas. In the last years, the intensive recording of the parasitic diseases and even deaths in the small-ruminants, and the detection of the parasites belonging to 2 and 3 classes in the animals confirm that the disease agents are in an associative form. The main purpose of the research was the studying the faunistic and systematic composition of the helminths, primitive intestinal parasites and blood parasites - piroplasmids causing the serious pathological processes and death, and the application of the effective treatment measures against the agents. Although the parasitological scientists have conducted the researches on the mono invasions in Azerbaijan, the researches have not been conducted in the direction of the studying the associative invasions - at the same time, both endo and ectoparasites.

### **Materials and methods**

The researches were carried out in the livestock farms of the Shirvan-Salyan and Mountainous-Shirvan economic regions of Azerbaijan during a year in all the seasons and of all the age groups of the animals. 750 sheep and 450 goats were checked parasitologically in the Shirvan-Salyan economic region, 1590 sheep and 818 goats in Mountainous-Shirvan. The fecal samples taken from animals were researched by the methods Vishnyauskas, Fullerborn, Berman, Vayda, Darling, Sherbovich. The killed or butchered small-ruminants were researched by the complete and incomplete autopsy method: **Macrohelminthoscopy**: the detection of the helminth or a segment of a part of it in the fecal mass; **Helminthovoscopy**: the determination of the helminth egg by the various methods (the native smear, Fullerborn, Vishnyauskas and repeated washing methods) in the fecal; **Helminthlyarvoscopy**: the tracking of the helminth larvae in the fecal; **The Berman and Vayda methods**: the determination of the respiratory tract nematodes (dictiocaulosis and other lung nematodes); **The helminthological autopsy method** is based on the checking of all the organs of the autopsied dead or butchered animals: a) Complete autopsy method; b) incomplete autopsy method; c) the research of the fecal samples; d) Collected nematodes.

### ***The research method of Eimeria***

In order to detect the agents - primitive intestinal parasites causing the eimeriosis in the small-ruminants, the fecal samples were researched by the Fullerborn-Darling method on the seasons, and the samples were kept in potassium bichromate for observing sporogonia during 3-5 days

### ***The research method of the piroplasmids***

The epizootic situation of the infection with the blood parasites-piroplasmids in the small-ruminants was researched on the seasons, the species composition of the causative parasites and transmitting ticks was determined. In the spring, summer and autumn seasons, during the active life cycle of the ticks, the small-ruminants were checked clinically, the saturated and semi-saturated *Ixodidae* ticks were collected in Florinsky glasses and identified by the classical methods. The smears were prepared from internal organs (salivary glands, intestines, ovaries, Malpighian tubes) in order to determine the transovarial ticks after determining the species composition of the detected ticks. In order to detect the parasites in the tick eggs, the female ticks were kept in the tubes in a thermostat (24 °C) to obtain the eggs from the saturated female ticks. The smears obtained from the eggs were prepared and performed the microscopy. In order to determine the piroplasmids, the ears of the sick and suspected disease animals were cleaned, wiped with the alcohol, the capillary vessels were punctured and the first blood drop was taken, and it is drawn on the item glass at an angle of 45 °. These smears prepared from peripheral blood were fixed in methyl alcohol, later painted with the Romanovsky-Gimza paint. The samples were performed the microscopy and the species composition of the piroplasmids was determined.

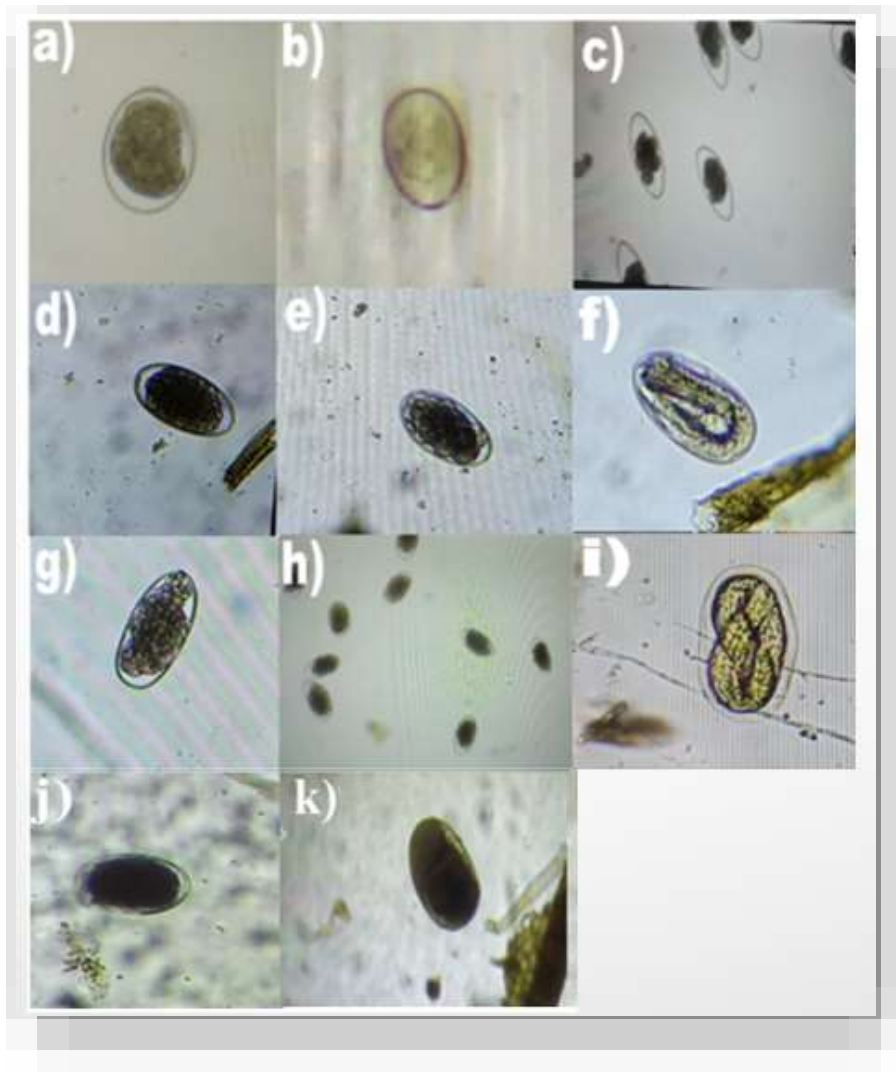
### **Results and Discussion**

The Shirvan region covers two economic regions - Shirvan-Salyan and Mountainous Shirvan regions, where the animals spend their winter and pasture periods. The helminth fauna of the small-ruminants kept in the Shirvan-Salyan economic regions (Shirvan, Salyan, Hajigabul, Bilasuvar, Neftchala) was the same in all the regions of the territory (the regions cover plain landscapes, are located in the Kur-Araz lowland - around the Kur river). So in the regions, as the non-nomadic farms were mainly moved to the



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pastures, the infection with the nematodes - gastrointestinal strongylates was more dominant and observed with varying intensities throughout the year. The high infection was noted in spring, summer and autumn, and relatively low intensity in winter. One of the main reasons for the more intensive infection of the animals with the gastrointestinal nematodes-strongyliates, is related with the climatic and humidity conditions of the region. In the last years, the rainy weather and high humidity have made it possible to stay in the invasive situation of these helminth eggs all the time. Such favorable conditions caused the infection of the sheep kept on both sedentary and nomadic farms with the geohelminth nematodes all the year round. The helminth fauna of the sheep and goats consisted of 32 nematode species. In the animals, the causative helminths causing the nematodosis were the species belonging to the genera *Trichostrongylus*, *Chabertia*, *Oesophagostomum*, *Nematodirus*, *Ostertagia*, *Haemonchus*, *Marshallagia*, *Cooperia*, *Bunostomum*, and with a relatively weak extensiveness, were the species belonging to the genera *Dictyocaulus* and *Protostrongylus*.



a) *Chabertia ovina*; b) *Oesophagostomum* sp.; c) *Nematodirus* sp.; d) *Ostertagia* sp.; e) *Haemonchus* sp.; f) *Protostrongylus* sp.; g) *Cooperia* sp.; h) *Trichostrongylus* sp.; i) *Dictyocaulus* sp.; j) *Bunostomum* sp.; k) *Marshallagia* sp.

The infection with the trematodes was observed intensively in the small-ruminants in spring, the first decade of summer and autumn. In the animals, the helminth species belonging to the trematodes class were noted - *Fasciola hepatica* belonging to the genus *Fasciola* of the family *Fasciolidae*, *Dicrocoelium lanceatum* belonging to the family *Dicrocoeliidae*, and *Paramphistomum cervi* belonging to the genus *Paramphistomum*. The favorable climatic conditions of the region, rivers, streams and ponds caused the



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population density of the intermediate hosts of the trematodes, resulted with the high intensity spread of the fasciolosis, dichroseliosis, and paramphistomatosis diseases in all the landscapes.

*The trematode eggs in the coprological samples (in microscopy).*



*Dicrocoelium sp.*

*Fasciola sp.*

*Paramphistomum sp.*

According to the results of the check, 5 species of anoplocephalites belonging to the cestodes class were detected in sheep and goats transferred from Mountainous Shirvan for winter. *Moniezia expansa*, *M.benedeni* and *M.autumnalia* species of the genus *Moniezia* belonging to the family *Anoplocephalidae*, the cestodes - *T.giardii* of the genus *Thysaniezia* belonging to the family *Anoplocephalidae*, and *A.centripunctata* belonging to the family *Avitellinidae* were recorded only in October-November, the new infection cases were not observed after deworming measures. The cestodes were not detected in the small-ruminants reared in the sedentary farms and the cestodosis hotbed was not noted, and that's why the detected anoplocephalites were not characteristic for the helminth fauna of the small-ruminants kept in the region.

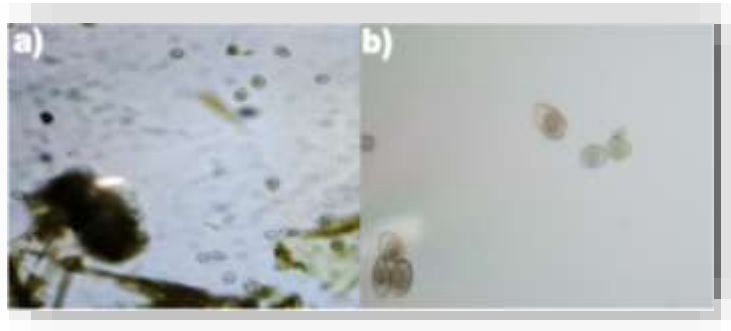


a) *Moniezia expansa* eggs; b) *Moniezia benedeni* egg; c) The moniesias collected from the small intestine

In the Shirvan-Salyan economic regions, 7 species belonging to the genus *Eimeria* from the primary intestinal parasites were noted intensively in sheep and 5 species in goats. In sheep: *Eimeria ahsata*, *Eimeria parva*, *Eimeria faurei*, *Eimeria intricata*, *Eimeria ovinoidalis*, *Eimeria ellipsoidalis*, *Eimeria cylindrica*; in goats: *E.alijevi*, *E.arloingi*, *E.ninakohlyakimovae*, *E.jolchijevi*, *E.absheronae*.

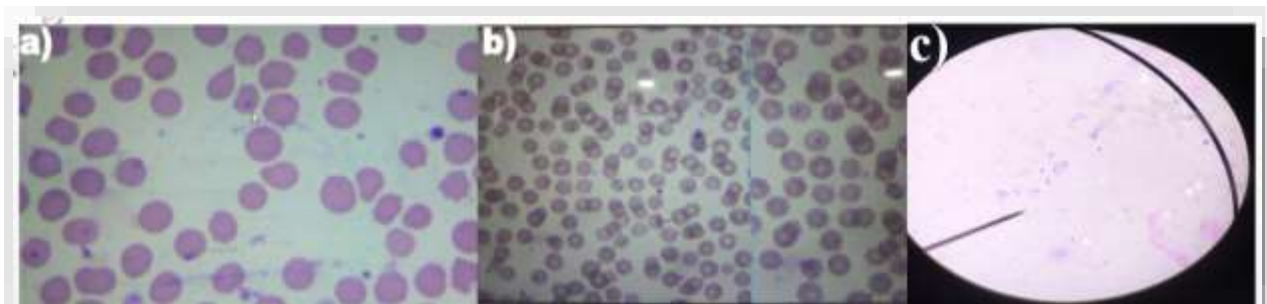


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a) *Eimeria* sp. in sheep; b) *Eimeria* sp. in goats

The *Ixodidae* ticks, which transmit the piroplasmids - united in 3 genera - were *Rhipicephalus bursa*, *Hyalomma anatolicum*, *Hyalomma plumbeum* and *Ixodes ricinus* in sheep, and *Rhipicephalus bursa*, *Boophilus calcaratus*, *Hyalomma plumbeum* and *Hyalomma anatolicum* in goats. In general, the high intensity of the infection with the *Rhipicephalus bursa* tick was noted in sheep and goats kept in all the regions. 4 species of piroplasmids - blood parasites - *Th. ovis*, *Th. recondita*, *Babesia ovis*, *Anaplasma ovis* were detected intensively in sheep; 1 species - *Anaplasma ovis* in goats. The intensity of the infection with the *Th. recondita* parasite was weak compared to other species. The piroplasmids, *Rickettsia* and *Coxiella* pathogens were detected in the smear samples prepared from the internal organs (salivary gland, ovary, and intestine) of the ticks.



a) *Babesia* sp. in sheep; b) *Anaplasma* sp. in goats; c) *Rickettsia* in sheep

The analogous researches were conducted in the Mountainous Shirvan economic regions. The Mountainous Shirvan economic region (Ismayilli, Shamakhi, Aghsu, Gobustan) covers the plains, foothills (Gobustan and Aghsu) and mountainous areas (Shamakhi and Ismayilli), that is why the parasite fauna of the small-ruminants was relatively different. The endoparasites of sheep and goats consisted of 32 nematodes species, 4 trematodes species, 7 species of *Eimeria* sp. parasites, the infection occurred in an associative form (in both landscapes). The species belonging to the genera *Dictyocaulus*, *Protostrongylus*, *Muellerius*, *Cystocaulus*, *Trichocephalus*, *Chabertia*, *Oesophagostomum*, *Trichostrongylus*, *Ostertagia*, *Marshallagia*, *Cooperia*, *Haemonchus*, *Bunostomum* and *Nematodirus* were noted with high intensity. *Fasciola hepatica*, *F. gigantica* helminths belonging to the *Fasciola* genus of the *Fasciolidae* family, *Dicrocoelium lanceatum* helminths belonging to the *Dicrocoeliidae* family, and *Paramphistomum cervi* trematodes belonging to the *Paramphistomum* genus caused intensively noted trematodoses in the foothills and plain landscapes of the region. The infection with the primitive intestinal parasites *Eimeria* sp. in small-ruminants was noted more intensively in all the seasons in this region: 7 species in sheep; 7 species in goats.

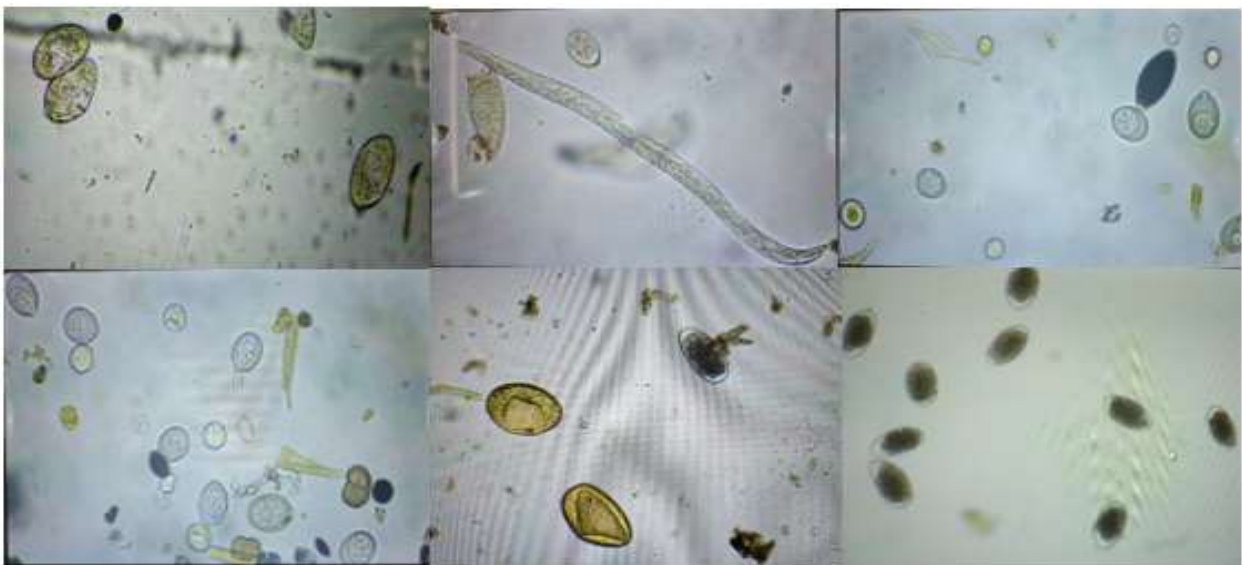
In our researches, the secondary infectious origin diseases were observed in 80% of the animals infected with the trematodoses had diseases of secondary infection (pleura-pneumonia, enterotoxemia, etc.). The infection with the trematodes was observed with the low intensity due to the seasonal changes (with the low intensity in late spring and summer) in the mountainous landscapes of the territory (Ismayilli, Shamakhi). In spring, summer and autumn ticks belonging to the genera *Hyalomma*, *Rhipicephalus*,



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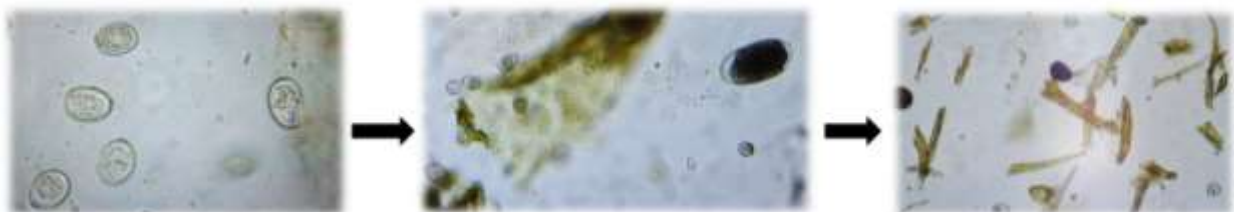
*Ixodes* and *Boophilus* were collected in sheep and goats. In November-February, the infection with the imagoes of the *Haemaphysalis parva*, *H.punctata* and *H.sulcata* ticks was observed, and in March-October with their nymphs. From March to the end of October, the intensive infection with the species *Rhipicephalus bursa*, *Rh.turanicus*, *H.plumbaeum* and *H.anatolicum* was noted in the small-ruminants. The infection of territory animals with the piroplasmidoses was different: it was noted with the low intensity only in the middle of July and the first decade of August in the highland landscapes. In the foothills and plain landscapes, the infection of the animals with the piroplasmids continued from the end of spring until the first decade of autumn. 4 species - *Th.ovis*, *Th.recondita*, *Babesia ovis* and *Anaplasma ovis* of the piroplasmids - blood parasites was noted in sheep; 2 species - *Anaplasma ovis* in goats.

We analyze the composition of the parasite fauna of the small ruminants in the economic regions and come to the conclusion that, in the Shirvan-Salyan and Mountain Shirvan economic regions, in the small-ruminants, the infection with the helminths-eimeria-piroplasmids-ticks in the associative form were observed in spring, summer and the first decade of autumn. In winter, in sheep and goats, the infection only with the endoparasites - *Eimeria sp.*, gastrointestinal and respiratory tract nematodes were observed.



*Associative parasite eggs in small ruminants*

In order to track the sequence of the animals with the associative invasion, to determine the dominant species, an unhealthy farm (the invasion diseases were noted in mother sheep) was selected, starting from the spring season, the newborn 2 lambs and 2 mother sheep (May, June, July) were kept under the control. The lambs kept in stable conditions were infected with eimeria from the 25th day and with gastrointestinal nematodes from the 30th day. From the 55th day, trematode (dicrocele) infection was observed in the lambs that went out to the pasture with the mother sheep after 1 month.



*The sequence of infection of animals with parasites*

The infection of lambs with the ticks was noted from the 3rd month (July), at this time, their physiological condition was even more critical. The temperature of the animals was 40.5-41 °C 8-10 days after from the infection with the ticks. During the check of the blood samples taken at this time for the piroplasmidoses, *Babesia ovis* was detected, the completely deformation of the erythrocytes was tracked. The sick animals died on the second day. During the autopsy check ups, were collected 285





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dicroceles from the liver of a lamb that died and paramphistomum from the stomach of the other lamb. The piroplasmids were tracked in the spleen, but not detected in the liver and kidneys. During the experiment, the mother sheep was kept under the control, the complications were observed, but there were not deaths. The analysis of the results shows that the associative invasions result with the death in lambs in contrast to the older animals. The animals are infected at first with the primary intestinal parasites, then nematodes, in the unfavourable farms, and with the trematodes in the pasture conditions. The lambs with the weakened immune system are infected with the piroplasmidosis by the transmitted ticks in the pastures, which causes the death of the young animal in a short period of time.

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### SIYASAL İLETİŞİM SÜRECİNDE PARTİ GENÇLİK KOLLARI ve BU KOLLARIN FALLİYETLERİ KONUSUNDA YAPILAN AKADEMİK ÇALIŞMALARIN İNCELENMESİ

#### INVESTIGATION OF ACADEMIC STUDIES ON THE YOUTH BRANCHES OF THE PARTY AND THEIR ACTIVITIES IN THE POLITICAL COMMUNICATION PROCESS

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#### Özet

Siyasi partilerin gençlik kolları, gençlerin siyasi duruşlarının biçimlenmesinde ve sosyalleşme süreçlerinde önemli bir etkiye sahip alt örgütlerdir. Gençlik kolları, genç seçmenleri kendi ideolojileri doğrultusunda yönlendirilmesinde ve özellikle seçim dönemlerinde parti politikalarının kamuoyunda duyurulmasında aktif rol oynamaktadır. Ancak yapılan araştırmalar, bu kolların siyaset alanında bazen aktif birer özne, bazen de pasif roller içerisinde nesne konumunda olduğunu göstermektedir. Yine benzer şekilde, siyasi partilerin parti yapısından kaynaklanan ve siyasi alanda katılım konusunda yaşanan sorunlar nedeniyle, diğer ülkelerde olduğu gibi, Türkiye’de de gençleri siyaset alanından uzaklaştırmaktadır.

Bu çalışmanın amacı, akademik yazında gençlik kollarıyla ilgili yapılan çalışmaların incelenmesi ve bu çalışmalar doğrultusunda, parti gençlik politikalarındaki eksikliklerin ortaya çıkarılmasıdır. Bilindiği üzere akademik çalışmalar, belirli bilimsel kurallar çerçevesinde hazırlanmış; araştırma kapsamındaki konunun asıl kaynağını bulmak ve neden-sonuç içerisinde incelemek için yapılmaktadır. Bu noktadan hareketle, alanda yapılan bilimsel çalışmaların bir toplumsal sorunun çözümüne katkıda bulunması beklenmektedir. Bu doğrultuda, YÖK Elektronik Tez Arşivi’nde yer alan ana teması siyasi alanda “gençlik kolları” olan lisansüstü tezler içerik analizi yoluyla incelenmiştir. Analiz sonucunda, lisansüstü tezlerde tespit edilen sorunlar ve bu sorunların çözümüne yönelik yapılan öneriler değerlendirilmiştir.

**Anahtar Kelimeler:** Siyasal parti, gençlik kolları, lisansüstü tezler

#### Abstract

Youth branches of political parties are sub-organizations that have a significant impact on the formation of political stances and socialization processes of young people. Youth branches play an active role in guiding young voters in line with their own ideologies and in announcing party policies to the public, especially during election periods. However, researches show that these branches are sometimes active subjects and sometimes objects in passive roles in the field of politics. shows that they play a relatively active role. Similarly, due to the problems experienced in participation in the political arena stemming from the party structure of political parties, it alienates the youth from the field of politics in Turkey as well as in other countries. The aim of this study is to examine the studies on youth branches in the academic literature and to reveal the deficiencies in party youth policies in line with these studies. As it is known, academic studies have been prepared within the framework of certain scientific rules; It is done to find the main source of the subject within the scope of the research and to examine it in cause-effect. From this point of view, it is expected that scientific studies in the field will contribute to the solution of a social problem. In this direction, postgraduate theses in the YÖK Electronic Thesis Archive, the main theme of which are "youth branches" in the political field, were examined through content analysis. As a result of the analysis, the problems identified in the postgraduate theses and the suggestions made for the solution of these problems were evaluated.

**Keywords:** Political party, youth branches, graduate theses.



### GİRİŞ

Siyasal iletişimin temel amaçlarından birisi, ülkedeki farklı sosyo-ekonomik ve kültürel özelliklere sahip olan hedef kitle üzerinde sürekli iletişim/etkileşim kurmaktır. Bu iletişim/etkileşim, hedef kitlenin oy verme davranışını yönlendirme amacını gütmekle birlikte aynı zamanda, kitlenin parti lehine çalışmalara katılımını da sağlamak açısından önemlidir (Kalender, 2000). Siyasal alanda partilerin strateji geliştirme noktasında önemli olan kitlelerden birisi de gençlerdir. Türkiye İstatistik Kurumu'nun verilerine, göre; 2021 yılında Türkiye'nin toplam nüfusunu, 84 milyon 680 bin 273 kişi oluşturmaktadır. Bu nüfusun içinde gençlerin sayısı 12 milyon 971 bin 289 olarak açıklanmıştır. Bu rakamlara göre; Türkiye'de genç nüfusun oranı, toplam nüfusun %15,3'ünü oluşturmaktadır (<https://data.tuik.gov.tr/>). Türkiye genelinde, 2023 yılında ilk defa oy verecek genç seçmenin yaklaşık altı milyon olması siyasi partiler açısından gençleri daha önemli hale getirmektedir (Erdoğan, 2022).

Bu süreçte partiler, öncelikle genç üye sayısını ve taraftarlarını artırmak, sonrasında da gençler aracılığıyla parti politikalarını diğer hedef kitleye aktarmak için gençlik kollarını parti bünyesinde örgütlemiştir. Gençler için de, bir siyasi partinin yapısı altında çalışarak hem siyasal toplumsal süreçlerini inşa ederler hem de örgütsel öğrenme işlevlerini bu partiler aracılığıyla yerine getirirler (Kömürcü, 2014). Özellikle siyasal toplumlaşma sürecinde genç üyeler; ülkenin geçmişini, ulusal ve uluslararası alandaki konumunu, ülke sorunlarını, parti ideolojisini ve partinin sahip olduğu değerleri içselleştirmeyi bu yolla öğrenirler. Bruter ve Harrison (2009), genç kesimin herhangi bir partiye dahil olma nedenlerini üç başlık altında toplamıştır. Buna göre, *ahlaki kaygılar taşıyarak üye olanlar*; yaşamlarına bir yön vermek bir anlam bulma ve başkalarına yardım etme arzusu ile üye olmaktadır. *Sosyal kaygılar içerisinde üye olan bireyler*; bir grup dinamiği içerisinde olmak, fikir paylaşımlarında bulunmak istegindedir. Bu üyelerin, gerçek anlamda bir siyasal katılım arzuları bulunmamaktadır. *Profesyonel kaygılarla üye olan bireyler* ise; prestij kazanmak, gelecekte politik alanda yer alma isteği ile üye olmaktadır. Bu kişiler, partinin ideolojisini yaymaktan daha çok partide yükselme ve bir yer elde etme çabası içerisindedir.

Türkiye genelinde gençlik kollarıyla ilgili araştırmaları incelediğimizde; bunların çoğunluğunda, siyasal katılım süreçlerinde gençlerin faaliyetlerine odaklanıldığı ve gençlerin siyasal katılım süreçleri ve beklentilerinin araştırma konusu olduğu görülmektedir. Bir çok çalışmanın da, gençlerin üye olduğu partilerin kuruluşlarını anlatan ve ideolojilerini yansıtan monografi nitelikte (Kömürcü, 2014) yapıldığı tespit edilmiştir. Bu süreçte bilimsel araştırmalar hangi ana tema çerçevesinde yapılırsa yapılsın, toplumun tüm kesimlerinin yararlanması konusunda, ekonomik, siyasal ve kültürel alanda sorunların çözümünde kılavuzluk etmektedir. İnceleme konusu olan “gençlik kollarını” ana tema olarak seçen bu akademik çalışmaların ve bu çalışmalar sonrasında ortaya çıkan önerilerin de, siyasal yaşamda gençlerin yaşadığı sorunları dile getirmesi ve bu süreçte gençlere yönelik bir parti politikasının yeniden düzenlemesi konusuna hizmet edeceği kanaatindeyiz.

### YÖNTEM

#### Araştırmanın Amacı, Önemi, Yöntemi ve Sınırlıkları

Bu çalışmanın amacı, akademik yazında, gençlik kollarıyla ilgili yapılan çalışmaların incelenmesi ve bu çalışmalar doğrultusunda, parti gençlik politikalarındaki eksikliklerin ortaya çıkarılmasıdır. Literatürde ana teması siyasi partilerin gençlik kolları olan ve farklı örneklem gruplarına yönelik yapılan çalışmalar bulunmakla birlikte; tüm lisans üstü tez önerilerini bir başlık altında değerlendiren araştırmanın olmaması bu çalışmanın önemini ortaya koymaktadır.

Araştırma kapsamında verilerin değerlendirilmesinde içerik analizinden yararlanılmıştır. Yapılan içerik analizinde, YÖK arşivinde gençlik kollarını konu alan 11 lisansüstü teze ulaşılmıştır. Elde edilen veriler, Ağustos 2022 dönemine ait güncel bilgileri içermektedir.

### BULGULAR

Araştırma kapsamında incelenen 11 lisansüstü tez ve bu teze ait bilgiler aşağıdaki tabloda gösterilmiştir.



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**Tablo 1. Gençlik Kolları ile İlgili Lisansüstü Tez Künyesi**

TEZ ADI	YAZAR	YIL	TEZ TÜRÜ	TEZ ALANI
1.Gençlerin siyasi tercih oluşturmalarında parti gençlik kollarının etkisi: 2005/2007 AKP ve CHP Gençlik Kolları'nın çalışmaları	Hasan Sarı	2008	Yüksek Lisans	Halkla İlişkiler/Siyasal Bilimler
2. Türk siyasi tarihinde CHP'nin gençlik kolları	Asil Kaya	2010	Yüksek Lisans	Siyasal Bilimler/Tarih
3.AK Parti'li ve CHP'li gençlerin siyasi tutum kazanımlarında parti gençlik kollarının etkisi - Sivas ili örneği	Murat Toraman	2015	Yüksek Lisans	Siyasal Bilimler/Sosyoloji
4.Türkiye'de siyasî partilerin gençlik kollarında ve bağlı yan kuruluşlarında faaliyet gösteren gençlerin siyasî katılımlarına ilişkin algıları	Onur Yerlikaya Şaşmaz	2015	Doktora	Siyasal Bilimler/Sosyoloji
5.Kültürün siyasal simge ve semboller üzerine etkisi: Çanakkale merkez ilçe siyasal partiler gençlik kolları örneği	Yunus Güler	2016	Yüksek Lisans	Siyasal Bilimler/Sosyoloji
6.Türkiye'de gençlerin siyasete katılımı: Parti gençlik kolları örneğinde bir inceleme	Yusuf Can Gökmen	2017	Yüksek Lisans	Siyasal Bilimler
7.Gençlik ve siyaset: Adalet ve Kalkınma Partisi Bayrampaşa Gençlik Kolları örneği	Merve Ak Efe	2020	Yüksek Lisans	Siyasal Bilimler/Sosyoloji
8. Cumhuriyet Halk Partisi Gençlik Kolları'nda toplumsal cinsiyet ilişkilerinin yeniden üretimi	Ahmet Kerem Yılmaz	2020	Yüksek Lisans	Sosyoloji
9.Gençlik-siyaset ilişkisi bağlamında AK Parti ve CHP Gençlik Kollarında siyaset ve demokratik katılım: Trakya örneği	Emre Karaman	2020	Yüksek Lisans	Kamu Yönetimi
10.Gençlerin aktif siyasete katılımı: Mersin CHP Gençlik Kolları örneği	Kandemir Atçeken	2021	Doktora	Siyasal Bilimler
11.Siyasal kimlik oluşumunda çevreleme tekniklerinin etkisi: Manisa siyasal parti il teşkilatları gençlik kollarının karşılaştırmalı analizi	Başak Kart	2022	Yüksek Lisans	Sosyoloji/Siyasal Bilimler

### 1.Gençlerin Siyasi Tercih Oluşturmalarında Parti Gençlik Kollarının Etkisi: 2005/2007 AKP ve CHP Gençlik Kolları'nın Çalışmaları

*Tezin amacı:* Siyasi parti gençlik kollarının, 197 genç seçmen adayını üzerinde (AKP ve CHP'ye oy veren), oy verme davranışında ne derece etkili olduğunun araştırılmasıdır. Araştırmada, yüz yüze anket uygulanmıştır.

#### *Araştırma Sonucu:*

- Araştırmaya katılanlar, gençlik kollarının tüm faaliyetlerini dikkate alarak, en az siyasi partiler kadar, bu yapılanmayı da siyasi bir kurum olarak değerlendirdikleri görülmüştür.
- Genç seçmenleri siyasi bir karar vermeye sevk ve ikna etmede gençlik kollarının etkili olmadığı görülmüştür. Deneklere yöneltilen “oy verdiğiniz partinin gençlik kolları hakkında bilginiz var mı?” sorusuna verilen cevaplara bakıldığında hayır cevabını verenlerin oranı yüksektir. Deneklerin %66.5'i ise, gençlik kollarının kendi siyasi kararlarında hiçbir etkisinin olmadığını belirtmiştir.

#### *Araştırma Sonucundaki Öneriler:*

- Gençlik kollarının, genç seçmenlerin siyasi partilere yönelik bir algı oluşturma sürecinde çok etkili olmadıkları görülmektedir. Gençlik kolları, gençlerin siyasi alanda kendileri yetiştirdikleri bilgi ve deneyim kazandıkları ilk yerlerdir. Bu açıdan bakıldığında ilklerin yaşandığı gençlik kollarında



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birakılacak etkinin iyi yönde olması için, gençlere uygun bilgilendirici, eğlendirici, motive ve ikna edici siyasi mesajların verilmesi önemli olacaktır.

### 2. Türk Siyasi Tarihinde CHP'nin Gençlik Kolları

*Tezin Amacı:* Türkiye Cumhuriyeti'nin ilk partisi olan CHP'nin alt yapısında oluşturulan gençlik kollarının tarihsel gelişimini ve CHP'li gençlerin Türk siyasetindeki önemini ortaya koymaktır.

*Araştırma Sonucu:*

- Türkiye'de ilk olma özelliklerini taşıyan "CHP Gençlik Kolları" kuruluşundan günümüze kadar olan sürede, Türkiye'de farklı alanlarda görülen gençlik hareketleri için öncü bir rol üstlendiği görülmüştür
- CHP Gençlik Kolları, 12 Eylül süreciyle birlikte etkinliğini yitirmiş ve bu etkinliği yeniden tahsis etmeye çalışsa da, hiçbir zaman 12 Eylül öncesindeki gibi örgütlü birliktelik oluşturamamıştır. Araştırmada bu durumun nedeni; parti genel politikasından uzaklaşmaya ve 12 Eylül sonrası toplumu oluşturan gençlerin farklı karakteristik yapısına bağlamıştır.

*Araştırma Sonucundaki Öneriler:*

- CHP ve CHP'nin gençlik kollarının, geçmişte yaşadığı tüm olumsuzluklar göz önüne alındığında; günümüzde sahip olunan imkanlar doğrultusunda gençlik kollarının yapacağı faaliyetleri sistemli ve tutarlı olarak planlaması gerekmektedir. Bu nedenle 12 Eylül öncesi yapılmış olan kurultayların, bilimsel toplantıların vs. yeniden gündeme getirilmesi bu konuda adım atılması için gerekli görülmektedir.

### 3. AK Parti'li ve CHP'li Gençlerin Siyasi Tutum Kazanımlarında Parti Gençlik Kollarının Etkisi Sivas İli Örneği

*Tezin Amacı:* Gençlerin siyasi tutum kazanımlarında siyasi parti gençlik kollarının ne derecede etkilerinin olduğunu araştırılmasıdır. Bu kapsamda AK Parti ve CHP Gençlik Kolları üzerinde araştırma yapılmıştır.

*Araştırma Sonucu:*

- Oyunu AK Parti'ye veren gençler, gençlik kolları ve onların çalışmalarından CHP'ye oy veren gençlere oranla daha fazla etkilendiği görülmüştür.
- Gençlerin, son yapılan genel seçimlerde gençlik kolları faaliyetlerine katılma nedenleri sorgulandığında ise; AK Parti gençlik kollarına kayıtlı üyeler partilerine destek vermek amacıyla katıldıklarını ifade etmiştir. CHP'li gençler ise AK Partiye nazaran daha az kişinin partilerini desteklemek amacıyla bu faaliyetlere katıldıklarını ifade etmiştir.

*Araştırma Sonucunda Öneriler:*

- Gençlik kollarının gençleri daha fazla etkileyebilmesi için anayasal düzenlemeler aracılığıyla gençlik kollarının statülerini daha yüksek seviyeye taşımalarıdır.
- Gelişmiş ülkelerde gençlere yönelik uygulanan politikaların değerlendirilmesi gerekmektedir. Bu politikalarla yola çıkarak getirilen öneri; partilerde üst kademelerinde görev alabilmek için birinci şartın kişinin geçmişte gençlik kollarında katılımının olmasıdır.
- Gençlerin parti ideolojisini öğrenmek ve siyasal katılımlarını sağlamak için eğitim programlarına tabi tutulması gerekmektedir.
- Siyasi partilerin gençlerin siyasal yaşama katılmaları için gençlik kollarını desteklemeleri esastır. Bunun için bu kolların faaliyetlerinin göz ardı edilmemesi gerekmektedir. Ayrıca gençlerin aktif siyasette yer almaları için kota uygulamalarının gözden geçirilmesi ve seçim dönemlerinde adaylık için gençlere kolaylık sağlanması gerekmektedir.
- Siyasi partiler halkla ilişkiler faaliyetlerini yaparken gençleri etkileyecek söylemler geliştirmelidirler.



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- Siyasi partilerin özellikle hedef kitle olarak seçtikleri üniversite gençlerine yönelik uygulamaları yeniden değerlendirmeleri onları siyasal alana çekme konusunda önemli olacaktır.

### 4. Türkiye'de Siyasî Partilerin Gençlik Kollarında ve Bağlı Yan Kuruluşlarında Faaliyet Gösteren Gençlerin Siyasî Katılımlarına İlişkin Algıları

*Tezin Amacı:* Türkiye'deki siyasi partilerin gençlik kollarına üye gençlerin siyasal katılım durumlarını incelemek, bu gençlerin Türkiye'deki siyasal ortamı değerlendirme biçimlerini belirlemek ve kendilerini siyasal alanda nasıl konumlandıklarını ortaya çıkarmaktır. Araştırma için, AKP, CHP ve MHP'nin gençlik kolları ve organizasyonlarında çalışan 15 kişiyle derinlemesine mülakat yapılmıştır. Bu çalışma, doğrudan gençlik kollarının siyaset üzerinde etkisi ve genç kuşakları etkileme sürecine yönelik yapılmamıştır.

*Araştırma Sonucu:*

- Katılımcılara göre; siyasi partiler amaç ve ideolojileri net tespit etmelidir. Bu amaç çerçevesinde toplumdaki kopmadan faaliyetlerini gerçekleştirmeli, liyakate göre örgütlenme süreci içerisine girmeli, her kademede bir fikir birliği esas olmalıdır.
- İdeolojiyi destekleyecek fikir önderleri geliştirilmelidir, siyasal faaliyetler seçim dönemine sıkıştırılmamalıdır.ve en önemlisi gençlerin de önder olduğu bir parti yapılması gerekmektedir.

*Araştırma Sonucundaki Öneriler:*

- Siyasi partiler, amaç ve ideolojilerinin tespitinde net olmalıdır ve bunları belirlerken genç kuşakları dikkate alan programların geliştirilmesi gereklidir.
- Örgütlenmelerin kademeleri arasında düşünce birliği gözetmelidirler.
- İnsanlara siyasal alanda neden örgütlenmeleri gerektiği net bir biçimde verilmelidir.

### 5. Kültürün Siyasal Simgeler ve Semboller Üzerine Etkisi: Çanakkale Merkez İlçe Siyasal Partiler Gençlik Kolları Örneği

*Tezin Amacı:* Siyasal simgelerin ve sembollerin, toplumsal kültürden etkilenip etkilenmediğini ortaya koymak ve bu etkilenmenin derecesini ortaya çıkarmaktır. Diğer bir alt amaçları ise; parti gençlik kollarını temsil eden üyelerin siyasal simgeleri, sembolleri ve siyasal kültürü ne şekilde algıladıklarını belirlemek ve siyasal sembollere yönelik uzaklık ve yakınlık derecelerini siyasal kültür açısından değerlendirmektir.

*Araştırmanın Sonucu:*

- Siyasi partiler tarihsel verileri kullanarak sembollerden yararlanmışlardır. Görsel öğelerin sembolizasyon noktasında daha fazla başvurulan, fark edilmesi kolay ve insana daha çabuk nüfuz eden veriler olduğu tespit edilmiştir. Parti simge ve sembollerin, kültürel etmenler vasıtasıyla oluşturulduğu ve siyasal parti gençlik kolları üyelerinin siyasal simge ve sembollere karşı bilinçli tutum sergilediği, anket sonuçları ile saptanmıştır. Bu veriler neticesinde kültür ve siyaset birleşimi, siyasi sembolün oluşmasında en önemli iki faktör olduğu sonucuna ulaşılmıştır.

*Araştırma Sonucunda Öneriler:*

- Araştırma sonucunda siyaset ve kültür ilişkisi bağlamında sembollerin kullanılmasına yönelik, parti ya da parti gençlik kollarına doğrudan herhangi bir öneri sunulmamıştır.

### 6. Türkiye'de Gençlerin Siyasete Katılımı: Parti Gençlik Kolları Örneğinde Bir İnceleme

*Tezin Amacı:* İzmir'de ikamet eden genç seçmenlerin gençlik ve siyaset ilişkisi, gençliğin politikaya katılım boyutları, partilerin genç üyelerinin politik aktivizmleri, partilerde gençlik organizasyonlarının hukuki durumunu ortaya çıkarmak ve ilgili sorunsalların Almanya örneği ile karşılaştırması üzerinden mesele uluslararası bir düzlem içerisinde incelemektir.

*Araştırmanın Sonucu:*



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- AK Parti gençlik kolları CHP'nin gençlik kollarına göre partilerine üye kazandırma işlevi bağlamında 17 – 24 yaş arasındaki genç kesimi ve üniversite öğrencileri için daha başarılıdır. CHP'nin genç üyelerinin yaş ortalaması AK Parti'ye göre daha yüksektir. İzmir örneğinde CHP'nin genç ve aktif üyelerinin AK Parti'nin gençlik teşkilatına eğitim düzeyinin daha yüksektir. Diğer yandan, AK Parti eğitim düzeyi düşük bireyleri parti üyeliğine ve aktif çalışmaya çekebilme konusunda CHP'ye göre daha başarılıdır.
- AK Parti İzmir örneğinde gençler üyeliğe büyük oranda aile ve arkadaşları tarafından itilmekte, parti içerisinde kendisine benzer bir çevre ile muhatap olmakta ve büyük oranda siyasi kariyer beklentisi içinde olmaktadır. CHP'li gençler ise büyük oranda ve İzmir örneğinde seçici güdülerden ideoloji güdüsü ile üye olmaktadır. Desteklenen siyasetçilerin yüksek pozisyonlara gelmesi AK Partili gençlerce yüksek motivasyon duyulan bir hedef olarak dikkat çekmektedir. Şahsının yüksek sorumlu pozisyona gelmesini motivasyonu da CHP'ye kıyasla AK Parti'de daha yüksektir.
- İzmir örneğinde, CHP'li gençlerin seçici güdülerden ideoloji güdüsü ile üye olduklarını göstermektedir. AK Parti'li üyelerin ise; aile geleneği, siyasi kariyer isteği, yakın arkadaşlar ile partiye katılım ve parti üyeliğine kolaylık sağlayacak bir ideolojik örgütlenmede aktiflik motivasyonunu birincil katılma güdüsü olduğu görülmektedir. .
- AK Partili gençler parti kararlarının alınmasının kapsayıcı bir sisteme dayalı olduğu yargısından hareketle kararlara etkilerinin olduğu fikrini taşımaktadırlar. CHP'li gençler ise; üyeler sistemin kapalı olduğunu, katılımlarının parti kararlarına etki etmediğini ve dolayısıyla emeklerine rağmen bir şey değiştiremeyeceklerini düşünmektedir.

### 7. Gençlik ve Siyaset: Adalet ve Kalkınma Partisi Bayrampaşa Gençlik Kolları örneği

*Tezin amacı:* Adalet ve Kalkınma Partisi'nin Bayrampaşa Gençlik Kolları'na üye olan gençlerin, siyasi mobilizasyonlarını incelemektedir. Partiye üye olan gençlerin nasıl mobilize oldukları, ve bu mobilizasyonun temelinde yatan gündelik yaşam pratikleri ve duyguları incelenmeye çıkmıştır.

#### *Araştırmanın Sonucu:*

- Gençlik Kolları siyasi partiler tarafından "siyasi olmayan" bir alt alan olarak tanımlamıştır. Gençlik kolları ise, etkinliklere, üyeler arasındaki ilişkilere ve sosyal etkinliklere katılımlarına atıfta bulunarak kendilerini: "siyasi" olmaktan çok, "sosyal" bir grup olarak tanımlamışlardır.
- Gençlik kolları, parti ana kademesinde ana siyasetin yürütüldüğü alan değil, gençlerin siyasete daha sorunsuz geçiş yapmalarını sağlayan bir adım olarak görülmüştür.
- Gençlik kollarına sadece seçim dönemlerinde toplumu bilgilendirmek adına ihtiyaç duyulmaktadır. Bu nedenle gençlik kolları, bağlı oldukları siyasi partilerin öznesi olmaktan uzaklaşmıştır.

#### *Araştırma Sonucunda Öneriler:*

- Gençlerin siyasal alana katılımları; dava bilinci, iyi bir vatandaş olma hissi, ülke politikasına etki etme, sosyal çevresini genişletme, politik kariyer yapma vb. sosyal, ideolojik ve profesyonel niyetli motivasyonlarla açıklanabilirken; partilerin bu konuda duyarlı olmaması belirli sebeplerden kaynaklanmaktadır. Bunlar: parti yapıları hiyerarşik, oldukça katı, geçmişin değer yükünü üzerinde taşıyıp değişime kapalı olması ve kişilerin yapısal problemlerine duyarlı kurgulanmamış olması (kaynak eksikliği, bireylerin biyografik uygunsuzluğu, finansal kısıtlar, duyarlılaştırma tertibatlarının yetersizliği, üyelerin eylem repertuarının yeni kitleleri çekmek açısından yetersiz bulunması ve hatta var olan kitleyi tatmin etmemesi vb.). Siyasi parti ile gençler arasında dengenin sağlanması gereklidir.
- Aynı zamanda siyasal alanın eril bir karakter gösteresi de büyük bir sorun oluşturmaktadır. Bu sorunun hem toplumsal hem de siyasal alanda çözülmesi önemli bir adım olacaktır.
- Gençlerin siyasal alanda aktif katılımını desteklenmesi için, daha önce gençlik kollarında çalışan kaç kişinin siyasetçi konumunda yer aldığı bildirilmeli ve bu konuda özendirici çalışmalar yapılmalıdır.



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### 8. Cumhuriyet Halk Partisi Gençlik Kolları'nda Toplumsal Cinsiyet İlişkilerinin Yeniden Üretimi

*Tezin Amacı:* Cumhuriyet Halk Partisi'nin, Bakırköy ve Üsküdar İlçe Gençlik Kolları'nın, toplumsal cinsiyet eşitliğine saygılı/duyarlı bir örgütlenme ve işleyişe sahip olup olmadığını anlamak ve bu örgütlerin üyeleri arasında toplumsal cinsiyet ilişkilerinin yeniden üretiminin farklı boyutlarını ortaya koyup açıklamaktır.

*Araştırmanın Sonucu:*

- Her iki teşkilatta da pratikte görünür olarak cinsiyete dayalı bir işbölümün olduğu görülmektedir.
- Bu kollarında kadın erkek arasındaki tüm ilişkilerde eşitlik ilkesine uyulurken, diğer yandan da yapılacak fiziksel işler konusunda cinsiyet farklılığının esas alındığı görülmüştür. Aksiyonlu işlerde, ağır kaldırma, tabela asma vb işlerden erkek üyelerden yararlanmış; kadın üyeler daha çok seçmenle iletişimin gerekli olduğu ortamlarda kullanılmıştır.
- Her iki kolda da cinsiyet eşitliği savunulsa da; “cinsiyet körü” algısının var olduğu görülmüştür.
- Her iki kolun üyeleri de toplumsal cinsiyet ya da toplumsal cinsiyet eşitliği konusunda tutarlı ve bilinçli bir kavramsallaştırmaya sahip olmadıkları görülmüştür. Farkındalık yaratmaya yönelik bir çaba ya da eylem de yapılmamıştır. Zaten var olan durum incelendiğinde; toplumsal cinsiyet eşitliği veya eşitsizliği ile ilgili farkındalık yaratmaya yönelik eğitimin yapılması genç üyeler için öncelik değildir.
- Her iki kolun üyelerinde feminizm kavramını algılayışı toplumsal algılamalardan farklılık göstermemektedir. Birkaç istisna feminizmi kadın değerlerine saygı ve ilkelere sahip çıkmak anlamında değerlendirmiş, geri kalan ise kadın düşmanlığı algısını devam ettirmiştir.

*Araştırma Sonucunda Öneriler:*

- Cumhuriyet Partisi'nin inceleme konusu olan iki gençlik kolunun toplumsal cinsiyet kavramı konusunda yeterli bir sahip olmadıkları bu sebeple parti işi yapılacak toplantı ve seminerle aracılığıyla bu konuda üyelerin bilgilendirilmesi gereklidir.
- Parti kollarındaki gençlerin parti işi görev dağılımlarında, örgütsel ve söylemsel düzeyde cinsiyet körlüğü yaşadıkları ve feminizm kavramları yanlış algıladıkları ortaya çıkmıştır. Bu aşamada, bu konularda gençlere doğru bilgi aktarmak parti politikaların belirlenmesinde esas oluşturmaldır.

### 9. Gençlik-Siyaset İlişkisi Bağlamında AK Parti ve CHP Gençlik Kollarında Siyaset ve Demokratik Katılım: Trakya Örneği

*Tezin Amacı:* Trakya'daki AKP ve CHP Gençlik kollarının partideki karar verme sürecinde etkili olup olmadığının araştırılmasıdır. Bununla birlikte bu çalışmada; gençlik kolları içerisinde demokrasinin uygulama biçimini belirlenmesi, siyasal katılım konusunda gençlerin ne kadar aktif oldukları belirlenmeye çalışılmıştır.

*Araştırmanın Sonucu:*

- Gençlik kolları üyelerinin seçim öncesi ve sonrası dönemde, fikirlerinin, projelerinin önemsenip uygulanması hem CHP hem AK parti açısından ve siyasal katılım bakımından önemli olduğu sonucuna ulaşılmıştır. Bu süreçte Genel Merkez, il ve ilçe teşkilatlarında yapılan tüm toplantılarda gençlerin fikirlerinin önemseddiği bulgusuna ulaşılmıştır.
- Hem AK Parti hem CHP gençlik kolları başkanları karar aşamasında tek başına karar verememekte, karar verme aşamasında yönetim kurulu etkili olmaktadır. Bu durum her iki partinin parti içi demokrasi anlayışını uyguladıklarını göstermektedir.
- Başka bir sonuca göre AK Parti ve CHP yönetimi içinde ana kademedeki, gençlik kolları aktif olarak yer almaktadır.
- Yine her iki partide de gençlerin katılımının daha fazla olması yönünde bir uzlaşımın varlığı söz konusudur.





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- AK Parti ve CHP gençlik kolları üyeleri, gençlik kollarında faaliyet göstermelerinin onlar için bir basamak niteliğinde olduğu ve bu durumun siyasi kariyer hedeflerine ulaşmada yardımcı olduğunu ifade etmektedir.

### *Araştırma Sonucunda Öneriler:*

- Her ilçede gençlik kolu örgütlenmesi oluşturulmalıdır. Bu durum gençlerin siyasi katılımını arttırmada katkı sağlayacaktır.
- Gençlik kolları aracılığıyla kadınların siyasete katılımları teşvik edilmeli; başarılı kadınların parti içindeki yükselmeleri sağlanmalı ve bu durum diğer kadınların da siyasi alanına girmeleri için motive edecek ve siyasi katılımlarını arttıracaktır.
- Her iki partinin gençlik kolları üyelerinde siyasi ideolojileri aileleri tarafından şekillenmektedir. Bu süreç dikkate alındığında, partilerin aile ile benzer söylemlerde bulunması önemlidir.
- Siyasi katılım için gençlik kolları ve başkanlarının ana kademdeki yöneticilerle sürekli iletişim halinde olması, herhangi bir etkinlik, toplantı veya faaliyette söz alabilmesi siyasi katılım açısından önemlidir.
- Her iki partinin gençlik kolları başkanları da siyasette genç nüfusun olması gerekliliği konusuna dikkat çekmiştir. Çünkü siyaset sahnesinde aynı kişilerin yer alması, bir süre sonra seçmenler üzerinde olumsuz bir etki yaratacak, siyasi katılım konusunda da bir azalmaya neden olacaktır. Bu yüzden siyasete yeni yüzler görmek önemlidir.
- Siyasi partilerin, gençlik kollarına ait bir bütçe oluşturması, hem gençlik kollarının daha rahat bir şekilde çalışmasını, hem de istediği zaman bir etkinlik yapmasını sağlayacaktır.

### **9. Gençlerin aktif siyasete katılımı: Mersin CHP Gençlik Kolları örneği**

*Tezin amacı:* CHP'de Siyaset alanının nasıl tarif edilebileceği, CHP ve CHP Gençlik Kolları'nda oyunun nasıl gerçekleştiği, gençlerin neden CHP'de faaliyet gösterdiği, CHP'de mücadelenin nasıl gerçekleştiği, gençlerin bu mücadele içerisinde nasıl konumlandığı ve gençlerin CHP habitusu edinme sürecinin nasıl gerçekleştiği sorunsalını ortaya çıkarmaktır.

### *Araştırmanın Sonucu:*

- Mersin CHP'de gençlerin kendi aralarındaki mücadele incelendiğinde, 18-30 yaş aralığında yaşça büyük olanların ortalamasının da (26,7) hayli yüksek olduğu gözlemlenmiştir. Sayısal üstünlüğün yanı sıra, aday adaylıklarına başvuru süreçlerinde ve gençlik kolları mücadelesinde de yaşça büyüklerin daha çok söz sahibi olduğu görülmektedir. Denilebilir ki, gençlerin dünyasında da büyüklerin dünyasına benzer bir gerçeklik söz konusudur. CHP Mersin üye verileri üzerine yapılan diğer değerlendirmeler dikkate alındığında; parti içi siyasetin çok uzun soluklu bir süreci içerdiği ve partiye bir kere üye olduğunda uzun yıllar (ortalama 9,4 yıl) üye kaldığı görülmektedir. Üyelerin uzun yıllar parti içerisinde yer aldığı bir mücadeleden bahsedildiğinde, bu durum partiye yeni giriş yapan gençlerin de CHP habitusu elde edebilmek amacıyla bir dönem belirli süreçlerden geçmesi gerektiği düşüncesini hâkim kılmaktadır
- Araştırmada genç olarak hiçbir belediye başkanı ve milletvekili örneğine rastlanmamıştır. En genç örnekler 40'lı yaşlardan itibaren ortaya çıkmaktadır. En genel anlamda, parti içerisinde yaş faktörü gençler ve büyükler arasındaki bir mücadelenin varlığı söz konudur.
- “Peki, bu gerçekliklere rağmen neden gençler CHP gençlik kolları içerisinde faaliyet göstermektedir?” Bu soruya verilebilecek cevap, gençlerin habitusunda yer almaktadır. Her şeyden önce, mülakatlarda da istisnasız bir şekilde dile getirildiği üzere, gençlerin yaşamı CHP'li bir geçişle iç içedir. Türkiye'nin en eski partisi olan CHP'de faaliyet göstermek ya da CHP'de siyaset yapmak isteği, doğrudan ya da dolaylı bir biçimde, CHP'li bir kökene ait olmaktan geçmektedir.
- Gençlerin CHP habitusu elde edebilmesinde gençlik kolları önemli bir yere sahiptir. Oyuna girmeden önce gençlerin de kabul ettikleri bir doxa olarak gençlik kolları en alt örgütlenmenin başladığı yerdir. Gençler, gençlik kollarında sosyalleşirken, afiş asarken, etkinlik düzenlerken, eğitim



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faaliyetlerine katılırken, ana kademe siyaseti deneyimlerken ve büyüklerle mücadele ederken devamlı olarak pratik geliştirmektedir. Bu pratikler her düzey gençlik kolları üyesinin çoğunlukla farkında olmadan kendisine göre geliştirdiği bir oyun stratejisidir. Gençler, bu oyun stratejisini, kurallarını ve sınırlılıklarını kabul ettikleri CHP ve CHP gençlik kolları içerisinde alana özgü sahip oldukları sermaye türleri üzerinden gerçekleştirmektedir.

*Araştırma Sonucunda Öneriler:*

- Gençlik kolları yaş üzerinden yapılan manipülasyonun, gençleri alanda farklılaştırmanın ve kontrol altında tutmanın bir aracıdır. Gençler büyüklerin yapamayacağı ya da yapmak istemeyeceği görevleri üstlenen bireylerdir. Tam da çalışmada ortaya konmaya çalışıldığı biçimde, gençler kendi aralarında ve ileri dönem mücadelelerinde büyükleri örnek alarak ilerlediği ve gençlik kolları siyasal devşirme ya da siyasette pişmek deyiminin karşılığı olarak CHP habitusunun öğrenildiği (oyunun kurallarını içselleştirme ve pratik kazanma) yer olduğu için varlığını sürdürmektedir
- Siyasal alanda başarılı olmak; uzun yıllar parti içerisinde mücadele eden gençlerin parti mücadelesini daha iyi anlayarak ve belirli durumlara karşı daha iyi strateji geliştirmeleriyle mümkün olmaktadır. Bu süreçte parti içerisinde bir lider oluşturulurken, gençlik kollarında bu mücadeleyi sürdüren kişilere de öncelik verilmelidir. Zamanla gençlik mücadelesinde başarı kazanan birey ve grupların parti tarafından; belediye içerisinde istihdam edilmek, milletvekili danışmanı olmak ve meclis üyeliğine girmek gibi benzeri şekillerde ödüllendirildiği görülmektedir.
- Gençler, gençlik kollarında sosyalleşirken, afiş asarken, etkinlik düzenlerken, eğitim faaliyetlerine katılırken, ana kademe siyaseti deneyimlerken ve büyüklerle mücadele ederken devamlı olarak pratik geliştirmektedir. Bu sebeple gençlik kolları üyelerinin siyasal süreçte aktif katılımları esas olmalıdır.

### 10. Siyasal Kimlik Oluşumunda Çevreleme Tekniklerinin Etkisi: Manisa Siyasal Parti İl Teşkilatları Gençlik Kollarının Karşılaştırmalı Analizi

*Tezin Amacı:* Siyasal parti gençlik kollarının kendi değerlerini, inançlarını ve ideolojisini aşlamak amacıyla kullandıkları yöntemlerin ve bireylerin eylemlerini ve fikirlerini yönlendirmeye yönelik gerçekleştirdikleri uygulamaların neler olduğu Manisa AK Parti Gençlik Kolları, MHP Ülkü Ocakları (Gençlik Kolları), CHP Gençlik Kolları ve İYİ Parti Gençlik Kolları ile gerçekleştirilecek olan yarı-yapılandırılmış görüşmeler sonucunda tespit edilmesidir.

*Araştırmanın Sonucu:*

- Adalet ve Kalkınma Partisi Gençlik Kolları, Milliyetçi Hareket Partisi Ülkü Ocakları<sup>24</sup>, İyi Parti Gençlik Kolları ve Cumhuriyet ve Halk Partisi Gençlik Kolları'nın tamamının hikayeler ve anlatılar yoluyla siyasal kültür aşılama yöntemini kullandığı görülmüştü
- Adalet ve Kalkınma Partisi ve İyi Parti Cumhuriyet Halk Partisi ve Milliyetçi Hareket Partisi'ne kıyasla Türk siyasal hayatına daha yakın bir tarihte dahil olmuştur. Bundan dolayı Cumhuriyet Halk Partisi Gençlik Kolları ve Milliyetçi Hareket Partisi Ülkü Ocakları üyeleri anlatılarında ideolojilerinin, değerlerinin ve inançlarının şekillenmesinde önemli rolleri olan siyasi kişilerin geçmişleri ve hikayeleri yer almaktadır
- Cumhuriyet Halk Partisi Gençlik Kolları, Milliyetçi Hareket Partisi Ülkü Ocakları ve Adalet ve Kalkınma Partisi Gençlik Kolları üyelerinin kendi siyasal kültürlerini aşlamak amacıyla çevreleme tekniklerini daha belirgin bir biçimde kullandıkları tespit edilmiştir. İyi Parti Gençlik Kolları üyeleri ise siyasal kültürlerini günlük yaşantıları sırasında iletişimde bulunduğu diğer bireylere anlamlı semboller aracılığıyla aktarmaktadır.
- Cumhuriyet Halk Partisi Gençlik Kolları, Milliyetçi Hareket Partisi Ülkü Ocakları ve İyi Parti Gençlik Kolları'nın bireylerle iletişim kurabilmek ve kendi değerlerini, inançlarını ve ideolojisini aktarmak amacıyla internet ve sosyal medyayı kullandıkları tespit edilmiştir
- Gençlik kolları üyeleri organizasyon ve etkinlikler düzenlemenin hem üye kazanımı konusunda kolaylık sağladığını hem de gençlik kolları üyelerine aidiyet hissi kazandırdığını dile getirmiştir



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- siyasal parti gençlik kollarının tamamının bireylerle yakın ilişkiler kurarak gençlik kollarına karşı aidiyet hissinin oluşmasını sağlamayı amaçladıkları ve bunun neticesinde de kendi değerlerini, inançlarını ve ideolojilerini bireylere aktarmayı hedefledikleri görülmüştür.

### *Araştırma Sonucunda Öneriler:*

- Siyasal parti gençlik kollarının iktidarın çevreleme teknikleri kullanım amaçlarına hizmet edebilmesi için gençlik kolları üyelerinin siyasal partilerinin değerlerini ve inançlarını kendileriyle özdeşleştirilmesi ve bu değerleri ve inançları yansıtan unsurları gençlik kollarına üye olmayan bireylere aktarabilmesi gerekmektedir.
- Siyasal partiler ve gençlik kolları genç seçmenlerle rahat bir biçimde iletişim kurabilmek ve siyasal değerlerini, inançlarını ve ideolojisini daha fazla kitleye ulaştırabilmek amacıyla sosyal medyayı kullanmak durumundadır.
- Gençlik kolları üyeleri organizasyon ve etkinlikler düzenleyerek hem üye kazanımı hem de gençlik kolları üyelerinin aidiyetlik kavramı kazanmaları için önemlidir.
- Siyasal iktidarlar kendi değerlerini, inançlarını ve ideolojisini bireylere aktarıırken bireylerin sosyal çerçevelerini yönlendirebilecek kavramlar kullanarak kendi siyasal kültürünü aşılayacak politikalar üretmelidir.

### **SONUÇ ve DEĞERLENDİRME**

Tüm lisansüstü tezlerde gençlik kolları farklı boyutlarıyla ele alınsa da, katılımcıları ortak bakış açısı şöyledir: Gençlik kolları faaliyetleri dikkate alındığında bu yapılanma siyasi bir kurum olarak görülmeli ve değerlendirilmelidir. Söz konusu gruplar, siyasi partilere üye oldukları günden itibaren, özellikle seçim dönemlerinde, parti ideolojilerinin aktarılması, parti politikalarının duyurulması ve belirli konularda kamuoyu yaratılması konusunda öncü olarak siyasilerle birlikte çalışmaktadır. Araştırmalarda ortaya çıkan bulguya göre; gençler, tüm bu çabalarına rağmen, siyasal partilerin yapısal sorunları nedeniyle gençlere karar mekanizmasında çok fazla insiyatif tanımamaları, partilerin profesyonelleşme sürecinde yaşanan sorunlar ve siyaset dili gibi etkenlerle hem kurumsal siyaseti hem de siyasi partileri eleştirmektedir. Gençler bu süreçte partilerin nesnesi değil öznesi olmak amacını taşıdıklarını ifade etmektedir.

Bununla birlikte, tüm faaliyetlere katılmaya istekli olan gençlik kolları üyeleri zaman zaman aidiyetlik sorunu yaşamaktadırlar. Bu aidiyetlik sorunun temelinde, gençlerin motive edecek unsurların olmaması yatmaktadır. Özellikle profesyonel kaygı ile üye olan gençler, parti teşkilatında gelecekte bir yer elde edemeyecekleri korkusu yaşamaktadırlar. Partilerin iç dinamiklerinde yaşanan sorunlar, partide gruplaşmaların olması ve gençlik kollarından başlayarak siyasi kariyeri ilerleyen politikacı örneklerinin çok fazla olmaması, gençleri umutsuzluğa sürüklemektedir. Bu süreçte parti içerisinde bir lider oluşturulurken, gençlik kollarında bu mücadeleyi sürdüren kişilere de öncelik verilmelidir.

Araştırmada genç seçmenlerin oy verme davranışlarında gençlik kollarının çok etkisi olmadığı açıklanmıştır. Bu durumun nedeni; partilerin genç seçmenlerin katılımının sağlanmasında gençlik kollarının verilerini yeterince değerlendirmedikleri ve bu kolların yetkilerinin sınırlandırılmış olmasından kaynaklandığı belirtilmiştir. Bu süreçte gençler, parti içi kaynaklardan eşit şekilde yararlanamadıkları gerekçesi ile projelerini hayata geçirmekte zorluk yaşamaktadırlar. Parti siyasal teşkilatlanmasında, siyasal iletişim sürecinde gençlik kollarından yararlanılması, gençlerinin fikirlerinin herhangi bir program ve proje döneminde dinlenilmesi partiler açısından ve siyasal katılım bakımından önemli bir husustur.

Siyasal alanda gençlik kollarına sadece seçim dönemlerinde toplumu bilgilendirmek adına ihtiyaç duyulması sebebiyle gençlik kolları, bağlı oldukları siyasi partilerin öznesi olmaktan uzaklaşmıştır. Bu durumun partinin hiyerarşik yapısından, değişime kapalı olmasından ve partinin genç kollarını örgütün bir alt kademesi olarak değerlendirilmesinden kaynaklandığı vurgulanmıştır.

Yaşanan başka bir sorun ise; gençlik kolları teşkilatında görüntüde bir toplumsal cinsiyet eşitliği algısının varlığıdır. Gençlerin bu konuda tutarlı ve bilinçli bir kavramsallaştırmaya sahip olmadıkları görülmüştür. Bu alanda partilere düşen görev: Söylemlerinde ve politikalarında bu duruma yönelik



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destekleyici açıklamalarda bulunmak ve gençleri cinsiyet eşitliği kavramına yönelik farkındalıklarını arttırmak için eğitimlere katılımını sağlamaktır.

Araştırmalarda öneri getirilen önemli bir sorun ise; gençlik kotalarıdır. Gençlerin aktif siyasette yer almaları için kota uygulamalarının gözden geçirilmesi ve seçim dönemlerinde adaylık için gençlere kolaylık sağlanması gerekmektedir. Siyaset alanının gençleşmesi, gençlik kollarının önemli bir arzudur.

Siyasi partilerin gençlerin siyasal yaşama katılmaları için gençlik kollarını desteklemeleri esastır. Bunun için bu kolların faaliyetlerinin göz ardı edilmemesi gerekmektedir. Gençlik kollarına üye olan kadın sayılarını arttırmak içinde bir öneri getirilmiştir. Buna göre; gençlik kollarında kadınların siyasete katılımını teşvik edecek faaliyetlerin yapılması ve başarılı olan kadınların başkanlık görevine getirilmesi diğer kadınların da siyasete daha sıcak bakmasını ve yükselebile umutlarının artmasını sağlayacaktır.

İnceleme konusu olan tüm lisansüstü tez önerilerinde; gençlik kollarının siyasal alanda sosyal bir örgüt olarak değil gerçek anlamda siyasal bir örgütün üst yapılanması olması gerekliliği vurgusu yapılmıştır. Bu durum partilerin önemli hedef kitlesi olan gençleri partiye oy vermeleri ve parti çatısı altında çalışmalarını sağlamak adına motive edici bir araç olarak gösterilmiştir.

Konu ile ilgili daha geniş perspektifte çalışma planlayan araştırmacılara önerimiz; sadece lisansüstü tezlerle değil, bu alanda yazılmış makalelerin ve bilimsel toplantılarda sunulan bildirimlerin de karşılaştırılmalı analizinin yapılması konunun daha net anlaşılabilmesi için önemlidir.

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### APPLICATION OF LEITMOTIF SYSTEM IN RAMİZ MUSTAFAYEV'S OPERA "VAGİF"

#### RAMİZ MUSTAFAYEV'İN "VAGİF" OPERASINDA LEİTMOTİF SİSTEMİNİN UYGULANMASI

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#### **Abstract**

Azerbaijan opera art, which has gone a great historical development has taken a unique place in our musical history being distinguished by the variety of new opera genres that have appeared in different periods. The founder of Azerbaijani music traditionally, in the development of opera, starting with the creativity of Hajibeyli, works based on two genres were created: poetic-romantic and epic-heroic. Among these opera genres, lyrical operas were particularly interesting. Thus, in some lyrical-psychological, lyrical-dramatic operas, the reconciliation of historical and patriotic ideas leads to the diversity of dramaturgy.

Thus, "Sevil", the first lyrical-psychological opera on the stage of Azerbaijan, showed that it benefited from the traditions of F. Amirov, U. Hajibeyli, and at the same time P. Tchaikovsky. Later, the opera "Vagif", which is an example of Ramiz Mustafayev's creativity, has its solution in the lyrical-dramatic genre, but it also reflects the line of patriotism. Since our topic is about the application of the leitmotif system, we will look at the example of leitmotifs applied in the opera "Vagif" and influencing the dramaturgy. While analyzing the opera "Vagif", musicologist R. Farhadova noted that there are two leitmotifs in the opera - the leitmotifs of Vagif and Agha Muhammad Shah Qajar. One of them is the leitmotifs describing the greatness of the poet, his love for his people and country, and the other is his lyrical nature and lyrical lines. The leitmotif reflecting Molla Panah Vagif's poet's soul is given in the prologue of the opera and Vagif's aria in the execution scene in act IV. The image of Vagif is revealed starting from the prologue. Rich in dissonance and chromaticisms, this leitmotif reflects his inner feelings and excitement as well as his pride. The leitmotif is based on the intonations of the "Rast" moment. This leitmotif is given in Vagif's aria in the execution scene in Act IV, Figure II. This scene is one of the most important and effective scenes in the opera.

He stands proud and proud on the scene of execution, does not bow before Agha Mohammad Shah Qajar, and amazes him with the words "This great country has not yet bowed down...". In this scene, Vagif was presented as a representative and face of the Motherland.

The second leitmotif, which expressing Molla Panah Vagif's lyrical feelings as a poet, is given in the orchestra part after the duet "Cranes" in Act I, and in the duet of Vagif and Khuraman in the last scene, the prison scene, in Vagif. In this duet it is reflected how sensitive a poet he is.

Vagif is described as a poet in the love song "Durnalar". This number, which begins with a description of nature, constitutes a dialogue between Vagif and Vidadi, and it is in this scene that we meet Vidadi, his friend and confidant. In the dialogue scene, the character of both poets is revealed (bayati-shiraz), where Vagif talks about the palace environment, which is alien to him.

However, when conducting a broad analysis of the opera, we witness the presence of Khuraman and Eldar leitmotifs, as well as many leittems and leuttonations.

We should especially mention that in the opera "Vagif" by composer R. Mustafayev, along with positive characters, leitmotifs of the negative character Agha Muhammad Shah Qajar were also given. Generally, composers use more tremolos, chromaticisms, dissonant intervals, leaps, etc. in musical numbers characterizing negative images. they use. Ramiz Mustafayev also did not avoid this tradition, he used tremola and jump when writing the leitmotif of Qajar, the negative character of the opera.



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Despite the fact that he is a negative hero, R. Mustafayev did not use a grotesque style in his musical characterization, but sharp chord-harmonic tools and military march rhythms.

In the opera "Vaqif" there are female characters such as Khuraman, Gulnar and Tamara. However, the composer wrote only Khuraman's leitmotif from these female characters. Khuraman is a female character who is transformed, i.e. changed. Khuraman Molla Panah is Vagif's beloved woman and one of the main characters in the opera. R. Mustafayev compared Khuraman to Alibey's fiancé Gulnar.

In the opera, the composer created the image of a real Azerbaijani woman burning with the love of love and living in the image of Gulnar, and in the image of Khuraman, a woman who constantly dissatisfied with any situation.

R. Mustafayev used a leitmotif to reveal his image, which was reflected in his relationship with Vagif. The use of leitmotifs plays an important role in the dramaturgy of the work, creates a foundation for a unified symphonic development, and contributes to the integrity of the composition. In the opera, importance is given to the leitmotifs of Vagif and Qajar, and thus a dramaturgical contrast is created, which finds its expression in the constructive field of the work. The leitmotifs used here show both the characterization, the role of memory, the fact that the heroes are close (the leitmotif of Vagif in Khuraman's party) or contradict each other (the chorus of the people and Qajar, Vagif and Qajar)

**Key words:** Ramiz Mustafayev, opera dramaturgy, leitmotif, Vagif opera

### Özet

Büyük bir tarihsel gelişim gösteren Azerbaycan opera sanatı, farklı dönemlerde ortaya çıkan yeni opera türlerinin çeşitliliği ile ayırt edilerek müzik tarihimizde eşsiz bir yer edinmiştir. Azerbaycan müziğinin kurucusu klasik bestecimiz Ü. Hacıbeyli'nin yaratıcılığıyla başlayarak operanın gelişmesinde geleneksel olarak şiirsel-romantik ve epik-kahramanlık olmak üzere iki türe dayalı eserler oluşturulmuştur. Bu opera türleri arasında özellikle lirik operalar ilgi çekiciydi. Böylece, bazı lirik-psikolojik, lirik-dramatik operalarda, tarihsel ve vatansever fikirlerin uzlaştırılması, dramaturjinin çeşitliliğine yol açar.

Böylece Azerbaycan sahnesindeki ilk lirik-psikolojik opera olan "Sevil", F. Amirov, Ü. Hacıbeyli ve aynı zamanda P. Çaykovski'nin geleneklerinden yararlandığını göstermiştir. Daha sonra Ramiz Mustafayev'in yaratıcılığının bir örneği olan "Vagif" operası, çözümünü lirik-dramatik türde bulsa da vatanseverlik çizgisini de yansıtmaktadır.

Konumuz leitmotif sisteminin uygulanması ile ilgili olduğu için "Vagif" operasında uygulanan ve dramaturjiyi etkileyen leitmotif örneklerine bakacağız.

Müzikolog R. Farhadova, "Vagif" operasını incelerken operada iki ana motif olduğunu belirtti - Vagif ve Ağa Muhammed Şah Kaçar'ın ana motifleri. Bunlardan biri şairin büyüklüğünü, milletine ve memleketine olan sevgisini anlatan ana motifler, diğeri ise onun lirik doğası ve lirik dizeleridir.

Molla Panah Vagif'in şairinin ruhunu yansıtan ana motif, operanın önsözünde ve IV. perdenin şekil II-de idam sahnesinde Vagif'in aryasında verilmiştir. Giriş bölümünden başlayarak Vagif'in imajı ortaya çıkıyor. Uyumsuzluk ve kromatiklik açısından zengin olan bu ana motif, gururunun yanı sıra içsel duygularını ve heyecanını da yansıtır. Ana motif, "Rast" anının tonlamalarına dayanmaktadır. Bu leitmotif, IV. perde, şekil II'deki infaz sahnesinde Vagif'in aryasında verilmiştir. Bu sahne operadaki en önemli ve etkili sahnelerden biridir. O, infaz sahnesinde gururlu ve mağrur durur, Ağa Muhammed Şah Kaçar'ın önünde eğilmez ve "Bu büyük ülke henüz boyun eğmedi..." sözleriyle onu şaşırtmaktadır. Bu sahnede Vagif, Vatan'ın temsilcisi ve yüzü olarak sunulmuştur:

Molla Panah Vagif'in bir şair olarak lirik duygularını ifade eden ikinci leitmotif, orkestra bölümünde I. perde'deki "Turnalar" düetinden sonra ve son sahne olan zindan sahnesinde Vagif ve Huraman düetinde verilmiştir: Bu düetde onun ne kadar duyarlı bir şair olduğunu yansıtmıştır.

Vagif, "Turnalar" adlı aşk şarkısında şair olarak anlatılır. Doğanın bir tasviri ile başlayan bu sayı, Vagif ile Vidadi arasında bir diyalog oluşturmaktadır ve bu sahnede onun arkadaşı ve sırdaşı Vidadi ile tanışıyoruz. Diyalog sahnesinde Vagif'in kendisine yabancı olan saray ortamından bahsettiği her iki



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şairin karakteri (bayati-şiraz) ortaya çıkar. Ancak operanın geniş bir analizini yaparken, birçok leittem ve leitmotifin yanı sıra Huraman ve Eldarın leitmotiflerinin varlığına tanık oluyoruz.

Besteci R. Mustafayev'in "Vagif" operasının olumlu karakterlerle birlikte olumsuz karakter Ağa Muhammed Şah Kaçar'ın ana motiflerini de verildiğini belirtmek gerekir. Genellikle besteciler, negatif görüntüleri karakterize eden müzikal sayılarda daha fazla tremolodan, kromatiklikden, ahenksiz aralıklardan, sıçramalardan vb. kullanırlar. Ramiz Mustafayev de bu gelenekten kaçınmamış, operanın olumsuz karakteri Kaçar'ın leitmotifini yazarken tremolodan ve zıplamadan kullanmıştır.

Negatif bir kahraman olmasına rağmen, R. Mustafayev müzikal karakterizasyonunda grotesk bir üslup kullanmamış, keskin akor-harmonik araçlar ve askeri marş ritimleri kullanmıştır.

"Vagif" operasında Huraman, Gülnar ve Tamara gibi kadın karakterler yer almaktadır. Ancak besteci bu kadın karakterlerden sadece Huraman'ın ana motifini yazmıştır. Huraman dönüşen yani değişen bir kadın karakterdir. Huraman Molla Panah, Vagif'in sevdiği kadını ve operadaki ana karakterlerden biridir. R. Mustafayev, Huraman'ı Alibey'in nişanlısı Gülnar'a benzetmiştir. Operada besteci Gülnarın suretinde sevmek, yaşamak aşkıyla yanan bir Azeri kadının suretini, Huraman suretinde ise her durumdan sürekli olarak memnun olmayan bir kadın suretini yaratmıştır. R. Mustafayev, Vagif ile olan ilişkisine yansıyan imajını ortaya çıkarmak için bir leitmotif kullandı.

Leitmotiflerin kullanımı, eserin dramaturjisinde önemli bir rol oynar, birleşik bir senfonik gelişim için bir temel oluşturur ve kompozisyonun bütünlüğüne katkıda bulunur. Operada Vagif ve Kaçarın leitmotiflerine önem verilerek yapıtın kurgu alanında ifadesini bulan dramaturjik bir karşıtlık yaratılır. Burada kullanılan leitmotifler hem karakterizasyonu, hafızanın rolünü, hem de kahramanların yakın (Huraman'ın partisindeki Vagif'in leitmotifi) veya birbiriyle çelişen (halkın korusu və Kaçar, Vagif ve Kaçar) gerçeğini gösterir.

**Anahtar kelimeler:** Ramiz Mustafayev, opera dramaturjisi, leitmotif, Vagif operası

Azerbaycan opera sanatı büyük bir gelişme yolundan geçmiş ve farklı dönemlerde tür çeşitliliği ile ayırt edilerek bu alandaki arayışları yansıtmıştır. Ü. Hacıbeyli'den başlayarak operanın gelişiminde geleneksel olarak iki türe dayalı eserler oluşturulmuştur: poetik-romantik ve epik-kahramanlık. Yalnız bunlar ilk klasiklerin ve çağdaşlarının eserlerinde ayrıca 20. yüzyılın ikinci yarısı ve 21. yüzyılın başına ait bestecilerin eserlerinde farklı yorumlarda görülebilir. Bu eserler arasında özellikle lirik operalar ilgi çekicidir. Böylece, bazı lirik-psikolojik, lirik-dramatik operalarda, tarihsel ve vatansever fikirlerin uzlaştırılması, dramaturjinin çeşitliliğine yol açar. Azerbaycan sahnesindeki ilk lirik-psikolojik opera olan Sevil, Fikret Amirov'un hem Ü. Hacıbeyli'nin, hem de P. Çaykovski'nin geleneklerini kullandığını gösterdi. Daha sonar yaranan opera " Vakif ", lirik-dramatik tarzda bir çözüme sahip olsa da, vatanseverlik çizgisini de yansıtıyor. Bunu başaran R. Mustafayev Ü. Hacıbeyli'nin yaratıcılığından yararlanarak bu iki tipi uzlaştırmayı başarmıştır. Azerbaycanlı bestecilerin eserlerinde şair karakterinin hem lirik muğam operalarında (Aşık Karib, Şah İsmail), hem destansı-kahraman "Koroğlu" operasında, daha sonra "Nizami" operasında yer alması ilginçtir. Bütün bu eserlerde dramaturjinin temel çelişkilerinden biri de hükümdar ve şair çizgisidir. Bu tür özellikleri "Vakif" operasında görebiliriz.

Eserlerinde senfonik, koro ve opera eserlerini tercih eden besteci Ramiz Mustafayev'in en büyük ünü "Vagif" (1960) operasıyla elde ettiğini belirtmek gerekir. Opera, Samet Vurgun'un "Vakif" (1937) adlı dramasına dayanılarak yazılmış olmasına rağmen, libretto (F. Mehdiyev) dramanın olaylarını tam olarak kapsamamış, olay örgüsü ve dramatik gelişimi kısmen değiştirmiştir. "Vakif" operası, kitlesel sahneler açısından zengin, lirik-dramatik bir operadır. S. Vurgun'un dramında, 18. yüzyılda gelişen olaylar, İbrahim Hanın şahsında Azerbaycan halkının mahallî feodal beylere karşı hürriyet mücadelesi, İran Şahı Ağa Muhammed Şah Kaçarın mücadelesi şahsında ise yabancı işgalciler, yansımıştır. Dramadaki esas ve ana karakter olan şair, filozof Molla Panah Vakif, çeşitli konulardan anlatılmaktadır.

1. Vakif İbrahim Han örneğinde, hem yerel feodal baskıya karşı mücadelede hem de yurtseverlik fikrinin yüceltilmesinin yansıdığı yabancılara karşı mücadelede her zaman halkın temsilcisi olarak gösterildi.





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2. Molla Panah Vakif, bilge, hümanist, cesur ve örgütlü bir şair olduğu kadar akıllı, politik bir uşak olarak da tanımlanır. Onun aksine İran Şahı Ağa Muhammed Şah Kaçar, Vakif kadar zalim ve baskıcı, tam tersine daha insancıldır.

3. Samed Vurgun, Molla Panah Vagif imajını yaratarak, Azerbaycançılık ve vatanseverlik fikrini, daha doğrusu onun ideolojisini yüceltmeyi ve sunmayı başardı. Şunu da belirtmek gerekir ki, S. Vurgun'un "Vakif" adlı dramasında, Molla Panah Vakif 'in şahsında Azerbaycançılık ideolojisi, geniş anlamda milli dil, milli kader ve ülkenin kaderi meselesidir.

4. Samed Vurgun, Molla Panah Vakif karakteriyle Azerbaycan yerel dilini yüksek bir seviyeye çıkarmış, çok sayıda Azerbaycan atasözü, ve yaşayan folklor örneklerini drama diline kazandırmıştır.

"Samed Vurgun, Vakif dizisindeki Vagif rolünü seçkin oyuncumuz Alesker Alekberov'u düşünerek yazdı. Alesker Alekberov'un sahnedeki performanslarına hayran olan Ramiz Mustafayev, Vakif karakterine yöneldi ancak bu bölümü opera sahnesinde seçkin vokalistimiz L. Imanov seslendirdi. Besteci, Vakif'in vokal partisinde konuşma kültürünü öne çıkarmak için "şprix de song" şarkı söyleme yöntemini kullanmış ve bu özelliği onu diğer katılımcılardan ayırmıştır. Bildiyimiz gibi ilk defa bundan alman bestecisi A.Şönberq, sonar A.Berq,

S.Prokofyev, D.D. Şostakoviç yaratıcılığında kullanmıştır. "Vakif" operasının müzik dili, halk müziğinden türeyen rahatlık ve duygusallığın yanı sıra ahengi ve dışavurumculuğu ile ayırt edilir.

Müzikolog R. Farhadova, "Vakif" operasını incelerken operada iki ana motif olduğunu belirtti - Vakif ve Ağa Muhammed Şah Kaçar'ın ana motifleri. Ancak operanın kapsamlı bir analizini yaparken, birçok leittem ve leitmotifin yanı sıra Huraman ve Eldar leitmotiflerinin varlığına tanık oluyoruz.

Ramiz Mustafayev operada Vakifi halkın temsilcisi olarak canlandırırken, müzikal karakterizasyonu türküler ve folklor temelli, mugam-makam üzerine kurulmuştur. Bu görüntü kapsamlı bir şekilde geliştirilmiştir. Karakteri monolok tipi aryalar, ariozolar ve leytintonasiya tezlerinde ortaya çıkmıştır. Ayrıca onun gazellerinden, şiirlerinden ve mektuplarından yararlanılmıştır. Besteci, müzikal karakterizasyonunda leitmotifleri de kullanmıştır. I. perde'deki kızlar sahnesinde Vakif karakteriyle, Vidadi ("Turnalar") sahnesinde, İbrahim Han ile olan aryasında, karısı Huraman ile düet sahnesinde, III. ve IV. perde'de Alibey ile "Dünyadaki mutlak doğru hali görmedim" sahnesinde ve IV. perde'deki düet ve son sahnede buluşuyoruz.

R.Farhadova, "Vakif" operasında Vakif'in iki ana leitmotifi olduğunu belirtti:

1. "Şairin büyüklüğü, milletine, memleketine olan sevgisi;
2. Lirik dizeleri tanımlayan ana motifler" [2, s. 7].

Molla Panah Vakif'in şairinin ruhunu yansıtan ana motif, operanın önsözünde ve IV. perdede idam sahnesinde Vakif'in aryasında verilmiştir. Giriş bölümünden başlayarak Vakif'in imajı ortaya çıkar. Uyumsuzluk ve kromatiklik açısından zengin olan bu ana motif, gururunun yanı sıra içsel duygularını ve heyecanını da yansıtır. Ana motif, "Rast" anının tonlamalarına dayanmaktadır. Bu leitmotif, IV. perde, şekil II'deki infaz sahnesinde Vakif'in aryasında verilmiştir. Bu sahne operadaki en önemli ve etkili sahnelerden biridir. O, infaz sahnesinde gururlu ve mağrur durur, Ağa Muhammed Şah Kaçar'ın önünde eğilmez ve "Bu büyük ülke henüz boyun eğmedi..." sözleriyle onu şaşırtmaktadır. Bu sahnede Vakif, Vatan'ın temsilcisi ve yüzü olarak sunulmuştur:

Molla Panah Vakif'in bir şair olarak lirik duygularını ifade eden ikinci leitmotif, I. perde'deki "Turnalar" düetinden sonra orkestra bölümünde, Vakif'in son sahnesi olan zindan sahnesinde ise Vakif ve Huraman düetinde verilmiştir.

Vakif, "Turnalar" adlı aşk şarkısında bir şair olarak tasvir edilir. Doğa tasviri ile başlayan bu sayı, Vakif ile Vidadi arasındaki diyalogu tekrarlar ve bu sahnede arkadaşı ve sırdaşı Vidadi ile tanışırız. Diyalok sahnesinde Vakif'in kendisine yabancı olan saray ortamından bahsettiği iki şairin karakterleri (bayatı-şiraz) ortaya çıkmıştır.

Lirik duygularla ilgili leitmotifin seslendirilmesi, Vakif'in partisinde geçen son sahne (zindan sahnesinde) ile örtüşmektedir. Bu sahnede Huraman hatalarından, dünya malına ve şöhret hirsından pişmanlık duyar ve Vakif'ten af diler.



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Unutulmamalıdır ki, besteci R. Mustafayev'in "Vakif" operasında olumlu karakterlerle birlikte olumsuz karakter Ağa Muhammed Şah Kaçar'ın ana motifleri de yer almaktadır. Ağa Muhammad Şah, Qajar Vakif ile tezat oluşturan ve karşılaştıran olumsuz bir karakterdir. Muhammed Kaçar, kana susamış, son derece zalim ve istilacı bir kral olarak tanımlanmıştır. Karakter olarak Vakif'in tam tersidir. Kaçar'ın karakterini doğrudan II. perde'de, koro sahnesinde, Tamara, Qacar ve vezir, Qacar'ın aryası, büyük sahne, ariozo, Qacar sahnesindeki şeyh, III. perde, Vakif sahnesinde, IV. perde'nin II sahnesinde tanık oluyoruz. Besteci, Kaçar nüshasının kapsamlı tasviri ve açıklamasında ana motifleri kullanmıştır.

Z. Kafarova, Kaçar imajının ana motifi hakkında şunları söyledi: "Kacar'ın karakterizasyonunda Ramiz Mustafayev, doğru bir hükümdarın imajını yaratmak için Rus bestecilerin deneyimini kullandı." Genel olarak, besteciler negatif görüntüleri karakterize eden müzikal sayılarda daha fazla titreme, kromatiklik, uyumsuz aralıklar, sıçramalar vb. onlar kullanırlar. Ramiz Mustafayev de bu gelenekten kaçınmamış, operanın olumsuz karakteri Kaçar'ın leitmotifini yazarken tremola ve zıplamayı kullanmıştır.

Negatif bir kahraman olmasına rağmen R. Mustafayev müzikal karakterizasyonunda grotesk bir üslup kullanmamış, daha ziyade keskin akor-armonik araçlar ve askeri marş ritimleri kullanmıştır. Kacar karakterinin acımasız ve olumsuz imajını açıklamak için, müzikte ahenksiz sesler, keskin dönüşler, sıçramalar, sıralama ve kromatiklikler ve zengin akorlar kullanılmıştır. Onun ana motifi II. perde'deki arya ve ariozo'da daha enstrümental nitelikteki sayılarda ve III. perde'deki monolokda orkestra bölümünde yorumlanan tantana ve surdinal nefesli çalgılarda verilmiştir.

Ağa Muhammed Şah Kaçar ve savaşçıların tasvirinde yazar, Rus bestecilerin yöntemine döndü (örneğin, A. Borodi'nin "Prens İgor" operasında, Kıpçakların tanımlayıcı ilkeleri hatırlanır, Kıpçak danslarının atmosferi hissedilir.).

Operanın üçüncü perdesinde kişisel trajedisi monolokunda "Dağıl, dağıl ah" sözleriyle ortaya çıkar. Monolokun sözlerinden bu sahnenin onun "karartma sahnesi" olduğu açıktır. Burada dramaturji açısından diğer operalarla paralellikler kurmak mümkündür. Örneğin, M. Musorqski'nin operasında "Boris Qodunov", Çar Boris'in "karabasma sahnesi" ile. M. Musorqski onu elleri kana bulanmış bir hükümdar olarak tanımladı.

Ağa Muhammed Şah Kaçar karakteri operaya ikinci perdeden girer ve bu ana motifi perdenin açılışında, vezirle düetinde, üçüncü perdede Vakif ile düetinde ve infaz sahnesinde duyurur.

Girişten başlayarak, ana motif, Kaçar ile ilgili olaylarda opera boyunca duyulur:

Ağa Muhammad Şah Qacar'ın ana motifi, öfkesini yansıtmak için klarnet ve trompet tarafından uvertüra-prolokda tanıtıldı.

III. perdede Vakif ile düet sahnesinde Vagif ve Kaçar'ın nasıl zıt karakterler olduğuna bir kez daha tanık oluyoruz. Kaçar, Vakif'in kendisi için ne kadar büyük bir tehdit olduğunu anlar ve onu huzuruna çıkarır. Bu sahne operanın neredeyse en etkili, dramatik sahnesidir ve hem Vakif, hem de Şah Kaçar karakterlerinin ortaya çıkmasında önemli bir rol oynar. Bu sahnede Vakif, vatanın yüzü olan Ağa Muhammed Şah Kaçar, kana susamış ve zalim olarak tasvir edilmiştir. Vakif'in operadaki nüshasının tahlilinde onun da bu sahnede bir ana motifi olduğundan bahsetmiştik.

"Vakif" operasında Huraman, Gülnar ve Tamara gibi kadın karakterler yer almaktadır. Ancak besteci bu kadın karakterlerden sadece Huraman'ın ana motifini yazmıştır. Huraman dönüşen, yani değişen bir kadın karakterdir. Huraman Molla Panah, Vakif'in sevgili kadını ve operadaki ana karakterlerden biridir. R. Mustafayev, Huraman'ı Alibey'in nişanlısı Gülnar'a benzetmiştir. Operada besteci Gülnar suretinde aşkıyla yanan ve yaşayan gerçek bir Azeri kadının suretini, Huraman suretinde ise her durumdan sürekli olarak memnun olmayan bir kadın suretini yaratmıştır. Farklı bir çevrede büyüyen Hurama'nın istek ve hayalleri Vakif'inkinden farklıdır, yoksulluk onu korkutur ve İbrahim Han'ın elçilerine "olumlu rıza" yanıtını verir. Ancak haberci gittikten sonra büyük bir hata yaptığını, Han'ın sarayında mutluluğu bulamayacağını anlar ve hayal kırıklığına uğrar. Huraman, IV. perde'de Vakif ile zindan sahnesinde affedilmez hatasını, şairin duygularının güzelliğini ve kalbinin romantik yüksekliğini anlar. R. Mustafayev, Vakif ile olan ilişkisine yansıyan imajını ortaya çıkarmak için bir leitmotif kullandı. Zenginliğe ve şöhrete aldanan Huraman'ın karısının kendisine ihanet etmeye karar vermesi Vakif'i sarsıyor. Huraman sonradan pişman olsa da Vakif bu davranışından dolayı onu affetmez ama kendini öldürdüğü haberine kayıtsız kalmaz, durumuna üzülür. Bu operadaki lirik çizginin doruk noktasıdır.



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I. perdede (Vagif ile düet sahnesinde), II. perdedeki aryasında, büyük sahnede (yaşlı kadın, Huraman, Şeyh, Gülnar ve Alibey) ve IV. perdede (Vakif ile zindan sahnesinde) Huramanın imajıyla tanışıyoruz.

Ana motifi, operanın I. perde I. şeklinde Vakif ve Huraman düetinde ve I. perde II. şeklinde Huramanın aryasında duyulur. Ana motifin melodik doğasında, hayal kırıklığı ve şikayet tonları duyulur:

Huraman'ın bahsi geçen leitmotiflerine ek olarak, I. perde'nin II sahnesinde verilen aryadan leitmotif ("Alnından çok acı dökülüyor ama ben çok memnunum..."),sahnenin sonunda Huraman (orkestrada), Vidadi'nin bölümündeki "İnfaz sahnesi"nde ("Gözlerim kör olsun") verilir. Vakif'in ana motifi de partisinde kendini gösteriyor ("Keşke düşmeseydim men").

Bahsedilenler dikkate alındığında operanın dramaturjisinde 3 çizgi dramatik gelişim olduğuna tanık oluyoruz.

1. Üniversitenin vatanseverlik teması;
2. Vakif'in dramadaki kişisel trajedisi (Vakif'in Huraman ile ilgili kişisel trajedisi);
3. Operada halkın temsilcisi Eldar karakterinin tüm inceliklerini, vatanseverliğini ve kahramanlığını anlatan replik.

Operadaki toplu sahneler de dramaturjinin gelişmesinde büyük rol oynar. Böylece ilk toplu sahnede Vakif'in oğlu Alibey'in düğünü anlatılır. Düğüne gelen misafirlerden İbrahim Han, çoban Eldar'ın kendisiyle aynı partiye davet edilmesine çok üzülür ve hedef olarak Vagif ve Huraman'ını seçer.

"Vakif" operasının dramaturjik gelişimindeki üçüncü satır, halkın temsilcisi olan cesur Eldar'ın imajıdır. R. Mustafayev, operanın ikincil ana pozitif kahramanı olmasına rağmen, karakterizasyonunda (zabul-seigah muğamının tonlamalarında) bir ana motif kullanmıştır. Eldar'ın ana motifi operanın I. perdesinin I. sahnesinde (Vakif, İbrahim Han ve Şeyh ile sahnede), II. perdede (Şaliko ve Alibey ile sahnede) ve II. perdenin IV. perdesinde infaz sahnesinde duyulur. Opera ayrıca bahsedilen ana motifin ciddi bir performansıyla sona erer.

Leitmotiflerin kullanımı, eserin dramaturjisinde önemli bir rol oynar, birleşik bir senfonik gelişim için bir temel oluşturur ve kompozisyonun bütünlüğüne katkıda bulunur. Operada Vagif ve Kaçar leitmotiflerine önem verilerek yapıtın kurgu alanında ifadesini bulan dramaturjik bir karşıtlık yaratılır. Burada kullanılan leitmotifler hem karakterizasyonu, hafızanın rolünü, hem de kahramanların yakın (Huraman'ın partisindeki Vakif'in leitmotifi) ve ya birbiriyle çelişen (halk ve Kaçar, Vakif ve Kaçar korusu) gerçeğini gösterir.

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### SECOND HAND ZERO KILOMETER LIGHT COMMERCIAL VEHICLE SELECTION PROBLEM DURING THE GLOBAL CHIP CRISIS: A CASE STUDY WITH THE USE OF MULTI-CRITERIA DECISION-MAKING TECHNIQUES

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#### ABSTRACT

The global chip crisis has significantly affected the supply of zero kilometer vehicles. The fact that buyers have difficulties in obtaining zero kilometer vehicles has increased the demand for second-hand vehicles. As a result, the prices of second-hand vehicles have increased considerably. As a reflection of this situation, the sales of second-hand zero kilometer vehicles have started to become widespread. Thus, the decision makers' decision to purchase vehicles has been reshaped during the chip crisis. In this study, it was aimed to make a case study regarding this new situation. In this context, a second hand zero kilometer light commercial vehicle selection decision was made for a company in Istanbul. 13 second hand zero kilometer panel vans with 4+1 seats were ranked according to 7 criteria (carrying capacity, luggage capacity, maximum speed, acceleration at 0–100 km/h, average fuel consumption, price, and average distance of the owner of the vehicle to the company). In order to weight the criteria, an objective method was used: Criteria Importance Through Intercriteria Correlation (CRITIC). Ranking was done using two different multi-criteria decision making techniques: (1) Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) and (2) Complex Proportional Assessment (COPRAS). According to both methods, LCV02 (Fiat Doblo Combi 1.6 Multijet Safeline) was determined as the best alternative. In addition, the results obtained by both methods were compared with each other and it was determined that there was a very strong and positive relationship between the results ( $r=0.89$ ,  $p<0.001$ ). We believe that the present study will make important contributions to future studies in the related field.

**Keywords:** Chip Crisis, Light Commercial Vehicle, Multi-Criteria Decision Making, Vehicle Selection Problem

#### 1. INTRODUCTION

In the early days of the Covid-19 pandemic, the focus was on the massive decline in automobile demand. However, later the course of the market reversed and orders increased unexpectedly. In contrast, the shortage of semiconductor chips used in the automotive industry began to slow automobile production. AlixPartners, a global consulting firm, predicted in its 2022 report on the automotive industry that the shortage of semiconductor chips will continue to affect vehicle supply until 2024 (AlixPartners, 2022). In addition, Russia's invasion of Ukraine brought additional uncertainties. For example, 25% to 30% of palladium (a semiconductor) is supplied by Russia, while 25% to 35% of the purified neon gas (critical for chip production) is provided by Ukraine (Burkacky et al., 2022). As a result, while the supply of automobiles has decreased, so has the demand. This has increased the profits of the automotive companies and pushed the consumers towards the used car markets.



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Due to consumers turning to the used car market, second-hand vehicle prices have increased, and second-hand vehicles are sold at higher prices than their counterparts that have just come out of the factory. The Manheim Used Vehicle Index, the reference indicator for the value of used cars, has increased by almost 60% compared to the pre-pandemic period (Root, 2022).

The Turkish automotive market has also been affected by these developments on a global scale. In the period when the COVID-19 pandemic was intense, public transportation began to be abandoned due to the increasing need for social distance. Because of the limited supply of new cars and the increase in demand, the price of second-hand cars has increased significantly (Doruk, 2020). In Turkey, similar to other countries, the second-hand sales prices of some automobiles or commercial vehicles have exceeded the price of zero kilometer vehicles. Zero kilometer vehicles in the second hand market, in other words, new vehicle sales in the second hand market have become widespread.

The aim of this study is to address the problem of purchasing light commercial vehicles for decision makers during the semiconductor chip crisis and to make a case study in this context. In the literature, there are some studies dealing with the problem of purchasing light commercial vehicles. For example, Özbek (2012) dealt with the problem of choosing the most suitable light commercial vehicle for urban transportation activities of a small-scale enterprise. For this purpose, 11 vehicles with different models and brands were evaluated by Analytic Network Process (ANP). The decision network consisted of four clusters: (1) engine (power, CO<sub>2</sub> emissions), (2) transport (volume, maximum load), (3) price (maximum speed, acceleration 0-100 km/h) and (4) performance (vehicle price, fuel price). On the other hand, Ömürbek et al. (2014), dealt with the problem of choosing a light commercial vehicle (panel van) for white goods services. In this context, light commercial vehicles with nine different models were evaluated in terms of ten criteria (price, brand, horsepower, performance, used-car price, durability, maximum speed, fuel, load capacity and serviceability). For this purpose, after the weights of criteria were determined by Analytic Hierarchy Process (AHP), the best light commercial vehicle was selected by Preference Ranking Organization Method for Enrichment Evaluation (PROMETHEE). Özdağoğlu et al. (2021) addressed the problem of choosing the most suitable truck for a firm in the landscape industry. In the study, three alternatives were evaluated by considering four criteria (load capacity, engine torque, turning circle and service spare part prevalence). The weights of the criteria were determined by Full Consistency Method (FUCOM). Then, the most suitable truck was selected through PROMETHEE. However, to the knowledge of the authors, the present work is the first study to focus on the second-hand zero-kilometer light commercial vehicle selection during the global chip crisis.

### 2. METHOD

This study addressed the selection of a second-hand zero kilometer light commercial vehicle (panel van) for a company in Atasehir, Istanbul. All of the second hand zero kilometer panel vans with 4+1 seats offered for sale on <https://www.sahibinden.com/> were included in the study. There were 13 panel vans on August 17, 2022. Information on these panel vans is summarized in **Table 2.1**.

Seven criteria were used to rank the alternatives (**Table 2.2**). Information on the first six of these criteria was obtained from <https://www.sahibinden.com/>. While, C7 values were determined using Google Maps.

CRITIC was used to weight the criteria, whereas TOPSIS and COPRAS were used to rank the alternatives.

#### 2.1. Criteria Weighting by CRITIC

The steps of CRITIC are as follows:

1. Creating decision matrix: Let a decision-making problem consists of  $m$  alternatives and  $n$  criteria. Then, the decision matrix will be as in **Eq. (2.1)**.

$$X = \begin{bmatrix} x_{11} & \dots & x_{1n} \\ x_{21} & \dots & x_{2n} \\ \vdots & \ddots & \vdots \\ x_{m1} & \dots & x_{mn} \end{bmatrix} \quad (2.1)$$



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**Table 2.1:** Alternatives used in the study.

Code	Brand	Series	Model	Model Year	Gear*	Color
LCV01	Citroën	Berlingo	1.5 BlueHDI Shine	2022	M	Grey
LCV02	Fiat	Doblo Combi	1.6 Multijet Safeline	2022	M	White
LCV03	Fiat	Doblo Combi	1.6 Multijet Easy ESP	2022	M	White
LCV04	Fiat	Doblo Combi	1.6 Multijet Maxi Premio Plus	2021	M	White
LCV05	Fiat	Doblo Combi	1.6 Multijet Premio Plus	2022	M	Silver grey
LCV06	Peugeot	Rifter	1.5 BlueHDI GT EAT8	2022	A	Smoked color
LCV07	Volkswagen	Caddy	2.0 TDI Style DSG	2022	A	Beige
LCV08	Volkswagen	Caddy	2.0 TDI Style DSG	2022	A	White
LCV09	Volkswagen	Caddy	2.0 TDI Style DSG	2022	A	Beige
LCV10	Volkswagen	Caddy	2.0 TDI Style DSG	2022	A	Brown
LCV11	Volkswagen	Caddy	2.0 TDI Style DSG	2022	A	White
LCV12	Volkswagen	Transporter	2.0 TDI	2021	M	Grey
LCV13	Volkswagen	Transporter	2.0 TDI	2021	M	Black

\* M = Manual, A = Automatic.

**Table 2.2:** Criteria used in the study.

Code	Criteria	Criteria Type	Min	Max
C1	Carrying Capacity (kg)	Benefit	710	1207
C2	Luggage Capacity (L)	Benefit	775	1213
C3	Maximum Speed (km/h)	Benefit	176	186
C4	Acceleration at 0 - 100 km/h (s)	Cost	10.3	13.4
C5	Average Fuel Consumption (L/100 km)	Cost	4.3	6.2
C6	Price (€)	Cost	403 500	811 500
C7	Average Distance of the Owner of the Vehicle to the Company (km)	Cost	23	1569

2. Constructing normalized matrix: Let  $f_j^*$  and  $f_j^-$  are the best and the worst values, respectively, for criterion  $j$ . Then, normalized values are calculated by **Eq. (2.2)**.

$$r_{ij} = \frac{x_{ij} - f_j^-}{f_j^* - f_j^-} \quad (2.2)$$

3. Calculating  $C_j$  values: Let  $l_{kj}$  be the correlation coefficient (Spearman correlation coefficient) between the criteria values in the normalized matrix. Then, the amount of information spread in criterion  $j$  ( $C_j$ ) is calculated by **Eq. (2.3)** by considering the variance within the criterion  $j$  ( $\sigma_j$ ) and the correlation of the criterion  $j$  with other criteria ( $l_{kj}$ ).

$$C_j = \sigma_j \sum_{k=1}^n (1 - l_{kj}) \quad (2.3)$$

4. Calculating the weights of the criteria ( $w_j$ ): Objective weights are calculated by **Eq. (2.4)**.



$$w_j = \frac{C_j}{\sum_{k=1}^n C_k} \quad (2.4)$$

## 2.2. Ranking the Alternatives by TOPSIS

The steps of TOPSIS are as follows:

1. Creating decision matrix: Let a decision-making problem consists of  $m$  alternatives and  $n$  criteria. Then, the decision matrix will be as in **Eq. (2.1)**.
2. Constructing normalized matrix: Normalized values are calculated by **Eq. (2.5)**.

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{k=1}^m x_{kj}^2}} \quad (2.5)$$

3. Constructing weighted normalized matrix: Weighted normalized values are calculated by **Eq. (2.6)**.

$$V = \begin{bmatrix} w_1 r_{11} & \dots & w_n r_{1n} \\ \vdots & \ddots & \vdots \\ w_1 r_{m1} & \dots & w_n r_{mn} \end{bmatrix} \quad (2.6)$$

4. Determining the positive and negative ideal solutions: The positive and negative ideal solutions are calculated by **Eqs. (2.7) and (2.8)**, respectively. Here,  $v_j^*$  and  $v_j^-$  refer to the best and the worst values of weighted normalized matrix for criterion  $j$ , respectively.

$$A^+ = \{v_1^*, v_2^*, \dots, v_n^*\} \quad (2.7)$$

$$A^- = \{v_1^-, v_2^-, \dots, v_n^-\} \quad (2.8)$$

5. Calculating the distances from positive and negative ideal solutions for each alternative: The distances from positive and negative ideal solutions are calculated by **Eqs. (2.9) and (2.10)**, respectively.

$$S_i^+ = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^*)^2} \quad (2.9)$$

$$S_i^- = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^-)^2} \quad (2.10)$$

6. Calculating the relative closeness to ideal solution for each alternative: The relative closeness to ideal solution for each alternative is calculated by **Eq (2.11)**.

$$C_i^* = \frac{S_i^-}{S_i^- + S_i^+} \quad (2.11)$$



7. Ranking the alternatives: The alternatives are ranked from the largest to the smallest according to their relative closeness values. The alternative with the largest relative closeness value is the alternative that is close to the positive ideal solution.

### 2.3. Ranking the Alternatives by COPRAS

The steps of COPRAS are as follows:

1. Creating decision matrix: Let a decision-making problem consists of  $m$  alternatives and  $n$  criteria. Then, the decision matrix will be as in **Eq. (2.1)**.

2. Constructing normalized matrix: Normalized values are calculated by **Eq. (2.12)**.

$$r_{ij} = \frac{x_{ij}}{\sum_{k=1}^m x_{kj}} \quad (2.12)$$

3. Constructing weighted normalized matrix: Weighted normalized values are calculated by **Eq. (2.13)**.

$$V = \begin{bmatrix} w_1 r_{11} & \dots & w_n r_{1n} \\ \vdots & \ddots & \vdots \\ w_1 r_{m1} & \dots & w_n r_{mn} \end{bmatrix} \quad (2.13)$$

4. Calculating the summations of weighted normalized values: The summations of weighted normalized values for benefit and cost criteria are calculated by **Eqs. (2.14)** and **(2.15)**, respectively.

$$S_{+i} = \sum_{j=1}^k v_{+ij} \quad (2.14)$$

$$S_{-i} = \sum_{j=k+1}^n v_{-ij} \quad (2.15)$$

5. Calculating the relative weight of each alternative: The relative weight of each alternative is calculated by **Eq. (2.16)**.

$$Q_i = S_{+i} + \frac{S_{-min} \times \sum_{i=1}^m S_{-i}}{S_{-i} \times \sum_{i=1}^m \left( \frac{S_{-min}}{S_{-i}} \right)} \quad (2.16)$$

6. Calculating the utility degree of each alternative: The utility degree of each alternative is calculated by **Eq. (2.17)**.

$$P_i = \left[ \frac{Q_i}{Q_{maks}} \right] \times 100 \quad (2.17)$$

7. Ranking the alternatives: The alternatives are ranked from the largest to the smallest according to their utility degree values. The alternative with the greatest utility degree value is the alternative that has the highest utility.





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### 3. RESULTS AND DISCUSSION

#### 3.1. Determining the Weights of the Criteria

First, the decision matrix was created (Table 3.1). Then, the normalization process was carried out using Eq. (2.2) (Table 3.2).

**Table 3.1:** The decision matrix.

Code	C1	C2	C3	C4	C5	C6	C7
LCV01	893	775	185	10.3	4.3	585 000	1569
LCV02	710	790	176	13.4	5.8	423 750	45
LCV03	710	790	176	13.4	5.8	403 500	1421
LCV04	710	790	176	13.4	5.8	475 000	44
LCV05	710	790	176	13.4	5.8	475 000	907
LCV06	905	775	183	10.8	4.3	722 500	1037
LCV07	849	1213	186	11.4	4.4	811 500	23
LCV08	849	1213	186	11.4	4.4	795 000	97
LCV09	849	1213	186	11.4	4.4	785 000	80
LCV10	849	1213	186	11.4	4.4	810 000	301
LCV11	849	1213	186	11.4	4.4	760 900	1113
LCV12	1207	1003	182	11.9	6.2	660 000	860
LCV13	1207	1003	182	11.9	6.2	700 000	1162

After that, the correlation matrix (Table 3.3) was created by calculating the Spearman correlation coefficients between the criteria. Then,  $C_j$  values were calculated by Eq. (2.3). Finally, the weights of the criteria were determined by Eq. (2.4) (Table 3.4).

**Table 3.2:** The normalized matrix for CRITIC.

Code	C1	C2	C3	C4	C5	C6	C7
LCV01	0.368	0.000	0.900	1.000	1.000	0.555	0.000
LCV02	0.000	0.034	0.000	0.000	0.211	0.950	0.986
LCV03	0.000	0.034	0.000	0.000	0.211	1.000	0.096
LCV04	0.000	0.034	0.000	0.000	0.211	0.825	0.986
LCV05	0.000	0.034	0.000	0.000	0.211	0.825	0.428
LCV06	0.392	0.000	0.700	0.839	1.000	0.218	0.344
LCV07	0.280	1.000	1.000	0.645	0.947	0.000	1.000
LCV08	0.280	1.000	1.000	0.645	0.947	0.040	0.952
LCV09	0.280	1.000	1.000	0.645	0.947	0.065	0.963
LCV10	0.280	1.000	1.000	0.645	0.947	0.004	0.820
LCV11	0.280	1.000	1.000	0.645	0.947	0.124	0.295
LCV12	1.000	0.521	0.600	0.484	0.000	0.371	0.459
LCV13	1.000	0.521	0.600	0.484	0.000	0.273	0.263
$\sigma_j$	0.322	0.448	0.424	0.334	0.416	0.365	0.361



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**Table 3.3:** The correlation matrix.

	C1	C2	C3	C4	C5	C6	C7
C1	1.000	0.072	0.405	0.616	0.138	-0.423	-0.353
C2	0.072	1.000	0.710	0.138	-0.006	-0.749	0.406
C3	0.405	0.710	1.000	0.790	0.644	-0.923	0.129
C4	0.616	0.138	0.790	1.000	0.854	-0.664	-0.204
C5	0.138	-0.006	0.644	0.854	1.000	-0.490	-0.066
C6	-0.423	-0.749	-0.923	-0.664	-0.490	1.000	-0.319
C7	-0.353	0.406	0.129	-0.204	-0.066	-0.319	1.000

**Table 3.4:** Calculation of the weights of the criteria by CRITIC.

	C1	C2	C3	C4	C5	C6	C7	Total
$\sum_{k=1}^8 (1 - l_{kj})$	5.545	5.429	4.245	4.470	4.926	9.568	6.408	–
$C_j$	1.787	2.433	1.801	1.495	2.048	3.493	2.314	15.370
$w_j$	0.116	0.158	0.117	0.097	0.133	0.227	0.151	1

From **Table 3.4**, the most important criterion was found to be the price (C6). It was followed by luggage capacity (C2), average distance of the owner of the vehicle to the company (C7), average fuel consumption (C5), maximum speed (C3), carrying capacity (C1), and acceleration at 0-100 km/h (C4), respectively.

### 3.2. Ranking the Alternatives by TOPSIS

First, the decision matrix was created (**Table 3.1**). After that, the normalization process was carried out by Eq. (2.5) (**Table 3.5**). Then, the weighted normalized matrix was constructed by Eq. (2.6) (**Table 3.6**).

**Table 3.5:** The normalized matrix for TOPSIS.

Code	C1	C2	C3	C4	C5	C6	C7
LCV01	0.280	0.214	0.282	0.238	0.231	0.244	0.501
LCV02	0.223	0.219	0.268	0.310	0.312	0.177	0.014
LCV03	0.223	0.219	0.268	0.310	0.312	0.169	0.453
LCV04	0.223	0.219	0.268	0.310	0.312	0.199	0.014
LCV05	0.223	0.219	0.268	0.310	0.312	0.199	0.289
LCV06	0.284	0.214	0.279	0.249	0.231	0.302	0.331
LCV07	0.266	0.336	0.283	0.263	0.237	0.339	0.007
LCV08	0.266	0.336	0.283	0.263	0.237	0.332	0.031
LCV09	0.266	0.336	0.283	0.263	0.237	0.328	0.026
LCV10	0.266	0.336	0.283	0.263	0.237	0.339	0.096
LCV11	0.266	0.336	0.283	0.263	0.237	0.318	0.355
LCV12	0.379	0.277	0.277	0.275	0.334	0.276	0.274
LCV13	0.379	0.277	0.277	0.275	0.334	0.293	0.371



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**Table 3.6:** The weighted normalized matrix for TOPSIS.

Code	C1	C2	C3	C4	C5	C6	C7
LCV01	0.033	0.034	0.033	0.023	0.031	0.056	0.075
LCV02	0.026	0.035	0.031	0.030	0.042	0.040	0.002
LCV03	0.026	0.035	0.031	0.030	0.042	0.038	0.068
LCV04	0.026	0.035	0.031	0.030	0.042	0.045	0.002
LCV05	0.026	0.035	0.031	0.030	0.042	0.045	0.044
LCV06	0.033	0.034	0.033	0.024	0.031	0.069	0.050
LCV07	0.031	0.053	0.033	0.026	0.032	0.077	0.001
LCV08	0.031	0.053	0.033	0.026	0.032	0.076	0.005
LCV09	0.031	0.053	0.033	0.026	0.032	0.075	0.004
LCV10	0.031	0.053	0.033	0.026	0.032	0.077	0.014
LCV11	0.031	0.053	0.033	0.026	0.032	0.072	0.053
LCV12	0.044	0.044	0.032	0.027	0.044	0.063	0.041
LCV13	0.044	0.044	0.032	0.027	0.044	0.066	0.056
$A^+$	0.044	0.053	0.033	0.023	0.031	0.038	0.001
$A^-$	0.026	0.034	0.031	0.030	0.044	0.077	0.068

Finally, the relative closeness to ideal solution for each alternative ( $C_i^*$ ) was calculated by Eq. (2.11) (Table 3.7). When the obtained  $C_i^*$  values were arranged in descending order, the best alternative was found to be LCV02 (Fiat Doblo Combi 1.6 Multijet Safeline).

**Table 3.7:** Calculation of the relative closeness to ideal solution for each alternative.

Code	$S_i^+$	$S_i^-$	$C_i^*$
LCV01	0.079	0.028	0.262
LCV02	0.029	0.076	0.723
LCV03	0.073	0.039	0.347
LCV04	0.030	0.074	0.712
LCV05	0.052	0.040	0.438
LCV06	0.061	0.026	0.298
LCV07	0.041	0.071	0.635
LCV08	0.040	0.068	0.632
LCV09	0.039	0.069	0.640
LCV10	0.043	0.059	0.579
LCV11	0.064	0.029	0.310
LCV12	0.050	0.037	0.426
LCV13	0.064	0.027	0.294

### 3.3. Ranking the Alternatives by COPRAS

First, the decision matrix was created (Table 3.1). After that, the normalization process was carried out by Eq. (2.12) (Table 3.8). Then, the utility degree of each alternative ( $P_i$ ) was calculated by Eq. (2.17) (Table 3.9). When the obtained utility degree values were arranged in descending order, the best alternative was found to be LCV02 (Fiat Doblo Combi 1.6 Multijet Safeline).



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**Table 3.8:** The normalized matrix for COPRAS.

Code	C1	C2	C3	C4	C5	C6	C7
LCV01	0.079	0.061	0.078	0.066	0.065	0.070	0.181
LCV02	0.063	0.062	0.074	0.086	0.088	0.050	0.005
LCV03	0.063	0.062	0.074	0.086	0.088	0.048	0.164
LCV04	0.063	0.062	0.074	0.086	0.088	0.056	0.005
LCV05	0.063	0.062	0.074	0.086	0.088	0.056	0.105
LCV06	0.080	0.061	0.077	0.069	0.065	0.086	0.120
LCV07	0.075	0.095	0.079	0.073	0.066	0.097	0.003
LCV08	0.075	0.095	0.079	0.073	0.066	0.095	0.011
LCV09	0.075	0.095	0.079	0.073	0.066	0.093	0.009
LCV10	0.075	0.095	0.079	0.073	0.066	0.096	0.035
LCV11	0.075	0.095	0.079	0.073	0.066	0.091	0.129
LCV12	0.107	0.078	0.077	0.077	0.094	0.079	0.099
LCV13	0.107	0.078	0.077	0.077	0.094	0.083	0.134

**Table 3.9:** Calculation of the utility degree for each alternative.

Code	$S_{+i}$	$S_{-i}$	$Q_i$	$P_i$
LCV01	0.028	0.058	0.064	70.5
LCV02	0.026	0.032	0.091	100.0
LCV03	0.026	0.056	0.064	69.9
LCV04	0.026	0.034	0.088	97.1
LCV05	0.026	0.049	0.069	75.9
LCV06	0.028	0.053	0.068	74.4
LCV07	0.033	0.038	0.088	96.6
LCV08	0.033	0.039	0.087	95.3
LCV09	0.033	0.039	0.087	96.2
LCV10	0.033	0.043	0.082	89.9
LCV11	0.033	0.056	0.071	77.7
LCV12	0.034	0.053	0.074	81.1
LCV13	0.034	0.059	0.069	76.4

### 3.4. Comparison of Results

The rankings obtained by TOPSIS and COPRAS are summarized in **Table 3.10**. From the table, it is obvious that the panel van that provides the most benefit is LCV02 (Fiat Doblo Combi 1.6 Multijet Safeline) according to both methods. Therefore, it should be chosen among 13 alternatives.

LCV02 was the alternative with the better values in terms of price (423,750 ₺), and average distance of the owner of the vehicle to the company (45 km), while it was the alternative with the worse values in terms of carrying capacity (710 kg), luggage capacity (790 L), maximum speed (176 km/h), and acceleration at 0-100 km/h (13.4 s). Meanwhile, it had moderate values in terms of average fuel consumption (5.8 L/100 km).



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**Table 3.10:** Comparison of results.

	TOPSIS		COPRAS	
	Alternative	$C_i^*$	Alternative	$P_i$
1	LCV02	0.723	LCV02	100.0
2	LCV04	0.712	LCV04	97.1
3	LCV09	0.640	LCV07	96.6
4	LCV07	0.635	LCV09	96.2
5	LCV08	0.632	LCV08	95.3
6	LCV10	0.579	LCV10	89.9
7	LCV05	0.438	LCV12	81.1
8	LCV12	0.426	LCV11	77.7
9	LCV03	0.347	LCV13	76.4
10	LCV11	0.310	LCV05	75.9
11	LCV06	0.298	LCV06	74.4
12	LCV13	0.294	LCV01	70.5
13	LCV01	0.262	LCV03	69.9

On the other hand, the rankings of remaining cars differed depending on the method. When the results of the both methods were compared, a very strong and positive relationship was determined between the results ( $r=0.89$ ,  $p<0.001$ ).

### CONCLUSION

This study focused on the selection of a second-hand zero kilometer light commercial vehicle (panel van) for a company in Istanbul. In this context, 13 alternatives were evaluated considering seven criteria (carrying capacity, luggage capacity, maximum speed, acceleration at 0–100 km/h, average fuel consumption, price, and average distance of the owner of the vehicle to the company). The weights of these criteria were determined by CRITIC, while alternatives were ranked by two methods: (1) TOPSIS and (2) COPRAS. According to both methods, LCV02 (Fiat Doblo Combi 1.6 Multijet Safeline) was the best alternative. However, the rankings of remaining cars differed depending on the method. Meanwhile, the results of both methods were compared to each other and there was a very strong and positive relationship between the results ( $r=0.89$ ,  $p<0.001$ ).

The number of studies on the selection of light commercial vehicles is limited in the literature. Moreover, the present study is the first work that addresses this problem in the context of global chip crises. Thus, we believe that the current work will contribute to future studies in the related field. Future researchers can expand the scope of this study by taking some additional criteria (i.e., comfort, safety, after-sales services, etc.) into account. Moreover, studies on the selection of other vehicle types (e.g., heavy commercial vehicles, public transportation vehicles, electric vehicles etc.) can be carried out with the use of objective criteria weighting methods and / or different multi-criteria decision-making techniques.

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### NEW NEURAL NETWORK-BASED INTRUSION DETECTION SYSTEM DESIGN BY USING BAT AND ANT COLONY ALGORITHMS

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#### **Abstract**

With the increasing proliferation of cyber-attacks, the improvement of intrusion detection systems (IDS) becomes more and more necessary. In IDS research, the most effective methodology used is based on Neural Networks (NN), but little work is devoted to their hybridization with metaheuristic algorithms. Thus, the suggested approach purposes to use hybridized NN-based detection processes in CICIDS2017 dataset. However, due to the high dimensionality of the CICIDS2017 dataset (with 15 attack classes and 79 features), only nine of the most frequent attack classes of the data were used. As feature selection method and for intrusion detection, a Back-propagation Neural Network (BPNN) is adopted and improved by Ant Colony Optimization (ACO) and Bat Algorithm (BA). Accordingly, starting from an initial NN architecture with 7 layers, the number of layers and neurons per layer has been optimized through BP, ACO and BA techniques. This allowed reducing the NN size to 5 layers only, with architecture of (24, 30, 50, 40, 9). The experimental result indicated that ACO- and BA-based NNs (referred to as ACONN and BANN, respectively) can achieve favourable performances. ACONN produces a tested efficiency, purity and  $F_1$  score of 98.91 %, 99.17 % and 99.04 %, respectively.

**Keywords:** Intrusion Detection System, Neural Networks, CICIDS2017, Classification, Ant Colony Optimization, Bat Algorithm.

#### **1. INTRODUCTION**

Due to a growing proliferation in the number of cyber-attacks, the need to improve intrusion detection systems (IDS) is more imperative than ever. In recent works, most of the IDS are created on machine-learning (ML) technologies using the CICIDS2017 dataset, where intrusions are detected with great efficiency (Vijayanand et al., 2018, Zhang et al., 2019, Binbusayyis and Vaiyapuri, 2019, Yulianto et al., 2019, Watson, 2018, Bansal, 2018, Kurniabudi et al., 2020). The working hypotheses are different, whether it concerns the datasets, the data reduction methods or the classification algorithms. On the other hand, the attribute reduction techniques as well as the intrusion classification algorithms are very extensive and cover almost all existing ML tools. In some works, all the features were exploited while in others only a limited number of these attributes were used. It can be noticed that NNs are among the most efficient methods, but there are very few works dedicated to the hybridization of these NNs with metaheuristic algorithms.

Thus, the proposed contribution through this paper can be summarized as follows. Based on the CICIDS2017 dataset the goal was to implement intrusion detection solutions using Back-propagation Neural Network (BPNN) technique that classifies with high accuracy each type of attack. Improved NNs by using hybrid metaheuristic algorithms as BA and ACO are then designed. To evaluate the proposed classifiers, performance metrics extracted from confusion matrices, such as accuracy, sensitivity and  $F_1$ -score are employed.

The structure of this paper is as follows. Section 2 describes the dataset used. In Section 3, a brief description of the used methods, as BPNN, BA and ACO, as well as performance measure parameters is provided. In Section 4, the experimental results of the suggested approach are presented. Finally, Section 5 ends this paper with the main conclusions.



## 2. CICIDS2017 DATASET

CICIDS2017 generated by Canadian Institute for cyber-security IDS, contains up-to-date network attacks and meets all criteria of real-world attacks (Shapoorifard and Shamsinejad, 2017). The dataset consists of 2830743 instances with 79 features, corresponding to 15 traffic classes (one normal class and 14 attack traffic classes). In the proposed experiment, only 10% of the MachineLearningCSV version of the CICIDS2017 dataset was used, with 282100 observations and 79 features. In the pre-processing step, some records containing missing values and non-regular values are omitted. The data profile used is presented in Table 1, with a portion of 70% for training (with 197530 records) and 30% for testing (84570 records). The training and test datasets both consist of 9 most frequent traffic classes.

**Table 1.** Characteristics of the used CICIDS2017 Data

Class $C_i$	Class Label	$N_{C_i}$	Training	Test Set
$C_1$	Benign	227000	158900	68100
$C_2$	DoS Hulk	23000	16100	6900
$C_3$	PortScan	15800	11060	4740
$C_4$	DDoS	12800	8960	3840
$C_5$	DoS GoldenEye	1000	700	300
$C_6$	FTP- Patator	800	560	240
$C_7$	SSH-Patator	600	480	120
$C_8$	DoS Slowloris	570	400	170
$C_9$	DoS Slowhttptest	530	370	160
<b>All <math>C_i</math></b>		282100	197530	84570

## 3. METHODOLOGY

This section describes briefly the methods used in this work: the BBNN, the ACO and BA metaheuristic algorithms and performance measurement parameters.

### 3.1. Basics of Back-Propagation Neural Network (BPNN)

The architecture of a multilayered neural network is organized into levels of neurons: one input layer, one output layer and one or several hidden layers. Each neuron  $i$  in a level  $l$  is thus directly connected to all the neurons of the following layer ( $l+1$ ) and produces a response  $Y_i^{(l)}$  after a processing through a nonlinear activation function  $s$  (Eq. 1), where  $\theta_i^{(l)}$  is the threshold of the neuron  $i$  in layer  $l$ ,  $W_{ij}^{(l)}$  the connection weight between the neurons  $i$  (in layer  $l$ ) and  $j$  (in layer  $l-1$ ),  $N^{(l-1)}$  the number of nodes in the layer  $l-1$  and  $Y_j^{(l-1)}$  the output of the  $j^{\text{th}}$  neuron in layer ( $l-1$ ).

$$Y_i^{(l)} = s\left(\sum_{j=1}^{N^{(l-1)}} W_{ij}^{(l)} Y_j^{(l-1)} - \theta_i^{(l)}\right) \quad (1)$$

The training of this network is supervised and uses an error back-propagation (BP) algorithm. The network seeks to minimize, on the output layer, and for each data  $p$ , a quadratic error  $E^{(p)}$  (Eq. 2) existing between the effective output value  $o_i^{(p)}$  and the desired output value  $r_i^{(p)}$  of the  $q$  neurons (Mjahed, 2005, Haykin, 2009).

$$E = \sum_p E^{(p)} = \sum_p \sum_{i=1}^q (o_i^{(p)} - r_i^{(p)})^2 \quad (2)$$

### 3.2. BA and ACO algorithms

Bat algorithm (BA) was stimulated by the echolocation comportment of microbats, with changing emission and intensity pulse rates. In BA, each virtual bat hovers randomly with speed and position (solution) with varying frequency and volume. After searching and finding its target, the bat modifies frequency, intensity and rate of pulse emission. Exploration is deepened by a local random walk.





Selection of the finest solution ends when a stopping condition is met, as described in the BA algorithm (Yang, 2010).

ACO algorithm describes the hunting behavior of an ant to search for a path between its colony and its food source. To use ACO, the optimization problem is converted into a problem of finding the best path on a weighted graph. Artificial ants gradually build solutions as they move along the graph. The process of building the solution is stochastic and influenced by a pheromone model, i.e. a set of parameters related with the nodes or edges of the graph whose values are adjusted at runtime by ants, as given in ACO algorithm (Dorigo and Blum, 2005).

### 3.3. Performance metrics

To evaluate the proposed classifiers (BPNN and hybrid-based NN), three metrics are used. For each predicted class  $C_i$ , efficiency  $\beta_i$ , purity  $\gamma_i$  and  $F_{1i}$ -score are computed according to Eq. (3),  $A_{ij}$  being the value of examples of genuine class  $C_i$  classified as class  $C_j$  and  $N_i$  denote the size for class  $C_i$ .

$$\beta_i = \frac{A_{ii}}{N_i}, \quad \gamma_i = \frac{A_{ii}}{\sum_j A_{ji}}, \quad F_{1i} = \frac{2\beta_i\gamma_i}{\beta_i + \gamma_i} \quad (3)$$

Thus, the global efficiency  $\beta$ , the global purity  $\gamma$  and the global  $F_1$ -score, become as specified in Eq. (4).

$$\beta = \frac{\sum_i N_i \beta_i}{\sum_i N_i}, \quad \gamma = \frac{\sum_i N_i \gamma_i}{\sum_i N_i}, \quad F_1 = \frac{\sum_i N_i F_{1i}}{\sum_i N_i} \quad (4)$$

It is also important to emphasize that for the metaheuristic-based NNs, and in order to maximize efficiency  $\beta$ , purity  $\gamma$  and  $F_1$ -score, the same fitness function  $f$  was used (Eq. 5).

$$f = 1 - F_1 \quad (5)$$

## 4. IMPLEMENTATION OF THE PROPOSED APPROACH

As previously introduced, the considered CICIDS 2017 intrusions will be detected using BPNN, followed by a processing through two hybridized neural networks as described in Algorithm 1 and based on tuning parameters shown in Table 2.

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### *Algorithm 1: BPNN and Metaheuristic-NN Implementation*

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- 1: Adoption of NN Architecture.
  - 2: For the BPNN approach, optimize weights and thresholds according to subsection 3.1, by using the training dataset.
  - 3: Return the results of BPNN with weights, threshold and BPNN training performances (efficiency, purity and  $F_1$ -score).
  - 4: Create the confusion matrix-based on the test set, compute test performances.
  - 5: For the hybrid metaheuristic-based NN approach (ACONN or BANN), optimize weights and thresholds according to respective metaheuristic algorithm.
  - 6: Repeat steps 3 and 4 for each metaheuristic-based NN and return training and test performances (efficiency, purity and  $F_1$ -score).
- 



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**Table 2.** Algorithms parameters tuning

Algorithm	Parameters Tuning
All Algorithms	Number of runs = 50, Maximum number of iterations = 1000, Population size = 10-100
BA	Frequency range = [0, 1.5], Initial pulse rate = 0.5, Initial loudness = 0.5
ACO	pheromone penalty factor = 0.005, Evaporation rate = 0.1, pheromone persistence coefficient = 0.8

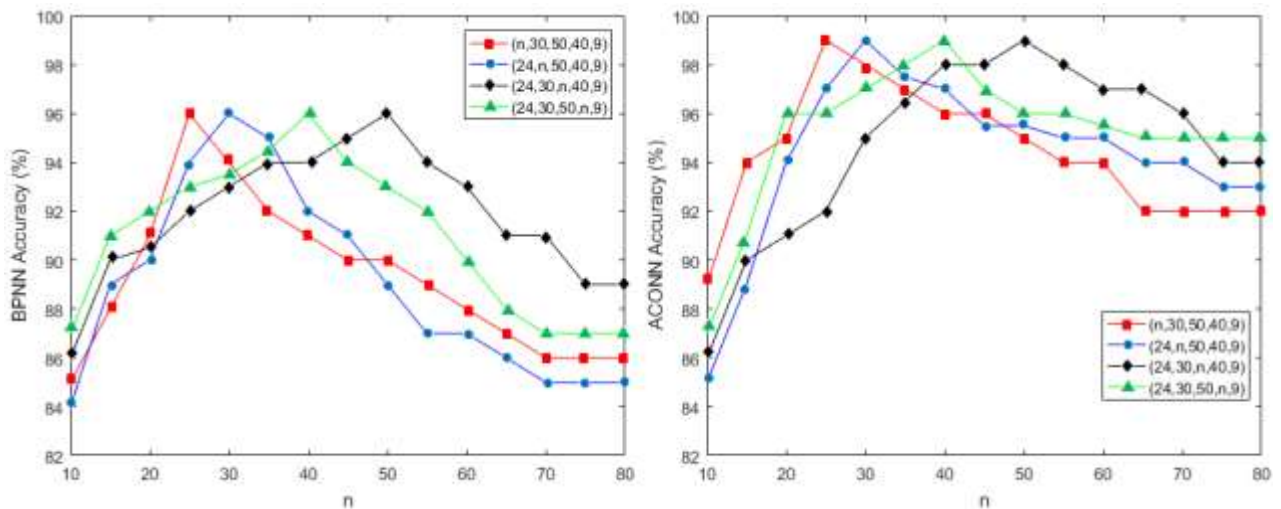
Thus, starting from an initial NN architecture with 7 layers, the number of layers and neurons per layer has been optimized through BP, ACO and BA algorithms. It should be noted that initially the input layer consists of 79 neurons (79 is the number of attributes defined on the CICIDS 2017 Dataset). The input layer is followed by several hidden layers, whose exact number and sizes are to be determined. The output layer consists of nine neurons, where each neuron is dedicated to a class. The desired response  $r_i$  of the  $i^{th}$  output neurons ( $i=1, \dots, 9$ ), for each instance  $x$ , is coded according to Eq. (6).

$$\begin{cases} r_i(x) = 1 & \text{for } x \in C_i \\ r_i(x) = -1 & \text{for } x \notin C_i \end{cases} \quad (6)$$

For every intrusion instance  $x_0$ , a decision rule is proposed, for the nine intrusion classes, according to the  $i^{th}$  neural output  $o_i$  ( $i = 1, \dots, 9$ ) as indicated in System (7).

$$\begin{cases} \text{if } o_i(x_0) \geq 0 & \text{then } x_0 \in C_i \\ \text{else } & x_0 \notin C_i \end{cases} \quad (7)$$

The reliance of accuracy rates with the number of neurons is illustrated in Figure 1, where accuracy rates are plotted with respect to the number of neurons per layer for BPNN and ACONN. This first result is probed using architectures with 5 hidden layers, before removing two layers, by means of BPNN and ACONN (with 200 iterations and a population size of only 40 individuals). After a lot of experimentation, the finest architecture attained is: (24, 30, 50, 40, 9). Due to the fact that the proposed metaheuristic algorithms are initialized in a random way, the hybrid NN-based approaches were re-executed 50 times. Notice that, for each run, a confusion matrix is established allowing to extract the global results. The best results obtained on the 50 adopted runs, for both training and testing datasets, are shown in Table 3.



**Figure 1.** Accuracies vs Number of Hidden Neurons  $n$  for BPNN and ACONN



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**Table 3.** Intrusion Detection Performance by using BPNN, BANN and ACONN on Training and test Datasets

Method	Training Performance Rates			Test Performance Rates		
	$\beta$ (%)	$\gamma$ (%)	$F_1$ (%)	$\beta$ (%)	$\gamma$ (%)	$F_1$ (%)
BPNN	96.43	96.27	96.33	96.04	96.13	96.09
BANN	98.93	99.01	98.99	98.86	98.99	98.94
ACONN	99.38	99.19	99.21	98.91	99.17	99.04

The experimental result, based on training and test CICIDS2017 datasets, indicated that ACONN and BANN achieve favourable performances. ACONN produces a tested efficiency, purity and  $F_1$  score of 98.91 %, 99.17 % and 99.04 %, respectively, versus 96.04 %, 96.13 % and 96.09 %, respectively, for BPNN, proving thus ACONN outperforms performance achieved in several similar works (Yulianto et al., 2019, Huang and Lei, 2020, Bindra and Sood, 2019).

### 5. CONCLUSION

The aim of this paper is to contribute towards improving NN-based Intrusion Detection performance on CICIDS2017 Dataset, by using BA and ACO metaheuristic algorithms. First of all, 10% used of this Dataset have been cleaned and the attributes reduced to 24 features only, through optimization by BPNN, BANN and ACONN. The two metaheuristic-based NNs have greatly improved the detection of intrusions in CICIDS2017 dataset. The experimental result indicated that ACONN and BANN reached good performances. ACONN produces tested efficiency, purity and  $F_1$  score outperforming performance achieved in several similar works. Future studies should extend the work to the following two key points.

a) Data reduction: by assembling attack classes into similar groups, which would simplify the analysis and further increase performance rates. b) Other Artificial Intelligence-based methods, not yet sufficiently covered, can be combined or hybridized.

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### LETTERS OF A BULGARIAN INTELLECTUAL VASIL KINCHOV, SHEDDING LIGHT ON OTTOMAN-BULGARIAN TRADE

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#### **Abstract**

Vasil Kinchov, who was the Bulgarian Minister of National Education in 1902 and represented Bulgaria by his Istanbul-Bursa trip, was in a kind of market research. He wrote letters that shed light on the commercial relations between Bulgaria and the Ottoman Empire at the end of 19<sup>th</sup> the century. When we look at these letters, interesting details draw our attention. Vasil Kinchov, who considers Istanbul in particular and the Anatolian geography in general as an opportunity for the goods produced in Bulgaria, gives details of what Bulgaria exports, the shipping process and the competitors of Bulgarian products.

In our study, 8 letters of Vasil Kinchov will be examined after giving information about the life and personality of Vasil Kinchov and the commercial situation between the two countries. This market research provides important data to the economic history studies of the period in terms of giving the trade of an autonomous country that was breaking away from the Ottoman Empire in the 19<sup>th</sup> century. In this study, it is aimed to contribute to the field of history by examining them.

**Key Words:** Bursa, Commercial life, Vasil Kinçov, Bulgaria, Ottoman Empire

#### **Introduction**

Minorities began to gain their independence one by one in the Ottoman Empire, which had a multinational structure, with the influence of the nationalism movement caused by the French Revolution. Therefore, the revolution was a factor that accelerated the disintegration and collapse of the Ottoman Empire. (Armaoğlu, 2014) Especially the multinational Balkan geography will witness many uprisings to establish its own national state. After the Serbs and Greeks, Bulgarians and Russians also started to revolt frequently as of 1841. (Burma, 2012) As a result of the provocations of Russia. Cultural and intellectual development, especially among the Bulgarians, had prepared the ground for some uprisings against the Ottoman rule from the beginning of the 19th century, with the influence of the socio-economic and political conditions of the region. (Aydın, 2013) For this, the Bulgarians aimed to get rid of the Greek domination by establishing their independent national churches and then to provide their political unity. (Burma, 2012)

The Bulgarians, who established the Bulgarian Autonomous Principality of the Ottoman Empire declared their independence on 5 October 1908 after the signing of the Berlin Treaty on 13 July 1878 at the congress held in Berlin under the leadership of German Chancellor Bismark. (Temizer, 2021) (Toprak, 2013)

The Ottoman Empire, in Bulgaria, which had a semi-independent (autonomous) structure from 1878 to 1908, went to an application called "commissariat" in order to preserve the law of the Turks living here and to maintain formally the sovereignty of the Ottoman Empire. While establishing a commissariat in Sofia, the relations between the two states were carried out by the "Bulgarian Commissariat" and "Door Kethüdalık" instead of the embassy. (Erol, 2015) Along with the commissioner, the Ottoman State sent officers called "merchants' deputy" to cities such as Vidin, Varna, Ruse, Burgaz, Plovdiv and Sofia, which the attendants replaced the consuls in countries where the Ottoman Empire did not recognize its independence. Although the merchant deputies were given the status of consul with the 1883 directive, Bulgaria was not used because it was not an independent state. (Erol, 2015) Another important point to be mentioned here is that although Bulgaria took an important step towards independence, the separation of Bulgaria from the Ottomans brought regression instead of progress. (Palairret, 2000) Bulgaria's largest



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trading sector was the wool trade and especially the aba production in the 19th century. The center where most of the aba production was made was the Sanjak of Plovdiv.<sup>1</sup> Varna Port, which is an important trade port, had an extremely important place in opening the goods produced in Bulgarian territory to the domestic and foreign markets during the Ottoman Empire. However, except for the farmers who produced enough to make a living, the years before leaving the Ottoman Empire were a golden age longed for by everyone. (Palairt, 2000) Bulgarian lands produce not only aba, but also rice, mutton, flour, wheat, bulgur, rose oil, rose water, etc. Both the fertile land of Bulgarian lands and the ease of access to the center of the Ottoman Empire by land and sea were also important for the Ottoman State. (Öztunç, 2015) Vasil Kinchov In 8 letters gives suggestions and recommendations on what will facilitate the trade between Istanbul and Anatolia, how to solve the existing problems and most importantly how to increase the trading volume of Bulgaria.

In this study, Vasil Kinchov's views on the commercial relations of the two countries, the products and services in question will be criticized through these letters.

### The Life of Vasil Kinchov

Vasil Kinchov, who was born in Bulgaria in 1862, continued his education at Lom High School with the scholarship provided by the municipality after completing the eighth grade in Vratsa. After successfully graduating from this high school, Vasil Kinchov, who returned to his hometown to teach, went to Kharkov, on the Russian border, to study chemistry the following year. Kinçov, who went to Thessaloniki in 1888, took an active role in the Bulgarian education and enlightenment case carried out in Macedonia under the auspices of the Bulgarian Exarchate,<sup>2</sup> headquartered in Ortaköy, Istanbul. These activities soon caught the attention of Ekzarh Yosif I. Ekzarh Yosif I sent Kinchov as chief inspector to the Bulgarian schools in the Macedonian region in order to contribute to the development of the Bulgarian element in the Ottoman lands through education, culture and enlightenment. Vasil Kinchov, who decided to return to Sofia in 1897, Dr. He was appointed as the Minister of National Education in the cabinet established by Stoyan Danev in 1902, but less than a month later he was shot and killed by a mentally unstable teacher in his office. (Kinchov, 2021)

### Vasil Kinchov's Nine-Day Travel to Turkey

Vasil Kinchov visited the Bulgarian settlements around Lake Manyas, Southern Marmara for nine days, with the support of a Bulgarian magazine "Bilgarsko Oteçestvo" (Bulgarian Motherland) in 1899. Returning to Bulgaria via Istanbul at the end of nine days, Vasil Kinchov presented the materials he collected at the Bulgarian Academy of Sciences and was first published with the title "*In Anatolia*" and the subtitle "*Journey Towards the Bulgarian Colonies*" ("İz Mala Aziya. Pituvane kim bilgarskite colony") in the journal Bilgarski Pregled (Bulgarian Collection) (Kinchov, 2021)

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<sup>1</sup> When we look at the fabric production in the Kotel Region, the data from BALKSTAT (in 1852-70, aba 7.34 in lev wool fabric prices per m2, whipped serge is unknown, in 1865-75, aba 6.52, whipped serge 4.17, in 1871-7 aba 6.48, whipped serge unknown, in 1875-80, aba unknown, whipped serge 6.34, in 1878-82 aba 5.98 whipped serge 6.28, in 1883-7, aba 5.08, whipped serge 5.46, in 1888-92 aba 3.98, whipped serge 4.13, in 1893-7, aba 3.40 whipped serge 3.39, in 1898-1902 aba 3.13 whipped serge 2.77, in 1903 aba 4.04 whipped serge is seen as 3.35. Workforce added value per day in handicraft aba 1.28 whipped serge is unknown 1865-75, aba 1.00 whipped serge 0.66, in 1871-7 aba 0.70 whipped serge unknown, 1875-80 ' de aba unknown, whipped serge 1.34, in 1878-82 aba 0.66, whipped serge 1.33, in 1883-7 aba 0.07, whipped serge 5.46, in 1888-92 no aba, whipped serge 0.40, in 1893-7, without aba the whipped is serge 0.31, in 1898-1902, the whipped serge without aba is 0.24, and in 1903, the whipped serge without aba is 0.19. (Palairt, pp.221,2000) According to the data here It is possible to observe the decrease in Bulgaria partly related to serge and aba production.

<sup>2</sup> The word "Exarch", derived from the Greek word "Exarchus" meaning "Vice King", "Deputy", "Lieutenant", "President", is the clergyman who is above the metropolitan and below the patriarch in the religious hierarchy of the Orthodox Church and is used to describe the spiritual head of an independent church. The most comprehensive study on the Bulgarian Exarchate is Aşkın Koyuncu's thesis, available at: (Koyuncu, pp. 101,1998) In 1867, Greek Patriarch VI. Gregory's proposal to "establish an autonomous Bulgarian church within the patriarchate" was not accepted by the Bulgarians, but this situation showed also that the patriarchate it was inevitable that accepted that the Bulgarian Church should establish to a separate organization. Depending on these developments, Sultan Abdulaziz issued the "Exarchate Edict" on March 11, 1870 (8 Zilhijce 1286) a few years later and announced that he had accepted the demands of the Bulgarians to leave the Greek Patriarchate and establish an Armenian Patriarchate. (Güllü, pp. 350-361, 2018)



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### Letters Concerning Turkish-Bulgarian Commercial Relations

#### First Letter: Ways to Dress Anatolia with Abaya and Peony

The first letter is about the situation of abacıs<sup>3</sup> who have been trading serge<sup>4</sup> and gimp<sup>5</sup> for a century, and the trade made to Istanbul-Anatolia, and Vasil Kınçov stated her observations on this subject. Regarding this, Vasil Kinchov states that Bulgarian abacıs constitute a large colony in Istanbul, and they are generally merchants who came from Kalofer, Klisura and Avratalan. So much so that, as the Bulgarian abacıs spread to Istanbul, this situation extended to Ankara, Izmir, Konya, and even the whole bazaar in Bursa was covered by only abacıs. He also says that the most sold product of these abacıs is Bulgarian serge and gimp. However, he mentions that this situation is not the same as before, that there are around 50 stores in Istanbul, 3 in Bursa, and one or two stores in other parts of Anatolia. Vasil Kinchov firstly attributes the decrease in the import of serge to the competition of European serge and to the change in the style of dressing. In fact, he states that if the European serge replaces the local serge even in Bulgaria, hence it will be easier in the Turkish market. Finally, Kinchov attributes this situation to the irregularity of relations between Turkey and Bulgaria. He states that the serge trade between Turkey and Bulgaria can be improved even though it is not like before 1877-1878, with reference to the Bulgarian merchants.<sup>6</sup>

Stating that the biggest competitor of the Bulgarian serge is the English serge, Vasil Kınçov states that the English factories produce very cheap serges and these are sold very cheaply in the Istanbul market.<sup>7</sup> Imported English Sake was cheaper than Bulgarian Sayagi. This made it popular in the markets. Kinchov, who stated that although the English serge is cheap, these clothes are not long-lasting, stated that this is a hope for the Anatolian market.

Another point Kınçov stated is that the local aba-makers selling English serge in Anatolia took the place of the Bulgarian serges. It is to discredit the Bulgarian serge by selling these serges as Rumelian serges. For this reason, Kinchov adds that Bulgarian abacıs should be helped to survive.

Another point that Vasil Kinchov has stated about Bulgarian serge is that some producers have recently produced poor quality serge in order to be cheap, and that poor quality Bulgarian serge will never be able to compete with the European serge in terms of cheapness. Saying that the goal cannot be achieved by discrediting the Bulgarian serge, Kinchov adds that it can be effective in fighting the bad sergeant of the distinguished Bulgarian merchants operating in Istanbul. (Kinchov, 2021)

#### Second Letter: Stuck Between Commerce and Civil Service of Bulgarian Youth

Vasil Kinchov gives information about the existence of Bulgarian abacıs in Istanbul and Anatolia since 1877-1878 and adds that this number is/will decrease day by day. With the effect of this decrease, Kinchov does not consider the disappearance of Bulgarian craftsmen from the Eastern markets very beneficial for the Bulgarian economic development. He states that Bulgarian abacıs spread Bulgarian serge and gimp to the Turkish market, if the number of abacı increases, the Bulgarian industry will also expand. Of course, he adds that this also applies to the import and trade of olive oil and olives. In particular, he cites Mudanya and Erken (Gemlik) as examples in this regard. For this reason, he says that the wanderings of craftsmen and merchants not only increase initiative, but also strengthen the independent spirit and increase experience. While stating that there are many reasons for the decline of Bulgarian craftsmen and merchants abroad, Kinchov attributes the most important of these to the salaries of civil servants and craftsmen for their labor. Vasil Kinchov says that the acceleration of the civil service in Bulgaria is due to the fact that they receive a better salary, which can be included in the fact that the civil service is less affected by financial crises and requires less initiative.

<sup>3</sup> Aba: Thick and coarse fabric made by pounding wool. "abacı" is the person who makes this fabric.

<sup>4</sup> Serge: A durable, warm fabric with obliquely woven threads.

<sup>5</sup> Gimp: twine made of cotton and silk.

<sup>6</sup> It is not possible to reach the net data before 1878 for Ottoman foreign trade. Due to the incomplete and insufficient data we have, it is possible to comprehend the exports from Anatolia during the 19th century only from the data related to the major ports. (Pamuk, pp. 32-35, 1995)

<sup>7</sup> The country with which the Ottoman Empire traded most in the 19th century was England. The trading volume exceeding 10 million gold liras is found in the statistics of 1878-1879. During this period, the trading volume with Russia was 1.5 million gold liras, and the trading volume with Bulgaria was around 80 thousand gold liras. (Pamuk, pp.68, 1995)



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Vasil Kinchov says that although little abacıs in Istanbul and Anatolia make their children educated with all kinds of sacrifices, it is much easier for these children to become a police chief with a salary of 200 leva<sup>8</sup> or a clerk with a salary of 100-150 leva. While expressing that the Bulgarian government should have the will, skill and courage to regulate the salaries of civil servants, Kinchov also says that if the civil service is not very profitable and easily accessible, young people will turn to crafts.

Vasil Kinchov also mentions the advice given by the serge traders in Istanbul in order not to lose the aba production outside of İstanbul. Vasil Kinchov also mentions the advice given by serge traders in Istanbul in order not to lose being abacı outside of Istanbul. When we look at these recommendations, he remarks to facilitating the military service situation of young people who have received a certain education and will devote themselves to being abacı abroad. He states that as a result of this, new employees can be found within 10 years, and the markets will both become stronger and protect the markets with more educated traders. (Kinchov, 2021)

### **Third Letter: Pedestrian from Kocabalkan to the Bosphorus: The Endless Ordeal of Sheep Herds**

In her third letter, Vasil Kinchov stated that Istanbul is a very good market and emphasized that this city has a good potential with its increasing population, especially foreigners from Europe and permanent representations opened. He also remarked that the presence of a good meat will not be affected even if any product may experience a crisis in this market.

Saying that the Bulgarian sheep, especially the ram, are very valuable in Istanbul, Kinchov says that 700 thousand of the population is Turks who consume mutton, while those with lower economic income consume the Anatolian sheep called Karaman with a tail. It states that sheep were brought for the middle class and above, especially from Russia and from Wallachia. Expressing that the Bulgarian sheep also has a very large market in Istanbul, Kinchov adds also that exports to Istanbul are getting smaller day by day instead of growing.

Here, Kinchov's point is that she states that there has been a great change in trade with ferries and railways in Europe and in the world.<sup>9</sup> Therefore while there were important developments in the inter-country transportation network of railways in the 19<sup>th</sup> century, companies were not given to Bulgarian merchants even though these railways passed through Bulgaria. Despite the fact that Bulgarian Government made the railway transportation cheaper on this issue, very important results could not be achieved since most of the road was in the Eastern company. The reason for this was that the Eastern Company, which held the loans, did not want the Bulgarians to get rich. In addition, Vasil Kinchov states that after the completion of the Sofia-Varna railway line, if the Bulgarian Government reduced the transport taxes, as did the Vlachs, the exports of sheep and cattle from Plevna, Berkofça, Vraca and Vidin would definitely increase. Again, regarding the Eastern Company, he states how right he was by conveying the opinion of a merchant that "*the expulsion of the company from Southern Bulgaria is equivalent to the victory of our country against a dangerous enemy*"

In the last part of his first letter on trade, Vasil Kinchov stated that the Bulgarian Government should carry out studies and says that a suitable area should be created around the ports until a market can be found in Istanbul. Kinchov, who states that Bulgaria and Albania are in competition with the Shar Mountain sheep, says that Albanians graze their sheep around Istanbul until they find a good price. He says that the Russians sold their goods before they left Odessa.<sup>10</sup> He also states that many lambs are brought from Varna to Istanbul in the spring, and other facilities besides the cheap shipping tariff should be made in order for the export to develop and to reach the inner regions. In the same way, she says that this method should be applied for chicken and eggs. (Kinchov, 2021)

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<sup>8</sup> Leva: Bulgarian currency.

<sup>9</sup> During the 19th century, while the Ottoman Empire suffered great land losses, it was a state that became the half market of Europe because it could not industrialize. For this reason, it is seen that the 19th century Ottoman foreign trade was close to the growth rate of European foreign trade. In this period, while imports increased rapidly (because it was not industrialized), tobacco, grapes, figs, raw silk, opium, mohair, olives, cotton, hazelnuts were the main export products of the Ottoman Empire. (Pamuk, pp 28. 1995)

<sup>10</sup> Regarding the Russian trade with the Ottoman Empire from the Odessa Port, available at: (Nazır, pp 70-80, 2010)





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### **The Fourth Letter: The State of Our Grain Import and Sea Freight**

Vasil Kinchov states that one of the most important commercial foodstuffs between Istanbul and Bulgaria is grain and said that Bulgaria has recently started to export flour as well.<sup>11</sup> Stating that Thrace grain is mostly sold to the islands and Greece, and Varna and Balchik grains to Istanbul, Kinchov also mentions the facilitation of food transportation in Anatolia with the opening of new lines connecting Istanbul with Konya and Angora [Ankara].

Saying that the biggest rival of Bulgarians in the Istanbul market is the Russians, Vasil Kinchov also says that Russian goods are equivalent to Bulgarian goods in terms of quality, and sometimes even better. However, here Kinchov says that the Russian conditions are also extremely commercial. He states that the goods brought to Odessa from the interior are very cheap and therefore ranks first in the Istanbul market and says that she sees flour sacks written in Russian in every corner in Bursa. Vasil Kinchov, who states that the main condition for the development of grain trade with the East is the cheapening of transportation, says that the export tax should be abolished secondly. Saying that 1,5% export customs are left from the Turkish economy system, Kinchov states that food exports should be freed from all kinds of burdens if agriculture is to be improved. Thus, Vasil Kinchov comments that trade will develop much more if export taxes are abolished and export tariffs are lowered with Bulgaria's Eastern Company, as in other agricultural countries.

He also argues that one of the most important conditions for the development of Bulgarian trade is the need for better regulation of Bulgarian shipping. Even if Parahodno drujestvo [Steamer Company] helps Bulgarian exports despite its insufficient resources, Kinchov states that new ferries should be purchased. In this regard, he cites the Romanian government as an example and says that they spend huge sums on the maintenance of the steamers. Thus, he is of the opinion that these policies, which will help the people to become rich, should also be implemented in Bulgaria. He says that the Bulgarian government avoids the expense by saying that the goods coming from Dobruja to the Balchik Port should be transported by foreign ferries.

Another point that Vasil Kinchov mentioned is that the communication between Istanbul and Bulgaria is weak, the ships are small and the ships stay in Istanbul 4 days a week in order not to waste coal. Kinchov, while mentioning that the Romanians send ferries from Constanta to Istanbul every day, states that the Bulgarian government should pay attention to sea transportation in order to be effective in trade in the coming years. He also says that for this, a ferry should be organized from Burgas once a week, and that at least three times a week should be organized from Varna. Another point that Kinchov points out here is that there should be circulation between the Black Sea ports and Bulgaria at least once a week. Kinchov states that it should be accepted as a necessity for the Ferry Company to start direct flights from Istanbul to Thessaloniki, from there to Piraeus, and then to Marseille and Antwerp. (Kinchov, 2021)

### **Fifth Letter: An Outdated Tax Interrupting the Imports of Cheese, Kashkaval and Oil**

In his fifth letter, Vasil Kinchov stated that oil and cheese produced in the vicinity of Sofia were traded from Bulgaria to Istanbul in 1897, 1,056,397; He states that in 1898, 1,101,528 levs of kashkaval was exported. Kinchov says that while the cheese and oil trade was carried out under much more difficult conditions, much better competitors emerged in the Istanbul market than from Anatolia and the Pind (Pindus)<sup>12</sup> mountain. In relation to this, Kinchov states that Albanian shepherds set up dairy farms in the western part of Anatolia and because Greece exempted heavy beglik<sup>13</sup> from taxes, Vlachs in the Turkish part of Pindus Mountain started to produce cheese in masses by moving to the Greek part. Kinchov says that the most important competitor in the Istanbul Market is the Russians. However, he also states that Russians' oils are of low quality because they are produced from half frost, half genuine oil. He says that

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<sup>11</sup> In this period, when the import data of the Ottoman Empire were examined, more than half of the import consisted of cotton and woolen textile products. In addition, foodstuffs had an important place in Ottoman imports. Wheat imported from the Balkan countries and Russia by sea to import products such as sugar, tea and coffee that were not produced in the Ottoman lands was sold in the Istanbul market at a lower price than the wheat from Central Anatolia. Another reason for wheat import is that the signed foreign trade agreements prevent protectionist customs tariffs. (Pamuk, pp. 28. 1995)

<sup>12</sup>Pind (Pindus Mountain): The Pindus is a mountain range located in Northern Greece and Southern Albania.

<sup>13</sup>Beglik Tax: Tax per animal from tadpoles and small cattle.



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he has the opportunity to take cheese and oil not only to the Istanbul market, but also to the main ports of the Aegean and even to Alexandria. Saying that melting oil is generally used in the East and that Sofia melting oil is also valued well, Vasil Kinchov states that all kinds of goods collected for export should be free from city tax. In addition, another point he stated was that the taxes applied to these food products in the city could not be applied to products that would not be consumed in this city. Regarding this, Vasil Kinchov said, *“A few years ago, a business for oil export was established in Sofia. Fresh oil collected from the surrounding area was melted in the city and then exported to Turkey and Greece. Exports amounted to 60 tons per year. In return for this amount, 3 thousand Leva fell for the annual city tax only. Because of this tax, the business had to move its melting workshop to Knyajevo. There are other barriers to trade, as Knyajevo is far from Sofia's main market. On the other hand, these seemingly small taxes place a heavier burden on cheese”*

One of the important issues he states for the development of trade is the reduction of the railway transportation fee. Regarding this, he states that if the Central line is ready, the use of only Bulgarian roads for trade to Istanbul also depends on the government. In particular, Kinchov states that this situation hinders the development of the trade of the new Bulgarian industry, facilitates the work of only large companies, and destroys small-scale enterprises before they are born.

So much so that he expresses that it is interesting that the transportation discount cannot be used even on the road from Vraca to Orozov. This period is the period when railways started to be built from west to east in the Ottoman Empire.<sup>14</sup> Therefore, it is important to draw attention to the use of these means of transportation.

The most important point that Vasil Kinchov emphasized in his fifth letter is that Bulgaria stated that the most important condition for the increase in the trade of food products and livestock in the Istanbul market and around the world is the abolition of the beglik tax. He states in his letter that her thoughts about this tax are not only about disrupting trade, but also that this tax is not a fair tax. Stressing that this tax does not exist in Serbia, Greece and many other European states, Kinchov says that Bulgarian trade will never reach a good point because of this tax. (Kinchov, 2021)

### **Sixth Letter: What is Istanbul Trade Representative?**

In this letter, Vasil Kinchov states that the Bulgarian Trade Representative was established in Istanbul apart from the diplomatic representation, and that such an institution was very necessary between the Emirate and Turkey, and that it was established just in time. According to Kinchov, she says that the establishment of this representative office has become necessary because the trade volume is increasing day by day, the commercial relations have become more complex and the merchants in Istanbul need official support. However, another point that Kinchov mentioned is that the Trade Representative Office established in Ankara was not established with a solid infrastructure and therefore does not have a functional feature.

The reason for this is that people who know the Istanbul market well and attach sufficient importance to this work are not brought in. Unfortunately, the Trade Representative Office established in Istanbul was closed in 1899. He states that the name was changed to Chancery due to the inability to regulate the trade, not following the market, and not being able to defend the traders against the officials at the Turkish customs.

In addition, Vasil Kinchov made various recommendations within the commercial representation, regarding how this representation should be and what it should do: *“The commercial representation in*

<sup>14</sup> The name Rumeli Railways was used for the lines built by Baron Hirsch between 1869-1875, which will start from Bucharest or Silistra on the Danube and reach Inos (today's Enez) or another convenient point on the Aegean coast, with various branches to Istanbul. Varna, it was the line connecting the major cities of Thessaloniki, Belgrade and Rumelia. In addition, there were Constanta-Çernoavada, Varna-Ruck, Thessaloniki-Istanbul junction and Thessaloniki-Monastery lines built by different companies at different times on the European lands of the Ottoman Empire. After the end of its construction, the 224 km long Varna-Ruschuk line remained in Bulgarian territory, in accordance with the Berlin Treaty, and Bulgaria took over the debts of the Ottoman Empire due to this line. The Ruse-Varna Railway was generally used by passengers who came to Istanbul from Europe and did not prefer the Mediterranean route. Those who came to Varna by train used to go to Istanbul by ferry from here. After establishing a connection between the European lines and the Ottoman lines in the direction of Istanbul-Edirne-Belgrade in 1888, the importance of the Varna-Ruschuk line decreased. As a result of the Ottoman-Russian War of 1877-78, the Treaty of San Stefano was signed on 3 March 1878. Accordingly, the Ruse-Varna line was left to the Bulgarian government, provided that all the obligations and obligations of the Ottoman Empire were to be undertaken. Available at: “Osmanlı Dönemi Demiryollarının Tarihi Gelişimi İçerisinde Siyasî ve İktisadî Sosyal Etkileri”, <https://dergipark.org.tr/tr/download/article-file/686847>, (Tamçelik, pp. 483-535, 2000)



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*Istanbul should be given the following duties: to examine the Eastern trade, to research the needs of the market and the changes in these needs, to learn about the reliability of the businesses. Each of our merchants should find an office in this representation where they can consult urgently on all matters. The agency should publish a monthly commercial bulletin that will indicate the current needs of the market. An outcrop warehouse for all Bulgarian products should be established within the representative office for customers in Istanbul. Likewise, a trade council consisting of Bulgarian merchants from Istanbul should be established within the representative office to inform the representative about the course of commercial relations with Turkey and to advise the representative on all current issues. Finally, our trading agent must take all precautions to protect our trader from arbitrary behavior to which he is often subjected. A hardworking and experienced trade representative can easily handle these tasks. It is a fact that there are more frequent situations in Turkey compared to other regular states, but these negative aspects can be minimized” (Kinchov, 2021)*

### **Seventh Letter: Passport Issue Should Be Resolved Immediately**

The issue mentioned by Vasil Kinchov in his seventh letter is about arranging the passport issue as soon as possible and solving the trade with Istanbul immediately for economic interests before it becomes more difficult. Regarding this, Vasil Kinchov explains that the Babiali<sup>15</sup> does not want to recognize the Bulgarian passport as it does not grant the right of foreign nationality to Bulgarian citizens while they are in Turkey. On this subject, Kinchov says that the Bulgarian government's taking the same restrictive measures in return for the collection of the passports of Bulgarian passengers at the Turkish borders giving a Turkish permit in return, instead of solving the issue, puts it into a vicious circle.

On this subject, Kinchov says that the Bulgarian government's taking the same restrictive measures will not solve the issue, despite the fact that the passports of Bulgarian passengers are collected at the Turkish borders and a Turkish permit is issued in return.

Apart from the difficulties faced by Bulgarian citizens, great difficulties were also valid for the merchants. Regarding this, Vasil Kinchov said that after a trader got a passport in Emaret,<sup>16</sup> he had to go to any Turkish commissariat and register, if the passenger did not have a Turkish commissariat at the destination, he had to go to the commissariat and pay another 5 levs. Making this payment on the way back from Turkey both increased the expenses of the merchants and made their work more difficult. Although Kinchov said that before the Turkish-Greek War, there was a suitable environment for a solution to this situation, he also stated that there was no development regarding this issue. (Kinchov, 2021)

### **Eighth Letter: Customs Duty on Turkish Goods Should Be Reduced Immediately**

The point that Vasil Kinchov mentioned in his eighth letter was the reduction of customs duties due to the high level of customs duties. Stating that the Bulgarian Government charges high customs duty on Turkish goods according to the new tariff, Kinchov stated that Turkey also receives 8% tax from Bulgaria as it receives from other states. Regarding this issue, the Turkish authorities created a commission affiliated to the General Directorate of Customs and offered to raise the customs duties for the goods to be purchased from Bulgarian goods, and the information from Istanbul that new taxes will be imposed on livestock and many goods. This situation will be a heavy blow for Bulgarian trade. He also states that when this situation puts the Bulgarians in a bad situation, the rivalry with the Russians and Vlachs will intensify. Vasil Kinchov also gives the mutual trade table of the last five years in terms of showing the commercial relations between Bulgaria and Turkey.

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<sup>15</sup> Babiali: The central Office of the Ottoman Government, Sublime Porte.

<sup>16</sup> Emaret: Semiautonomous province or governorship.



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**Table 1. Export from Turkey to Bulgaria<sup>17</sup>**

Yıl	Leva
1894	26,794,851
1895	22,505,506
1896	22,086,997
1897	10,935,194
1898	16,614,057
Toplam	98,936,605

**Table 2. Import from Bulgaria to Turkey<sup>18</sup>**

Yıl	Leva
1894	12,785,907
1895	8,819,475
1896	9,923,518
1897	9,488,518
1898	7,444,885
Toplam	48,462,403

According to this table, Vasil Kınçov says that if the last two years were not unproductive, the food and flour exports to Istanbul would have been higher. Vasil Kınçov, who says that there are food, flour, serge, slip and live animals among the products exported to Turkey, states that if Turkey raises the customs tax Braşov and British serge will eliminate Bulgarian serge. He also remarks that if it is applied to livestock, cheese, kashkaval and oil, it will affect the Bulgarian trade very badly. For this, Vasil Kinchov predicted that necessary agreements regarding customs tax should be made by making negotiations with the Babiali.

Vasil Kinchov states that generally wine, raisins, olive oil, other vegetable oils, olives, fish, fruit, cotton, cotton thread, raw and semi-processed leathers are bought from Turkey, and states that the interest in customs should be reduced. In particular, he states that the import of olive oil and olives should be facilitated since the Bulgarian people do not consume anything other than olive oil during the long abstinence periods. Referring to the importance of these foods for better nutrition especially for the low-income people, Kinchov says that the 18% customs duty on essential foods, which increases up to 25-30% with other taxes, reduces imports and increases the consumption of bad oil in the public. He remarks that while 867,287 levs of olive oil and 417,514 levs of olives were imported from Turkey to Bulgaria in 1897, 537,172 levs of olive oil and 299,329 levs of olives were imported in 1898. The most important point that Vasil Kinchov especially stated in this letter is that the settlement of the customs issue will give a strong momentum to the trade with Istanbul and Turkey, and that it will increase the trade volume with Egypt and especially the Aegean islands via Istanbul. (Kinchov, 2021)

### RESULTS

Between the Ottoman Empire and the Autonomous Principality of Bulgaria in the process from autonomy to independence is valuable clarifying the economic and commercial relations in terms of revealing the origins of trade between the two countries. In this study, documents that will shed light on this period have been examined. Despite not being an expert economist, the information given by the Minister of National Education Vasil Kinchov, who came from Bulgaria, revealed the commercial potential, commercial problems and opportunities between the two countries in the 19th century. It is a significant analysis for the century. It is market research and a kind of SWOT analysis for the products that Bulgaria's trade with the Ottoman State, especially for the products exported. When the 8 letters written by Vasil Kinchov are examined.

<sup>17</sup> Kinchov, pp.123, 2021.

<sup>18</sup> Kinchov, pp.123, 2021.



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### DISCUSSIONS

Kinchov has important determinations on the products traded, the competitors for these products, the situation of the Bulgarian merchants in the Ottoman Empire, their problems, and the problems created by the applied principality tax. It is also important that Vasil Kinchov asked for the opening of a separate high-level commercial Bulgarian representation in Istanbul, among the topics suggested in his letters. In this way, the Bulgarian-Ottoman trade volume would reach the desired level in a short time with the representation that would work as a specialized institution. Kinchov, who also gave important recommendations for the institution to be established, shared expert-level information on issues such as the qualifications of the personnel and the working principles of the representative office. Suggesting the establishment of a trade council between the two countries in Istanbul, it is valuable that Kinchov, with a broad perspective, proposes this platform that will work with a more rooted and common mind in which the stakeholders are involved. It is seen that he took part in efforts to solve restrictive procedures such as passports and visas, with her suggestions as an expert, as well as her criticisms of the Bulgarian government although Kinchov is an amateur on the economic subjects.

After 1878, Bulgaria's efforts to create an independent economy on its own, the decline of large-scale agricultural enterprises with the industrial revolution, the inability to have a voice in the railways, and the changing understanding of clothing and competitive market were a threat to the Bulgarian economy, at the same time it was also an opportunity for self-improvement.

### COCLUSION

Bulgarian Minister Vasil Kinchov was a person who believed that the existing political problems between the two countries could be overcome with trade relations. In this way, economic relations would play a significant role in easing the political tension between the two countries. By this multiple perspective, as a Bulgarian intellectual, Kinchov's letters containing suggestions and criticisms contain analyzes that should be recorded in terms of Bulgaria's commercial life and economic history.

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## A FINANCIAL PERSPECTIVE ON THE LOAN SITUATION IN TURKEY

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### **Abstarct**

Considering Turkey's growing population and increasing needs, the country where the financial system is used intensively emerges as a country where the banking system is also dense. It is observed that the number of loans in Turkey has increased over the years, and at the same time, there has been an increase in the amount of loans and loans used. Loans are taken for many reasons for individuals and businesses. Sometimes a loan system is used to buy a house, sometimes to buy a car, and sometimes for simple needs. Loans keep the financial system and businesses active and provide benefits as cash inflows for individuals and businesses. However, if this situation is not taken under control, loans will create problems in case of excessive borrowing or people's inability to pay. Some measures are taken by the states in this regard. Follow-up of the loan means non-payment or a 90-day delay in collection. In our study, we will examine the loans used in Turkey between the years 2012-2021 and the loans that follow these loans. Regarding loans, current and non-performing ratios of housing loans, vehicle loans and other consumer loans will be examined. Over the years, an overview will be provided on which provinces use more credit, which provinces have more credit follow-up, and where there is difficulty in repayment of credits. In our research, the data of the most followed provinces and the data of the least followed provinces were listed and found as a result of the research.

**Keywords:** Finance, Banking, Credit

### **1. LOGIN**

The first bank called “model” in the history of the world, BC. It is thought that the first banking services extended to ancient Sumer and Babylon, with the knowledge that it was founded by the Sumerians in 3500 BC. According to the result of the historical studies obtained as a result of the excavations; Models known as the first bank accept deposits and loans and exchange transactions are organized very regularly, transfer from one account to another, payment and delivery orders and goods documents instruction is made. conclusion is reached (Kandemir: 2015).

It is accepted that today's banking system started with the establishment of the Bank of Venice in 1157. With the establishment of Genova Bank in 1408, the obstacles in front of the banking services were removed as a result of the permission of interest in European law. In the 20th century, as a result of the monetary relations that intensified with the effect of the industrial revolution, banking services developed rapidly and gained an international dimension with the effect of globalization and spread all over the world (Güçlü: 2015).

The word “credit” comes from the Latin word “credeer” meaning to trust, to trust and is used as trust in banking. For this reason, credit is the process of providing resources to the individual by taking advantage of the reliability of the individual and taking the risk of non-payment. The meaning of credit in the economy is the material values borrowed or given (Gümüş, 2014). Credit, cash or non-cash facility designated by the bank for the customer; On the other hand, risk refers to the responsibilities from giving the loan to the customer until the liquidation process (Ziraat Bankası, 2020).



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Credit is the giving of bank resources to those in need to be taken back later in return for a price (Ünal and Yücedağ, 2013).

Looking at the definition of loan; It expresses the purchasing power in terms of goods, services and money with the commitment to pay the loan after a certain period of time (Parasız: 2011). In other words, it defines the loan as the use of the loan by the buyer against a payment, provided that the bank resources are repaid at the end of a certain maturity (Yıldırım: 2016),

Credit risk is defined as the risk of loss arising from the failure of the bank's credit customer or the counterparty to fulfill the provisions of the contract (Christophe: 2004). credit risk; It is also possible to define it as the risk situation that banks are exposed to due to the fact that customers using loans from banks do not comply with the requirements specified in the loan agreement and do not fully or partially fulfill their obligations (Aloğlu: 2005).

Credit risk is the fact that the borrower does not comply with the payment method accepted for the loan, and does not fulfill the terms of the contract with the financial institution that provides the loan. In other words, credit risk can be expressed as the financial loss that will occur in the financial institution if the debtor customer does not fulfill his debt, does not pay on due date or makes incomplete payment (Büyüктаş, 2014). However, there are many risks that could endanger the credit. These risks are:

- Credit risk,
- Interest rate risk,
- Currency risk,
- Liquidity risk,
- Capital insufficiency risk,
- Market (economic-political) risk.

Credit institutions may be exposed to these risks during operation (İbicioğlu, 2011).

If the partial or full repayment of a loan exceeds 90 days, that loan is covered by a non-performing loan. The non-performing loan ratio is calculated by dividing the non-performing loans to the total loans and is used as one of the quality indicators in the banking sector, as it disrupts the asset structure of banks and reduces profitability. These loans both create liquidity risk for banks and reduce the credibility of banks.

Credits play an important role in economic development. Businesses meet their funding needs from banks in order to continue their activities, grow and catch up on developments. Profitability is the main starting point when banks direct the funds they collect to investment areas. Although credit is a profitable product, it is a risky product. For this reason, care should be taken to keep the losses that may arise at the lowest level while extending the loan (Koyuncu and Saka: 2011).

Today, it has become an important goal to reduce the non-performing loans ratio in order to prevent the surplus funds in the economy from being stuck in unprofitable areas. If the said purpose is not achieved, banks' liquidity problems and funds transferred to non-return areas harm economic growth and reduce productivity (Hou, 2007)

### 2. LITERATURE

Many studies have been done on banking and bank follow-up, and some studies done in Turkey are listed below.

Araştırmacı	Araştırmanın Yılı	Araştırmanın Sonucu
Koyuncu ve Saka	2011	In his study, he examined the loans between 1986-2008 and reached the conclusion that this negative relationship between non-performing loans and domestic loans and investments to the private sector was statistically significant at the 1% significance level.





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Yağcılar ve Demir	2015	In his study, he examined 26 commercial banks between the years 2002-2013. It has been concluded that there is a positive relationship between growth, interest rates, foreign banks and capital adequacy ratio and non-performing loans.
Yücememiş	2011	In his study, a model application for the monthly estimation of the NPL ratio in the Turkish banking sector is presented. Statistical tests have shown that the model is a good predictor. The model indicates that non-performing loans have a significant stock problem. In other words, he concluded that if non-performing loans are managed well in a certain period, the increase in non-performing loans will be relatively limited even if the economic conditions deteriorate in the following periods.
Tekşen ve Çelik	2018	In the study, a panel data analysis study was carried out on the data of the largest 10 Turkish deposit banks between the years 2006-2016. According to the results of the analysis, the ratio of housing and commercial vehicle loans and non-performing loans is negative; concluded that there is a positive relationship between vehicle loans and non-performing loans ratio.
Poyraz ve Arlı	2019	In his study, the effect of the Turkish banking sector on non-performing loans was empirically examined, and the results of the tests could not reveal a clear long-term relationship between GBP and non-performing loans; however, it has been seen that GBP is the reason for non-performing loans. He concluded that JPY has no long-term relationship with non-performing loans.
Kabataş ve Karamustafa	2019	In his study, he concluded that there is a negative and statistically significant relationship between the growth, unemployment and equity/total assets ratio variables and the non-performing loan ratios in consumer loans in the Turkish banking sector.
Kara ve Baş	2019	In his study, in the long term between 2005 and 2017, when the banking sector loan volume increased, non-performing loans also increased, and when the findings obtained for the short term were evaluated, it was concluded that the total loan volume of the banking sector was effective on non-performing loans.
Kolukisa	2018	In this study, monthly profit rates and non-performing loan rates applied in loan disbursements of Participation Banks operating in Turkey between January 2005 and September 2015, monthly interest rates applied in loan disbursements of Deposit Banks operating in Turkey and non-performing loan rates were used. It has been concluded that providing loans with higher profit/interest rates from deposit banks does not directly affect the non-performing loan rates.
Sevinç	2021	In his study, he examined how macroeconomic factors affect the NPL ratio. According to the Toda-Yamamoto causality test findings, there is a causality relationship from all variables to non-performing loans; It has been concluded that there is a bidirectional causality relationship with the unemployment



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Özel	2022	In his study, he concluded that the changes in the industrial production index are the most important variable in explaining the changes in non-performing loans compared to other variables and that it is in an inverse relationship with the changes in non-performing loans.
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### 3. METHOD AND METHODOLOGY

Credit follow-up rates data obtained from the interbank card center (BKM) were examined and evaluated. We will examine the aforementioned loan follow-up rates in 3 parts, in the first part, the non-performing vehicle loan rates, in the second part, the non-performing housing loan rates and in the third part, the consumer loan rates that are under follow-up will be examined. The NPL ratios of the NPL ratios were examined by provinces, 81 provinces were listed down starting from the highest NPL ratio, the years 2012 and 2021 were included in the sampling. Due to the large number of provinces and data, the top 5 most followed provinces were taken and listed for all samples. The figures written in the vehicle loan and non-performing vehicle loan rates are Thousand TL, the non-performing percentages are calculated over these rates.

#### 3.1. Follow-up Car Loan Rates

Top 5 Provinces in which Vehicle Loans are Followed (Table 1)

YEAR	Provinces	Transport Credit	Non-Performing Vehicle Loan	Vehicle %
2012	KIRIKKALE	8.804	605	6,87
	HAKKARİ	4.296	282	6,56
	AĞRI	11.927	630	5,28
	SAKARYA	90.153	4.431	4,91
	BURDUR	12.917	622	4,82
2013	KIRIKKALE	10.090	728	7,22
	ADİYAMAN	23.428	1.500	6,40
	AFYONKARAHİSAR	31.077	1.877	6,04
	HAKKARİ	5.219	255	4,89
	SAKARYA	81.262	3.840	4,73
2014	AĞRI	10.245	585	5,71
	KIRIKKALE	7.934	453	5,71
	HAKKARİ	3.972	215	5,41
	ADİYAMAN	17.636	950	5,39
	ŞANLIURFA	57.801	3.022	5,23
2015	ERZİNCAN	10.583	687	6,49
	SİVAS	34.888	2.173	6,23
	ADİYAMAN	14.376	884	6,15
	KIRIKKALE	8.214	475	5,78
	HAKKARİ	3.990	228	5,71
2016	BARTIN	8.331	766	9,19
	HAKKARİ	3.118	273	8,76
	ADİYAMAN	14.098	1.125	7,98
	SİVAS	29.974	2.158	7,20
	KARAMAN	6.894	478	6,93
	AĞRI	10.731	720	6,71
2017	BARTIN	7.934	690	8,70
	SİVAS	28.175	1.912	6,79



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	ADİYAMAN	16.354	1.012	6,19
	İĞDIR	4.818	284	5,89
	KARAMAN	6.502	377	5,80
2018	SİVAS	27.072	1.882	6,95
	KARAMAN	5.813	397	6,83
	KONYA	71.947	4.650	6,46
	ADİYAMAN	16.182	1.042	6,44
	İĞDIR	4.348	273	6,28
2019	ADİYAMAN	20.176	1.427	7,07
	OSMANİYE	24.728	1.563	6,32
	ADANA	212.332	13.042	6,14
	KARAMAN	9.463	557	5,89
	SAKARYA	78.436	4.542	5,79
2020	BAYBURT	3.457	246	7,12
	AFYONKARAHİSAR	42.321	1.260	2,98
	SİVAS	57.021	1.583	2,78
	ADANA	337.080	9.197	2,73
	OSMANİYE	41.276	1.083	2,62
2021	BAYBURT	3.830	187	4,88
	ADANA	366.227	13.651	3,73
	OSMANİYE	37.827	1.363	3,60
	KASTAMONU	26.544	847	3,19
	MARDİN	70.065	2.035	2,90

When the year 2012 is examined, the province with the highest number of follow-ups is Kırkkale with a rate of 6.87%, the second province is Hakkari and the rate is 6.56%, the third province is Ağrı 5.28%, the fourth is Sakarya province 4.91% and the fifth is Burdur. It is seen that the rate of the province is 4.82%.

When 2013 is examined, the province with the highest number of follow-ups is Kırkkale province as in 2012 and its rate is 7.22%, the second province is Adıyaman province and the rate is 6.40%, Afyonkarahisar province 4.89%, fourth rank Hakkari province. It is seen that the rate of Burdur province, which is 4.89% and the fifth, is 4.73%.

When the year 2014 is examined, the province with the highest number of follow-ups is Ağrı province with a rate of 5.71%, the second province is Kırkkale province with a rate of 5.71%, the third province of Hakkari with a rate of 5.41%, the fourth rank of Adıyaman province with a rate of 5.39% and the fifth. It is seen that the rate of Şanlıurfa province, which is one of the largest cities in the world, is 5.23%.

When the year 2015 is examined, the province where the most vehicle loans are followed is Erzincan province with a rate of 6.49%, the second province is Sivas province and the rate is 6.23%, the third place is Adıyaman with 6.15%, and the fourth place is Kırkkale with 5%. It is seen that the rate of Hakkari province, which is the fifth, is 5.71%.

When the year 2016 is examined, the province where the most vehicle loans are followed is Bartın province and its rate is 9.19%, the second province is Hakkari province and the rate is 8.76%, the third is Adıyaman 7.98%, and the fourth rank is Sivas province 7%. It is seen that the rate of Karaman province, which is .20 and fifth, is 6.93%.

When the year 2017 is examined, the province where the most vehicle loans are followed is Bartın province and its rate is 8.70%, the second province is Sivas province and the rate is 6.79%, the third place is Adıyaman with 6.19%, and the fourth place is İğdir with 5.89%. and the rate of Karaman province, which is the fifth, is 5.80%.



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When the year 2018 is examined, the province where the most vehicle loans are followed is Sivas province and its rate is 6.95%, the second province is Karaman province and the rate is 6.83%, the third place is Konya with 6.46%, and the fourth place is Adıyaman with 6%. It is seen that the rate of Iğdır province, which is .44 and the fifth, is 6.28%.

When the year 2019 is examined, the province with the highest number of vehicle loans followed is Adıyaman province and its rate is 7.07%, the second province is Osmaniye and the rate is 6.32%, the third place is Adana with 6.14%, the fourth place is 5% of the province of Karaman. It is seen that the rate of Sakarya province, which is .89 and the fifth, is 5.79%.

When 2020 is examined, the province where the most vehicle loans are followed is Bayburt and its rate is 7.12%, the second province is Afyonkarahisar province and the rate is 2.98%, the third province is Sivas with 2.78%, and the fourth place is Adana province with 2%. It is seen that the rate of Osmaniye, which is .73 and the fifth, is 2.62%.

When 2021 is examined, the province where the most vehicle loans are followed is Bayburt and its rate is 4.88%, the second province is Adana province and the rate is 3.73%, the third is Osmaniye 3.60%, and the fourth rank is Kastamonu province 3%. It is seen that the rate of Mardin province, which is ,19 and fifth, is 2.90%.

### 3.2. Following Housing Loan Rates

Top 5 Provinces in which Housing Loans are Followed (Table 2)

Year	Provinces	Housing Loan	Non-Performing Housing Loan	Housing %
2012	ŞIRNAK	43.459	1.007	2,32
	DÜZCE	178.178	2.866	1,61
	AYDIN	1.073.125	16.750	1,56
	SAKARYA	662.794	9.831	1,48
	MUĞLA	922.936	13.408	1,45
2013	KİLİS	73.157	1.023	1,40
	SAKARYA	846.283	8.910	1,05
	MUĞLA	1.182.290	12.385	1,05
	AYDIN	1.358.640	13.442	0,99
	ADİYAMAN	277.986	2.729	0,98
2014	BİTLİS	126.600	1.328	1,05
	AĞRI	130.476	1.248	0,96
	DÜZCE	320.177	2.797	0,87
	SAKARYA	957.087	8.305	0,87
	MARDİN	271.851	2.160	0,79
2015	BİTLİS	151.550	1.746	1,15
	MARDİN	325.136	2.887	0,89
	SAKARYA	1.081.399	8.444	0,78
	MUĞLA	1.558.905	11.737	0,75
	HATAY	1.554.763	11.119	0,72
2016	BİTLİS	177.653	2.623	1,48
	ŞANLIURFA	1.175.219	12.340	1,05
	MARDİN	384.197	3.807	0,99
	SİİRT	158.426	1.563	0,99
	VAN	417.448	4.011	0,96
2017	BİTLİS	211.790	2.214	1,05
	MARDİN	458.219	4.315	0,94



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	AĞRI	218.574	1.948	0,89
	NEVŞEHİR	391.396	3.200	0,82
	ŞANLIURFA	1.363.801	10.446	0,77
2018	AĞRI	224.783	2.340	1,04
	ŞANLIURFA	1.288.859	12.779	0,99
	İĞDIR	161.344	1.590	0,99
	MUŞ	135.090	1.266	0,94
	BİTLİS	224.171	2.052	0,92
2019	ŞANLIURFA	1.378.898	17.156	1,24
	ARDAHAN	113.746	1.264	1,11
	KIRIKKALE	627.738	6.903	1,10
	DÜZCE	567.328	5.973	1,05
	BİTLİS	275.576	2.823	1,02
2020	DÜZCE	789.557	5.048	0,64
	KIRIKKALE	837.662	5.270	0,63
	ARDAHAN	146.385	905	0,62
	ŞANLIURFA	1.941.441	11.165	0,58
	SAKARYA	2.281.879	12.745	0,56
2021	ARDAHAN	154.668	852	0,55
	HAKKARİ	224.695	1.143	0,51
	ŞANLIURFA	2.083.577	10.551	0,51
	KARS	481.118	2.397	0,50
	KIRIKKALE	854.693	4.027	0,47

When the year 2012 is examined, the province with the highest follow-up of housing loans is Şırnak province and its rate is 2.32%, the second province is Düzce province, the rate is 1.61%, the third is Aydın province 1.56%, the fourth is 1.48% in Sakaya province. and the rate of Muğla province, which is the fifth, is 1.45%.

When the year 2013 is examined, the province where the housing loan is followed the most is Kilis and its rate is 1.40%, the second province is Sakarya province and the rate is 1.05%, the third is the province of Muğla 1.05%, the fourth is the province of Aydın 0.99%. and the rate of Adıyaman province, which is the fifth, is 0.98%.

When the year 2014 is examined, the province where the housing loan is followed the most is Bitlis and its rate is 1.05%, the second province is Ağrı province and the rate is 0.96%, the third is 0.87%, the fourth is Sakarya province, 0.87%. and the rate of Mardin province, which is the fifth, is 0.79%.

When the year 2015 is examined, the province where the housing loan is followed the most is Bitlis and its rate is 1.15%, the second province is Mardin and the rate is 0.89%, the third province is 0.78%, the fourth one is Muğla province 0.75%. and the rate of Hatay province, which is the fifth, is 0.72%.

When the year 2016 is examined, the province where the housing loan is followed the most is the province of Bitlis and its rate is 1.48%, the second province is Şanlıurfa and the rate is 1.05%, 0.99% of Mardin province, which is the third, and 0.99% of Siirt province, which is the fourth. and the rate of Van, which is the fifth, is 0.96%.

When the year 2017 is examined, the province where the housing loan is followed the most is Bitlis and its rate is 1.05%, the second province is Mardin and the rate is 0.94%, the third is 0.89%, the fourth is Nevşehir, 0.82%. and the rate of Şanlıurfa province, which is the fifth, is 0.77%.

When the year 2018 is examined, the province where the housing loan is followed the most is Ağrı province and its rate is 1.04%, the second province is Şanlıurfa province, the rate is 0.99%, the third is



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Iğdır province 0.99%, the fourth one is Muş province 0.94%. and the rate of Bitlis province, which is the fifth, is 0.92%.

When the year 2019 is examined, the province where the housing loan is followed the most is Şanlıurfa and its rate is 1.24%, the second province is Ardahan province and the rate is 1.11%, the third is Kırıkkale 1.10%, the fourth is Düzce province 1.05%. and the rate of Bitlis province, which is the fifth, is 1.02%.

When 2020 is examined, the province where the housing loan is followed the most is Düzce and its rate is 0.64%, the second province is Kırıkkale and the rate is 0.63%, the third place is Ardahan with 0.62%, the fourth is Şanlıurfa with 0.58%. and the rate of Sakarya province, which is the fifth, is 0.56%.

When the year 2021 is examined, the province where the housing loan is followed the most is Ardahan and its rate is 0.55%, the second province is Hakkari and the rate is 0.51%, the third is Şanlıurfa, 0.51%, the fourth is Kars, 0.50%. and the rate of Kırıkkale province, which is the fifth, is 0.47%.

### 3.3. Following Consumer Loans Rates

Year	Provinces	
2012	DİYARBAKIR	
	ADANA	
	ŞANLIURFA	
	İSTANBUL	
	ANTALYA	
2013	DİYARBAKIR	
	ADANA	
	ANTALYA	
	ŞANLIURFA	
	GAZİANTEP	
2014	DİYARBAKIR	
	ADANA	
	BATMAN	
	ŞANLIURFA	
	GAZİANTEP	
2015	ADANA	
	DİYARBAKIR	
	BATMAN	
	GAZİANTEP	
	ŞANLIURFA	
2016	DİYARBAKIR	
	ADANA	
	BATMAN	
	GAZİANTEP	
	ŞANLIURFA	
2017	DİYARBAKIR	
	ADANA	
	BATMAN	
	GAZİANTEP	
	ŞANLIURFA	
2018	DİYARBAKIR	



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	BATMAN	
	ADANA	
	GAZİANTEP	
	ŞANLIURFA	
2019	DİYARBAKIR	
	BATMAN	
	ADANA	
	ŞANLIURFA	
2020	GAZİANTEP	
	DİYARBAKIR	
	BATMAN	
	ADANA	
2021	KIRIKKALE	
	ŞANLIURFA	
	DİYARBAKIR	
	ŞANLIURFA	
	BATMAN	
	AĞRI	
	ADANA	

When the year 2012 is examined, the province with the highest follow-up of consumer loans is Diyarbakir and its rate is 4.65%, the second province is Adana province and the rate is 4.61%, the third is Şanlıurfa with 4.44%, the fourth is Istanbul with 4.43%. and the rate of Antalya, which is the fifth, is 4.39%.

When 2013 is examined, the province with the highest follow-up of consumer loans is Diyarbakir and its rate is 5.53%, the second province is Adana province and the rate is 4.89%, the third is 4.34%, the fourth is Şanlıurfa province is 4.21%. and the rate of Gaziantep, which is the fifth, is 3.94%.

When 2014 is examined, the province with the highest follow-up of consumer loans is Diyarbakir and its rate is 7.07%, the second province is Adana province and the rate is 7.03%, the third place is Batman with 6.29%, the fourth is Şanlıurfa with 5.14%. and the rate of Gaziantep, which is the fifth, is 5.12%.

When the year 2015 is examined, the province where the consumer loans are followed the most is Adana province and its rate is 10,63%, the second province is Diyarbakir province and the rate is 10,15%, the third is Batman province 9.71%, the fourth Gaziantep province 8.13%. and the rate of Şanlıurfa province, which is the fifth, is 7.57%.

When the year 2016 is examined, the province with the highest follow-up of consumer loans is Diyarbakir province and its rate is 11.40%, the second province is Adana province and the rate is 11.11%, the third province is 10.38%, the fourth is Gaziantep province 9.18%. and the rate of Şanlıurfa province, which is the fifth, is 9.02%.

When the year 2017 is examined, the province where the consumer loans are followed the most is Diyarbakir province and its rate is 8.88%, the second province is Adana province and the rate is 8.47%, the third is Batman province 7.27%, the fourth one is Gaziantep province 7.27%. and the rate of Şanlıurfa province, which is the fifth, is 6.89%.

When the year 2018 is examined, the province in which the consumer loans are followed the most is Diyarbakir province and its rate is 10.40%, the second province is Batman province and the rate is 10.29%, the third province is 8.80%, the fourth is Gaziantep province 7.83%. and the rate of Şanlıurfa province, which is the fifth, is 7.65%.



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When the year 2019 is examined, the province in which the consumer loans are followed the most is Diyarbakır province and its rate is 8.45%, the second province is Batman province and the rate is 8.14%, the third place Adana province 7.24%, the fourth Şanlıurfa province 6.69%. and the rate of Gaziantep, which is the fifth, is 6.54%.

When 2020 is examined, the province with the highest follow-up of consumer loans is Diyarbakır province and its rate is 4.96%, the second province is Batman province and the rate is 4.44%, the third province is 4.29%, the fourth is Kırıkkale province with 3.76%. and the rate of Şanlıurfa province, which is the fifth, is 3.72%.

When the year 2021 is examined, the province where the consumer loans are followed the most is Diyarbakır province and its rate is 10.50%, the second province is Şanlıurfa province and the rate is 8.33%, the third is Batman province 7.59%, the fourth one is Ağrı province 7.30%. and the rate of Adana province, which is the fifth, is 6.84%.

### 3.4. Turkey Average of NPLs

TURKEY RATIO (Table 4)

Years	Following Vehicle Loan Rate	Following Housing Loan Rate	Following consumer loan rate
2012	3,15	0,81	3,41
2013	3,00	0,60	3,34
2014	3,29	0,48	4,40
2015	3,35	0,46	6,37
2016	3,37	0,54	6,74
2017	2,84	0,42	5,41
2018	3,20	0,52	5,56
2019	2,90	0,64	4,88
2020	1,27	0,33	2,89
2021	1,14	0,30	4,02

As it can be seen in Table 4, the NPL ratio in Turkey was 3.15% in 2012, this ratio decreased to 1.14% in 2021, varying from year to year, and the NPL ratio was 0.81% in 2012. It is seen that it is 0,30% in 2021. It is observed that the NPL ratio, which was 3.41% in 2012 when it increased and then decreased, reached the highest NPL ratio of 6.74% in 2016, and 4.02% in 2021.

## 4. CONCLUSION

Keeping the loan follow-up rates at a minimum is an important ratio for both the government and the lending banks. In order to keep these rates at the lowest level, many measures have been taken and continue to be taken by the state. As a result of the editing and examination of the data received from the interbank card center and the research;

- ❖ The results of the loan status show that housing loan is the least non-performing loan in general, followed by vehicle loan and consumer loan with the highest number of non-performing loans.
- ❖ When the provinces where consumer loans are followed are examined, it is seen that Adana and Diyarbakır are in the first 3 rank within a 10-year period, while Diyarbakır is mostly in the first rank.
- ❖ When the housing loan and vehicle loan are examined, it is seen that the provinces have not been stable in the 10-year period, and the provinces in the top 3 have been constantly changing.
- ❖ It maintains its place in the 10-year period, where housing loans are the loans that are followed at the minimum level.
- ❖ It is estimated that the collateral or mortgages obtained from housing loans and vehicle loans increase the loan repayment rate, and the rate is high since no collateral is received from consumer loans in general.
- ❖ It is estimated that with the legal measures to be taken, the follow-up of consumer loans will be minimized at this rate.





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**(a,b)-NIRMALA INDEX OF LUCAS-SUM GRAPH**

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**Abstract**

Let  $H_n = (V, E)$  be a Lucas-sum graph, where

$$E = \{\{i, j\}: i, j \in V, i \neq j, i + j \text{ is a Lucas number}\}.$$

(a,b)-Nirmala index is defined as follows:

$$N_{(a,b)}(G) = \sum_{uv \in E(G)} \left[ \frac{d_G(u)^a + d_G(v)^a}{2} \right]^b.$$

In this study, we obtain bounds for some (a,b)- Nirmala indices of Lucas-sum graph as following:

Theorem 1: Let  $H_n = (V, E)$  be a Lucas-sum graph with  $n$  vertices and  $m$  edges, then

$$\frac{2m}{\Delta} \leq N_{(2, \frac{-1}{2})}(H_n) = K_1(G) \leq \frac{2m}{\delta}.$$

Theorem 2: Let  $H_n = (V, E)$  be a Lucas-sum graph with  $n$  vertices and  $m$  edges, then

$$\frac{2m}{\Delta} \leq N_{(1, \frac{-1}{2})}(H_n) = \sqrt{2}S(G) \leq \frac{2m}{\delta}.$$

Theorem 3: Let  $H_n = (V, E)$  be a Lucas-sum graph with  $n$  vertices and  $m$  edges, then

$$\sqrt{2\delta} m \leq N_{(\frac{1}{2}, 1)}(H_n) = \frac{1}{2}MPI(G) \leq \sqrt{2\Delta} m.$$

Theorem 4: Let  $H_n = (V, E)$  be a Lucas-sum graph with  $n$  vertices and  $m$  edges, then

$$m \frac{2\Delta\delta}{\Delta + \delta} \leq N_{(-1, -1)}(H_n) = 2ISI(G) \leq m\Delta.$$

**Keywords:** Lucas sum-graph, (a,b)-Nirmala index, Topological indices.

**INTRODUCTION**

Let  $G$  be a simple, connected graph with vertex set  $V(G)$  and edge set  $E(G)$ . The degree  $d_G(u)$  of a vertex  $u$  is the number of vertices adjacent to  $u$ . Several topological indices have been considered in the literature. One of them is the Nirmala index (Kulli, 2021) of a graph  $G$  and defined as

$$N(G) = \sum_{uv \in E(G)} \sqrt{d_G(u) + d_G(v)} \quad (1)$$

Motivated by the definition of Nirmala index of a graph  $G$ , the (a,b)- Nirmala index was defined as (Nandargi and Kulli, 2022)



$$N_{(a,b)}(G) = \sum_{uv \in E(G)} \left[ \frac{d_G(u)^a + d_G(v)^a}{2} \right]^b \quad (2)$$

where a and b are real numbers.

The  $K_1$  index (Kulli, 2022) was defined as

$$K_1(G) = \sum_{uv \in E(G)} \left[ \frac{d_G(u)^2 + d_G(v)^2}{2} \right]^{-1} \quad (3)$$

The sum-connectivity index (Zhou and Trinajstić, 2009) was defined as

$$S(G) = \sum_{uv \in E(G)} \frac{1}{\sqrt{d_G(u) + d_G(v)}} \quad (4)$$

The misbalance prodeg index of a graph G was defined by Kulli et al. (Kulli and Gutman, 2021) as

$$MPI(G) = \sum_{uv \in E(G)} (\sqrt{d_G(u)} + \sqrt{d_G(v)}) \quad (5)$$

And the inverse sum index was defined by Vukicevic et al. (Vukičević\* and Gašperov, 2010) as

$$ISI(G) = \sum_{uv \in E(G)} \frac{d_G(u)d_G(v)}{d_G(u) + d_G(v)} \quad (6)$$

We can see that

- i.  $N_{(2, \frac{-1}{2})}(H_n) = K_1(G)$
- ii.  $N_{(1, \frac{-1}{2})}(H_n) = \sqrt{2}S(G)$
- iii.  $N_{(\frac{1}{2}, 1)}(H_n) = \frac{1}{2}MPI(G)$
- iv.  $N_{(-1, -1)}(H_n) = 2ISI(G)$

Let  $H_n = (V, E)$  be a Lucas-sum graph (Fox et al., 2014), where

$$E = \{\{i, j\}: i, j \in V, i \neq j, i + j \text{ is a Lucas number}\}$$

In this work, we obtain lower and upper bounds for some (a,b)- Nirmala indices of Lucas-sum graph.

## RESULTS

Theorem 1: Let  $H_n = (V, E)$  be a Lucas-sum graph with n vertices and m edges, then

$$\frac{2m}{\Delta} \leq N_{(2, \frac{-1}{2})}(H_n) = K_1(G) \leq \frac{2m}{\delta}.$$

Proof: By using the Eq. (3), we can see

$$K_1(G) = \sum_{uv \in E(G)} \left[ \frac{d_G(u)^2 + d_G(v)^2}{2} \right]^{-1} = \sum_{u \sim v} \frac{\sqrt{2}}{\sqrt{d_G(u)^2 + d_G(v)^2}}$$

If we take all degrees as minimum degree  $\delta$ , we get

$$K_1(G) \leq \frac{2m\sqrt{2}}{\sqrt{2}\delta^2} = \frac{2m}{\delta}.$$

If we take all degrees as maximum degree  $\Delta$ , we have



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$$K_1(G) \geq \frac{2m\sqrt{2}}{\sqrt{2\Delta^2}} = \frac{2m}{\Delta}.$$

Hence we obtain

$$\frac{2m}{\Delta} \leq N_{(2, \frac{-1}{2})}(H_n) = K_1(G) \leq \frac{2m}{\delta}.$$

Theorem 2: Let  $H_n = (V, E)$  be a Lucas-sum graph with  $n$  vertices and  $m$  edges, then

$$\frac{2m}{\Delta} \leq N_{(1, \frac{-1}{2})}(H_n) \leq \frac{2m}{\delta}.$$

Proof: By using the Eq. (4), the Sum-connectivity index  $S(G)$  is defined like

$$S(G) = \sum_{uv \in E(G)} \frac{1}{\sqrt{d_G(u) + d_G(v)}}$$

Since the expression will grow if all degrees are taken as the minimum degree  $\delta$ , we have

$$S(G) \leq \frac{2m}{\sqrt{2\delta}}.$$

If we take all degrees maximum degree  $\Delta$ , we have

$$S(G) \geq \frac{2m}{\sqrt{2\Delta}}.$$

Since  $N_{(1, \frac{-1}{2})}(H_n) = \sqrt{2}S(G)$ , we obtain

$$\frac{2m}{\Delta} \leq N_{(1, \frac{-1}{2})}(H_n) \leq \frac{2m}{\delta}.$$

Theorem 3: Let  $H_n = (V, E)$  be a Lucas-sum graph with  $n$  vertices and  $m$  edges, then

$$\sqrt{2\delta} m \leq N_{(\frac{1}{2}, 1)}(H_n) = \frac{1}{2}MPI(G) \leq \sqrt{2\Delta} m.$$

Proof: If we take all degrees as the minimum degree  $\delta$ , we get a lower bound for Misbalance prodeg index as

$$2\sqrt{2\delta} m \leq MPI(G) = \sum_{uv \in E(G)} (\sqrt{d_G(u)} + \sqrt{d_G(v)}).$$

If we take all degrees as the maximum degree  $\Delta$ , we have an upper bound for Misbalance prodeg index as

$$MPI(G) = \sum_{uv \in E(G)} (\sqrt{d_G(u)} + \sqrt{d_G(v)}) \leq 2\sqrt{2\Delta} m.$$

Since  $N_{(\frac{1}{2}, 1)}(H_n) = \frac{1}{2}MPI(G)$ , we obtain

$$\sqrt{2\delta} m \leq N_{(\frac{1}{2}, 1)}(H_n) \leq \sqrt{2\Delta} m.$$

Theorem 4: Let  $H_n = (V, E)$  be a Lucas-sum graph with  $n$  vertices and  $m$  edges, then

$$m \frac{\Delta\delta}{\Delta + \delta} \leq N_{(-1, -1)}(H_n) = 2ISI(G) \leq \frac{m\Delta}{2}.$$

Proof: By using the Eq. (6), the Inverse sum index is defined like



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$$ISI(G) = \sum_{uv \in E(G)} \frac{d_G(u)d_G(v)}{d_G(u) + d_G(v)}$$

Since we take all degrees equal and maximum, we obtain an upper bound for the Inverse sum index as

$$ISI(G) \leq \frac{m\Delta^2}{2\Delta} = \frac{m\Delta}{2}.$$

If one of the degrees of adjacent vertices is taken as minimum and the other maximum, we get

$$m \frac{\Delta\delta}{\Delta + \delta} \leq ISI(G).$$

Since  $N_{(-1,-1)}(H_n) = 2ISI(G)$ , we obtain

$$m \frac{2\Delta\delta}{\Delta + \delta} \leq N_{(-1,-1)}(H_n) = 2ISI(G) \leq m\Delta.$$

### DISCUSSION

Topological indices include many studies in the field of graph theory. It is very important in terms of categorizing the graphs and is defined depending on parameters such as degree and distance.

Lucas-sum graphs are an interesting graph type by definition. Obtaining lower and upper bounds for (a,b)-Nirmala indices will contribute to the literature.

### CONCLUSION

In this study,  $K_1$ , Sum-connectivity, misbalance prodeg and inverse sum indices of Lucas-sum graph were examined and lower and upper bounds were obtained depending on the number of edges, maximum and minimum degrees.

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UPLAND AND PIMA COTTON HAVE DIFFERENT RELATIONSHIPS WITHIN FIBER  
TECHNOLOGICAL PROPERTIES

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**Abstract**

Cotton (*Gossypium* L.) is the most widely cultivated textile crop. Among the cotton species, Upland or American Upland cotton belongs to *Gossypium hirsutum* and Pima or American Pima or Extra-Long Staple belongs to *G. barbadense*. Upland and Pima cotton have significantly different fiber technological properties (FTPs). Pima cottons are considered textile cotton while Upland cottons are referred as farmer choice cotton due to its wide adaptability and high yield potential. This study is a part of ongoing research aiming epiallelic transfer between Upland and Pima cotton via vegetative grafting. Upland and Pima cotton have different FTPs, which dominantly dictate the cotton-marketing price. Knowledge about correlation between FTP in Pima and Upland prior to grafting experiment is essential to detect the effect of grafting. In the present study, eleven 11 FTPs consisting of Spinning Consistency Index (SCI), Fiber Moisture (FMST), Micronaire (MIC), Fiber Maturation (FMAT), Fiber Length as Upper Half Mean Length (UHML), Fiber Length Uniformity (FLU), Short Fiber Index (SFI), Fiber Strength (FSTR), Fiber Elongation (FELG), Reflectance (Rd) and Yellowness (+b) were studied. *G. hirsutum* accession TM-1 and *G. barbadense* accession Pima 3-79 were grown in a greenhouse during 2018, 2019 and 2020. Results showed that among seventy-four pairwise comparisons, forty-three showed similar trend being positive or negative in both species, nine were specific to Pima 3-79, 11 were specific to TM-1 while twelve showed inversely related. Furthermore, in some FTPs, the degree of relationships varied significantly between the cotton species. We concluded that relationship between some FTPs are more dependent on species and environmental factors.

**Keywords:** elongation, fiber, length, micronaire, short fiber index, strength

**INTRODUCTION**

Cotton (*Gossypium* L.) is cultivated in more than 80 countries and contributes to the world economy as a leading natural fiber crop in the textile industry. Furthermore, its seed (cottonseed) is the third source after soybean and colza oils in terms of edible oilseed tonnage worldwide (Li et al., 2019). Among more than 50 species, *G. herbaceum* L., *G. arboreum* L., *G. hirsutum* L. and *G. barbadense* L are cultivated and *G. hirsutum* L. is the most widely cultivated species worldwide since it is high yield and wide adaptability. Major cotton producing countries in the world are India, China, United States of America, Pakistan, Uzbekistan and Brazil. Turkey and Greece are the main cotton producers in Europe (Karaca et al., 2020). Worldwide commercial value of cotton is estimated more than 500 billion US dollars (Chen et al., 2020).

*G. hirsutum* L. (generally known as Upland cotton) produces higher yields in different growing environments. However, Upland cotton produces average quality fiber in comparison to *G. barbadense* L. (generally known as Pima cotton), which produces excellent long, strong, and fine fibers. However, Pima cotton has lower yield and limited adaptation compared to Upland cotton (Karaca et al., 2020).

Competition with synthetic fibers requires improved length, strength, and fineness, reduced short fiber content, higher uniformity, and maturity (Farias et al., 2016). Therefore, moving desirable traits from Pima cotton to upland cotton has continued to attract attention of cotton breeders and efforts have led to



development of Upland cottons with higher fiber quality (Percy, 2009). However, in many cases genetic breakdown was encountered due to plant loss from physiological disorders and male sterility (Lubbers and Chee, 2009). Analyses revealed that most of the time multi-locus epistatic interactions were responsible for limited intergenomic recombination and/or introgression so far achieved with interspecies breeding (Jiang et al., 2000).

Fiber technological properties (FTPs) and yield are complex traits in cotton. Quantitative genetic evidence in cotton so far have demonstrated additive and non-additive gene effects govern fiber yield. Fiber yield is known as an outcome of the number of yield components including boll number, boll weight, seed weight, and lint percent as well as number of seeds per boll and amount of lint per seed. FTPs reflect different physical aspects of individual cotton fibers and in particular the mass of the fiber, which is to some extent a yield component. This is particularly true for length, uniformity, maturity, and fineness (Bange et al., 2009; Yang et al., 2019).

The extra-long staple cotton has superior fiber quality properties such as length, strength, and fineness, while Upland cotton is characterized by its high yield. Therefore, these two species can be used to dissect the relationships among FTPs, which will be very important for improved breeding to further meet global demands for cotton. This study is a part of ongoing research aiming epiallelic transfer between Upland and Pima cotton via vegetative grafting. Upland and Pima cotton have different FTPs, which dominantly dictate the cotton-marketing price. Knowledge about correlation between FTPs in Pima and Upland prior to grafting experiment is essential to detect the effect of grafting. Therefore, this study was undertaken to determine relationship among 11 FTPs in comparison between Pima (Pima 3-79) and Upland cotton (TM-1) as representative of the *G. barbadense* and *G. hirsutum* species, respectively.

## **MATERIALS AND METHODS**

### **Materials**

In this study, Texas Marker-1 (TM-1), belongs to *Gossypium hirsutum* L., and Pima 3-79, belongs to *G. barbadense* L were used. These accessions were developed in College Station, TX and are available through GRIN-global or contacting the USA or possibly other cotton curators. Plants were grown in in row plots with 1 m row spacing and 10 m length in a greenhouse. The trials were laid out according to completely randomized designs with three replicates during 2018, 2019 and 2020.

### **Methods**

Twenty-eight bolls from each plot were randomly picked at similar fruit positions in 2020 and seed numbers in each boll were counted and weighed to determine the boll weight (BW). Seed cotton samples were ginned by roller gin to evaluate lint percentage (LP). Fiber samples were first conditioned under controlled conditions ( $20 \pm 2$  °C and  $65 \pm 2\%$  relative humidity) for at least 48 hours before measuring the fiber properties. Two different High-Volume Instruments were used for this study. One was HVI 1000 at GAP International Agricultural Research and Training Center (Diyarbakir/Turkey) and the other one was HVI 1000 at Cotton Research Institute (Nazilli-Aydin/Turkey). Fiber samples from growing seasons 2018 and 2019 were mixed well while samples from 2020 were not mixed.

Fiber technological properties (FTPs) studied in this research consisted of Spinning Consistency Index (SCI), Fiber Moisture (FMST, %), Micronaire (MIC), Fiber Maturation (FMAT, %), Fiber Length as Upper Half Mean Length (UHML, mm), Fiber Length Uniformity (FLU, %), Short Fiber Index (SFI, %), Fiber Strength (FSTR, cN tex<sup>-1</sup>), Fiber Elongation (FELG, %), Reflectance (Rd, %), Yellowness (+b) of two species represented by accessions *G. hirsutum* accession TM-1 and *G. barbadense* accession Pima 3-79.

### **Statistical Analysis**

Differences among boll weight (BW), seed number per boll (SB) were assessed using analysis of variance (ANOVA) and means were analyzed using t test. Data of FTPs obtained from different HVI and different years were treated as replications. Pearson's correlation analyses were estimated by pairwise analyses utilizing JMP Statistical Discovery Software Version 8.0 (SAS). Statistically significant differences were assessed at the  $p < 0.01$  (\*\*) and  $p < 0.05$  (\*) significant level.





## RESULTS

Based on 28 bolls with three replications, results showed that TM-1 ( $27.38 \pm 0.58$ ) had higher number of seeds per boll in comparison to Pima 3-79 ( $15.72 \pm 0.73$ ). Boll weight of TM-1 ( $5.0 \pm 0.08$ ) was higher than Pima 3-79 ( $3.15 \pm 0.15$ ). Observed differences in the number of seeds per boll and boll weight were according to literature (Saha et al., 2004).

Correlations between fiber technological properties (FTP) were estimated. In this study Pearson's correlation coefficients values between  $\pm (0.0)$  and  $\pm (0.24)$  were considered no correlation, between  $\pm (0.25)$  and  $\pm (0.49)$  were considered weak negative correlation, between  $\pm (0.5)$  and  $\pm (0.74)$  were considered medium correlation while correlation coefficients values between  $\pm (0.75)$  and  $\pm (1.0)$  were considered strong correlation.

As depicted in Table 1, correlation between spinning consistency index (SCI) and other 10 fiber properties were significant in TM-1. The highest and strong positive correlation was observed between SCI and fiber length uniformity ( $0.926^{**}$ ) while SCI and fiber moisture (FMST) had the highest negative medium correlation ( $-0.700^{**}$ ). Results revealed that higher SCI values are correlated with higher fiber length, elongation, reflectance, and uniformity. On the other hand, higher yellowness (+b), short fiber index (SFI), FMST and fiber maturation (FMAT) reduces SCI in TM-1. When these relationships were studied in Pima 3-79, several differences existed in comparison to TM-1 (Table 2). For instance, there was no significant correlation between SCI and reflectance (Rd) and between SCI and (+) in Pima 3-79. Short fiber index (SFI) was positively correlated with SCI ( $0.613^{**}$ ) in Pima 3-79 while it was a negative ( $-0.614^{**}$ ) in TM-1. Inconsistency in relationship between SCI and FMAT was also observed between the two species. Although the degree of correlation was weak, it was negative in TM-1 ( $-0.317^*$ ) but it become positive in Pima 3-79 ( $0.49^*$ ).

Comparison studies between fiber moisture (FMST) with other fiber technical properties between TM-1 and Pima 3-72 revealed that there several properties correlated similarly in both species, such as micronaire (MIC), fiber length in term of UHML, fiber length uniformity (FLU), fiber strength (FSTR), fiber elongation (FELG) and reflectance (Rd) (Table 1 and 2). On the other hand, relationships between FMST and several other traits were different in both species including FMAT, SFI, FSTR and +b (Table 1 and 2).

Correlation between MIC and UHML, +b, and FELG were similar in both species represented by Pima 379 and TM-1. Although relationships between MIC and FMAT, between MIC and UHML were very strong in Pima 3-79 ( $0.903^{**}$  and  $0.924^{**}$ , respectively), these relationships were weak to moderate ( $0.289^*$  and  $0.587^{**}$ ) in TM-1. On the other hand, there was inverse correlation between short fiber index (SFI) and micronaire (MIC) in Pima 3-79 ( $0.511^{**}$ ) and TM-1 ( $-0.553^{**}$ ). Results also revealed that coefficients of MIC and FSTR ( $-0.495^*$ ) and between MIC and Rd ( $0.559$ ) were significant in TM-1 while they were not significant in Pima 3-79 (Table 1 and 2).

Results revealed that correlation between fiber maturation (FMAT) and other fiber technological properties (FTP) showed significant differences in both species. For instance, correlation between FMAT and UHML was positive ( $0.472^*$ ) in Pima 3-79 while it became very weak negative in TM-1 ( $-0.219^*$ ). FMAT and UHML ( $0.800^{**}$ ) and FMAT and FELN ( $0.699^{**}$ ) and between FMAT and +b ( $-0.792^{**}$ ) were significant in Pima 3-79, but they were not significant in TM-1. On the other hand, relationships between FMAT and SFI ( $0.197^*$ ), between FMAT and FSTR ( $-0.421^*$ ) and FMAT and RD ( $-0.188^*$ ) were statistically significant in TM-1 while they were not statistically significant in Pima 3-79 (Table 1 and 2).

It was noted that relationships between UHML and FMAT, UHML and FSTR, and UHML and FELG showed the same trends in both species. On the other hand, fiber length and SFI ( $-0.924^{**}$ ), UHML and Rd ( $0.702^{**}$ ) and UHML and +b ( $-0.792^{**}$ ) were significant in TM-1 but they were not significant in Pima 3-79 (Table 1 and 2). Relationships between FLU and FSTR, between FLU and FELG, between FLU and +b showed similar trends. On the other hand, relationships between FLU and SFI and between UHML and Rd were different and inversely related in both species (Table 1 and 2). Also, FSTR and FELG, FSTR and Rd, and FSTR and +b showed similar trends in both species (Table 1 and 2). Relationships between SFI and FSTR was significant in Pima 3-79 ( $0.492^*$ ) and between SFI and +b in TM-1 ( $0.660^{**}$ ).



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**Table 1.** Pearson's correlation coefficient values for TM-1

No	FTP	1	2	3	4	5	6	7	8	9	10
	<b>Spinning Consistency</b>										
1	<b>Index (SCI)</b>	--									
2	<b>Fiber Moisture (FMST)</b>	-0.700 (**)	--								
3	<b>Micronaire (MIC)</b>	0.397 (*)	-0.641 (**)	--							
4	<b>Fiber Maturation (FMAT)</b>	-0.317 (*)	0.090	0.289 (*)	--						
5	<b>Upper Half Mean Length, (UHML)</b>	0.725 (**)	-0.599 (**)	0.695 (**)	-0.219 (*)	--					
6	<b>Fiber Length Uniformity (FLU)</b>	0.926 (**)	-0.803 (**)	0.587 (**)	-0.106 (*)	0.668 (**)	--				
7	<b>Short Fiber Index (SFI)</b>	-0.614 (**)	0.426 (*)	-0.553 (**)	0.197 (*)	-0.924 (**)	-0.536	--			
8	<b>Fiber Strength (FSTR)</b>	0.420 (*)	0.085	-0.497 (*)	-0.421 (*)	-0.050	0.121	0.061	--		
9	<b>Fiber Elongation (FELG)</b>	0.748 (**)	-0.689 (**)	0.781 (**)	-0.155 (*)	0.880 (**)	0.782 (**)	-0.716 (**)	-0.094	--	
10	<b>Reflectance (Rd)</b>	0.643 (**)	-0.480 (*)	0.559 (**)	-0.188 (*)	0.702 (**)	0.631 (**)	-0.667 (**)	-0.011	0.713 (**)	--
11	<b>Yellowness (+b)</b>	-0.599 (**)	0.511 (**)	-0.606 (**)	0.029	-0.792 (**)	-0.611 (**)	0.660 (**)	0.118	-0.714 (**)	-0.373 (*)

\* and \*\* denote significant differences at 0.05 and 0.01 levels respectively



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**Table 2.** Pearson's correlation coefficient values for Pima 3-79

No	FTP	1	2	3	4	5	6	7	8	9	10
	<b>Spinning Consistency</b>										
1	<b>Index (SCI)</b>	--									
2	<b>Fiber Moisture (FMST)</b>	-0.705 (**)	--								
3	<b>Micronaire (MIC)</b>	0.654 (**)	-0.630 (**)	--							
4	<b>Fiber Maturation (FMAT)</b>	0.490 (*)	-0.460 (*)	0.903 (**)	--						
5	<b>Upper Half Mean Length, (UHML)</b>	0.676 (**)	-0.437 (*)	0.638 (**)	0.472 (*)	--					
6	<b>Fiber Length Uniformity (FLU)</b>	0.838 (**)	-0.678 (**)	0.924 (**)	0.800 (**)	0.642 (**)	--				
7	<b>Short Fiber Index (SFI)</b>	0.613 (**)	-0.866 (**)	0.511 (**)	0.387 (*)	0.382 (*)	0.536 (**)	--			
8	<b>Fiber Strength (FSTR)</b>	0.750 (**)	-0.510 (**)	0.206	0.098	0.305	0.347	0.492 (*)	--		
9	<b>Fiber Elongation (FELG)</b>	0.644 (**)	-0.726 (**)	0.913 (**)	0.699 (**)	0.621 (**)	0.847 (**)	0.640 (**)	0.240	--	
10	<b>Reflectance (Rd)</b>	0.354	-0.438 (*)	0.141	-0.011	0.077	0.208	0.527 (**)	0.328	0.339	--
11	<b>Yellowness (+b)</b>	-0.371	0.402	-0.784 (**)	-0.792 (**)	-0.173	-0.712 (**)	-0.369	0.016	-0.701 (**)	-0.320

\* and \*\* denote significant differences at 0.05 and 0.01 levels respectively



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Relationships between SFI and FELG, and SFI and Rd were statistically significant but negative in TM-1; however, they showed statistically significant positive correlations in Pima 3-79 (Table 1 and 2). Results showed that relationships between FELG and Rd was statistically significant in TM-1 (0.713\*\*) but it was not significant in Pima 3-79. FELG and +b showed the same trend of negative correlation in both species. There was statistically significant correlation between Rd and +b in TM-1 but it was not statistically significant in Pima 3-79 (Table 1 and 2).

Results showed that among seventy-four pairwise comparisons, forty-three showed similar trends being positive or negative in both species, nine were specific to Pima 3-79 while 11 were specific for TM-1. On the other hand, twelve pairwise comparisons indicated inverse relationships. Furthermore, in some fiber technical properties, the degree of relationships significantly varied between the cotton species. Based on the observations it was concluded that breeding and association mapping studies between Upland and Pima cotton should focus on fiber technical properties showing similar degree, pattern, and trends in both species.

### DISCUSSION

Comparison studied clearly showed that Pima 3-79 had lower lint percent, smaller bolls, lower seed number per boll, lint weight/seed and larger plants. However, Pima 3-79 had better fiber technological properties (FTP) such as strength (FSTR), Upper Half Mean Length, (UHML) and fineness (MIC). These observations were in agreements with previous studies (Liu et al., 2011; Ghosh et al., 2015; Farias et al., 2016). In the present study, correlation analysis between boll weight and seed numbers per boll with other fiber technological properties were not shown. But our unpublished results clearly showed that in both species boll weight (BW) and seed numbers per boll (SB) were positively correlated (Ghosh et al., 2015; Shahzad et al., 2019; Habib-A-Rasul et al., 2020). We did not compare correlation between BW and SB to other FTPs since WB and SB are readily influenced by the environment factors whereas most FTPs are mainly determined by genetic effects (Shahzad et al., 2019; Habib-A-Rasul et al., 2020).

Strong positive correlation coefficients between some FTPs indicated that there would be an increase in one particular FTP while there is an increase in the other FTP compared. While strong negative correlation coefficients between FTPs indicated that with a decrease in one FTP, there is an increase in other FTP. The negative association (relationship) between two FTPs indicate that there exists ongoing breeding challenge to achieve that particular fiber trait (Ghosh et al., 2015; Shahzad et al., 2019; Habib-A-Rasul et al., 2020).

Fiber moisture content (FMST) dramatically decreased short fiber index (SFI) in Pima 3-79 while it was positively associated with SFI in TM-1. This indicates that fibers of hybrids obtained from Upland x Pima should be carefully dried, avoiding too much or less drying. Micronaire (MIC) is one of the two most important FTPs used in the evaluation of value of fiber for international cotton classers and spinners. Because it has been regarded as an indication of both fineness (MIC) and fiber maturity (FMAT), which is an indication degree of cell-wall development. We noted that there was inverse correlation between short fiber index (SFI) and MIC in Pima 3-79 and TM-1. This was probably due the fact that Pima 3-79 had no or very low amount of SFI. Although low MIC is used as a predictor of problems in processing, but it is important to note that a low MIC may also indicate fine fibers with adequate maturity. High MIC fibers are normally coarse, which is undesirable from the point of view of spinning and yarn evenness (Montalvo, 2005). Observed negative correlation between fiber strength (FSTR) and MIC in TM-1 but not in Pima 3-79 clearly indicated that selection criteria based on FSTR and MIC would not mean the same in both species, Upland and Pima.

In both species, similar trends were obtained between spinning consistency index (SCI) and fiber moisture content (FMST), upper half mean length (UHML), fiber length uniformity (FLU), fiber strength (FSTR) and fiber elongation (FELG) indicating that selecting better SCI could be enhanced by selecting these fiber technological properties (Chee and Campbell, 2009; Foulk et al., 2009). Similar trend in both species were observed between fiber moisture (FMST) and fiber maturation (FMAT), upper half mean length (UHML), fiber length uniformity (FLU), fiber elongation (FELG) and yellowness (+b). There were positive relationship between micronaire (MIC) and FMAT, UHML, FLU, FELG and yellowness in both species. Similar trends were also observed between FMAT and UHML and between fiber length uniformity (FLU) FSTR and yellowness. Fiber strength (FSTR) was related



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with FELG, reflectance and yellowness in both species. Yellowness was related with MIC, FLU, FSTR and FELG. On the other hand, fiber elongation (FELG) was only associated with yellowness while short fiber index behave differentially in both species. This clearly indicated that both species should not be compared based on SCI values since it is a species property. The positive correlation indicates that with the increase in UHML there is an increase in FSTR in both species (Chee and Campbell, 2009; Foulk et al., 2009).

Results showed that following fiber technological properties had different correlation depending on the species. Differences were obtained between SCI and FMAT, SCI and SFI, SCI and Rd, SCI and +b, FMST and FMAT, FMST and SFI, FMST and FSTR, FMST and +b, MIC and SFI, MIC and FSTR, MIC and Rd, FMAT and FLU, FMAT and SFI, FMAT and FSTR, FMAT and FELG, FMAT and Rd, FMAT and +b, UHML and SFI, UHML and Rd, UHML and +b, FLU and SFI, FLU and Rd, SFI and FSTR, SFI and FELG, SFI and Rd, SFI and +b, FELG and Rd, and Rd and +b. Special attentions on these FTPs should be paid in Upland x Pima crosses for selection criteria since they have different meaning for each species.

### CONCLUSIONS

Based on the results of this study, we concluded that comparative studies between Upland and Pima cotton should not use SFI as selection criterion instead fiber length (UHML), fiber length uniformity (FLU), fiber strength (FSTR) and fiber elongation (FELG) should be used since these fiber technological properties tend to correlate similar in both species. The MIC has positive correlation with +b and negative correlation with Rd. The Rd has negative correlation with +b. The SFI has positive correlation with MIC and +b, and negative correlation with Rd. The UHML has positive correlation with FLU and Rd, and negative correlation with SFI, MIC and +b. The FLU has negative correlation with SFI and +b. The FSTR has positive correlation with FELG, UHML, FELG, FLU and Rd, and negative correlation with SFI, MIC and +b.

The fiber elongation has positive correlation with upper half mean length and reflectance, and negative correlation with short fiber index, micronaire and yellowness, and almost no correlation with length uniformity index. The upper half mean length has positive correlation with length uniformity index and reflectance, and negative correlation with short fiber index, micronaire and yellowness. The length uniformity index has negative correlation with short fiber index and yellowness, and almost no correlation with micronaire and reflectance. The short fiber index has positive correlation with micronaire and yellowness, and negative correlation with reflectance. The fiber micronaire has positive correlation with yellowness and negative correlation with reflectance. The reflectance has negative correlation with yellowness.

Based on the finding of this study it was concluded that several fiber technical properties show different level of relationships in different species. Interspecies breeding and grafting experiments should use those fiber technological properties with meaningful in both species.

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### DIFFERENTIAL EFFECTS OF INTRASPECIES AND INTERSPECIES GRAFTING ON SEED FATTY ACIDS

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#### Abstract

Nutritional value of cottonseed oil is very similar to other oilseed plants. Depending on various factors, cottonseed contains about 17 to 27 percent oil. To date intraspecific and interspecific grafting experiments have shown to change the biochemical and chemical composition of scion and rootstock in grafts. Effects of grafting in relationships among fatty acids have not been studied. The hypothesis of this study was that the effects of grafting in cottonseed oil content was directly correlated with species of scion and rootstock in grafts. Pearson's correlation analyses of 13 cottonseed fatty acids were statistically estimated by pairwise analyses implemented in the JMP software. Plant materials of this study consisted of *Gossypium hirsutum* accession TM-1, *G. barbadense* accession Pima 3-79, intraspecific grafts (TM-1—TM-1) and (Pima 3-79—Pima 3-79) interspecific grafts (Pima 3-79—TM-1 and TM-1—Pima 3-79). Cottonseed fatty acids were extracted with using hexane by FOSS Soxtec 2055 apparatus, and methyl esters were analyzed by a Shimadzu 2025 gas chromatography (GS). Fatty acids studied in this study were myristic acid (14:0), palmitic acid (16:0), stearic acid (18:0), palmitoleic acid (16:1), heptadecanoic acid (17:1), oleic acid (18:1), linoleic acid (18:2), gamma-linolenic acid (18:3), alpha-linolenic acid (18:3), cis-8,11,14-eicosatrienoic acid (20:3), cis-4,7,10,13,16,19-docosahexaenoic acid (22:6), lignoceric acid (24:0) and nervonic acid (24:1). Results revealed that intraspecific and interspecific grafting differentially influences the relationships among fatty acids in cottonseed. Quantity of fatty acids in cottonseed are under investigation, however, we could be able to conclude that suitable graft combinations could alter certain correlations among cottonseed oils.

**Keywords:** cotton oil, fatty acid esterification, heterograft, homograft, oil extraction, saturated fatty acids

#### INTRODUCTION

Cultivated cotton species (*Gossypium* L.) are the leading natural fiber crops for the manufacture of textiles and one of the important sources of oil and protein for humans and livestock. It was estimated that global cotton production provides income for approximately 100 million families across about 150 countries, with an annual economic impact of ~US\$500 billion worldwide (Chen et al., 2020). World production of cotton fiber is about 26 million tons per annum (Darawsheh et al., 2019). India, People's Republic of China, United States of America (USA), Pakistan, Uzbekistan and Brazil are the largest producers of cotton (Sharif et al., 2019). Cottonseed is the third after soybean oil and colza oil in terms of edible oilseed tonnage worldwide (Ashokkumar and Ravikesavan, 2013; Sharif et al., 2019). India, People's Republic of China, USA, Pakistan and Uzbekistan are the five major cottonseed oil producing countries and these countries meet 70% of the world's plants oil production (Sharif et al., 2019).

Cottonseed protein and oil contents determine its nutritional values and physicochemical properties (Stewart et al., 2010). [Although the amount of](#) cottonseed oil and protein vary with cotton species, varieties, and measuring methods, oil content account for 17–27% and protein content account for 12–32% of seed weight (Yuan et al., 2018). Oil and protein in cottonseeds are complex quantitative traits that are controlled by a series of genes with small effects and influenced by the environmental factors (Liu et al., 2015). The fatty acids of cottonseed oil contain 22% saturated fatty acids (SFA), 74%



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unsaturated fatty acids (UFA) and 4% glycerol. SFA consists of 15% monounsaturated fatty acids and 59% polyunsaturated fatty acids (Stewart et al., 2010). Increasing the amount of monounsaturated fatty acids in cottonseed increases its nutritional value. Improving the quantity and quality of cotton oil is an important cotton-breeding target to increase the potential value of cotton production. Various strategies could be used for improving cotton seed oil. Traditional cotton breeding methods are time-consuming and certain traits have difficulties to be improved due to the genetic and physiological complexity. Modern genetic engineering and genome editing methods are very expensive and need further improvements (Karaca and Ince, 2018). Plant grafting is an efficient and rapid method. It is a special type of plant asexual or vegetative propagation technique used to join parts from two or more plants so that they appear to grow as a single plant. Grafting is made by attaching tissues containing above ground tissue commonly called as “scion” onto the another tissues carrying root piece called as “stock or rootstock” (Karaca et al., 2020). Although the first grafting used was in commercial watermelon to prevent fusarium wilt in Japan, its application in woody perennial fruit crops was in the 1920s (Yuan et al., 2018). Today plant grafting is used to obtain advantages of two different genotypes combined in a graft. Advantages include resistance/tolerance to biotic and abiotic stressors, increase in quantity and quality of yield. Advantages of grafting vary depending on many factors, for instance, grafts perform differently under induced thermal stress, under salinity stress, under drought, under high or low temperature stress (Yuan et al., 2018).

Today, cotton production is being reduced due to climate change, which enhanced by industrialization. Cotton yield including cottonseed oil contents are complex characters and heritability in the targeted traits are required for selection of parental cultivars for breeding. Grafting could be used as a breeding method for desiring some heritable characteristics. To date, intraspecies and interspecies grafting experiments have shown to change the biochemical and chemical composition of scion and rootstock in grafts. Effects of grafting in relationships among fatty acids have not been studied. The hypothesis of this study was that the effects of grafting in cottonseed oil content was directly correlated with species of scion and rootstock in grafts. In order to test this hypothesis intraspecies and interspecies grafting experiments were made and change in correlation among fatty acids of cottonseed oil were investigated.

### MATERIALS AND METHODS

#### Plant Materials and Grafting Experiments

Seeds of cotton accessions, “Texas Marker-1” (TM-1), belongs to *Gossypium hirsutum* L., “Pima 3-79”, belongs to *G. barbadense* L., were sown in small pots (0.35 L) in a greenhouse, located in Antalya, Mediterranean coast of Turkey, in 2018-2019. Two weeks after sowing, seedlings with two-leaf stage were transferred into a laboratory in where they were acclimated for three complete days (Karaca et al., 2020). Intraspecies grafts (TM-1—TM-1, Pima 3-79—Pima 3-79) and interspecies grafts (Pima 3-79—TM-1, TM-1—Pima 3-79) were grafted using a grafting method described in Karaca et al. (2020). A total of 45 grafted and control seedlings from each experiment were transplanted in the greenhouse mentioned above. Each plot received 15 seedlings with 3 replications. Twenty-eight normally opened mature bolls were collected from each plot. Bolls were separated into fiber samples and fuzzy seed samples. In each replicate, equal number of seeds of the same grafts or their controls were bulked. Then, seed coats were manually removed. Kernels were ground into powder for fatty acid assays with three replicates.

#### Fatty Acid Extraction

Cottonseed fatty acids were extracted with hexane by FOSS Soxtec 2055 apparatus and methyl esters were analyzed by Shimadzu 2025 gas chromatography (GS). The total fatty acids (mg/g) in kernels and 13 fatty acids, including myristic acid (14:0), palmitic acid (16:0), stearic acid (18:0), Palmitoleic (16:1), heptadecanoic acid (17:1), oleic acid (18:1), linoleic acid (18:2), gamma-linolenic acid (18:3), alpha-linolenic acid (18:3), cis-8,11,14-eicosatrienoic acid (20:3), cis-4,7,10,13,16,19-docosahexaenoic acid (22:6), lignoceric acid (24:0) and nervonic acid (24:1) were determined by the chromatographic peak area normalization method, and the mass percentage (m/%) of each component as a proportion of the total fatty acid was calculated.

#### Statistical Analysis





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Differences among fatty acids were assessed using analysis of variance (ANOVA) and means were analyzed using t test. Pearson's correlation analyses were estimated by pairwise analyses using JMP Statistical Discovery Software Version 8.0 (SAS). Statistically significant differences due to grafting were assessed at the  $p < 0.01$  (\*\*) and  $p < 0.05$  (\*) significant level.

### RESULTS

Seedling grafting experiments were performed as per previously reported in Karaca et al. (2020). Comparison studies between intraspecies and interspecies grafts along with their controls indicated that control (not grafted) seedlings produced third and fourth leaves about one week earlier than interspecies and intraspecies grafts. Studies of present research revealed that cottonseeds collected from intraspecies and interspecies grafts had statistically significant 100-seed index values indicating grafting effects on cottonseed weight. Seed weights of grafts were higher than their control. Further studies clearly showed that cottonseed oil yields were also influenced due to the grafting experiments. Pearson's correlation indices of cottonseed fatty acids in *G. hirsutum* accession TM-1 (control), interspecies graft (Pima 3-79—TM-1), intraspecies graft (TM-1—TM-1), *G. barbadense* accession Pima 3-79 (control), interspecies graft (TM-1—Pima 3-79) and intraspecies graft (Pima 3-79—Pima 3-79) were depicted in Table 1 to 6, respectively. The correlations between the different fatty acids in the same environments and between the same traits in different grafts along with controls were analyzed with JMP software. P values less than 0.05 were showed using a single asterisk (\*) and P values less than 0.01 were shown double asterisks (\*\*) in the Table 1-6. We also considered the values of correlation coefficient and when the values were below zero, it was called negative and when the values were above zero, they were considered positive. Values between 0 to 0.3 or from -0.3 to 0 were considered very weak positive or negative correlation. When the correlation coefficient values were from 0.3 to 0.5 or from -0.5 to -0.3, they were considered medium positive or negative correlations. When the correlation coefficient was from 0.5 to 0.8 or from -0.8 to -0.5, they were considered high positive or negative correlation. When the correlation values were between 0.8-1 or -1 to -0.8, they were considered very strong correlations (Table 1-6).

#### Correlation between myristic acid and other acids in cottonseeds

Results showed that there were no significant correlations between myristic acid and other fatty acids in TM-1 (control) and Pima 3-79 (control). In intraspecies graft Pima 3-79—Pima 3-79, we noted very strong but negative correlation (-0.959\*\*) between myristic acid and nervonic acid. Intraspecies graft TM-1—TM-1 showed strong positive correlation (0.855\*) between myristic acid and palmitoleic acid. Significant strong correlations were observed between myristic acid and palmitoleic acid (0.948\*\*) and between myristic acid and heptadecanoic acid (0.828\*\*). Correlations between myristic acid and palmitic acid and between myristic acid and heptadecanoic acid were positive but not very strong (0.540\*\* and 0.266\*, respectively) while there were low but significant negative correlations between myristic acid and palmitoleic acid (-0.284\*\*) and between myristic acid and stearic acid (-0.454\*) in intraspecies graft TM-1—Pima 3-79 (Table 1-6).

#### Correlation between palmitic acid and other fatty acids in cottonseeds

There were no significant correlations between palmitic acid and other fatty acids in intraspecies graft TM-1—TM-1. There was significant but low correlation (0.211\*) between palmitic acid and stearic acid in TM-1 (control). However, there was very strong but negative correlation (-0.975\*\*) between palmitic acid and cis-8,11,14-eicosatrienoic in TM1 (control). Palmitic acid and oleic acid showed strong positive correlation (0.869\*\*) in interspecies graft Pima 3-79—TM-1. Moderate to strong significant correlations were observed between palmitic acid and palmitoleic acid (0.760\*), between palmitic acid and gamma-linolenic acid (0.950\*\*) and between palmitic acid and alfa-linolenic acid (0.962\*\*) in Pima 3-79 (control). Results revealed that in interspecies graft TM-1—Pima 3-79, palmitic acid and palmitoleic, heptadecanoic and stearic acid showed weak but statistically significant correlations (-0.059\*\*, 0.360\*, and -0.434\*, respectively) (Table 1-6).

#### Correlation between palmitoleic acid and other fatty acids in cottonseeds

We observed no significant correlations between palmitoleic acid and other fatty acids in TM-1 (control) and intraspecies graft TM-1—TM-1. However, very strong and positive correlation was observed in



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interspecies graft Pima 3-79—TM-1. There was significant but negative correlation between palmitoleic acid and linolenic acid in interspecies graft Pima 3-79—TM-1. In Pima 3-79, we observed strong and positive correlations between palmitoleic acid and stearic acid (0.817\*), between palmitoleic acid and oleic acid (0.695\*\*), between palmitoleic acid and gamma-linolenic acid (0.759\*), and between palmitoleic acid and alfa-linolenic acid (0.782\*) while there was moderate significant negative correlation between palmitoleic acid and linolenic acid (-0.796\*) in Pima 3-79 (control). We noted negative but moderately significant correlation between palmitoleic acid and heptadecanoic acid (-0.676\*) interspecies graft TM-1—Pima 3-79. There was very strong but negative correlation between palmitoleic acid and cis-8,11,14-eicosatrienoic acid (-0.871) in intraspecies graft Pima 3-79—Pima 3-79. We also noted statistically significant but very low correlation between palmitoleic acid and linolenic acid (0.015\*\*) in intraspecies graft Pima 3-79—Pima 3-79 (Table 1-6).

### **Correlation between heptadecanoic acid and other fatty acids in cottonseeds**

Results showed that there were no significant correlations between heptadecanoic acid and other fatty acids in TM-1 (control), interspecies graft Pima 3-79—TM-1, intraspecies graft TM-1—TM-1 and interspecies graft (TM-1—Pima 3-79) but we noted very strong negative correlation between heptadecanoic acid and gamma-linolenic acid (-0.991\*\*), between heptadecanoic acid and nervonic acid (-0.906\*), and between heptadecanoic acid and cis-4,7,10,13,16,19-docosahexaenoic acid (-0.946\*) in intraspecies graft Pima 3-79—Pima 3-79 (Table 1-6).

### **Correlation between stearic acid and other fatty acids in cottonseeds**

Analysis revealed that there were no significant correlations between stearic acid and other fatty acids in TM-1 (control), interspecies graft Pima 3-79—TM-1, intraspecies graft TM-1—TM-1 and interspecies graft TM-1—Pima 3-79. However, there was strong and significant correlation between stearic acid and oleic acid (0.955\*\*) and between stearic acid and alfa-linolenic acid (0.976\*\*) in Pima 3-79. A negative strong correlation was observed between stearic acid and oleic acid (-0.991\*\*) in intraspecies graft Pima 3-79—Pima 3-79 (Table 1-6).

### **Correlation between oleic acid and other fatty acids in cottonseeds**

Results revealed no significant correlations between oleic acid and other fatty acids in interspecies graft Pima 3-79—TM-1, intraspecies graft TM-1—TM-1, interspecies graft TM-1—Pima 3-79 and intraspecies graft Pima 3-79—Pima 3-79. There was very strong correlation between oleic acid and lignoceric acid (0.924\*\*) in TM-1 (control). Pima 3-79 showed very strong negative correlation between oleic acid and linolenic acid (-0.978\*\*). Very strong significant correlation was observed between oleic acid and gamma-linolenic acid (0.940) and between oleic acid and alfa-linolenic acid (0.957\*\*) in Pima 3-79 (Table 1-6).

### **Correlation between linolenic acid and other fatty acids in cottonseeds**

No significant correlations were observed between linolenic acid and other fatty acid in TM-1 (control), interspecies graft Pima 3-79—TM-1, intraspecies graft (TM-1—TM-1, interspecies graft TM-1—Pima 3-79 and intraspecies graft Pima 3-79—Pima 3-79. Strong negative correlation between linolenic acid and gamma-linolenic acid (-0.974\*\*), and between linolenic acid and alfa-linolenic acid (-0.979\*\*) were observed in Pima 3-79 (Table 1-6).

### **Correlation between gamma-linolenic acid and other fatty acids in cottonseeds**

We observed no significant correlations between gamma-linolenic and other fatty acids in TM-1 (control), interspecies graft Pima 3-79—TM-1, intraspecies graft TM-1—TM-1, interspecies graft TM-1—Pima 3-79 and intraspecies graft Pima 3-79—Pima 3-79. Very strong positive correlation was observed between gamma-linolenic acid and alfa-linolenic acid (0.980\*\*) in Pima 3-79 (Table 1-6).

### **Correlation between alfa-linolenic acid and other fatty acids in cottonseeds**

There were no correlations between alfa-linolenic acid and other fatty acids in TM-1 (control), intraspecies graft TM-1—TM-1, Pima 3-79 (control), interspecies graft TM-1—Pima 3-79 and intraspecies graft Pima 3-79—Pima 3-79. We noted a strong positive correlation between alfa-linolenic



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acid and cis-4,7,10,13,16,19-docosaehaenoic (0.954\*\*) in interspecies graft Pima 3-79—TM-1 (Table 1-6).

### **Correlation between cis-8,11,14-eicosatrienoic acid and other fatty acids in cottonseeds**

There were no significant correlations between cis-8,11,14-eicosatrienoic and other fatty acids in TM-1 (control), interspecies graft Pima 3-79—TM-1, intraspecies graft TM-1—TM-1, interspecies graft TM-1—Pima 3-79 and intraspecies graft Pima 3-79—Pima 3-79. There was strong negative correlation between cis-8,11,14-eicosatrienoic and nervonic acid (-0.881) in Pima 3-79 (Table 1-6).

### **Correlation between lignoceric acid and other fatty acids in cottonseeds**

Results revealed that there were no significant correlations between lignoceric acid and other fatty acids in TM-1 (control), interspecies graft Pima 3-79—TM-1, intraspecies graft TM-1—TM-1, interspecies graft TM-1—Pima 3-79 and intraspecies graft Pima 3-79—Pima 3-79. Very strong correlation was observed between lignoceric acid and cis-4,7,10,13,16,19-Docosaehaenoic (0.942\*\*) in Pima 3-79 (Table 1-6).

### **Correlation between nervonic acid and other fatty acids in cottonseeds**

Results revealed that there were no significant correlations between nervonic acid and other fatty acids in TM-1 (control), interspecies graft Pima 3-79—TM-1, intraspecies graft TM-1—TM-1, Pima 3-79, interspecies graft TM-1—Pima 3-79, intraspecies graft Pima 3-79—Pima 3-79 (Table 1-6).

### **Correlation between cis-4,7,10,13,16,19-docosaehaenoic acid and other fatty acids in cottonseeds**

We noted that there were no significant correlations between cis-4,7,10,13,16,19-docosaehaenoic and other fatty acid in cottonseeds among all graft types and their control. The highest correlation index of 0.852 was observed between cis-4,7,10,13,16,19-docosaehaenoic and nervonic acid in intraspecies graft Pima 3-79—Pima 3-79. However, this was not statistically significant.

## **DISCUSSION**

Comparison studied revealed that differences in biomass and growth rate between control and grafts were not detectable approximately 35 days after transplantation indicating that it took approximately 35-40 days to gain full recovery from graft wounding and transplantation effects (Karaca et al., 2020). Full recovery and normal maturation among interspecies and intraspecies grafts indicated that cotton grafting could be used in cotton production without any retardation of cotton growth and development.

Based on the results of this study, we noted that it is possible to manipulate cottonseed oil composition using proper grafting experiments. This could provide dramatic effect on cotton production. Because cotton is an economically important crop grown for natural fiber and it ranks third after soybean oil and colza oil in terms of edible oilseed tonnage worldwide (Sharif et al., 2019). Grafting could change the content of saturated and unsaturated level of cottonseed oil. Because the fatty acid composition of cottonseed oil has limited its further application, as the desired monounsaturated acid level is low. Improving industrial and nutritional values of cottonseed oil is an important objective in cotton breeding. Cotton fatty acids are mainly composed of palmitic acid (C16:0), oleic acid (C18:1), and linoleic acid (C18:2). We noted that palmitic acid and oleic acid content could be improved by interspecies grafting as observed in graft Pima 3-79—TM-1. Low level of saturated fatty acids and high level of oleic acid could be obtained when suitable grafting partners are identified. For better human diet, low levels of saturated acids and high levels of oleic acid are recommended (Kazmi et al., 2015; Shah et al., 2017). Many studies in cotton revealed that high 100-seed index and oil content are positively correlated with seed vigor and better yield. In our study we noted that oil content and seed-index could be improved in cotton using suitable grafting experiments (Farias et al., 2016; Kotharia et al., 2017). This opens a new way of improving cotton for human diets.

Despite its prominent practical utility, the underlying mechanism for graft-induced phenotypic and physiological changes remains to be fully understood. It is generally accepted that metabolic substances including those that may produce large biological effects, such as hormones, proteins, and signal molecules, could be transferred from one grafting partner to the other. Change in the fatty acid correlations by grafting indicated that certain type of molecules including nutrients, water, and some



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molecules such as sRNAs and protein could be transmitted during grafting and induce epigenetic modifications such as DNA methylation and RNA silencing, without changing the DNA sequence (Molnar et al., 2010; Wu et al., 2010). Compared to intraspecies grafting, interspecies grafting seems results in more changes in graft biochemical and physiological functions. Previous studies have shown that rootstocks could significantly improve some properties of scions by “passing” to them their own features, such as altered phenotypes of certain organs, improved production/quality, and elevated resistance to pests, diseases, and abiotic stresses (Wu et al., 2013; Goldschmidt, 2014). Rochester and Constable (2020) found that there was a strong negative correlation between lint percentage (LP) and seed mass because seed mass is a component of LP. The same study concluded that increasing N fertiliser application reduced oil content. Seed germination was improved in seeds with higher oil concentration; therefore, seed produced with high N fertiliser had reduced seed vigor. The balance between seed protein and oil is important because oil is a major constituent for storing energy. Small seeds may not be capable of emerging and producing a viable seedling if energy reserves are inadequate.



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**Table 1.** Pearson's correlation coefficient values among 13 cottonseed fatty acids in *G. hirsutum* accession TM-1 (Control)

No	Fatty acids	1	2	3	4	5	6	7	8	9	10	11	12
1	Myristic (14:0)	--											
2	Palmitic (16:0)	0.527	--										
3	Palmitoleic (16:1)	0.376	0.670	--									
4	Heptadecanoic (17:1)	0.532	0.537	0.463	--								
5	Stearic (18:0)	-0.137	<b>0.211</b> (* )	0.811	0.036	--							
6	Oleic (18:1)	-0.537	-0.605	-0.618	-0.746	-0.177	--						
7	Linolenic (18:2)	0.145	-0.584	-0.537	0.053	-0.581	-0.125	--					
8	Gamma-linolenic (18:3)	-0.790	-0.053	-0.257	-0.066	-0.051	0.143	-0.237	--				
9	Alfa-linolenic (18:3)	0.000	-0.498	-0.652	-0.490	-0.628	0.130	0.739	-0.180	--			
10	Cis-8,11,14-Eicosatrienoic (20:3)	-0.642	<b>-0.975</b> (**)	-0.601	-0.547	-0.076	0.686	0.406	0.156	0.314	--		
11	Lignoceric (24:0)	-0.773	-0.500	-0.473	-0.707	0.029	<b>0.924</b> (**)	-0.338	0.450	-0.071	0.637	--	
12	Nervonic (24:1)	0.579	0.374	0.113	-0.303	-0.139	-0.027	-0.131	-0.620	0.351	-0.471	-0.228	--
13	Cis-4,7,10,13,16,19-Docosahexaenoic (22:6)	-0.298	0.058	-0.217	0.504	-0.328	-0.336	0.223	0.731	-0.089	-0.056	-0.147	-0.688

\* and \*\* denote significant differences at 0.05 and 0.01 levels respectively



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**Table 2.** Pearson's correlation coefficient values among 13 cottonseed fatty acids in interspecies graft (Pima 3-79—TM-1)

No	Fatty acids	1	2	3	4	5	6	7	8	9	10	11	12
1	Myristic (14:0)	--											
2	Palmitic (16:0)	0.524	--										
3	Palmitoleic (16:1)	<b>0.948</b> (**)	0.451	--									
4	Heptadecanoic (17:1)	<b>0.828</b> (*)	0.093	<b>0.916</b> (**)	--								
5	Stearic (18:0)	0.487	-0.403	0.626	0.834 (*)	--							
6	Oleic (18:1)	0.459	<b>0.869</b> (*)	0.412	0.187	-0.377	--						
7	Linolenic (18:2)	-0.512	-0.921	<b>-0.455</b> (**)	-0.195	0.369	-0.992	--					
8	Gamma-linolenic (18:3)	-0.071	0.736	-0.132	-0.371	-0.769	0.773	-0.769	--				
9	Alfa-linolenic (18:3)	-0.290	0.474	-0.277	-0.541	-0.595	0.193	-0.250	0.676	--			
10	Cis-8,11,14-Eicosatrienoic (20:3)	-0.248	-0.210	-0.347	-0.185	-0.298	0.198	-0.097	0.069	-0.551	--		
11	Lignoceric (24:0)	0.244	0.242	0.037	-0.008	-0.177	0.175	-0.210	0.356	0.268	-0.137	--	
12	Nervonic (24:1)	-0.685	-0.600	-0.646	-0.356	-0.202	-0.195	0.311	-0.027	-0.326	0.765	-0.211	--
13	Cis-4,7,10,13,16,19-Docosahexaenoic (22:6)	-0.524	0.202	-0.500	-0.688	-0.580	-0.077	0.031	0.509	<b>0.954</b> (**)	-0.508	0.187	-0.157

\* and \*\* denote significant differences at 0.05 and 0.01 levels respectively



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**Table 3.** Pearson's correlation coefficient values among 13 cottonseed fatty acids in intraspecies graft (TM-1—TM-1)

No	Fatty acids	1	2	3	4	5	6	7	8	9	10	11	12
1	<b>Myristic (14:0)</b>	--											
2	<b>Palmitic (16:0)</b>	0.789	--										
3	<b>Palmitoleic (16:1)</b>	<b>0.855 (*)</b>	0.755	--									
4	<b>Heptadecanoic (17:1)</b>	-0.024	0.275	-0.325	--								
5	<b>Stearic (18:0)</b>	-0.051	-0.459	0.087	-0.497	--							
6	<b>Oleic (18:1)</b>	0.237	0.188	0.686	-0.650	0.430	--						
7	<b>Linolenic (18:2)</b>	-0.342	-0.285	-0.761	0.610	-0.387	-0.993	--					
8	<b>Gamma-linolenic (18:3)</b>	0.159	-0.294	-0.117	-0.400	0.112	-0.355	0.350	--				
9	<b>Alfa-linolenic (18:3)</b>	0.299	0.266	0.734	-0.609	0.365	0.996	-0.998	-0.374	--			
10	<b>Cis-8,11,14-Eicosatrienoic (20:3)</b>	0.035	-0.082	0.057	0.264	0.209	0.225	-0.243	-0.450	0.242	--		
11	<b>Lignoceric (24:0)</b>	0.105	-0.101	0.023	-0.163	-0.328	-0.014	-0.012	0.332	0.019	0.366	--	
12	<b>Nervonic (24:1)</b>	-0.257	-0.197	-0.697	0.639	-0.430	-0.999	0.995	0.354	-0.997	-0.256	-0.008	--
13	<b>Cis-4,7,10,13,16,19-Docosahexaenoic (22:6)</b>	-0.732	-0.351	-0.589	0.131	-0.546	-0.195	0.254	-0.249	-0.201	0.011	0.349	0.208

\* and \*\* denote significant differences at 0.05 and 0.01 levels respectively



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**Table 4.** Pearson's correlation coefficient values among 13 cottonseed fatty acids in *G. barbadense* accession Pima 3-79 (control)

No	Fatty acids	1	2	3	4	5	6	7	8	9	10	11	12
1	Myristic (14:0)	--											
2	Palmitic (16:0)	0.742	--										
3	Palmitoleic (16:1)	0.718	<b>0.769</b> (* )	--									
4	Heptadecanoic (17:1)	-0.482	-0.714	-0.516	--								
5	Stearic (18:0)	0.729	0.981	<b>0.817</b> (* )	-0.593	--							
6	Oleic (18:1)	0.588	0.977	<b>0.695</b> (** )	-0.735	<b>0.955</b> (** )	--						
7	Linolenic (18:2)	-0.718	-0.995	<b>-0.796</b> (* )	0.675	-0.994	<b>-0.978</b> (** )	--					
8	Gamma-linolenic (18:3)	0.671	<b>0.950</b> (** )	<b>0.759</b> (* )	-0.530	0.984	<b>0.940</b> (** )	<b>-0.974</b> (** )	--				
9	Alfa-linolenic (18:3)	0.691	<b>0.962</b> (** )	<b>0.782</b> (* )	-0.646	<b>0.976</b> (** )	<b>0.957</b> (** )	<b>-0.979</b> (** )	<b>0.980</b> (** )	--			
10	Cis-8,11,14-Eicosatrienoic (20:3)	0.039	0.274	-0.071	0.144	0.316	0.303	-0.295	0.425	0.269	--		
11	Lignoceric (24:0)	0.011	0.008	0.394	0.329	0.179	0.011	-0.107	0.277	0.231	0.153	--	
12	Nervonic (24:1)	0.215	-0.052	0.442	-0.274	-0.068	-0.126	0.059	-0.187	-0.058	<b>-0.881</b> (** )	0.056	--
13	Cis-4,7,10,13,16,19-Docosahexaenoic (22:6)	0.186	0.269	0.496	0.194	0.429	0.267	-0.361	0.535	0.461	0.415	<b>0.942</b> (** )	-0.154

\* and \*\* denote significant differences at 0.05 and 0.01 levels respectively





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**Table 5.** Pearson's correlation coefficient values among 13 cottonseed fatty acids in interspecies graft (TM-1—Pima 3-79)

No	Fatty acids	1	2	3	4	5	6	7	8	9	10	11	12
1	<b>Myristic (14:0)</b>	--											
2	<b>Palmitic (16:0)</b>	<b>0.540 (**)</b>	--										
3	<b>Palmitoleic (16:1)</b>	<b>-0.284 (**)</b>	<b>-0.059 (**)</b>	--									
4	<b>Heptadecanoic (17:1)</b>	<b>0.266 (*)</b>	<b>0.360 (*)</b>	<b>-0.676 (*)</b>	--								
5	<b>Stearic (18:0)</b>	<b>-0.454 (*)</b>	<b>-0.434 (*)</b>	0.626	-0.868	--							
6	<b>Oleic (18:1)</b>	-0.616	-0.674	0.173	-0.574	0.837	--						
7	<b>Linolenic (18:2)</b>	0.461	0.303	-0.522	0.701	-0.955	-0.853	--					
8	<b>Gamma-linolenic (18:3)</b>	0.006	-0.143	0.756	-0.605	0.742	0.407	-0.720	--				
9	<b>Alfa-linolenic (18:3)</b>	-0.398	-0.169	-0.067	0.334	0.172	0.428	-0.398	0.237	--			
10	<b>Cis-8,11,14-Eicosatrienoic (20:3)</b>	-0.065	-0.098	0.934	-0.729	0.708	0.257	-0.609	0.921	-0.044	--		
11	<b>Lignoceric (24:0)</b>	0.106	0.683	0.433	0.254	-0.339	-0.678	0.298	0.039	-0.074	0.234	--	
12	<b>Nervonic (24:1)</b>	0.198	0.427	-0.160	0.776	-0.831	-0.825	0.781	-0.432	0.036	-0.335	0.709	--
13	<b>Cis-4,7,10,13,16,19-Docosahexaenoic (22:6)</b>	0.012	-0.075	-0.604	-0.002	-0.244	-0.009	0.322	-0.744	-0.546	-0.651	-0.459	-0.222

\* and \*\* denote significant differences at 0.05 and 0.01 levels respectively



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**Table 6.** Pearson's correlation coefficient values among 13 cottonseed fatty acids in intraspecies graft (Pima 3-79—Pima 3-79)

No	Fatty acids	1	2	3	4	5	6	7	8	9	10	11	12
1	Myristic (14:0)	--											
2	Palmitic (16:0)	-0.024	--										
3	Palmitoleic (16:1)	0.799	-0.116	--									
4	Heptadecanoic (17:1)	0.770	-0.563	0.562	--								
5	Stearic (18:0)	-0.682	-0.655	-0.631	-0.074	--							
6	Oleic (18:1)	0.714	0.602	0.637	0.105	<b>-0.991</b> (**)	--						
7	Linolenic (18:2)	-0.134	-0.981	<b>0.015</b> (**)	0.455	0.756	-0.722	--					
8	Gamma-linolenic (18:3)	-0.580	0.620	-0.520	<b>-0.931</b> (*)	-0.088	0.096	-0.577	--				
9	Alfa-linolenic (18:3)	0.656	0.101	0.329	0.307	-0.540	0.642	-0.289	0.057	--			
10	Cis-8,11,14- Eicosatrienoic (20:3)	-0.705	0.581	<b>-0.871</b> (*)	-0.761	0.217	-0.257	-0.475	0.724	-0.296	--		
11	Lignoceric (24:0)	-0.404	0.411	-0.794	-0.293	0.245	-0.290	-0.332	0.267	-0.252	0.840	--	
12	Nervonic (24:1)	<b>-0.959</b> (**)	0.230	-0.681	<b>-0.906</b> (*)	0.457	-0.498	-0.077	0.728	-0.604	0.714	0.311	--
13	Cis-4,7,10,13,16,19- Docosahexaenoic (22:6)	-0.690	0.674	-0.437	<b>-0.946</b> (*)	-0.050	-0.019	-0.543	0.806	-0.463	0.730	0.321	0.852

\* and \*\* denote significant differences at 0.05 and 0.01 levels respectively



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In the present study we noted that grafting caused increased seed size, thus concluded that grafting could increase the viable seedling in cotton.

### CONCLUSIONS

Based on the finding of this research along with our unpublished works we concluded that interspecies and interspecies grafting affected the relationship among cotton fatty acids in cottonseed. Grafting positively affected fatty acid yield in comparison to ungrafted controls. We clearly noted that effects of grafting on fatty acids were not similar in two different cotton species. Some fatty acids were more influenced by grafting than some other fatty acids. We conclude that if suitable scions and rootstocks are used fatty acids composition of cottonseed could be manipulated without getting into breeding efforts. Exploitation of different rootstock-scion combinations could lead to development of superior quality cotton grafts.

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### A CONCEPTUAL STUDY ON COLLAR CLASSIFICATION IN EMPLOYEES

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#### **Abstract**

Jobs done using standard procedures have evolved over time into jobs that require different skills. In this transformation, blue and white collars were diversified with various colors. While blue and white collar works continue, various collar colors have emerged due to the nature of the works such as gray, pink, gold, green and virtual. Changes in production systems, pandemics, other factors that radically affect the ways of doing business, and the need to use scarce resources with a sustainable efficiency in response to the increasing population have revealed the situation of doing things with different skills. Jobs with different skills have brought along income differences. In this study, collar colors used in working life are discussed with their conceptual basis. In particular, the transition from blue and white collar to other colors has been revealed with its own dynamics. It has been observed that the jobs of blue-collar and white-collar employees have evolved into jobs that require gray-collar employees with the combination of both skills. With digitalization, the necessity of gold and virtual collar workers has emerged. Within the framework of sustainability, green-collar employees were needed. The existence of pink-collar employees has also been conceptually revealed in the distinction of jobs done by men and women. In addition to these collars, other types of collars that have emerged with the requirements are also included in the study.

**Keywords:** Blue and White Collar, Gold Collar, Gray Collar, Virtual Collar, Pink Collar, Green Collar.

#### **INTRODUCTION**

There are some turning points in human history. The transition of hunter-gatherer human societies to farming and herding was a turning point. In this period, which took place in the Middle East around 8500-7000 BC, the history of humanity had undergone an evolution (McNeil, 2007). Likewise, in the transition to the Industrial Revolution, the way of life, way of thinking and management changed and the level of welfare was shaped accordingly (Toffler, 1996). The Industrial Revolution paved the way for the construction of factories. In this period, self-employed individuals turned into the working class within the framework of production relations or individuals working for someone else's account (Koçel, 2013). In this period, various forms of employment such as the separation of business ownership and management were formed (Tüzün, 2012; Koçel, 2013). From this point of view, with the changing nature of technology and human demands, production, service and information efficiency have become important (Toffler, 1996). In the last fifty years, with the ingenuity of technology and the spread of artificial intelligence technologies, the existence of individuals equipped with both physical skills and knowledge has become necessary (Urgan, 2021). In this context, agriculture, industry and information-oriented developments have emerged as characterized by industrial revolutions. Today, there is a digital revolution associated with mobile internet, artificial intelligence and machine learning (Erdoğan et al., 2022).

In the light of all these explanations, the structure of the workforce differs, especially with technological changes. With these differences reflected in the nature of the work done, Changes in working systems, wage differences, changes in work laws have occurred, and a categorical classification has occurred in the workforce according to various collar colors such as blue-white-gold (Şahin et al., 2015). The clothes that allow the employees who do changing jobs to work comfortably were considered as a start and the concept of blue collar workers first emerged from here. Blue collar became the characteristic collar color



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of the First Industrial Revolution. With the later developments, blue, white, gold, gray, pink and green collar employees have formed a part of business life (Eriş et al., 2020).

In addition to blue and white collars, the necessity of emphasizing the existence of other collar colors that are less known, but already existing with digitalization and environmental changes, emerges. In this context, the changing collar colors of the workforce are conceptually discussed in parallel with the changing nature of the jobs in this study.

### CONCEPTUAL FRAMEWORK

**Blue Collar:** Blue-collar workers represent the individual who works manually in the production process of goods or services and also has the ability to operate machines. Blue-collar workers are defined as individuals who work with skilled or unskilled muscle power in production facilities. The role of blue-collar workers is growing exponentially as they are the main driver of production and quality. Generally, blue-collar workers are employed in labor-intensive sectors. Therefore, some of such sectors that employ a large number of blue-collar workers include oil fields, storage, construction, firefighting, plumbing, manufacturing, technical facilities and surveillance (Mittal et al., 2019). It is an important factor for managers to use time effectively and efficiently in businesses. Managers need to be able to organize blue-collar workers in a cumulative manner within the framework of objectives by working with the power of mind. For this reason, blue-collar employees act in line with the goals of the enterprise by operating in a mobile manner by operating at the machine, at the counter, at the product line. Therefore, blue-collar workers operate in labor-intensive jobs. Blue-collar employees fulfill the given tasks by using their physical strength instead of mental power (Çetin, 2019).

Blue-collar and white-collar workers differ significantly from each other according to their job characteristics and behavior. White-collar workers have higher-level jobs, while blue-collar workers operate in lower-level jobs. It is stated that white-collar employees traditionally value the internal aspects of the job, while blue-collar employees give more importance to external aspects such as rewards or job security (Anjum and Parvez, 2013). Blue-collar workers in enterprises are mostly engaged in activities with manual labor. The skills required by blue-collar employees vary according to the activity they are in, and the activities they do are exhibited with muscle strength. In addition, blue-collar workers can be employed as skilled or low-skilled within the framework of their activities. For example, blue-collar individuals working in jobs such as electricians and plumbers are considered to be more qualified, while blue-collar individuals working in jobs such as cleaning can be employed as less skilled workers (Özsoy and Gürbüzöğlü, 2019).

**White Collar:** White collar employees are persons who are active in administrative and research-development works with a high technological education level compared to their physical strength. Therefore, white-collar employees perform their activities based on mind and brain power more at the desk. For this reason, white-collar workers show more mental power-based work than muscle power (Akıncı et al., 2018). It is stated that white-collar employees have higher education levels and are in a position symbolically closer to the authority. In this context, it can be stated that the group described as white-collar workers has a structure consisting of senior managers and administrators, low-level professionals, experts and technicians, and physicians, nurses, academics and other social workers in the professions related to health, welfare and education can be classified within this working group (Acar, 2020).

Today, with the development of technology day by day, information becomes an important factor. With the development of the Internet, white-collar employees have an important role in the use of information. The economy is changing in terms of competition, and white-collar employees are in an important position in terms of using information and gaining competitive advantages. White-collar workers raised by the new capitalism are also experiencing labor processes that have become flexible as a result of neoliberal strategies (Çelik, 2021). Today, white-collar employees; teachers, architects, bankers, lawyers or individuals working in other economic sectors can be cited as examples (Sevim and Kurtuluş, 2022).

Human resources gained importance in the 1980s when changes in the workforce were discussed, and there was a change in the emergence of mental labor from blue-collar workers' physical and labor-intensive jobs to white-collar workers. As a result, white-collar employees who are positioned in



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working life with their intellectual or mental effort differ from blue-collar employees in terms of both their motivation and management and the evaluation of their work results (Aydın and Demiral, 2019: 1979). It is stated that white-collar employees are inspired by the color of the white shirts they wear, as in blue-collar employees. White-collar workers are salaried professionals who are referred to as managers or office workers (Eriş et al., 2020).

**Gold Collar:** Businesses use their resources effectively and efficiently in order to continue their existence, bringing many advantages. Therefore, people constitute the most important resource of enterprises. It is an important factor for businesses to show high performance, to act cumulatively and to act in line with the target. These conditions are interrelated in order for businesses to achieve success. Learning starts from the moment a person is born and is necessary for his/her life to continue. With the use of information technology in the 21st century, gold-collar workers have become more important by learning their competencies in producing and using information (Değirmenci et al., 2022).

The rapid developments in communication and information technologies in the new era lead to the emergence of the concept of "gold collars". As the most permanent feature of information societies, organization around information is emphasized instead of coordination of workers and machines for production. Gold-collar workers, which are expressed as knowledge workers, represent employees who operate with brain power. Gold collars refer to skilled and educated employees and are individuals who perform at a high level. Therefore, gold-collars have innovative, independent, intelligent qualities. For this reason, gold collars represent a valuable group in terms of business and society. Gold collars are able to solve a problem and operate in non-routine tasks. Academics, information technology professionals, software developers, physicians, public and private sector managers, lawyers, etc. exemplifies the employees in this group (Bozbuğa and Alarçin, 2022).

With the introduction of Industry 4.0, different tasks are assigned to human resources from production to the way of doing business. Although artificial intelligence, digital twin and cyber security seem to be the main elements of this revolution with the rapid development of technology, the human resource element is at the center of this transformation process, from the planning to the control of the production process. With the widespread use of technology, it is thought that there will be a significant increase in gold-collar employees, with the decrease in blue-collar employment. In the previous business environments where technology was not available, employees used their physical strength intensively, and today this process focuses on monitoring and controlling the mentally designed processes (Asar and Esen, 2021).

**Gray Collar:** The development of high-tech industries has transformed the jobs that only blue-collar and white-collar workers can do, into people who have the capacity to do both in a certain balance. These employees, which Wright (2007) calls skilled technicians, perform the duties of blue-collar and white-collar employees jointly. These workers are gray-collar workers and include the highly skilled workforce with university degrees (Hutchings et al., 2009).

Gray-collar employees, who are determined as high-skilled among blue-collar and low-skilled among white-collar employees, are employees who are trained in the job and are not as skilled as white-collar employees in the use of technology. In another approach, aging workers in the workforce are called gray-collar workers (Eriş et al., 2020). Aging employees may find it difficult to keep up with technological changes. This situation is seen more clearly especially in employees over the age of 40 (Şahin et al., 2015).

Although gray-collar workers fulfill the requirements of both blue-collar and white-collar jobs, they are completely different from the two. The difference from blue collars is that they have a university education. Some of the occupations that require gray collar workforce are (Soni and Panwar, 2018):

- Police officers
- Firefighters
- Qualified traders
- Technicians



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- Teachers
- School administrators
- Emergency workers
- Stenographers

The systematic of carrying out a standard business activity by bringing individuals who can do the routine work in organizations evolves into complex business processes. This process brings some demands on the employees' own rights. In addition, the motivation of the employees is shaped according to these changes (Koçel, 2003). From this point of view, different skills are needed for the work done and mixed ways of doing business emerge (Davutoğlu, 2021). In the context of employees who can do mixed work and from a management perspective, a relevant concept is the concept of personnel empowerment. Personnel empowerment can be evaluated within the concept of autonomy. Autonomy refers to the power of self-determination and independent choice in work-related behaviors and processes. It can be explained by the fact that an employee can be effective on strategic, managerial and operational outputs in business life (Karavardar, 2017). However, it can also be associated with the concepts of lean production and management. On the basis of lean production and management concepts, it is important to eliminate waste in business processes. This makes it necessary to do different jobs with fewer people and with skill (Sarı, 2018).

Gray-collar workers are those who work with flexible working styles according to the changes in working life (Eriş et al., 2020). Flexible working systems had to be widely applied, especially in the coronavirus pandemic experienced all over the world in 2019 (Urgan et al., 2021).

**Other Collars:** Pink and green collar workers are among the other collars mentioned in the literature (Soni and Panwar, 2018; Eriş et al., 2020). The concept of pink collar was first used by the writer Louise Kapp Howe in the late 1990s. It corresponds to the jobs mostly done by women. Those who work in these jobs, where there are not many men, are called pink-collar. However, the jobs that men and women work together can also be expressed as the jobs mostly preferred by pink-collar employees (Soni and Panwar, 2018). Regarding the pink-collar workers, it is stated that due to the fact that men had to participate in the war during the war, the existing jobs had to be continued by the women. For jobs predominantly done by women; activities related to education, health, service sector and household chores. There may also be cases where men do not demand these jobs too much (Eriş et al., 2020). Hospitality, retail sales, maintenance workers, clerks, beauty salon workers, waiters and office workers are included in the category of pink-collar workers (Gürkan, 2022).

One of the other collars is green collar jobs. Green collar jobs Dr. According to Raguél Rivera-Pinderhughes, products and services correspond to the work done by blue-collar workers working in jobs that directly increase environmental quality (Aksu and Yücebalkan, 2020). According to the United Nations Environment Program (UNEP), activities that contribute significantly to research and development (R&D), administrative and service protection in agriculture, manufacturing, or activities that will protect environmental quality are defined as green jobs. These are jobs that are done using strategies that will increase biodiversity, reduce the use of energy, materials and water, decarbonize or minimize its use, and prevent waste and pollution (Rutkowska-Podołowska et al., 2016). These works are handled within the framework of renewable energy sources. Renewable energy sources; wind, solar (photovoltaic), solar (thermal), biomass, hydroelectric and geothermal resources. It is predicted that approximately 12 million new jobs will emerge until 2030 for green-collar jobs related to these energy sources (Sungur, 2011).

Other than the collar colors mentioned above, red collars covering all kinds of government jobs, orange collars for prison workers, virtual collars for robots that do repetitive physical and manual work, black (black) collars for those working in mining and oil businesses, and data science using technology. The terms digital collars or new collars are used for those working in jobs such as coding and computer integrated jobs (Baliç et al., 2020).





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### CONCLUSION

In this study, the classification of collars in employees is discussed in a general framework. It is seen that the elements that make up this framework are affected by economic, social, technological and health conditions as seen in recent years.

Historically, there has been an evolution from an employee who performs a standard job assigned to him/her with standard procedures to an employee who is expected to perform many complex tasks with maximum skill. In this evolution, the concepts of blue and white collar have been combined and gray collar has emerged. This change is especially seen in the Covid-19 pandemic. For this reason, the pandemic has necessarily changed the way they do business.

With the changing nature of business, the gap between the achievements has also widened. In particular, artificial intelligence technologies can be given as examples of jobs that require a certain physical and mental skill. There is a change in favor of gold-collar employees due to the earnings of those who do these jobs.

Although the jobs that women and men have done have been similar over time, it is seen that the necessity of male power in some jobs and the necessity of female power in some jobs continue. The concept of a pink collar corresponds to the female workforce, as is the case of taking care of a child using maternal instinct.

Another factor that draws attention in the study is the green collar workers corresponding to those who do the jobs that emerge with the necessity of a sustainable energy use. The increasing population in the world and the scarcity of consumed resources reveal the importance of the existence of sustainable and renewable energy sources. The workforce that can use these resources is also of great importance as green collar workers.

The concept of collar, which emerged as a demographic data for the researches, was examined from a general perspective with this study. Thus, the conceptual infrastructure of the collar colors that emerged with the changing works was revealed.

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### PROCEEDINGS BOOK



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## ARTIFICIAL INTELLIGENCE TECHNOLOGIES FOR THE POWER SYSTEM

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### Abstract

The focus in power systems evaluation has changed dramatically from earlier computer modeling, which came from industrial engineering, operations research, and computational analysis, to the less exacting methodologies of artificial intelligence (AI), which date back to the mid-1980s. The much more popular AI techniques utilized in the various applications for energy technologies include foundations, fuzzy systems, artificial neural networks (ANN), and, most recently, adaptive computations. These approaches and the power software modules will be covered throughout this investigation. This author of the study's objective is to demonstrate some fundamental artificial intelligence technologies used in energy systems. In contrast, older methods won't be capable of keeping up with all operating and networking circumstances. These tactics boost the utilities' effectiveness by controlling voltages, uniformity, current passes, and loading regularity. AI is to be applied in managing, monitoring, and operating power systems. The paper will also examine the long-term advantages of implementing AI in energy systems.

**Keywords:** AI, Fuzzy Logic, ANN, Modern Power System Technologies.

### 1. INTRODUCTION

Artificial intelligence (Ai) is the research of ways to program technology to perform tasks that humans now perform more effectively (E. Rich and K. Knight, 1991). The expert system (ES) is a software scheme that incorporates and justifies information gleaned from one or more specialists to address challenges or offer guidance. Expert systems are therefore software that converts knowledge from humans into software applications. Expert system utilization is highly desirable in situations when a person's experience is limited, expensive, or at risk of loss due to movement due to the flexibility of technology. Since roughly ten years ago, study on the use of artificial intelligence algorithms in power sources has already been ongoing, and significant advancements have been made. The most effective artificial intelligence models are expert or understanding algorithms. Since roughly ten years ago, studies on the utilization of Ai technology in power systems have indeed been ongoing, and significant progress has been made.

Investigation of Ai in the operation of the power system and transient security has increased the reliability of the power by the use of discrete control and constant regulation; transient prevents the development of relay safeguards founded on the expert system as well as fuzzy logic in the safeguard establishing computation of expert and failing an assessment, vastly improving the effectiveness of conflict resolution. Artificial intelligence is the capacity to use computers to execute some difficult problem-solving tasks, like picture identification and problem-solving judgment (N. Hatzirygiou et al., 2021). Over the recent few years, Ai development has experienced a development spike. Monitoring improvement, dynamical element models, parameters inferences, optimizations and control, stabilization evaluation, and other power system research have all been carried out using Ai techniques including graph neural networks (GNN), reinforcement learning (RL), etc (J. Huang et al., 2022).

The reliable and safe procedure of power systems faces numerous difficulties, such as the potential ought to design electronic features for structural analysis while some gadget functioning mechanisms are currently being studied, the need for dimensionality reduction to downscale complexity, the markedly elevated ambiguity of power systems, and the necessity for fast and adaptable consistency evaluation and control, etc. Ai-assisted power network assessment and regulation may provide a solution to these issues by at the very least acting as a mitigating factor (A. U. Rehman, T. T. Lie, B. Valles, and S. R. Tito, 2021).



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The following is how the paper is set up: In section 2 discusses the reason for Ai application in power systems. Section 3 discusses the outline of Ai. Section 4 discusses Ai's future in the system of electricity. Section 5 discusses applications of Ai in the power system. In section 6 discussion. The last section concludes the study.

### 2. THE REASON FOR Ai APPLICATION IN POWER SYSTEMS

The primary design of power system control is to assure the safety and dependability of the power system while also supplying consumers with high-quality electrical in an economical manner. Therefore, it is essential to prepare for the management and oversight of the electricity system. However, as the system of electricity develops and demand rises, greater work is required to guarantee that it operates safely, economically, and reliably, adding to the stress on employee operations. The effort of staff members is significantly reduced when artificial intelligence tools are used to help them examine and evaluate, which also increases the effectiveness of managing disasters.

The interface among energy system dynamic modeling and Ai is now just rather scattered, even though some software package, such as DigSILENT PowerFactory, has partially enabled Ai systems. The developed Ai system typically operates autonomously as a black-box method having poor readability and can't be readily incorporated into simulators, while the model typically simply functions as an information producer and supplies minimal foreknowledge. The model isn't Intelligence sufficient, to put it simply. It is suggested to create a developing simulation system that integrates modeling with Ai. Ai-assisted modeling and Ai-assisted simulated complement one another (L. Von Rueden et al., 2020). This is among the primary reasons why artificial intelligence technology has received so much attention recently.

### 3. THE OUTLINE OF Ai

A field of science called Ai seeks to study, create, and imitate people's activity and its norms. Artificial intelligence approaches, which include Neuroscience and Psychology and are applied in all spheres of life, have been established as a replacement for people's brains in machines that recognize and analyze the data, and increase productivity. Conflict resolution is a component of conventional Ai, and there have been significant advancements in fundamental search technology, natural language comprehension, and expert systems. In the latest days, a different type of smart approach that uses rapidly developing artificial neural networks and can be integrated with conventional Ai to address the shortcomings of conventional Ai has emerged. Among the most recent developments in artificial intelligence are:

- **ANN (artificial neural network)-** The nonlinear transformation approach of the mind's information transfer, storing, and discovering the information is used in the (ANN), which processes information from the viewpoint of modeled neurons while fusing it with Ai mechanisms. Numerous applications, such as pattern recognition, pattern classification, optimizing, forecasting, and autonomous control, have made use of neural nets. Despite varying organizational systems and training techniques, all uses of NN are unique types of vector projection. Outcomes from the use of NNs in various power systems regarding the operating approaches have been satisfactory (R. Lukomski, 2003).
- **FUZZY LOGIC-** The concept of fuzzy sets is the same as fuzzy logic. According to the fuzzy set theory, membership in groups of objects having un-sharp bounds is dependent on several factors. Power systems have always used fuzzy theory extensively in latest days. Used during various power circulation states, including transmission lines to build a transformer's safeguard concept, it is crucial to consider the customer's categories and also the load characteristics. Outer failures like current flow, extreme heat, and transformer density should be sought out to find the best balance between an electricity system's proper handling and better efficiency.
- **EXPERT SYSTEM-** In (Z. Z. Zhang, G. S. Hope, and O. P. Malik, 1989), the accomplishment of the academics in using power systems with expert system technology. Expert systems have their restrictions, though. What restrictions are all these? Their dependability is the primary issue. Expert systems are constrained by the data in their knowledge sources and by the way that data is entered into them. They are unable to publish findings that are not implied in their datasets. The method of learning by trial and mistake that is preprogrammed by an expert system can reveal significant information gaps



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at unexpected moments if the way it is developed, evaluated, and evaluated produces uneven and insufficient database occasions. Expert systems could not meet full, precise required functionality, and their developers might not be capable of anticipating consistently how they will act in untested circumstances. if indeed the databases don't have a module-based design. It could be challenging to change. and keep them up.

- **GENETIC ALGORITHM-** In (D. Dasgupta and D. R. McGregor, 1994), A discovery technique called a genetic algorithm is rooted in the concept of natural selection. It is not a computer-generated train of thought. The concept is to employ a community of alternative explanations and progressively raise the standard of this group. This is accomplished by creating new characteristics that are pieced together from the most effective ones currently in use. The greatest explanations from this successor of freshly created characteristics are then merged to form the third generation, and the process continues unless adequate explanations are identified or no additional advancement is made.

### 4. Ai's FUTURE IN THE SYSTEM OF ELECTRICITY

Artificial intelligence, which comprises expert systems, artificial neural networks, fuzzy diagnostic concepts, and genetic algorithms, is currently undergoing rapid development. Each one has strengths and weaknesses, and there isn't a single, practical approach that works in all areas of the electricity system. Another of the key directions for Ai technologies is hybrid intelligence or a mixture of intelligent technologies. A subfield of artificial intelligence study called networked artificial intelligence eventually evolved into distributed systems computation (C. Jiang, 2020). Therefore, an essential aim of Ai research is to examine the architecture of the neural network itself to optimize the algorithms.

### 5. APPLICATION OF Ai IN THE POWER SYSTEM

To learn about using artificial intelligence techniques to fix these issues, the power system must be studied.

- **HVDC (high voltage direct current) Transmission Systems:** proved the viability of utilizing expert systems with HVDC structure for guard purposes.
- **A distribution automation system:** is described as a system that allows a power convenience too far off the detector, to manage and handle distributing elements in a real-time way from distant positions.
- **Power system relay safeguards:** relay safety is a form of conventional discrete controller, which would be to monitor and evaluate the ordinary or problem condition in the network and can swiftly respond to the protective operation. The flexibility to react rapidly and cope with both the issue of Ai has now become a crucial platform for online evaluation. The fuzzy identifying concept encompasses a vast region in the development of relay protection.
- **Discrete control (cut load):** a different type of discrete control is demand shedding. The strength decreases whenever the network is disturbed or the generator is turned off. If the network is drastically altered whereas the demand is maintained at a top standard, considerably above the performance of the system, it is necessary to lower the demand to prevent blackouts.
- **Security depending upon that expert system relay:** the expert system was used in the electricity system for so long, and yet due to stringent response time necessities for overcurrent protection, the current expert system is utilized to the time necessary for security wasn't very stringent, like the selection of safeguard configuration, defect detection, and fault location (S. J. Lee et al., 2002).
- **Transient security theory:** The failure transient patterns comprise a variety of types of fault, location, route, period, and other factors. Transient security is achieved by the identification of transient high-frequency modeling for energy transmission and distribution lines and energy systems to achieve its duties. Whenever a problem happens, failure safeguards, non-communication safeguards, but also transient safeguard concepts are used to evaluate whether the mistake is protected for the entire region. If indeed the problem trips, it enters a responsive reclosing component, and if it doesn't, high-frequency signal analysis is used to evaluate if the mistake is long-lasting.



### 6. DISCUSSION

In this article, artificial neural networks, expert systems, fuzzy theory, and other current applications of Ai in the power system are introduced. These programs can significantly raise power systems' effectiveness. Decrease the input of assets, both personnel, and equipment, and play a major part in the safety of the power grid. Safety technology is the knowledge and practice of choosing and configuring relays as well as other protective equipment to give the greatest awareness of potential threats. Defects as well as other unpleasant circumstances.

### 7. CONCLUSION

While a few artificial intelligence presently gets their pluses and minuses as well as restrictions, there is presently no power system applicable to the advanced hybrid smart. As a result, it is necessary to search for a much more appropriate method for artificial intelligence computation issues in power systems that integrates adaptive and combination intelligence. Ai would get evermore developed, and simpler to be handled, to effectively tackle the difficulties in energy systems. In summary, the incorporation of a wide range of Ai is a reoccurring theme in the upcoming advancement.

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### USE OF MEDIA AND INTERNET FOR PREGNANCY, BIRTH AND CESAREAN SECTION INFORMATION

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#### Abstract

Pregnancy, which is one of the important periods of a woman's life, is a process in which she focuses on the health of herself and her baby. The unpredictable process of pregnancy and the increasing need for information led women to use the internet. It has been observed that women turn to the internet to obtain information about their mental and physical changes during pregnancy, their birth and postpartum processes, due to privacy, accessibility and the scope of available information. It is stated that social media and forum sites, which provide an environment for expressing themselves interactively in online environments, facilitate adaptation to the role of motherhood. It has been found that women prefer pages that contain humorous posts that normalize pregnancy and difficulties in pregnancy. At the same time, it was determined that women preferred forum sites to discuss their concerns about abnormal findings about the baby or themselves. While it was determined that 41.3% of the women used at least one mobile application related to pregnancy, it is stated that these applications provide the opportunity to determine their birth dates, to monitor themselves in terms of body weight, physical activity levels, diet, mental and emotional changes. In addition, it has been determined that health professionals, family, social environment, as well as the internet and media have an effect on women's birth preferences. It has been determined that the shares and comments made on social media and internet sites about vaginal birth and cesarean section are effective in birth preferences. It is seen that women frequently use the internet and media during pregnancy, childbirth and postpartum processes. Health professionals can be effective in controlling the accuracy of information shared on the internet and media. Nurses and midwives can take a more active role in the internet and media.

**Keywords:** Pregnancy, Internet Use, Media, Birth Preference, Nurse

#### Introduction

With the advancement of technology and the widespread use of communication tools, media and internet are the most powerful tools in the formation of thoughts, behaviors, value judgments, and in determining the cultural and social structure of society (Özbaş and Özkan, 2010). In recent years, rapid developments in the internet have also affected the field of health and provided individuals with the opportunity to access information more quickly and easily (Hadımlı et al., 2018; Şener and Samur, 2013). In addition, it is seen that individuals turn to the internet more for healthy living behaviors and possible medical problems (Van Deursen, 2012). According to the results of the Household Information Technologies (IT) Usage Survey of the Turkish Statistical Institute (TUIK), 2021, the rate of internet use is 82.6% in individuals aged 16-74 and 77.5% in women in 2021 (TUIK, 2021).

The increase in health news in the media strengthens women's relationship with the media (Güler, 2006; Uçan, 2017). It was found that the rate of searching for health-related information on websites was



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71.7% for women and 67.7% for men (TUIK, 2021). It is stated that women search for health-related information on the internet more often than men, and ask experts for more advice on their own health on forum sites, and it has become more popular, especially during pregnancy (Solo et al., 2004; Lagan et al., 2011). At the same time, it has become more interesting for women to become more socialized in the digital environment, to share information, or to comment on the posts of others (Yelsalparmak, 2012; Aktan and Kayış, 2018).

Although pregnancy is a process in which women prepare to become a mother and make plans, it is an important period that requires adaptation to physiological, psychological, and social changes (Batman, 2018). It is stated that pregnant women use the internet for questions about what should be considered during pregnancy, and health practices related to pregnancy and birth (Bayrak and Kanbur, 2022; Golder et al., 2019).

Hadimli et al. (2018) found that 73.9% of women spent most of their time on the internet during pregnancy (Hadimli et al., 2018). Lupton (2016) found that 73% of women in Australia used digital media during pregnancy, and the most popular reason for using it was to get information about fetal development (Lupton et al., 2016). In another study conducted in Sweden, it was determined that 95% of women use the internet to access information about pregnancy (Bjelke et al., 2016). Gao et al. (2013) found that the rate of internet use during pregnancy in China was 91.9% (Gao et al., 2013).

It is stated that the rate of internet use is higher in pregnant women with higher education and income levels (Emül et al., 2021). It has been determined that the rate of internet use of women is higher in the first trimester of their pregnancy (Gao et al., 2013; Larsson, 2009) and that the rate of internet use is higher in pregnant women over 35 years old than in younger pregnant women (Bjelke et al., 2016). Güneş Öztürk et al. In the study (2020), it was determined that young women and women with their first pregnancy use the internet more frequently.

The purpose of this review is to examine the use of media and the internet for women's pregnancy, birth, and cesarean section information in line with the literature.

### **Information Search and Internet Use in Pregnancy**

Pregnancy, which is one of the important periods of a woman's life, is a process in which the woman focuses on herself and her baby's health (Javanmardi et al., 2018). Pregnancy can affect women's quality of life, as it is an unpredictable process even if it is not risky (Lagadec et al., 2018). It has been determined that women use the internet to have more control over the decisions affecting their pregnancy due to their need for information and to reinforce the information they receive from the health professional (Lagan et al., 2010). In addition, women are in search of information in order to learn about the causes of mental and physical changes that occur in them, to seek solutions to health problems, and to learn about birth and postpartum processes (Batman, 2018; Gürel et al., 2006). It has been determined that women seek information about a healthy pregnancy and birth process, communicate more with health care providers, improve their self-care skills to make informed decisions about health, and turn to protective healthy lifestyle behaviors (Ghiasi, 2021; Warner and Procaccino, 2004).

Although studies have found that pregnant women prefer to meet with a health professional from any health institution as the source of information, it has been observed that women have turned to the internet in recent years due to privacy, accessibility, and the scope of available information (Bayrak and Kanbur, 2022; Grimes et al., 2014; Lowe et al., 2009). In another study, it is stated that 46% of women prefer the internet because the time of the health professional is not enough to ask questions and get adequate answers, and 48% of them prefer the internet because they are not satisfied with the information they receive from the health professional about the pregnancy process (Lagan et al., 2010).

In the study of Şat and Sözbir (2018), it was found that 41.3% of women used at least one pregnancy-related mobile application during their pregnancy. In the study of Gao et al. (2013), it was found that 81.5% of women preferred the internet as a source of information in the first 3 months of their pregnancy and they used the internet (88.7%) to access information about pregnancy, birth, and expected baby. It has been determined that women use the internet to reach their peers who share similar experiences with the health personnel about the issues they cannot ask (Lagan et al., 2011). In addition, it has been determined that even if women do not actively share in digital media such as the internet and social





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media, they contribute positively to getting rid of negative emotional states such as anxiety and uncertainty due to the opportunity to get advice from health professionals or other parents (Lupton, 2016).

### **Using the Internet and Social Media for Pregnancy and Childbirth**

In general, it has been stated that social media or forum sites on the internet are also actively used by women to express themselves online, communicate interactively, join groups, and share their own ideas and experiences (Gencer et al., 2019; Ay et al., 2019). It has been determined that women use social media and the internet both during pregnancy and postpartum period as a way of adapting to their motherhood roles (Baker and Yang, 2018). It has been observed that women can access processes related to pregnancy and childbirth, and websites where pregnancy-related posts are made (Golder et al., 2019). In a study examining the posts on widely preferred social media platforms, it was found that women prefer pages with humorous posts that normalize pregnancy and difficulties in pregnancy (Oviatt and Reich, 2019). In the study of Wexler et al., it was determined that women preferred forum sites to discuss their concerns about the baby or abnormal findings, and shared emotional and peer support as well as sharing about health problems such as bleeding, cramps, pain, nausea, and vomiting (Wexler et al., 2020). It has been determined that women share their eating behaviors, exercise habits, changes in body appearance, and health behaviors on specially designed websites or social media groups (Marshall et al., 2019; Oviatt and Reich, 2019).

Some of the preferred mobile applications specific to the perinatal period allow women to determine their probable date of birth, monitor their body weight, physical activity levels, diet, and mental and emotional changes (Lupton, 2016). In studies, the effects of online web-based interventions on improving the mental health of women during pregnancy and postpartum period (Haga et al., 2019), reducing gestational weight gain (Wilcox et al., 2017), maintaining regular exercise habits (Hayman et al., 2017). is indicated.

In a meta-analysis study, it was found that women prefer the experiences of those who have experienced pregnancy and childbirth, as well as the opinions or information of health professionals in digital media, and focus on self-control (Sanders and Crozier, 2018). It has been determined that pregnant women mostly use the internet and social media to reach people who are experiencing similar situations, find support, and talk about sensitive issues anonymously without revealing their identity (Bjelke et al., 2016).

### **The Effect of the Internet and Social Media on Women's Birth Preference**

Although women's personal beliefs and expectations about childbirth are different from each other, it is stated that psychological factors such as their expectations from birth (Karabulutlu, 2012), social and cultural factors, fear and anxiety about childbirth are effective on the basis of their birth type preferences (Miller and Danoy-Monet, 2021). It is stated that the most important reason for the increase in cesarean births all over the world is the increase in the rates of optional cesarean births (Sönmez and Sivaslıoğlu, 2019; Bettes et al., 2007). It has been determined that the woman prefers cesarean section due to reasons such as the control of both her baby and her own health, previous negative birth experiences, and fear of not getting enough support from the health professional (Suwanrath et al., 2021; Shirzad et al., 2021). Hildingsson (2014) found that women prefer cesarean delivery to plan the delivery time and avoid pain.

It is seen that while deciding on the mode of delivery, women are influenced by their friends, health professionals, and the media, and they prefer the topics they are curious about with birth pain and fear of birth or the websites that share their birth stories (Ay et al., 2019; Gözükara and Eroğlu, 2008). In a study, they stated that women on social media denied the possible risks of cesarean section for both themselves and their baby, and they preferred cesarean section because they thought that cesarean section is less traumatic and safer than normal delivery (Vazquez Corona et al., 2022). Suwanrath et al. (2021), it was determined that women's comments on a vaginal birth and cesarean section shared on social media and the internet were effective in women's birth preferences (Suwanrath et al., 2021). In a qualitative study examining vaginal birth preferences, it is stated that a primiparous mother prefers vaginal birth by expressing that she is negatively affected and afraid by the cesarean delivery video she watches on social media (Aktaş and Yılar, 2018). In a study examining social media contents, it was determined that the most viewed content of users belonged to "birth fear" and "birth stories" (Ay et al.,



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2019). In the study by Fioretti et al., it was determined that 56% of the websites mentioned the benefits and advantages of cesarean section and that the greatest benefit of cesarean delivery was a convenience for the mother (Fioretti et al., 2015).

### Conclusion

It has been observed that women frequently use the internet, various forum sites, and social media to share posts about physical and mental changes during pregnancy and the postpartum period and to communicate with their peers who have similar problems. In social media and the internet, it is seen that women share not only the changes in pregnancy or health problems but also their birth perceptions and birth preferences. Health professionals can be effective in controlling the accuracy of information shared on the internet and media. In particular, nurses and midwives can take a more active role in the internet and media with their professional approach to pregnancy and the birth process. It can be ensured that the training provided in pregnant schools is carried out in a web-based and interactive way.

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### OKUL YÖNETİCİLERİNİN KIRICI YÖNETİCİ-LİDER DAVRANIŞLARINA İLİŞKİN ÖĞRETMEN GÖRÜŞLERİ (GİRNE ÖRNEĞİ)1

TEACHER ABOUT SCHOOL ADMINISTRATORS 'SCATHING MANAGER-LEADER  
BEHAVIOR (KYRENIA DISTRICT EXAMPLE)

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#### **Özet**

Bu araştırmanın temel amacı, Kuzey Kıbrıs Türk Cumhuriyeti'nin 2019-2020 Eğitim ve Öğretim Yılı'nda Girne İlçesi'nde bulunan özel ve devlet okullarında görev yapan öğretmenlerin kırıcı yönetici-lider davranışlarına ilişkin görüşlerini belirlemektir. Bu araştırma nicel bir araştırma olup tarama modeli ile gerçekleştirilmiştir. Araştırma verileri kırıcı yönetici-lider davranış ölçeği ile toplanmıştır. Okul yöneticilerinin kırıcı yönetici lider davranışlarının kırıcı, kendini beğenmiş ve çıkarıcı davranış boyutlarından oluştuğu ve bu davranışların orta derecede gösterildiği saptanmıştır. Öğretmenlerin mesleki kıdeme göre kırıcı yönetici, lider davranışına ilişkin görüşleri arasında farklılık saptanmıştır. Mesleki kıdemi az olan öğretmenler, mesleki kıdemi fazla olan öğretmenlere göre yöneticilerinin gösterdiği davranışları daha fazla kırıcı, kendini beğenmiş ve çıkarıcı bulmaktadır.

**Anahtar Sözcükler:** Toksik liderlik, kırıcı, kendini beğenmiş, çıkarıcı, yönetici-lider davranışı

#### **Abstract**

The main aim of this research is to determine the opinions of the teachers who work in private and public schools in the Girne district of the Turkish Republic of Northern Cyprus in the 2019-2020 education and learning year regarding the demining manager-leader behaviour. This research is quantitative research and was carried out with the screening model. The research data were collected with a demining manager-leader behaviour scale. Teacher about school administrators scathing manager-leader behaviour. According to the teachers professional seniority teacher about school administrators scathing manager-leader behaviour, there was a difference between the views of the demining manager and the leader behaviour.

**Keywords:** Toxic Leadership, disobliging, arrogant, self-seeker, manager-leaders behavior

#### **Problem**

Eğitim örgütleri insan yoğunluklu örgütlerdir. Eğitim örgütlerinin üretim işlevlerini gerçekleştirdikleri yerler okullardır. Üretim süreci, diğer bir anlatımla eğitim-öğretim süreci yönetici-öğretmen, öğretmen-öğretmen, öğretmen-öğrenci iletişimine dayalı yoğun bir etkileşimi içermektedir. Bu süreçte bazen farklı yetki kaynak ve güce sahip olan tarafın ya da paydaş üzerinde ilişkide baskıcı ve yönlendirici olabilmektedir. Bu durum ise okuldaki çalışma yaşantısını olumsuz yönde etkileyebilmektedir. Bu etkide en büyük etmen öğretmenlerin çalışma isteğini ve psikolojisini olumsuz yönde etkileyen tutum ve davranıştır. Bu bağlamda öğretmenlerin görevlerini gerçekleştirme sürecinde görev gereği kurdukları



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toplumsal ilişkilerin baskıcı ve iş yaşantılarını olumsuz yönde etkileyici niteliği öğretmenlerin dolayısıyla da okulun amacını, başarısını olumsuz yönde etkileyebilmektedir.

Örgütsel dinamiği etkin kılmada, örgütün kültürel niteliği, örgüt içerisinde meydana gelen çatışmaların çeşidi, seviyesi ve etkisini gösteren liderlik biçimi büyük önem arz eder (Özmen ve Aküzüm, 2010, s. 67).

Bir örgütün sağlıklı bir şekilde devam etmesi için izleyicilerinin hem fiziksel hem de ruhsal açıdan sağlıklı olması gerekmektedir. Örgüt liderinin örgüt içerisindeki izleyicilerini olumsuz yönde etkilemesi toksik liderlik olarak gösterilebilmektedir. Bu alanda toksik liderlik ele alınacaktır.

Toksik kelimesi, bir toksin veya zehirlenmeden etkilenerek, bir hasara veya ölümlü sonuçlanan potansiyele sahip bir durum olarak tanımlanmaktadır. Kelime Yunancada “toksikon”, Latince de ise “toksikus” olarak kullanılmaktadır. İki dilde de aynı anlama gelen zehir anlamına gelmektedir. Toksik liderlik kavramı ilk olarak Whicker tarafından kullanılmıştır (Uzunbacak, Yıldız ve Uzun, 2019, s. 212).

Schmidt’e (2008) göre, liderlerin herhangi bir örgüt içerisinde bireylere yönelik göstermiş oldukları olumsuz davranışlar toksik liderlik olarak tanımlanmaktadır. Bu tip liderler bireylerin motivasyonlarını düşürerek verimsizliğe, çalışma isteklerinin azalmasına yol açabilmektedir.

Lipmon ve Blumen’e (2005) göre, toksik liderlik, başka bireylerin düşüncelerine saygı duymayan, umursamayan, örgütün işleyişine uygun davranmayıp hem örgüte hem de izleyicilere olumsuz etkilerde bulunan liderlerden farklıdır. Toksik liderleri, tehlikeli davranış ve yetersiz kişisel özellikler gösteren liderler olarak tanımlamaktadırlar. Toksik olarak düşünülmesi için örgüt ve izleyiciler üzerinde ciddi hasarlara neden olması gerekmektedir.

Tavanti’ye (2011) göre, liderlik teorileri, liderin örgüt izleyicileri için verimlilik, motivasyon ve eylemleri üzerinde olumlu bir etki bırakılması üzerinde çalışırken; bazı liderlerin ise olumsuz yönlerini göz ardı edip, karanlık yönünü görmemektedirler. Lider kelimesine bakıldığında olumlu bir anlam çağırıştırır gibi görünse de liderin olumsuz tarafının olabileceği düşünülmemektedir.

Housman ve Minor’a (2015) göre, bir örgütte çalışma arkadaşlarına olumsuz, kötü ve narsist davranışlar gösterme, yalnızca liderlerde görülen bir davranış değil; aynı zamanda herhangi bir çalışandan da beklenebilir. Hatta bu toksik davranış ve eylem zaman içinde örgüt çalışanlarına da yayılabilir (akt. Reyhanoğlu ve Akin, 2016, ss. 444-445).

Hitchcock’a (2015) göre, bireylerin hem sağlığı hem de çalışma atmosferi açısından olumsuz sonuçlar uzun süreli etkiler yaratabilmektedir. Bu tip liderler, kendilerini koruma altına alarak ve çıkarlarını koruyarak eylemde bulunurlar. Örgütün yararı değil kendi çıkarlarına yönelik eylemlerini gerçekleştirmektedirler. Bu durum ise örgütlerin güçlerini kaybetmelerine sebep olmaktadır.

Schmidt’e (2015) göre, bu tip toksik liderlik davranış gösteren örgütlerde güven duygusu zayıflar, adaletsiz uygulamalar artarak, verimlilikte düşüş başlar ve çıkar ilişkileri devreye girer. Güven duygusunun ve bağlılığın zayıfladığı örgütlerde kişilerin birbirinden kopmaları ve işe isteksiz gelmelerle beraber, işten ayrılmalarda da artış başlar (Bakan ve Yılmaz, 2019, ss. 2-3).

Toksik liderliğin genel tanımlarına bakıldığında, örgüt içerisinde olumsuz davranış gösteren lider olarak değil; aynı zamanda izleyiciler ve örgüt üzerinde ciddi hasar bırakan bir liderlik olarak çıkabilmektedir. Bir örgütte yalnızca liderden kaynaklı bir toksik davranışın oluşacağı gibi aynı zamanda orada çalışan herhangi bir örgüt çalışanından da kaynaklı bir toksik davranış oluşabilmektedir. Bu durum ise gerek örgüte gerekse çalışma ortamında olumsuz ve ciddi bir hasar oluşturabileceğidir.

Whicker’e (2006) göre, ise toksik liderler çalışanlarına kaba ve zorba davranışlarda bulunurlar. Herkesin içinde hakaret edici ve küçük düşürücü davranışlarda bulunurlar.

Lipmen-Blumen (2011)’e göre, zehirli liderlik davranışları iki mekanizma yoluyla ortaya çıkmaktadır: Birincisi, yıkıcı davranışlar; ikincisi ise işlevsel olmayan kişisel özelliklerdir. Lipmen-Blumen (2011) göre, yıkıcı davranışları; moral bozma, küçük düşürme, gözdağı verme, yanlış yönlendirme, korkularını kullanma, özel hayata müdahale, başkalarına karşı doludurma, günah keçisi seçme, önemsememe ve gereksiz stres yaratma olarak nitelendirmiştir. İşlevsel olmayan kişisel özellikler ise; aşırı hırs, yüksek



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ego, kibir, para hırsı, ahlakî bozukluk, zor kararları almada korkaklık, problemlere karşı duyarsızlık, davranışlarının sonuçlarını önemsememe ve lakayt olma şeklinde nitelendirmiştir.

Toksik liderlikte yalnızca lideri sorumlu tutmakta doğru sayılmayabilir. Padilla, Hogan ve Kaiser (2007) göre, toksik liderliğin oluşmasına ve sürdürülmesine etki eden etmenler bulunmaktadır. Bu etmenler ise “zehirli üçgen” denilen üç öğeden oluşmaktadır. Bu üçgende: Lider, izleyeciler ve çevredir. Toksik lideri oluşturan özellikler güç, narsisizm ve olumsuz yaşam biçimi ve nefret duygusudur. İki tür izleyici ortaya çıkmaktadır. Boyun eğen ve göz yuman. Boyun eğenler, öz güven eksikliği, olgunluk seviyesinin düşük olması iken, göz yumanlarda ise yükselme, başarıma hırsı ve benzer görüşlerdir. Çevrenin etkisi ise kültürel değerlerden, yeterli olmayan örgütlerdir. Bu üç öğe birbirini destekleyerek besler. Bunun sonucunda da toksik liderliğin varlığını devam etmesini sağlar. Bir liderin toksik davranış göstermesinin diğer bir nedeni de kendini önemli kılmasıdır. Eğer her işin üstesinden tek başına geleceğine inanır ve her şeyin ona bağlı olduğuna inanırsa bu onun performansını etkileyerek verimsiz olmasına yol açacaktır (akt. Gündüz ve Dedekorkut, 2014, s. 99).

Okul yöneticisi öğretmenleri çalışmaya yöneltme tarzı ve motive edici bir çalışma ortamı yaratması, okulun amaçlarına ulaşmasında ve öğretim etkililiğinde önemli rol oynamaktadır. Yöneticinin göstereceği liderlik davranışı, yöneticinin yeterliliği ve kişisel özelliklerinin yanı sıra, öğretmenlerin güdülenmesinde hangi davranışların onlar için güdüleyici özellikte olduğu üzerinde şekillenebilmektedir. Bu çalışmada öğretmenleri çalışmaya yöneltmede, okul yöneticisinin sahip olduğu kırıcı yönetici-lider davranış özelliklerinin saptanmasına gereksinim duyulmuştur.

**Araştırmanın Amacı:** Bu araştırmanın temel amacı; ilk ve lise öğretmenlerinin birlikte çalıştıkları yöneticilerin ne derecede kırıcı yönetici-lider davranışı özelliklerini sahip olduğu konusundaki görüşlerinin saptanmasına dayanmaktadır.

**Yöntem:** Yöntem bölümleri; araştırma modeli, örneklem yöntemi, verilerin toplanması ve analiz yöntemine yer verilmiştir. Bu araştırma, tarama modeli kullanılarak gerçekleştirilmiştir. Araştırmanın gerçekleşmesi için katkı sağlayan katılımcı öğretmenlerin sahip oldukları özelliklerinde herhangi bir değişim yapmadan veriler toplanmış olup, yapılan araştırma için öğretmenlerin görüşleri alınmıştır.

**Evren ve Örneklem:** Araştırmanın evrenini K.K.T.C’ deki 2019-2020 eğitim ve öğretim yılında Girne ilçesinde özel ve devlet ilköğretim, ortaokul ve lise okulları oluşturmaktadır. Bu okullarda toplam 511 öğretmen araştırmanın evrenini oluşturmaktadır. Bu evrenden basit seçkisiz örnekleme yoluyla 155 öğretmen araştırma örnekleme alınmıştır.

**Verilerin Toplanması:** Araştırma verisi geliştirilen kırıcı yönetici-lider davranışı ölçeği ile toplanmaya çalışılmıştır.

**Kırıcı Yönetici Lider Ölçeğinin Geliştirilmesi:** Kırıcı yönetici-lider ölçeğinin geliştirilmesi sürecinde 3 ölçekten yararlanılmıştır. Birinci ölçek Andrew Alexander Schmidt (2008) tarafından geliştirilmiş Toxic Leadership ölçeğidir. Bu ölçek 30 soru ve 5 boyuttan oluşmaktadır. Bu ölçekten soru alınırken Andrew Alexander Schmidt’in ölçeği geliştirme sürecinde kullandığı soru havuzundan da yararlanılmıştır. Yani Schmidt (2008) ölçek geliştirme sürecinde kullandığı soru havuzundan ve 0 maddelik ölçekteki sorulardan yararlanılmıştır.

Araştırmada ölçek geliştirme sürecinde kullanılan diğer iki ölçek ise Süheyla (2016) tarafından geliştirilmiş olan toksik liderlik ölçeği ile Çelebi, Güner ve Yıldız (2015) tarafından geliştirilmiş toksik liderlik ölçeğidir. Her iki ölçek Schmidt (2008) ölçeğinin Türkçe’ye uyarlanmış biçimidir. Araştırmada yararlanılan 3 ölçek aşağıda verilmiştir:

**1. Toksik Liderlik Ölçeği** (Schmidt, 2008): Ölçek 30 soru ve 5 boyuttan oluşmaktadır. Boyutlar: Tacizci denetim 7, Otoriter liderlik 6, Narsizm 5, Kendini yüceltme 5, Öngörmezlik 7

**2. Toksik Liderlik Ölçeği** (Suheyla, 2016): 5 boyut ve 30 sorudan oluşmaktadır. Boyutlar: İstismarcı Yönetim 7, Otoriter Liderlik 6, Narsist Davranış Biçimi 5, Kendini Ön Plana Çıkarma 5, Öngörülemeyen Davranışlar 7.

**3. Toksik Liderlik Ölçeği** (Çelebi, Güner ve Yıldız (2015): Dört boyut ve 30 sorudan oluşmaktadır. Boyutlar: Değer bilmezlik 11, Bencillik 5 Çıkarıcılık 9, Olumsuz ruh hali 5.





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Araştırma için 5 boyuttan oluşan toplam 90 maddelik soru havuzu oluşturulmuştur. Açıklayıcı faktör analizi sonucunda 4 boyut ve 43 sorudan oluştuğu görülmüştür. Ancak 4. Boyutta yer alan ve 4 maddeden oluşan boyutun açıklanan varyans oranı çok düşük olduğu ve ölçeğin genel yapısına uyumsuz olduğu gerekçesi ile değerlendirilmeden çıkartılmıştır.

*Kırıcı Yönetici-Liderlik Ölçeğinin Kayıp Değer Analizi:* Veri setinde kayıp değerlerin bulunması analizleri etkilemektedir. Bunun nedeni kayıp verilerin veri setinde hiçbir değer içermemeleridir. Veri setinde kayıp değer iki şekilde meydana gelmektedir. Birincisi sistematik kayıp veri, ikincisi ise rastlantısal kayıp veridir. Kayıp veriler, veri silme yöntemleri (Listwise ve pairwise silme yöntemleri) ve veri tamamlama yöntemleri (mean imputation, regression imputation hot ya da cold deck imputation, expectation-maximization (EM), and multiple imputations) ile ortadan kaldırılabilir. Bununla birlikte veri setinde kayıp verilerin oranı tüm verilerin oranından %5 az ya da %5'e eşit ise kayıp veriler çalışmada uygulanan analizler üzerinde etkisi bulunmamaktadır (Büyüköztürk, 2007).

Araştırmanın ana uygulama çalışmasında kırıcı yönetici-lider ölçeği çalışmasında yanıt veren toplam 166 öğretmenden 10 öğretmen bazı sorulara yanıt vermediği için devre dışı bırakılmıştır. Kırıcı yönetici-lider ölçeğinin kayıp değeri /1.20 olduğundan kayıp verilere herhangi bir atama yapılmamıştır.

*Ölçeğin Normallik Dağılımı:* İstatistik çalışmalarında verilerin dağılımı çok önemlidir. Çünkü istatistiksel araştırmalarda yapılan birçok testin uygulanabilmesi için, dağılımın normal veya normale yakın olması gerekmektedir. Genel bir kural olarak basıklık ve çarpıklık kat sayılarının [+1;-1] aralığında bulunmaları tek değişkenli normallik sağlamaktadır. Bununla birlikte George ve Mallery'e (2003) göre basıklık ve çarpıklık katsayıları +2 ile -2 arasında olması da veri setinin normal dağılım gösterdiğini işaret etmektedir (akt. Eraslan, Karanfil, Atay, 2017).

*Ölçeğin Normal Dağılım Testi Sonuçları:* Araştırmada dağılımın normallik sınavında Kolmogorov-Smirnov testi yapılmış aynı zamanda puanların çarpıklık-basıklık (skewness-kurtosis) değerlerine bakılmıştır. Kolmogorov-Smirnov testi sonucuna göre anlamlılık değerinin (p) .05ten büyük olması normallik sağlandığı anlamına gelmektedir (Can, 2013). Verilerin analizi sonucu çalışmada Kolmogorov-Smirnov testi sonucuna göre anlamlılık değerinin (p) .05ten küçük çıktığı ve çarpıklık basıklık katsayısının George ve Mallery, 2010'e göre, +2.0 ile -2.0 arasında olduğu için veriler normal dağılım göstermektedir (akt. Eraslan, Karanfil, Atay, 2017).

Çarpıklık (Skewness) ve Basıklık (Kurtosis) istatistik değerleri alanyazında -2 ile +2 arasında olup olmama ile karşılaştırılarak normallik koşulunu araştırılır. Ölçeğin bütünü olan kırıcı yönetici-lider davranışı için -753 ile -596 değerleri kabul edilen aralıkta yer aldığı için normallik koşulu sağlandığı kabul edilir.

**Tablo 1. Kırıcı Yönetici-Liderlik Davranışı Ölçeği (KYLD) Normal Dağılım Test Sonuçları**

	Statistic	Std. Error
<b>KYLD</b>		
Mean	3,2180	,07219
95% Confidence Interval for Mean		
Lower Bound	3,0754	
Upper Bound	3,3606	
5% Trimmed Mean	3,2564	
Median	3,4762	
Variance	,808	
Std. Deviation	,89872	
Minimum	,98	
Maximum	4,55	
Range	3,57	
Interquartile Range	1,17	
Skewness	-,753	,195
Kurtosis	-,596	,387



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<b>Kırcı</b>	Mean		3,0528	,08643
	95% Confidence Interval for Mean	Lower Bound	2,8821	
		Upper Bound	3,2235	
	5% Trimmed Mean		3,0829	
	Median		3,3636	
	Variance		1,158	
	Std. Deviation		1,07600	
	Minimum		,95	
	Maximum		4,68	
	Range		3,73	
	Interquartile Range		1,59	
	Skewness		-,635	,195
	Kurtosis		-,780	,387
	<b>Kendini Beğenmiş</b>	Mean		3,6082
95% Confidence Interval for Mean		Lower Bound	3,4390	
		Upper Bound	3,7774	
5% Trimmed Mean			3,6597	
Median			4,0000	
Variance			1,137	
Std. Deviation			1,06653	
Minimum			1,00	
Maximum			5,00	
Range			4,00	
Interquartile Range			1,64	
Skewness			-,688	,195
Kurtosis			-,606	,387
<b>Çıkarıcı</b>		Mean		3,5254
	95% Confidence Interval for Mean	Lower Bound	3,3334	
		Upper Bound	3,7173	
	5% Trimmed Mean		3,5837	
	Median		3,8333	
	Variance		1,463	
	Std. Deviation		1,20966	
	Minimum		1,00	
	Maximum		5,00	
	Range		4,00	
	Interquartile Range		1,67	
	Skewness		-,701	,195
	Kurtosis		-,582	,387

**Tablo 2. Kırcı Yönetici-Liderlik Davranışı Öçeği Normallik testi**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
<b>Kırcı yönetici davranışı</b>	,137	155	,000	,907	155	,000
<b>Kırcı</b>	,129	155	,000	,912	155	,000
<b>Kendini Beğenmiş</b>	,159	155	,000	,920	155	,000
<b>Çıkarıcı</b>	,149	155	,000	,908	155	,000

Ölçeğin boyutları açısından da normallik dağılımına bakıldığında boyutların da normal dağılıma sahip olduğu söylenebilir. Ölçeğin 1.Kırcı Boyutu için -.753 ile -.596; 2. Kendini beğenmiş boyu için -.635 -,.780; 3. Çıkarıcı boyut için -.701-.582 değerleri kabul edilen aralıkta yer aldığı için normallik koşulu sağlandığı kabul edilir.



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*Kırıcı yönetici-lider davranışı ölçeğinin açımlayıcı faktör analizi (AFA):* Toplanan veriler üzerinde ilk önce ölçeğin güvenilirlik analizi gerçekleştirilmiştir. Güvenirlik katsayısı Cronbach alpha katsayısı  $\alpha=0.985$  bulunmuştur. Ölçeğin güvenilirlik değeri oldukça yüksektir, dolayısıyla ölçek geçerliliği için analiz yapmaya uygundur. Daha sonra ölçeğin yapı geçerliğini belirlemek için önce Kaiser-Meyer-Olkin (KMO) ve Bartlett analizleri gerçekleştirilerek faktör analizi yapıp yapılmayacağı belirlenmiştir (Tavşancıl, 2006). KMO değerinin 0.90 üzerinde çıkması, veri setinin faktör analizi yapılması için mükemmel düzeyde olduğu şeklinde yorumlanmaktadır. Bunun yanında Bartlett testi değerlerine göre, sıfır hipotezinin 0.05 anlamlılık düzeyinde reddildiği anlaşılmaktadır. Elde edilen değerler neticesinde veriler üzerinde açımlayıcı ve doğrulayıcı faktör analizler yapılmış; ölçeğin faktörlere ayrılma durumu temel bileşenler analizi ile belirlenmiştir.

**Tablo 3. Kırıcı Yönetici-Liderlik Davranışı Ölçeğinin Küresellik testi**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	,938
Bartlett's Test of Sphericity Approx. Chi-Square	15039,101
df	4005
Sig.	,000

Faktör analizi, geliştirilen bir ölçekteki maddelerin daha az sayıda boyutlara ayrılıp ayrılmadığını tespit etmek amacıyla yapılır. Bu sebeple yapılan temel bileşenler analizi de faktörlere ayırma tekniği olarak kullanılan yöntemlerdendir. Bu bağlamda güvenilirliğin yüksek oluşundan dolayı faktörler arasında ilişki olduğu düşünüldüğünden Promax eğik döndürme tekniği kullanılarak faktör yükleri incelenmiştir (Erkuş, 2003). Döndürme yöntemlerinden eğik (oblique) döndürme tekniği, faktörlerin birbiriyle ilişkili olduğu düşüncesi üzerine kurulur, dik (orthogonal) döndürmenin aksine eksenlerin döndürülmesinde farklı eksenler kullanılır. Promax döndürme sırasında (Kappa=4) faktör yükü 0.50'nin altındaki durumlar dikkate alınmamış, özdeğeri 1.00'den büyük faktörler değerlendirilmiş ve elde edilen sonuçlara göre analiz dışı tutulması gereken maddeler ölçekten çıkarılmış ve net değerler ile kesin sonuçlar alınana kadar faktör analizi çalışmaları tekrarlanmıştır (Çokluk, Şekercioğlu ve Büyüköztürk, 2010). Nihai olarak 5 kez faktör analizi yapılmıştır. Burada maddelerin birden fazla faktörle binişik olmaması da göz önünde tutularak işlemler gerçekleştirilmelidir. Birden fazla faktörle binişik olması durumuna ilişkin ölçüt, faktör yükleri arasında en az 0.10 fark olmasıdır. Bununla birlikte Büyüköztürk (2007) faktör yüklerinin. 45'ten büyük olmasının ölçek maddelerinin seçimi için önemli bir ölçüt olacağını ifade etmiştir. Bu sebeple bu araştırmada örneklem büyüklüğü de dikkate alınarak faktör yük değerleri 0.50'nin altında olan maddeler ile binişik olan maddeler arasında 0.10 'dan az fark olan maddeler ölçekten çıkarılacaktır kanısı baz alınmıştır. Faktör analizi neticesinde faktörlerin toplam varyansı açıklama scree plot 3 faktörü gösterdiği görülmektedir.

**Tablo 4. Kırıcı Yönetici-Liderlik Davranışı Ölçeğinin Faktör Analizi Faktör Yükleri**

Sorular	Boyutlar		
	1.Kırıcı	2.Kendini Beğenmiş	3. Çıkarıcı
s53	,943		
s63	,854		
s59	,815		
s54	,813		
s48	,808		
s60	,802		
s40	,796		
s61	,785		
s64	,780		
s56	,779		
S39	,772		
S26	,747		
s62	,731		
s65	,692		



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S30	,690		
S38	,681	,301	
s70	,675		
S27	,619		
s57	,608		
s66	,586		
s45	,523		
S23		,918	
s41	-,329	,868	
S24		,804	
s52		,790	
S22		,737	
S15		,676	
S17		,650	
S12		,603	
s50		,586	
S16	,374	,542	
S21	,411	,532	
s85			,921
s86			,915
s90			,838
s87			,714
s88			,665
s84	,352		,584

**Tablo 5. Kırıcı Yönetici-Lider Davranışı Ölçeğinin Faktör Analizi Sonucunda Toplam Açıklanan Varyans**

Toplam Açıklanan Varyans							
Boyutlar	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Toplam	Varyans %	Birikimli %	Toplam	Varyans %	Birikimli %	Toplam
Kırıcı	23,042	54,862	54,862	23,042	54,862	54,862	21,506
Kendini Beğenmiş	2,231	5,312	60,173	2,231	5,312	60,173	17,004
Çıkarıcı	2,005	4,773	64,946	2,005	4,773	64,946	14,441

Bu çalışmada kuramsal yapı dikkate alındığında 3 boyut üzerinden işlemler yürütülmüştür.

*Kırıcı yönetici-lider davranışı ölçeğinin doğrulayıcı faktör analizi (DFA):* Kırıcı Yönetici- Lider Davranışı Ölçeğinin boyutlarının ve modelin test edilmesi için doğrulayıcı faktör analizi (DFA) yapılmıştır. Öncesinde normallik testi yapılmıştır. Normallik varsayımı sağlandığı görülmektedir. Likert tipi ölçek kullanıldığı için sürekli olduğu görülmektedir. Bu bağlamda en çok olabilirlik yöntemi (Maximum Likelihood (ML) ile analizler yapılmıştır. 42 maddeden oluşan 3 faktörlü model için uyum değerleri hesaplanmıştır. Analiz sonucunda hesaplanan uyum indeksleri modelin uygunluğuna karar verebilmek, bu konuda yorum yapabilmek için birden çok istatistiği beraber, kendi koşulları ve model koşulları içerisinde incelemek gerekmektedir (Byrne, 2011, s.664). Bu istatistiki değerlerin kimi örnek büyüklüğüne, kimi serbestlik derecesine aşırı duyarlı iken, bazıları ise modelin karmaşıklığına ya da basitliğine duyarlılık göstermektedir (Yaşlıoğlu, 2017, s.80).



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Ki-Kare testi (CMIN ve CMIN/DF), Ki-Kare değeri modelin genel uygunluğunu test etmek amacıyla kullanılan en temel ölçümdür. Ancak bu istatistiğin kullanımında birçok sınırlılık söz konusudur. En büyük problem Ki-Kare değerinin bire bir örneklem büyüklüğüyle ilişkili olması ve model uyumunu reddetmeye meyil göstermesidir. Ki-Kare istatistiğinin sınırlılıkları yüzünden istatistikçiler bu istatistiğin en azından serbestlik derecesinden arındırılarak değerlendirilmesi gerektiğini savunmuşlar ve  $\chi^2/df$  (CMIN/DF) değerini hesaplamayı önermişlerdir. Literatürde farklı eşik değerleri (5 gibi) kabul edilmektedir (Yaşlıoğlu, 2017: 80-81).  $\chi^2/df=2$  değeri de kabul edilmektedir (Tabachnick ve Fidell, 2007, akt. Yaşlıoğlu, s.285). Bu çalışmada 2 değeri eşik alınmıştır. 2'nin altındaki değerler modelin uyumuna işaret etmektedir. CMIN/DF =1.706

RMSEA, kurulan modelin parametrelerinin, ana kütlelin kovaryans matrisi ile ne derece uyumlu olup olmadığı hakkında bilgi veren bir istatistiktir (Byrne, 2011, s.664). 0.1'e yaklaşan ve aşan değerler kötü, sıfıra yaklaşan değerler modelin iyi olduğuna işaret etmektedir. RMSEA'nın %95 güven aralığında alabileceği değerler 0.03 ile 0.08 aralığında olabilir, 0.08'in üzerindeki değerler kötü bir model uygunluğuna işaret etmektedir (Rigdon, 1996, akt. Yaşlıoğlu, 2017, ss.369-379). RMSEA =0.068

GFI istatistiği Ki-Kare istatistiğinin örneklem büyüdükçe yükselmesi sorununu ortadan kaldırmak üzere ortaya çıkarılmıştır ve örnek büyüklüğüne daha az duyarlıdır. Gerçek ile modellemenin oransal kıyaslamasıdır. GFI istatistiği 0 ile 1 arası değer almaktadır ve serbestlik derecesiyle ters orantılı olarak hareket eder; dolayısıyla örnek büyüklüğünün serbestlik derecesine oranı büyüdükçe artma eğilimi göstermektedir (Yaşlıoğlu, 2017 s.81). GFI'nın 0.90'ı aşması iyi bir model göstergesi olarak değerlendirilir (Munro, 2005). GFI varyans miktarından ve örneklem hacminden etkilenir. Örneklem hacmi arttıkça GFI'de artar. GFI=0.713

NFI istatistiği, modelin  $\chi^2$  değeri ile sıfır modelinin  $\chi^2$  değerini karşılaştırmaktadır. Sıfır modeli (null model veya independence model) ölçülen değişkenlerin ilişkili olmadığı (uncorrelated) model olarak tanımlanmaktadır. NFI değeri 0 ile 1 arasında değer almaktadır ve eşik değer olarak 0.90 değeri iyi uygunluğu ifade ediyor olarak kabul edilmektedir (Hu ve Bentler, 1999). NFI istatistiğinin en eksik yanı 200'ün altındaki örneklemle yapılan analizlerde modellerin uygunluğunu düşük göstermesidir (Mulaik vd., 1989, ss.430-445).

Örneklem hacmi çok büyük olmadığında, mevcut model doğru olsa bile NFI değerinin 1'e yaklaşmadığı görülmektedir. Bu nedenle TLI modele serbestlik derecesini ilave ederek bu sorunu ortadan kaldırdı (Schumacher ve Lomax, 2004). NFI= 0.806

TLI istatistiği, örneklem büyüklüğünün etkisini ortadan kaldırmak için NNFI (non-normed fit index) veya başka adıyla TLI istatistiği ortaya atılmıştır. TLI istatistiği model karmaşıklıkla düşme eğilimi göstermektedir, ayrıca her ne kadar NFI kadar olmasa da örnek büyüklüğüne duyarlıdır ve düşük örnek büyüklüklerinde diğer istatistikler iyi uygunluk gösterse de düşük uygunluk değerleri verebilmektedir. TLI eşik değeri olarak alanyazında çok farklı görüşler yer almıştır. TLI>0.80 gibi eşik değerler yanı sıra TLI>0.95 gibi yüksek eşik değerlere de rastlanmaktadır (Hu ve Bentler, 1999; Byrne, 2011, s. 684, akt. Yaşlıoğlu, 2017 s.81). TLI= 0.902

CFI istatistiği, NFI istatistiğine göre örnek büyüklüğünü de hesaba katar ve küçük örneklemelerde dahi iyi sonuçlar verir, en çok kabul gören ve kullanılan istatistiklerden biridir. 0 ile 1 arasında değer alır. 1'e yaklaştıkça modelin uygunluğu artmaktadır. Literatürde farklı değerlendirmeler vardır. 0,90 eşik değeri kabul edildiği gibi daha sonraları ise 0,95 değerleri iyi uygunluk göstergesi olarak kabul edilmiştir (Bentler ve Bonnet, 1980, s.558). CFI=0.909

Uyum indeksleriyle birlikte modelde hesaplanan modifikasyon indeksleri (MI) incelendiğinde bazı maddeler için hata kovaryanslarının dikkate değer düzeyde ilişkili oldukları anlaşılmıştır. Aynı gizil değişken altında yer aldıkları anlaşılmıştır. MI değerleri yüksek olan iki değişken arasında kurulacak olan bağ (modelde çift yönlü okla gösterilir) Ki-Kare değerinin düşmesine, dolayısıyla modelin daha uygun (fit) hale gelmesine yardımcı olacaktır (Jöreskog ve Sörbom, 1993). Maddeler arasındaki yüksek hata korelasyonları modele eklenmiştir. (S52-S41, S23-S24, S1-S2, S2-S5, S2-S11, S7-S10, S8-S12, S12-S17, S11-S20)

İdeal uyum indekslerinin neler olduğu ile ilgili farklı görüşler bulunmakla birlikte Gerbing ve Anderson (1993) tarafından ortaya atılan bir görüş ideal uyum ölçülerinin en az 3 özelliği sağlaması gerektiğidir.

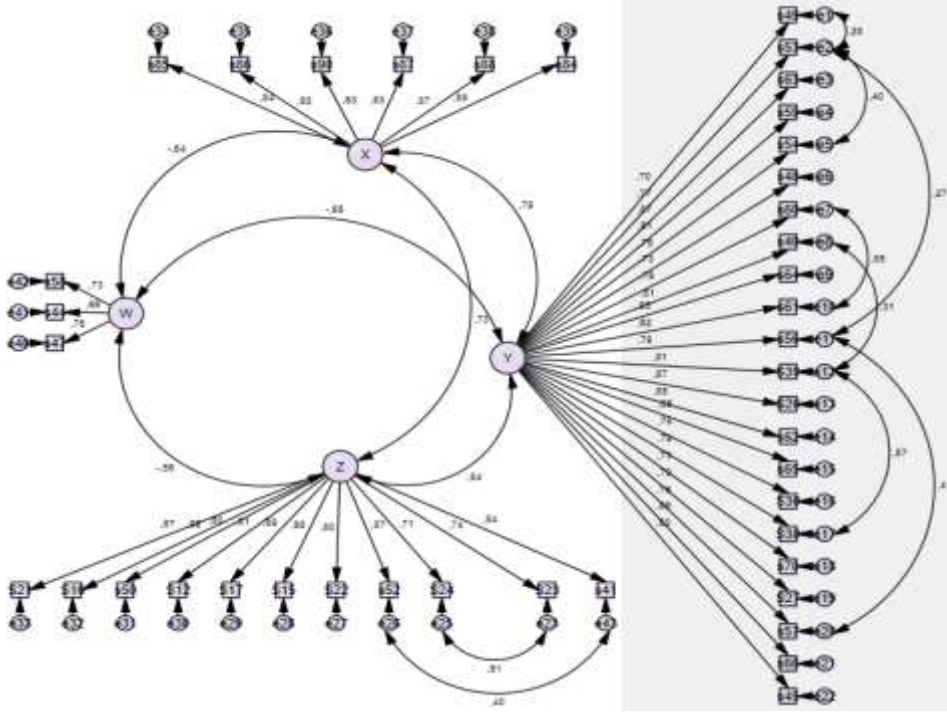


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Buna göre bir uyum ölçüsü 0 ile 1 arasında değerler almalı. 0 tam uyumsuzluğu ve 1 mükemmel uyumu göstermelidir. Örneklem büyüklüğünden etkilenmemelidir. Yorumlaması kolay olması için dağılımının bilinmesi gerekmektedir.

Bu bağlamda DFA ile model test edilmesiyle elde edilen uyum indeks değerleri modelin iyi uyum gösterdiğine işaret etmektedir.

Şekil 2. Dört Faktörlü Modele İlişkin DFA Sonuçları



*Güvenirlilik analizi:* Kırıcı Yönetici-lider davranışı ölçeğinin güvenirlik analiz sonuçları aşağıda verilmiştir. Bu sonuçlara göre ölçeğin alfa güvenirlik katsayısının yüksek düzeyde olduğu söylenebilir.

Tablo 6. Kırıcı Yönetici-Lider Davranışı Ölçeğinin Güvenirlik Analizi Sonuçları

<u>Boyutlar</u>	<u>Cronbach Alfa Katsayısı</u>	<u>Madde Sayısı</u>	<u>AO</u>	<u>Varyans</u>	<u>ss</u>
<i>Kırıcı</i>	.97	22	70.4	614.27	24.78
<i>Kendini Beğenmiş</i>	.94	11	39.69	137.63	11.73
<i>Çıkarıcı</i>	.93	6	21.15	52.67	7.25
<i>Ölçek</i>	.98	39	138.4	1507.05	38.8

Toplanan veriler üzerinde ilk önce ölçeğin güvenirlik analizi gerçekleştirilmiştir. Güvenirlik katsayısı Cronbach alpha katsayısı  $\alpha = 0.985$  bulunmuştur. Ölçeğin güvenirlik değeri oldukça yüksektir. En düşük güvenirlik katsayısı .93 olarak Çıkarıcı boyutunda çıkmıştır.

### Bulgular

Kırıcı yönetici lider davranışı ölçeğine ilişkin her soruya verilen yanıtların aritmetik ortalama, standart sapması, frekansı ve yüzdelik tablosu verilmiştir. Sonrasında araştırmanın alt amaçlara ilişkin bulgulara yer verilmiştir.



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### Kırıcı Yönetici-Lider Davranışı Ölçeği Boyutları Arasındaki İlişki

Kırıcı Yönetici-Lider Davranışı altında incelenen üç boyutu arasındaki korelasyon analizi için öncelikle değişkenlerin normal dağılıp dağılmadığına bakılmaktadır. Normallik testlerine bakıldığında hem ölçeğin kendisi hem alt boyutları normallik varsayımını sağladıkları anlaşılmaktadır. Dolayısıyla Pearson korelasyon analizi yapılmıştır.

**Tablo 9. Kırıcı yönetici-lider davranışı ölçeği boyutları arasındaki (Pearson Correlation) ilişki**

Boyutlar	Kırıcı	Kendini Beğenmiş	Çıkarıcı
Kırıcı	1		
Kendin Beğenmiş	,795**	1	
Çıkarıcı	,739**	,686**	1

0.80 ve üzeri yüksek, 0.60-0.80 arası güçlü ilişki, 0.40-0.59 orta derece ilişki, 0.20-0.39 düşük ilişki, <0.20 zayıf ilişki (tesadüfi bir ilişki) olduğunu belirtmektedir (Şencan, 2005). Kırıcı Yönetici- Lider Davranışı alt boyutları arasındaki korelasyon istatistiki olarak anlamlıdır. Kırıcı yönetici davranışı ile kendini beğenmiş yönetici davranışı arasında doğrusal güçlü bir ilişkinin var olduğunu göstermektedir. Hemen hemen yüksek bir ilişki olduğundan da söz edilebilir. Kırıcı Yönetici davranışı ile çıkarıcı yönetici davranışı arasında güçlü doğrusal bir ilişkinin var olduğunu göstermektedir. Kendini beğenmiş yönetici davranışı ile çıkarıcı yönetici davranışı arasında güçlü doğrusal bir ilişkinin var olduğunu göstermektedir.

Boyutlar arasındaki ilişkiye bakıldığında en büyük ilişki kırıcı yönetici davranışı ile kendini beğenmiş yönetici davranışın arasında 0.795 ile hemen hemen yüksek bir ilişkinin olduğunu göstermektedir. Sonrasında 0.739 korelasyon katsayısı ile kırıcı yönetici davranışı ile çıkarıcı yönetici davranışı arasında güçlü bir ilişki olduğu görülmektedir.

**Öğretmenlerin mesleki kıdemine ilişkin bulgular:** Öğretmenlerin Kırıcı Yönetici-Lider Davranışı Ölçeği'ne ilişkin puanlarının öğretmenlerin mesleki kıdemine göre görüşlerin farklılaşım farklılaşmadığına ilişkin yapılan Tek Yönlü Varyans Analizi sonuçları Tablo 10'de verilmiştir.

**Tablo 7. Öğretmenlerin kırıcı yönetici-lider davranışı puanlarının öğretmenlerin mesleki kıdemine göre tek yönlü varyans analiz sonuçları**

Varyansın Kaynağı	Kareler toplamı	sd	Kareler ortalaması	F	p	Anlamlı fark kaynağı	
Kırıcı Yönetici Davranışı	Gruplar Arası	15,843	6	2,641	3.600	.002	1-5 yıl- 6-10 yıl, 1-5 yıl-16-20 yıl
	Gruplar içi	108,543	148	,733			
	Toplam	124,386	154				

Varyansların homojenliği varsayımı gerçekleşmemiştir ( $0,016 < 0,05$  olduğu için). Ancak bu ön koşul olmasa da analiz yapılabilmektedir. Tablo'10'a göre, öğretmenlerin branşlarına göre Kırıcı Yönetici-Lider Davranışı Ölçeği'ne ilişkin görüşleri arasında p değeri  $0,002 > 0,05$  olduğu için öğretmenlerin kırıcı yönetici-lider davranışı görüşlerinin, öğretmenlerin mesleki kıdemlerine göre anlamlı farklılık bulunmaktadır. Yani, öğretmenlerin mesleki kıdemine göre Kırıcı Yönetici- Lider Davranış Ölçeği'ne ilişkin görüşleri arasında ( $F=3600$ ,  $p > 0,002$ ), anlamlı fark vardır.

Bu farklılığın hangi mesleki kıdem grubunda kırıcı yönetici-lider davranışlarına ilişkin öğretmen görüşleri farklılık gösterdiğini Post Hoc analiziyle elde ediyoruz. Hangi mesleki kıdem arasında farklılık vardır sorusu şu şekilde cevaplanır. Varyanslar homojen dağılmadığı için Games-Howell testi yapılmıştır. Bu Post Hoc altında Games-Howell testi, ANOVA testinde mesleki kıdem grupları arasında anlamlı olarak farklılık vardır sonucunun hangi mesleki kıdem grupları arasında olduğunu gösteriyor. Öğretmenlerin kırıcı yönetici davranışlarına yönelik görüşlerine bakıldığında,



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1-5 yıl (  $ao=2,7139$  ) ile 6-10 yıl (  $ao=3,6941$  ) ve 16-20 yıl (  $ao=3,5340$  ) mesleki kıdeme sahip öğretmenler arasında ortalama farklarına bakıldığında 1-5 yıl arası lehine anlamlı bir farklılık olduğu görülmektedir. Test sonucunda hesaplanan eta kare ( $\eta^2$ )  $15,843/124,386=0.1274$  olarak bulunur. Bu farkın geniş etki büyüklüğüne sahip olduğu görülmektedir (Green ve Salkind, 2005). Değişimin ne kadarının farklı gruplara ait olma ile açıklanabildiğinin ifadesidir.

### Sonuç

Okul yöneticilerinin gösterdiği kırıcı yönetici lider davranışın kırıcı, kendini beğenmiş ve çıkarıcı boyutlarında orta düzeyde davranış özelliklerine sahip olduğu anlaşılmaktadır. Bu boyutlardaki her bir soruda belirtilen özelliklerin çoğu kez gösterildiği saptanmıştır. Bu boyutlar açısından sıklıkla gösterilen davranışlar aşağıda kısaca açıklanmıştır.

Araştırmaya katılan öğretmenlerin okul yöneticilerinin kırıcı yönetici-lider davranış özelliklerinden kırıcı davranış boyutuna bakıldığında yönetici-lider davranışının öğretmenlere sergiledikleri davranış arasında ilk sırada öğretmenler arasında hizipler yarattığı, ikinci olarak anlaşmazlıkları tetiklediği bu davranışı ise etik olmayan yorumların takip ettiği, dördüncü özellik ise kendi aşarısızlıklarını öğretmenlere yüklediği ve son özellik ise başarıları kendine mal etmesidir.

Sonuç olarak öğretmenlerin okul yöneticilerinin gösterdikleri yönetici-lider kırıcı davranış özelliklerine ilişkin sorulara verdikleri yanıtların aritmetik ortalama puanları arasında çok büyük fark bulunmamaktadır. Bu durumda okul yöneticilerinin kırıcı davranış özelliklerine ilişkin 22 özellikten 21 özelliği ortalama değer üzerinde, yani çoğu zaman gösterdiği anlaşılmaktadır.

Araştırmaya katılan öğretmenlerin okul yöneticilerinin kırıcı yönetici-lider davranış özelliklerinden kendini beğenmiş boyutunda insanlar üzerinde kontrol sahibi olmayı sevdiği, öğretmenlerinden, talimatlarına tamamen uymalarını istediği, insanları kolayca yönlendirebildiğine inandığı, öğretmenlerinden “söz dinleyen” bireyler olmalarını beklediği özellikleri ön plana çıkmaktadır.

Araştırmaya katılan öğretmenlerin okul yöneticilerinin kırıcı yönetici-lider davranış özelliklerinden çıkarıcı boyutunda verileri, üstünleri memnun edecek şekilde yönettiği, yakınlık derecesine göre davranışları değişkenlik gösterdiği, yüksek konumdakilerle bağlantı kurmaya çalıştığı anlaşılmaktadır.

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### RADIOLOGICAL AND FUNCTIONAL OUTCOMES IN CALCANEUS FRACTURES TREATED WITH MINIMAL INVASIVE SURGERY USING NEW EXTERNAL REDUCTION TOOL

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#### **Abstract**

Fractures of the calcaneus cause significant morbidity if not treated appropriately. The load-bearing part of the hindfoot is the talus and calcaneus, and joint compatibility must be perfect for normal walking. Since these fractures are accompanied by soft tissue damage, invasive surgery and surgical complications are common. We presented the results of patients who underwent closed reduction and percutaneous fixation with the help of an external surgical guide of our own design.

Thirty-one calcaneal fractures of 27 patients who were treated surgically between 2018-2021 were included in the study. "Sanders classification was used to categorize fractures. Böhler and Gissane angles were measured from preop, postoperative and 6th month plain radiographs. Clinical and functional evaluation was performed with AOFAS (American Orthopedic Foot and Ankle Score) scores at 3rd and 6th month. Union and subtalar joint quality were evaluated by performing postoperative 6th months Computed Tomography (CT).

The mean age of the patients was 37.8 years. There were 27 patients, 19 male and 8 female, and surgery was performed on 31 calcaneal fractures. 19 patients with isolated calcaneal fractures underwent surgery in an average of 0.9 days, with a mean hospital stay of 2.3 days. The preoperative surgical time of 12 calcaneal fractures with multitrauma is 4.1 days and the average hospitalization period is 11.3 days. The mean AOFAS score was 61.3 at the 3rd month and 79.4 at the 6th month. The mean Böhler angle was 15.4 degrees preop and 22.6 degrees postoperatively; The mean Gissane angle was 107.1 preop and 107.1 postoperatively. One patient who had open fracture required wound revision and skin grafting.

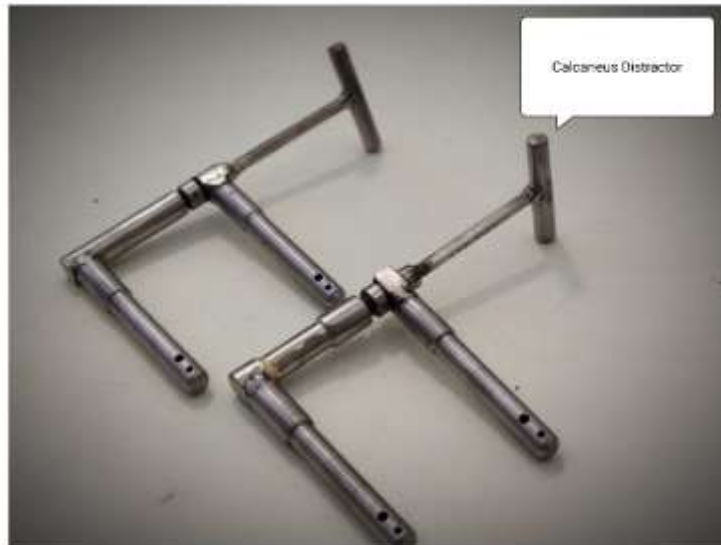
In calcaneal fractures treated with closed reduction and percutaneous fixation, the waiting and hospitalization times are shortened. Although less soft tissue complications develop compared to open procedures, satisfactory functional results can be obtained.

**Keywords:** calcaneal fracture, reduction, minimal invasive surgery

#### **INTRODUCTION**

Historically a burst fracture of the calcaneus was named as a "Lovers Fracture" as the injury would occur as a suitor would jump off a lover's balcony to avoid detection (1). Fractures of the calcaneus cause significant morbidity if not treated appropriately. The load-bearing part of the hindfoot is the talus and calcaneus, and joint compatibility must be perfect for normal walking. These fractures commonly occur by high energy events leading to axial loading of the bone but can occur with any injury to the foot and ankle region (2). Falls from height and traffic accidents are the most of the mechanisms of injury, although jumping onto hard surfaces, blunt or penetrating trauma may also cause injury. Since these fractures are accompanied by soft tissue damage, invasive surgery and surgical complications are common. We aimed to present the results of patients who underwent closed reduction and percutaneous fixation with the help of a new external surgical guide of our own design (Figure 1).





**Figure 1.** Calcaneal distractor of our design based on 2-point distraction principles

### MATERIALS AND METHODS

All calcaneal fractures admitted to the Necmettin Erbakan University Emergency Department between 2018 and 2021 were retrospectively scanned. Then, pathological fractures, fractures treated conservatively and fractures with managed with open reduction internal fixation and osteosynthesis were accepted as exclusion criteria of this study. As inclusion criteria, patients of all ages who underwent closed reduction and internal fixation, including all open and closed fractures, and who used a newly designed distraction-reduction device during surgery were accepted. “Sanders classification was used to categorized fractures. Böhler and Gissane angles were measured from preop, postoperative and 6th month plain radiographs. Clinical and functional evaluation was performed with AOFAS (American Orthopedic Foot and Ankle Score) scores at 3rd and 6th month. Union and subtalar joint quality were evaluated by performing postoperative 6th months Computed Tomography (CT).

As a surgical technique, all patients were operated in the lateral decubitus position. After appropriate asepsis and draping, before starting the surgery, it was checked with fluoroscopy whether Harris, full lateral calcaneus and Broden radiographs of the patient could be taken clearly. Then, a 4 mm shanz pin parallel to the calcaneal tuberosity and a 4 mm shanz pin close to the distal talus neck were placed under fluoroscopy (Figure 2).



**Figure 2.** Insertion of Shanz pins and placement of medial and lateral distractors

While the distractor device was placed medially and laterally, the varus tuberosity deformity and the total length and height of the calcaneus were restored when it was distracted. Then, if the subtalar joint parts were not corrected by ligamentotaxis and their displacement continued, they were reduced



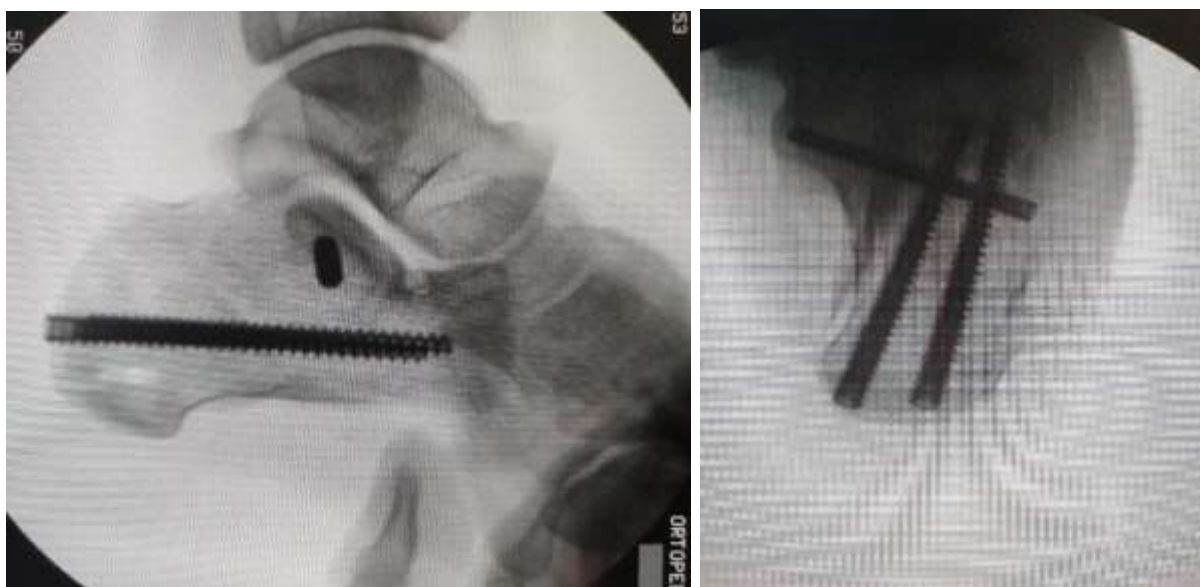
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percutaneously with the help of an elevator with a 0.5 cm mini incision from the lateral side. Then, the subtalar joint was fixed with 1 or 2 cannulated interfragmenter headless compression screws (Mostly 3-4 mm) from the lateral to the medial sustentaculum tali.(Figure 3).



**Figure 3.** After distraction, depressed subtalar fragment was elevated with mini elevator

After the joint reduction was checked with the Broden image, the length and length of the calcaneus were stabilized with 2 cannulated headless compression screws with a diameter of 6 - 7.5 mm (.Figure 4). If there is a tongue-type fracture, a similar screw was directed from the middle of the Achilles tendon to the plantar calcaneus for fixation.

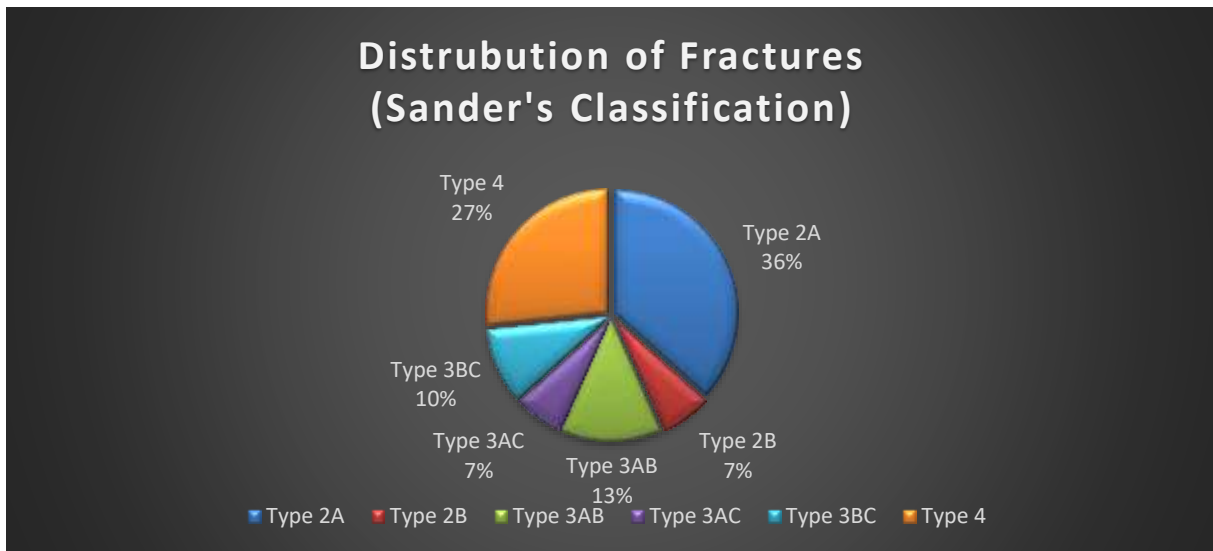


**Figure 4.** Postoperative flouroscopy image of calcaneus fracture treated with minimal invasive surgery with new design distractor

### RESULTS

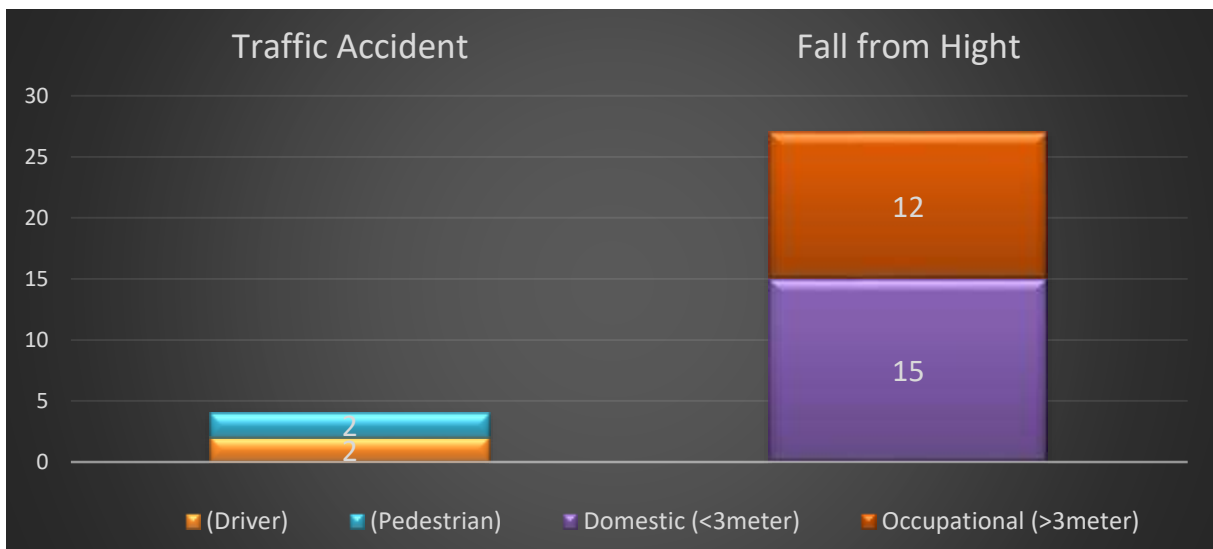
Thirty-one calcaneal fractures of 27 patients who were treated with this method between 2018-2021 were included in the study. The mean age of the patients was 37.8 years. There were 27 patients, 19 male and 8 female, and surgery was performed on 31 calcaneal fractures. There were 11 patients with Sanders Type 2a fracture, 2 patients with Type 2b fracture, 4 patients with Type 3ab fracture, 2 patients with Type 3ac fracture, 3 patients with Type 3bc fracture, 8 patients with Type 4 fracture, and one patient with isolated posterior tubercle fracture (Figure 5).





**Figure 5.** Distrubution of Fractures According to Sanders Classification

There were 2 patients injured due to in-vehicle traffic accident, 2 patients pedestrian traffic accident, 12 patients who fell from a height of more than 3 meters due to an occupational accident, and 15 patients due to a fall of less than 3 meters at home (Figure 6).

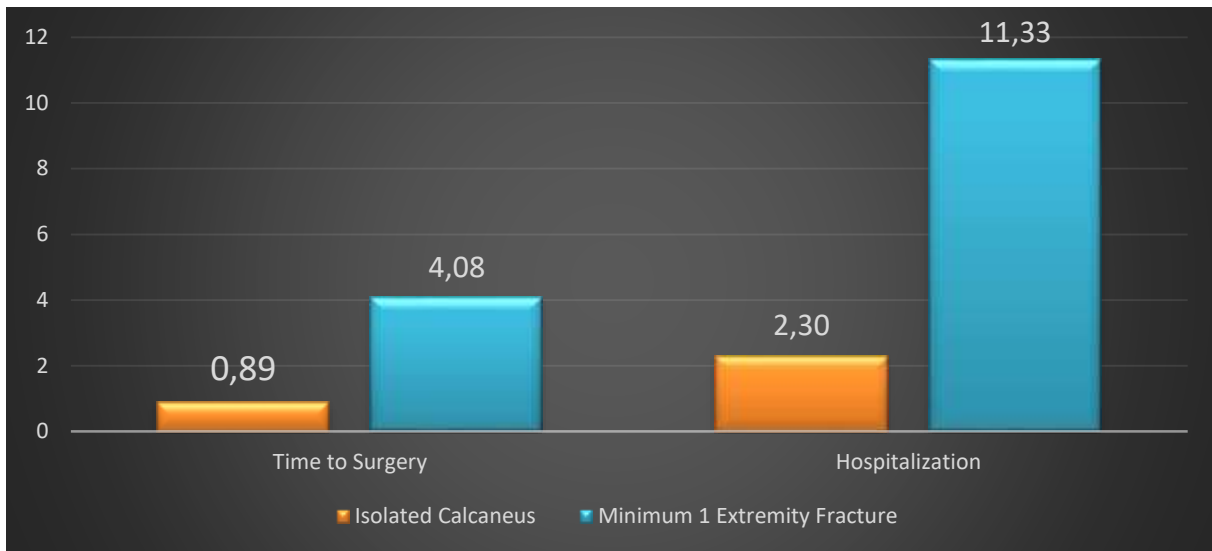


**Figure 6.** Mechanisms of Injuries

19 patients with isolated calcaneal fractures underwent surgery in an average of 0.9 days, with a mean hospital stay of 2.3 days. The preoperative surgical time of 12 calcaneal fractures with multitrauma is 4.1 days and the average hospitalization period is 11.3 days (Figure 7).

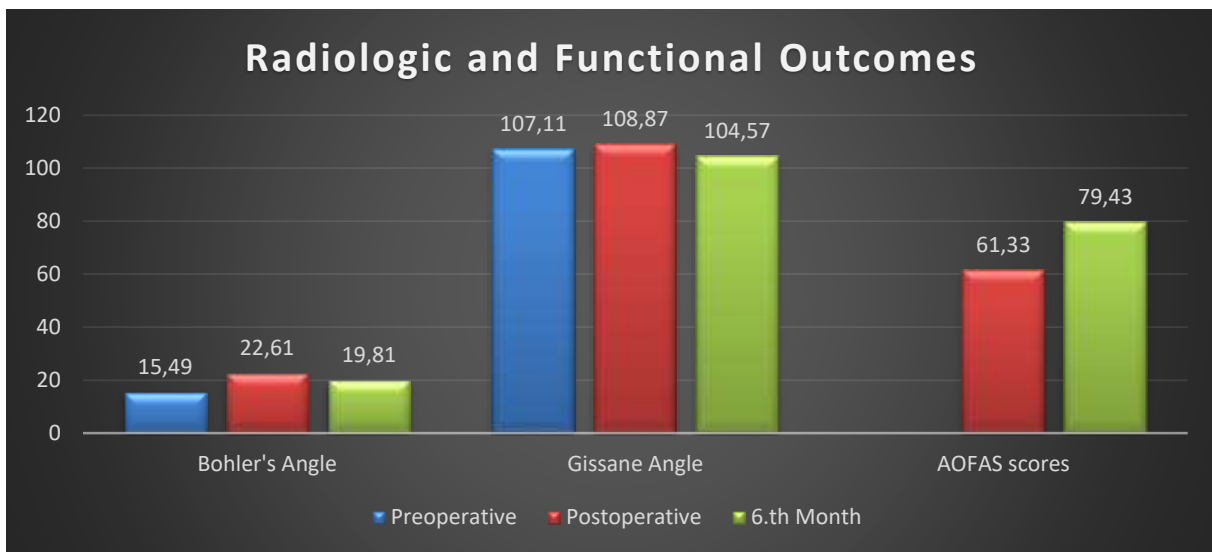


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**Figure 7.** Time to surgery and hospitalization of isolated calcaneal fractures and multitrauma patients who have calcaneal Fracture

The mean AOFAS score was 61.3 at the 3rd month and 79.4 at the 6th month. The mean Böhler angle was 15.4 degrees preop and 22.6 degrees postoperatively; The mean Gissane angle was 107.1 preop and 107.1 postoperatively. One patient who had open fracture required wound revision and skin grafting (Figure 8).



**Figure 8.** Radiological and functional outcomes (Preoperatively, Postoperative first day, 3th month, 6th month)

### DISCUSSION

The management of calcaneus fractures continue to be topics for debate in orthopaedics literature (3-11). The goals of the minimally invasive technique are to minimize soft tissue injury while simultaneously allowing for fracture reduction and stabilization. The indication for this approach includes Sanders type II and III, patients with comorbidities that make soft tissue more vulnerable to complications include diabetes mellitus, smoking and/or obesity, peripheral vascular disease, and minimal posterior facet fragment comminution. But in our case serie we apply MIS technique also to Sanders type 4 fractures with success by the help of this distractor tool. In literature a shantz pin is still used through a percutaneous incision for manipulation of the calcaneal tuberosity. However it is difficult to maintain reduction while taking flouroscopy images and screw inserttion. Some authors contend that anatomic reduction, fracture disimpaction, and repositioning is exceedingly difficult with limited exposures. Once the surgeon has committed to the minimal approach conversion to the extensile



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lateral approach is not recommended and thus great care must be taken in determining the correct approach for the correct patient (12). In a recent meta-analysis was performing comparing minimally invasive techniques with the standard lateral extensile approach. In this analysis, there were 2179 participants followed for an average of 22.41 months. The results of the analysis showed no significant difference in post-operative calcaneal width, length, deep infection or Gissane's angle between the two approaches. There was, however, a difference between wound complications, superficial infection, nerve injury, VAS pain scores, American Academy of Orthopedic Foot and Ankle Society (AOFAS) scores, calcaneal height and post-operative Bohler's angle in favor of minimally invasive techniques (13). As parallel to the literature we can also reach satisfactory functional and radiological outcomes with minimal invasive technique with nearly zero soft tissue complication.

### CONCLUSION

In calcaneal fractures treated with closed reduction and percutaneous fixation, the waiting and hospitalization times are shortened. Although less soft tissue complications develop compared to open procedures, satisfactory functional results can be obtained.

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### ORTOPEDİK CERRAHİDE CERRAHİ ALAN ENFEKSİYONLARINI ÖNLEMEDE BAKIM PAKETLERİNİN ÖNEMİ

THE IMPORTANCE OF CARE BUNDLES IN PREVENTING SURGICAL SITE INFECTIONS IN  
ORTHOPEDIC SURGERY

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#### Özet

Bakım paketi, bakım süreçlerini ve hasta sonuçlarını iyileştirmenin yapılandırılmış bir yoludur. Literatür ortopedik cerrahide de cerrahi alan enfeksiyon oranlarını azaltmada bakım paketlerinin etkili olduğunu bildirmektedir. Bu derlemenin amacı, ortopedide uygulanan bakım paketlerinin cerrahi alan enfeksiyonlarını azaltmada etkisini incelemektir. Pubmed, Cochrane ve Google Scholar veri tabanlarında “surgical site infection”, “care bundle”, “orthopedic” ve “arthroplasty” anahtar kelimeleri kullanılarak konu ile ilgili 2015-2021 tarihlerinde yayınlanan çalışmaların sonuçları ele alınmıştır. İtalya’da kalça artroplastisinde kanıtlarla desteklenen bir bakım paketinin cerrahi alan enfeksiyonunu yaklaşık yarı yarıya azalttığı, Frankfurt’ta ortopedi hastalarında bakım paketi uygulanmadan önce cerrahi alan enfeksiyonu oranı %0.32 iken sonrasında %0.14 olduğu, ABD’de elektif ortopedide cerrahi alan enfeksiyonu, dekontaminasyon protokolünden önce %3.8 iken protokol sonrası %1.1 olduğu, Çin’de geriyatrik kalça kırığı hastalarında cerrahi alan enfeksiyonu, bakım paketi uygulanmadan önce %7.02 iken sonrasında %3.16 olduğu bildirilmektedir. Singapur’da kalça cerrahisinde cerrahi alan enfeksiyonu yerel prevalansının %4.3 iken bakım paketi uygulandıktan sonra %1.8 olduğu ve bakım paketinin uygulandığı 3 yıl içinde cerrahi alan enfeksiyonu insidansının düşüş gösterdiği, Yunanistan’da elektif ortopedide cerrahi alan enfeksiyonu önlemede istatistiksel açıdan anlamlı olmasa da cerrahi alan enfeksiyonunu %53 oranında düşürdüğü, Kuveyt’te diz ve kalça artroplastisi sonrası cerrahi alan enfeksiyonu oranında %57 azalma sağladığı bildirilmektedir. Kalp ve ortopedik ameliyatlar için cerrahi alan enfeksiyonunu önlemede bakım paketinin etkinliğini değerlendiren bir sistematik derlemede uygun bir hasta bakım paketinin kullanılmasıyla, cerrahi alan enfeksiyonunun, yaklaşık %50 oranında etkili bir şekilde azaltılabileceği bildirilmektedir. Ortopedik cerrahide bakım paketlerinin etkinliğini değerlendiren çalışmalar paketlerin cerrahi alan enfeksiyonunu önlemede etkili olduklarını bildirmektedir. Bu bağlamda hemşireler bakım kalitesini arttırmak için kanıta dayalı uygulamaları yakından takip etmeli ve hemşirelik bakımına entegre etmelidirler.

**Anahtar Kelimeler:** Cerrahi alan enfeksiyonu, Bakım paketi, Ortopedi, Artroplasti

#### Abstract

The literature reports that collective interventions effectively reduce surgical site infections (SSI) rates in orthopedic surgery. This review aims to examine the effect of care bundles used in orthopedics on the incidence of SSI. The results of the studies published in 2015-2021 on the subject were examined by using the keywords "surgical site infection", "care bundle", "orthopedic" and "arthroplasty" in Pubmed, Cochrane, and Google Scholar databases. A care bundle for hip arthroplasty in Italy reduced SSI by about half. In Frankfurt, the rate of SSI in orthopedic patients was 0.32% before the care package was applied, while it was 0.14% after the care package was applied. In elective orthopedics in the USA, SSI was 3.8% before the decontamination protocol and 1.1% after the protocol. The rate of SSI in geriatric hip fracture patients in China was 7.02% before the care bundle was applied, and 3.16% after it was applied. The local prevalence of SSI in hip surgery in Singapore was 4.3%. It is reported that this rate is 1.8% after the implementation of the care bundle and the incidence of SSI decreased within 3 years of



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the care bundle. Although not statistically significant in preventing SSI in elective orthopedics in Greece, it reduced SSI by 53%. In a Kuwaiti study, after knee and hip arthroplasty, a set of evidence-based treatments decreased SSI by 57%. It is reported that SSI in orthopedics and cardiac surgery can be effectively reduced by about 50% with the use of the appropriate care bundle. Studies evaluating the effectiveness of care bundles in orthopedic surgery report that care bundles are effective in preventing SSI. In this context, nurses should closely follow evidence-based practices and integrate them into nursing care to increase the quality of care.

**Keywords:** Surgical site infection, Care bundle, Orthopedics, Arthroplasty

### Giriş

Cerrahi alan enfeksiyonları (CAE), ameliyattan sonraki 30 güne kadar (veya implant olan hastalarda ameliyattan sonraki bir yıla kadar) meydana gelen ve ameliyat bölgesindeki insizyonu veya derin dokuyu etkileyen enfeksiyonlar olup hastane enfeksiyonlarının ikinci en yaygın nedenidir (Ma et al., 2017; Kritikou et al., 2019). Cerrahi tekniklerdeki ilerlemelere ve ameliyathanedeki ergonomik gelişmelere rağmen, CAE en sık görülen nozokomial enfeksiyon türlerinden biri olmaya devam etmektedir (Mok et al., 2019). CAE, kalça artroplastisinin son derece ciddi bir komplikasyonu olup prosedürlerin yaklaşık %3'ünü etkilediği tahmin edilmektedir (Atogebania & Xun, 2020). CAE, hastanede kalış süresinin uzamasına, yeniden hastane yatışında artışa, revizyon operasyonlarına, antibiyotik kullanımının ve direncinin artmasına, ayaktan hasta takibi ve rehabilitasyonunun uzamasına, yaşam kalitesinin bozulmasına ve sağlık hizmetleri maliyetlerinde artışa sebep olmaktadır (Edwards et al., 2008; Ma et al., 2017; Ma et al., 2017; İltter et al., 2018). CAE, total diz artroplastisinde revizyon için en sık, total kalça artroplastisinde ise en sık üçüncü endikasyondur (Berríos-Torres et al., 2017).

Kalça kırıklarının yaklaşık %95'i 60 yaş üstü bireylerde meydana gelmektedir ve giderek yaşlanan nüfusla birlikte vaka sayısının artması beklenmektedir (Edwards et al., 2008). Literatürde, 2030 yılına kadar kalça ve diz artroplastisi için enfeksiyon riskinin sırasıyla %2.18'den %6.5'e ve %6.8'e çıkması öngörülmektedir (Berríos-Torres et al., 2017). Yaşlanan nüfus nedeniyle artması beklenen kalça artroplastisi göz önüne alındığında, CAE'lerin önlenmesi son derece önemlidir (Vicentini et al., 2020).

Bakım paketi, bakım süreçlerini ve hasta sonuçlarını iyileştirmenin yapılandırılmış bir yoludur. Toplu ve güvenilir bir şekilde gerçekleştirildiğinde hasta sonuçlarını iyileştirdiği kanıtlanmış, küçük, kanıta dayalı basit uygulama setidir (Institute for Healthcare Improvement, 2021). Paket uygulamasının başarılı olması için, paketin her bir unsuru, en uygun sonuçları elde etmek için tam bir tutarlılıkla toplu olarak uygulanması gerekmektedir ("ya hep ya hiç" yaklaşımı), (Kritikou et al., 2019). Sağlık Hizmetlerini İyileştirme Enstitüsü (Institute for Healthcare Improvement), bakım paketlerinin aslına uygunluğunun en az %95 olmasını ve tıbbi olarak kontrendike olmadıkça her uygun hastanın bakım paketinde yer alan tüm unsurları alması gerektiğini önermektedir (Lavallée et al., 2017). Literatür ortopedik cerrahide CAE oranlarını azaltmada toplu müdahalelerin etkili olduğunu öne sürmektedir (Vicentini et al., 2020): Özellikle diz veya kalça artroplastileri gibi implantların kullanıldığı durumlarda CAE koruyucu protokolleri büyük önem taşımaktadır. Paketler veya protokoller, ortopedik ameliyatlarda daha düşük CAE oranlarına ve sağlık maliyetleriyle ilişkilidir (Kritikou et al., 2019).

### Materyal ve Metod

Bu derleme makalede Pubmed, Cochrane ve Google Scholar veri tabanlarında "surgical site infection", "care bundle", "orthopedic" ve "arthroplasty" anahtar kelimeleri kullanılarak konu ile ilgili 2015-2021 tarihlerinde yayınlanan çalışmaların sonuçları ele alınmıştır. Veri tabanlarında ilgili anahtar kelimeler kullanılarak (ingilizce) yapılan taramada sekiz randomize kontrollü çalışma sonuçları ele alınmıştır.

### Bulgular

Vicentine ve ark. tarafından (2020) sekiz yıllık bir süre içinde İtalya'nın kuzeybatısındaki 34 hastanede uygulanan bakım paketi uygulamasının kalça artroplastisi sonrası CAE oranları üzerindeki etkisini inceleyen bir çalışma yapılmıştır. Paket içeriğinde CAE'nin önlenmesi için etkinlikleri Düzey I kanıtlarla desteklenen ameliyat öncesi duş alma (sabun veya antiseptik sabun ile ameliyattan 24 saat önce), uygun tüy alma (uygun olduğunda cerrahi alanla sınırlı ve ameliyattan hemen önce tek kullanımlık kesme



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başlıkları ile gerçekleştirilir), antimikrobiyal profilaksi (hastane protokollerine ve ulusal kılavuzlara uygun olarak doğru antibiyotik uygulaması (uygun ajan, dozaj, zamanlama ve süre)), ameliyat sırasında normotermiminin sürdürülmesi (vücut sıcaklığının izlenmesi ve intraoperatif normotermiyi sürdürmek için önlemlerin uygulanması) yer almaktadır. Prosedürler üç gruba ayrılarak (1. grup-tam uyumlu prosedürler, 2. grup-kısmen uyumlu prosedürler ve 3. grup-toplu müdahaleye katılmayan hastanelerde gerçekleştirilen prosedürler) uygulanmış ve 90 günlük takip sonrası CAE oranları üç grup arasında karşılaştırılmıştır. Pakete genel uyum, antimikrobiyal profilaksi için %34.3, ameliyat öncesi duş için %42.4, ameliyat sırasında normotermi için %45.5 ve uygun tüy alma için %49.4 arasında değişmiştir. Çalışmada, 2012'de %2.9 olan CAE oranları 2019'da %1.4'e gerileyerek, çalışma döneminin sonunda enfeksiyonlar neredeyse yarı yarıya azalmıştır. Bu çalışma sonucunda tam paket uyumunun enfeksiyon olasılığında %31'lik önemli bir azalma olduğunu saptanmıştır. Kısmi paket uyumu veya ayrı olarak ele alınan paket elemanları için önemli bir etki gözlenmemiştir. Bu paket kalça protezi cerrahisinde CAE'ni önlemek için basit ama etkili bir strateji olabileceğini düşündürmektedir. Çalışmadaki genel uyum oranı düşük olmasına rağmen, çalışma süresi boyunca önemli bir iyileşme gözlenerek bakım paketi içeriğiyle pakete uyum CAE oranlarının azalmasında önemli bir faktördür (Vicentini et al., 2020).

Lustenberger ve ark. (2020) Frankfurt'ta bir travma merkezinde ameliyatla ilgili komplikasyonları ve bakım paketinin cerrahi komplikasyon oranı üzerindeki etkisi inceledikleri 5 bileşenden oluşan bir bakım paketi oluşturulmuştur. Bu bileşenler; ekibin durumsal farkındalığını geliştirme, personel tarafından ameliyathane trafiğinin azaltılması ve kapı açma olaylarının sınırlandırılması, enfeksiyon odakları için ameliyat öncesi tarama (idrar yolu enfeksiyonu dahil), enfeksiyon komplikasyon riski yüksek anatomik bölgeler için preoperatif antibiyotik profilaksisi, iyot içerikli yapışkan örtü kullanımınıdır. Çalışmaya 16349 kişi dahil edilmiş olup en sık görülen cerrahi komplikasyon CAE olarak bulunmuştur. Çalışmada önleme paketi kullanmadan önce (2015-2016) ve kullandıktan sonraki (2017-2019) CAE oranları karşılaştırılmıştır. CAE genel oranı 2015/2016 yıllarında %0.32 iken 2017-2019 yıllarında %0.14'e düşmüştür ( $p=0.006$ ), (Lustenberger et al., 2020).

Mok ve ark. (2019) Singapurda bir hastanede 2015-2017 tarihlerinde kalça cerrahisi uygulanan 758 hastaya ameliyat öncesi, esnası ve sonrası dönemi kapsayan bir CAE önleme bakım paketi kullanılmış ve paketin CAE insidansı üzerindeki etkisi retrospektif olarak analiz edilmiştir. Paket ameliyat öncesi; değiştirilebilir hasta risk faktörlerini (örn. diyabet) ve beslenmeyi optimize etme, aneminin önlenmesi, cilt mikroflorasını azaltmak için klorheksidin vücut yıkama ile ameliyat öncesi cilt hazırlığı, MRSA'lı hastalardan cerrahi kalça hastalarının taranması ve izolasyonu; ameliyat esnası antibiyotik profilaksisi, vücut sıcaklığının korunması, intraoperatif hipotermiminin önlenmesi, aneminin önlenmesi, ameliyat sonrası düzenli yara muayenesini içeren ameliyat sonrası ateş takibi, yara kontaminasyonunu önleme, beslenmeyi optimize etme, aneminin önlenmesi, erken mobilizasyon ve taburcu planlamasını içermektedir. Çalışmada yıllar içinde CAE insidansında istikrarlı bir düşüş olduğu bildirilmektedir. Çalışmanın yapıldığı yerde bildirilen CAE yerel prevalansının %4.3 iken çalışma sonucunda bu oran %1.8'dir (Mok et al., 2019). Bu durum kalça cerrahisinde CAE insidansını düşürmede bütünleştirici bir CAE önleme bakım paketinin etkinliğini yansıtmaktadır.

Ma ve ark. (2017) yılında kalp ve ortopedik ameliyatlar için CAE'leri önlemede demetin etkinliğini değerlendiren bir sistematik derlemede kalp veya ortopedik ameliyatlarda hasta bakım paketinin, özellikle *S. aureus* ile ilişkili enfeksiyonlarda, gözlemsel çalışmalarda standart bakımdan önemli ölçüde daha etkili olduğu bulunmuştur. 5 randomize kontrollü çalışmanın meta-analizler sonuçlarında anti-stafilokokal paket kullanıldığında CAE'leri üzerinde plaseboya kıyasla %41'lik bir iyileşme eğilimi göstermiş ancak bu durum istatistiksel açıdan anlamlı bulunamamıştır. Uygun bir hasta bakım paketinin kullanılmasıyla, ortopedik ve kalp cerrahisindeki CAE'ler (özellikle *S. aureus* ile ilişkili CAE'ler için) yaklaşık %50 oranında etkili bir şekilde azaltılabileceği bildirilmektedir (Ma et al., 2017).

Bebko ve ark. (2015) elektif ortopedik cerrahi uygulanan hastalarda dekontaminasyon protokolünün CAE üzerindeki etkisini inceleyen bir çalışmada %2 klorheksidin bez, %0.12 oral durulama ile %5 intranasal povidon-iyodin solüsyonu uygulamasından oluşan bir dekontaminasyon protokolü oluşturulmuş, %2 klorheksidin bez ve ağız gargarası ameliyattan önceki gece ve ameliyat gününün sabahı birer kez uygulanmıştır. Ameliyat gününün sabahında bir kez intranasal povidon-iyot solüsyonu uygulanmıştır. CAE kontrol grubunda görülme oranı %3.8 iken deney grubunda %1.1'dir ( $p=0.02$ ). Bu



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durum, ortopedik hastalar arasında dekontaminasyon protokolünün uygulanmasından sonra genel CAE oranlarında önemli bir düşüş olduğunu göstermektedir (Bebko et al., 2015).

Kritikou ve ark. (2019) elektif ortopedik cerrahi hastalarında üç aşamalı CAE önleyici bir paketin enfeksiyonları azaltıp azaltmadığını inceleyen bir retrospektif bir çalışmada (Yunanistan-Atina), diz veya kalça artroplastisi geçiren aynı hasta grubuna ilk dönem standart CAE önleyici tedbirler uygulanırken ikinci dönem *ameliyat öncesi dönemde*, ameliyattan 10 gün önce hasta değerlendirmesi ve diyabet ve beslenme gibi majör risk faktörlerinin yönetimi, bütün vücut klorheksidin banyosu (ameliyattan önceki gece ve ameliyat gününün sabahı), işlemden sadece bir gece önce elektrikli traşlarla ameliyat bölgesinin hazırlanması, MRSA taşıyıcılık durumuna bakılmaksızın nazal mupirosin verilmesi (1 gün öncesinden başlayıp devam edin), *ameliyat esnasında* iyodopovidon ile cilt antisepsisini takiben protokol kapsamında etil-alkol veya glukonik klorheksidin uygulaması eklenmiş ve acil durum dışında flaş sterilizasyon kullanımı yasaklanmıştır, *ameliyat sonrası* 5 gün) hastanede kalış süresinin en aza indirilmesi (<12 saat) sağlanmıştır. Ayrıca, ikinci çalışma döneminden önce ameliyat sırasında cerrahi malzeme hareketlerinin kısıtlanması, ameliyathane kapılarının kapalı tutulması ve cerrahi yaranın aseptik tekniklerle postop manipülasyonu gibi diğer tüm önleyici tedbirlerin sıkı bir şekilde uygulanması için doktorlara ve hemşirelere eğitim verilmiştir. CAE insidansı deney grubunda (%0.8) kontrol grubundan (%1.7) daha düşük bulunmuştur ( $p=0.102$ ). Bakım paketinin uygulanmasından sonra CAE oranlarında %53 oranında bir düşüş kaydedilmiştir. İşlem sonrası hastanede yatış gün süresi beş günden iki güne düşmüştür ( $p<0.001$ ). Sonuç olarak ortopedik cerrahide CAE önlenmesi için bir dizi önlem kullanılması, CAE'da önemli bir azalmaya, hastanede kalış süresinde ve maliyette azalmaya neden olduğu saptanmıştır (Kritikou et al., 2019).

Lok ve ark. (2020), hemiarthroplasti uygulanan geriatrik kalça kırığı hastalarında bakım paketi yaklaşımının CAE'yi azaltmadaki etkinliğini inceleyen bir çalışmada bakım paketi öncesi ve sonrasındaki CAE oranları karşılaştırılmıştır. Paket uygulamasından önce kurumda standart bir protokol olmayıp ameliyat yerinin dezenfeksiyonu rutin olarak povidon-iyot ile ameliyat sonrası pansuman da cerrahların ameliyat anındaki tercihi göre yapılmaktadır. Paket içeriğinde preoperatif dönemde MRSA taraması yapılması (pozitif ise profilaktik olarak Vankomisin), ameliyattan 1 gün önce veya ameliyat günü klorheksidin ile banyo yapılmıştır. Anestezi indüksiyonunda rutin olarak intravenöz Sefazolin yapılmış ve operasyondan sonrasında da üç doz daha uygulanmıştır. Personele uygun perioperatif cilt dezenfeksiyonu tekniği konusunda eğitim verilmiştir. Ameliyathanedeki tüm personel, hastane kılavuzundaki standart el yıkama yöntemine göre uygun el yıkama tekniği eğitiminden geçmiştir. Yeni işe alınan tüm ortopedi cerrahları, ameliyattan önce uygun cilt dezenfeksiyonu yöntemi konusunda eğitilmiştir. Ameliyathanede gereksiz trafikten kaçınılmıştır. Cerrahi alan dezenfeksiyonunun standardizasyon protokolü uygulanmıştır (povidon-iyot dezenfeksiyonu, ikinci aşama su geçirmez ekstremite örtüsü ve cerrahi olmayan bölgenin steril plastik örtü ile sarılması ve klorheksidin glukonat ve izopropil alkol), ardından çevresel iyodoform- kalça ve uyluk bölgesini kaplayan plastik yapışkan örtü, ameliyat yarası kapatıldıktan sonra Aquacel yapışkan bant ile pansuman). Bakım paketi yaklaşımının uygulanmasından sonra enfekte hemiarthroplasti vakalarının sayısında istatistiksel olarak anlamlı bir azalma olduğu saptanmıştır ( $p=0.041$ ), (Lok et al., 2020).

Morsi ve ark. (2021), diz ve kalça artroplastisi sonrası CAE oranlarını azaltmak için bir dizi kanıt dayalı uygulamanın etkinliğinin araştırdıkları yarı deneysel bir çalışmada Preop dönemde aktif MRSA taraması, MRSA dekolonizasyonu, antibiyotik profilaksisi, epilasyon, ameliyat öncesi banyo; intraop el ovma (scrub), cilt hazırlığı, Dünya Sağlık Örgütü'nün kontrol listesinin kullanımı, ameliyathane ruloları, ameliyathanenin çevre temizliği; postop yara pansumanı, taburculuk sonrası takip, cerrahlara geri bildirim gibi 13 girişimin yer aldığı bakım paketini uygulamışlardır. Çalışmanın sonucunda müdahale öncesi toplam CAE oranı %11.9 iken müdahale sonrası bu oran %5.1'e düşmüştür (%57 azalma) ( $p=0.042$ ), (Morsi et al., 2021)

### Sonuçlar

Dünya Sağlık Örgütü tarafından yapılan son çalışmalar, CAE'nin düşük ve orta gelirli ülkelerde en çok araştırılan ve sık görülen türü olduğunu ve cerrahi prosedür uygulanmış hastaların üçte birini etkilediğini göstermektedir. Kaliteli bakımın önemli göstergelerinden biri olan CAE enfeksiyonlarının önlenmesi ve uygun tedavinin sağlanmasında da çok disiplinli bir ekip çalışması şarttır. Yapılan



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çalışmalar bakım paketlerinin cerrahi alan enfeksiyonlarının önlenmesinde önemli katkı sağladığını ortaya koymuştur. Bakım paketleri mümkün olan en iyi bakımı sağlamak ve olumlu/yararlı sonuçlar elde etmek için belli bir ekip tarafından ve bütün olarak uygulanmayı gerektirir. İçerdiği girişimlerin bütün olarak yapılmaması beklenen başarıya ulaşılmasını engelleyen en önemli nedendir Bakım paketi hastanın yararına olabilecek kanıt düzeyi yüksek uygulamaların bir araya getirilmesi ve kullanılmasından oluşmaktadır. Bu uygulamalar tek tek yapıldığında hastaya yarar sağlar fakat hepsinin aynı paket içerisinde uygulanması teker teker yapılmasına kıyasla daha iyi sonuçlar ortaya çıkarmaktadır (Marwick and Davey 2009, Çetinkaya 2010). Bakım paketi uygulandığında bütün sağlık çalışanları tarafından aynı hasta bakımı uygulaması benimsenir, hemşirelik bakımında standardizasyon sağlanır ve bu durum bakımın kalitesini artırır (Marwick and Davey 2009, Çetinkaya 2010).

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### USE OF LOW-LEVEL LASER THERAPY FOR EPISIOTOMY PAIN

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#### ABSTRACT

An episiotomy is an incision applied to the perineum during vaginal delivery. Episiotomy is applied to the bulbo-cavernous muscle in the second stage of labor to increase vaginal opening, facilitate delivery, ensure rapid, easy and safe fetal head exit, prevent vaginal lacerations, and protect the perineum. Episiotomy is applied to the perineum as median, lateral and mediolateral. The World Health Organization has recommended that episiotomy should not be routinely performed. While the rate of episiotomy is 54-92% in nulliparous women, it has been reported as 6-12% in multiparous women. Pain is common after episiotomy. Episiotomy pain negatively affects the mother's quality of life and complicates the process of adaptation to parenthood. For this reason, it is very important to relieve episiotomy pain. Local cold application, dry heat application, and moist hot application are applied to relieve episiotomy pain. Which is a non-invasive and painless procedure for episiotomy pain and healing laser applications. It has been determined that laser treatment produces anti-inflammatory, analgesic and physiological effects in tissues. It has also been reported that laser therapy increases beta-endorphin levels and decreases prostaglandin and interleukin levels. For this reason, it was thought that it could be used for episiotomy pain as well. In another study, therapeutic ultrasound application with frozen gel packs was found to be more effective than laser application. In another study, it was reported that diode laser application is an effective method to reduce episiotomy pain and induce healing if the appropriate wavelength, frequency and energy density are determined. Although there are studies that low-level laser application is effective on episiotomy pain and healing, the evidence is insufficient. Further studies with different samples are recommended.

**Keywords:** Episiotomy, pain, laser therapy, low-level radiation therapy, episiotomy recovery.

An episiotomy is an incision applied to the perineum during vaginal delivery. Episiotomy (Yıldız Karahmet & Yazıcı, 2017), which is the most frequently performed surgical procedure in vaginal delivery, was first described by an Irish midwife in 1742 but started to be widely used after the 20th century (Durmaz & Buğdaycı, 2013). Episiotomy is an incision applied to the bulbo-cavernous muscle in the second stage of labor to increase vaginal opening, facilitate delivery, ensure rapid, easy and safe fetal head exit, prevent vaginal lacerations, and protect the perineum (Kartal et al., 2014). Episiotomy is applied to the perineum as median, lateral and mediolateral, depending on the place and direction of application (Kurak et al., 2019). The World Health Organization (WHO) recommended that episiotomy should not be routinely applied but should be preferred only in complicated and difficult deliveries,





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perineal tears, fetal distress, and repair of poorly healing and grade 4 tears (World Health Organization, 2003). It was reported that limited episiotomy should be preferred instead of routine episiotomy (Başgöl & Beji, 2015a; Başgöl & Beji, 2015b).

It has been reported that the rate of episiotomy is 54-92% in nulliparous women, while it is 6-12% in multiparous (Al-Ghammari et al., 2016; Räisänen et al., 2010). In Turkey, the rate of episiotomy has been reported to be 92-96.7% in nulliparous and 51.8-72% in multiparous (Kaya & Demirel, 2018). It is seen that there are many applications in the literature to reduce the prevalence of episiotomy use. These include the most common perineal warm application, birth positions, pushing methods and perineal massage (Rezaei et al., 2014; Lemos et al., 2015; Lodge & Haith-Cooper, 2016). REEDA Scale (RS) is used to evaluate the healing process of the episiotomy area. Redness includes redness, edema (edema), Ecchymosis (ecchymosis), discharge, and wound healing (approximation) steps. A minimum of 0 and a maximum of 15 points are taken from the scale. A score of 15 indicates that the recovery is the worst, and the perineal trauma is the most (Durmaz & Buğdaycı, 2013).

Pain is common after episiotomy. Episiotomy pain and cramps, which are among the most common problems in the postpartum period, negatively affect the mother-baby health and the quality of life of the mother, therefore, more studies with high evidence level should be done to increase the quality of life of mothers in the postpartum period and the needs of the mother in the postpartum period should be met. It was emphasized that care should be given to the patient (Toprak et al., 2017). There are many applications that can be done by healthcare professionals to reduce episiotomy pain. However, informing the mother about this issue is one of the first steps to be taken. After the application of the episiotomy procedure, mothers have great duties to be careful about home care. A few of them are not to stay standing for too long, not to be in a sitting position too much, to take walks, and to protect the side with episiotomy (Yıldız Karahmet & Yazıcı, 2017). In addition, in toilet hygiene, changing underwear and pads frequently, using cotton underwear, washing and drying the area after the toilet correctly, the way of bathing, the frequency of changing pads, the correct direction of genital cleaning (front to back), paying attention to hand hygiene, incision The issues that should be informed to the mother, such as not leaving the place wet, are very important in relieving episiotomy pain (Kartal et al., 2014). In a study, it was determined that 25% of the mothers were trained on episiotomy care and only 14.3% of the mothers who received episiotomy training were given hygiene training (Kartal et al., 2014). While providing training on episiotomy care, more comprehensive training should be organized and the rate of mothers receiving training should be increased.

Other applications to relieve episiotomy pain are local cold application, dry heat application and moist heat application (Yıldız Karahmet & Yazıcı, 2017). Low-level laser application, which is a non-invasive and painless procedure, is also performed to reduce episiotomy pain and accelerate wound healing. Laser application has been investigated in various studies and no consistent conclusion has been reached regarding its effectiveness (Santos et al., 2012a). It has been reported that enzymes are activated, and chemical reactions are observed with the absorption of low-level laser application by the tissue and spreading throughout the tissue. Some of these reactions are anti-inflammatory, analgesic and physiological effects. As a result of these effects, it has been observed that laser treatment causes therapeutic results in tissues (Santos et al., 2012b). Although it is not known exactly how the laser effect affects these mechanisms, it has been reported in a study that the level of beta-endorphin, which is known to reduce pain, increases with diode laser application (Hagiwara et al., 2007). In addition, it was determined that prostaglandin, interleukin levels, bleeding and edema were decreased with laser application (Bjordal et al., 2006). For these reasons, it was thought that low-level laser application would be effective on episiotomy pain and the effectiveness of the method was evaluated with different studies. In this review, the results of the study evaluating the effect of low-level laser application on episiotomy pain and wound healing were discussed in the light of the literature.

In a randomized controlled study, laser treatment was evaluated with pregnant women who had only mediolateral episiotomy and who scored 3 or more on the numerical pain scale. Red laser (660 nm) was applied to the first group and infrared laser (780 nm) was applied to the second group immediately after the episiotomy sutures were completed, among the pregnant women divided into three groups, and no application was made to the third group. Laser application to the experimental groups was made from three points. At the end of the study, no significant difference was found between the three groups. It



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has been reported that low-level laser application is not effective for perineal pain after episiotomy (Santos et al., 2012a). In a randomized controlled study, in which the effect of low-level laser therapy on perineal pain and episiotomy recovery was evaluated, laser beam irradiation was applied to the experimental group after the right mediolateral episiotomy (n=54), and placebo irradiation was applied to the control group. At the end of the study, it was determined that there was no significant difference in the group that received low-level laser treatment on the healing of the perineum. In addition, it was observed that the pain scores of the experimental group were higher for pain after episiotomy (Alvarenga et al., 2017). Another study compared the effects of therapeutic ultrasound and low-level laser therapy with frozen gel packs on episiotomy pain and perineal healing (Chougala & Mahishle, 2015).

In the group receiving laser treatment, frozen gel packs were applied once a day for 10 minutes and then laser beam was applied at 660 nm wavelength for three days. 3 mHz therapeutic ultrasound was applied with ultrasonic gel. Pain levels were found to be lower on the 3rd day in the therapeutic ultrasound group compared to the laser-treated group. In addition, it was reported that although both groups showed improvement on the 3rd day according to the REEDA scale, in which the episiotomy area was evaluated, the group that underwent therapeutic ultrasound showed more improvement (Chougala & Mahishle, 2015). As a result of the study, it was determined that therapeutic ultrasound application with frozen gel packs is more effective than laser application (Chougala & Mahishle, 2015). In a different semi-experimental study, in which the effects of laser application and therapeutic ultrasound application on episiotomy pain and healing were evaluated, 10 women were divided into two groups. Laser application was applied to one group and therapeutic ultrasound was applied to the other group. At the end of the study, laser therapy better supported episiotomy healing and there was a significant difference between them compared to therapeutic ultrasound, and laser application was more effective (Farzana, 2020).

In a different study to evaluate the effectiveness of diode laser application on episiotomy pain, 19 women were included in the study. Women were divided into 3 groups. The women in the first group received only antibiotic treatment, the second group received laser treatment (4 sessions), and the third group received antibiotics only laser treatment (4 sessions). Women in the laser group had a significant reduction in pain and tenderness. Moderate to severe pain, tenderness, and long-term improvement were seen in the antibiotic-only group. At the end of the study, it has been reported that laser therapy is an effective method to reduce episiotomy pain and induce healing if the appropriate wavelength, frequency, and energy density are determined (Al-ashaikh, 2011).

In a meta-analysis evaluating the effectiveness of complementary and alternative treatment methods applied for postpartum pain, it was reported that the evidence and studies on the effectiveness of methods including laser beams were insufficient, and it was reported that further studies with a high level of evidence should be conducted (Smith et al., 2022).

In this process, which starts with the discharge of mothers from the hospital home, mothers are expected to fulfill roles such as adapting to motherhood, accepting the baby, meeting the needs of the baby, and adapting to physical and mental changes. The fact that the mother, who is trying to fulfill these roles, experiences perineal pain related to the episiotomy, makes it more difficult for the mother to adapt to the process (Bağcı, 2014). For this reason, it is very important to relieve the mother and relieve her pain in episiotomy care. Mothers should be given training specific to the postpartum period, and they should be informed about what the mother will encounter in this process, what kind of practices she can do and what she should pay attention to. Due to their educational role, nurses/midwives working in the clinical field should have up-to-date literature knowledge on episiotomy care, standardize care, improve care, inform the mother, and provide mothers with the necessary educational materials (Doğan Merih et al., 2017). The information obtained as a result of the literature review shows that there are studies stating that there are insufficient pieces of evidence, as well as studies showing the effect of low-level laser application on episiotomy pain and healing. It is recommended to conduct advanced studies with a high level of evidence in different samples on the application of low-level laser therapy in episiotomy healing.

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### COMPLEMENTARY AND ALTERNATIVE THERAPY METHODS USED IN HYPEREMESIS GRAVIDARUM

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#### ABSTRACT

The most common problem in the first trimester of pregnancy is nausea and vomiting. As a result of an exacerbation of nausea and vomiting Hyperemesis gravidarum is seen. Hyperemesis gravidarum is a severe picture with a loss of 5% of pre-pregnancy weight, ketonuria, and disturbance of acid-base balance. Hyperemesis gravidarum is seen in 0.3% and 1.0% of pregnant women. Hyperemesis gravidarum coincides with the period of organogenesis. Therefore, pregnant women have difficulty in deciding to take medical treatment and they tend to complementary and alternative treatments (CAM) unlike medical treatment. CAM; mind/body practices, biological-based practices, manipulative and body-based practices, alternative medical systems and energy therapies. Pregnant women use at least one of the CAM methods for early pregnancy problems. It was determined that 84.2% of pregnant women with Hyperemesis gravidarum in Turkey used CAM. The most commonly used CAM modalities for hyperemesis gravidarum are ginger, acupuncture, acupressure, hypnosis, and aromatherapy. It has been reported that ginger may cause teratogenic effects, preterm labor, neonatal skull development, embryo loss, and coagulation disorders. Although acupuncture has positive effects on hyperemesis gravidarum, it has been seen in studies that the evidence is insufficient. It has been determined that there is insufficient evidence that acupressure, a non-invasive stimulation method, is beneficial in the treatment of hyperemesis gravidarum, and that hypnosis is not included in the current Hyperemesis gravidarum treatment. Although there is evidence that peppermint, lemon and lavender oils used in aromatherapy have a positive effect on hyperemesis gravidarum, studies are insufficient.

In the treatment of hyperemesis gravidarum, it is recommended to educate pregnant women about the side effects of CAM use, raise awareness about the need to use it within the knowledge of the physician, and carry out further studies.

**Keywords:** Nausea, vomiting, pregnant, hyperemesis gravidarum, complementary and alternative therapy

Pregnancy is a period that causes many changes in the female body and can bring many problems with it. Some of the problems included in these are seen as mild problems that do not need to be treated by health professionals (Şen et al., 2020), cause difficulties in the pregnancy and the pregnancy process, and negatively affect the quality of life (Şen et al., 2020). It is seen that pregnant women prefer Complementary and Alternative Medicine (CAM) methods for early pregnancy problems and use at



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least one of these methods (Koç et al., 2017). According to the World Health Organization (WHO), CAM is defined as “broad health practices” (WHO, 2001). According to the National Center for Complementary and Alternative Medicine, CAM; Unlike scientific treatments used in conventional medicine, it has been defined as a term that covers different applications and products applied by trained people (National Center for Complementary and Alternative Medicine [NCCAM], 2022). A regulation was issued by the Ministry of Health in 2014 for the use of CAM methods in our country and information on who can apply/use it (Official Gazette, 2014). In the USA, the Complementary and Alternative Medicine Center was established in 1991 under the leadership of the National Institute of Health (Bayindir & Çürük, 2015).

Complementary and Alternative Medicine is classified within themselves. These; include mind/body practices (meditation and relaxation techniques, etc.), biological-based practices (vitamin-mineral supplements, natural products, herbs such as echinacea, etc.), manipulative and body-based practices (massage, chiropractic, osteopathic medicine, etc.), alternative medicine systems (acupuncture, reflexology, etc.) and energy therapies (reiki, therapeutic touch, etc.) (Öztürk et al., 2020). The use of CAM, which is increasing day by day, is thought to be related to adopting the healing that nature offers to human beings. As a term that Illich coined years ago, iatrogenesis (wrong treatment and outcome due to the doctor) is thought to be effective in the tendency of individuals to use CAM, and it is predicted that it will have great repercussions in the coming years (Öztürk et al., 2020).

Results have been reported regarding the prevalence of CAM use in different parts of the world. This rate was 93% in the Western Pacific (World Health Organization, 2022). The prevalence of use has been reported as 50% in North America, between 30-50% in China, and 80% in Africa (Kıssal et al., 2017). There are also states (17) that have a national policy regarding the use of CAM (World Health Organization, 2022). It has been reported that CAM use is between 41.1% and 51.8% worldwide (Posadzki et al., 2013). In a study conducted in Turkey, it was reported that almost half (47.1) of CAM users (60.5%) were women (Şimşek et al., 2017). In studies on the use of CAM methods, the prevalence of use in one year has been reported to be 41.1% on average and 51.8% throughout human life (Çakmak & Nural, 2017).

When we review the literature, it is seen that pregnant women prefer these methods and use at least one of these methods in response to early pregnancy problems (Koç et al., 2017). It was determined that 34% of women of reproductive age used CAM and only 50% reported to their physicians that they used any of the CAM methods (Holden et al., 2015). It is also known that the most used methods are yoga and medicinal plants (Holden et al., 2015). In a study, it was reported that the rate of use of CAM by pregnant women ranged from 13 to 78%, and among these methods, the use of herbal products, acupuncture, and massage was the most common (Can Gürkan et al., 2021). In our country, it has been reported that the most commonly used CAM methods during pregnancy are herbal medicines and massage (Koç et al., 2017). In this context, it is thought that self-prepared herbal medicines obtained from unknown plants may have serious side effects. In terms of negative side effects, the widespread use of such drugs during pregnancy causes concern for us. The purpose of this review is to discuss the most commonly used CAM methods and their effects on Hyperemesis gravidarum in the light of the literature.

One of the most common problems in early pregnancy is nausea and vomiting. Nausea and vomiting are grouped according to their severity and in the most severe cases, hyperemesis gravidarum (HEG) is diagnosed. HEG occurs due to severe nausea, vomiting, and not having a balanced/adequate diet (Veenendaal et al., 2011). HEG diagnostic criteria according to the American College of Obstetricians and Gynecologists (ACOG); weight loss of more than 5% of the pre-pregnancy weight, ketonuria, and severe nausea and vomiting (ACOG, 2018). HEG is generally associated with elevated levels of the human chorionic gonadotropin (HCG) hormone, but its etiology/pathogenesis is still uncertain. It is known that many factors, not only physiological but also socially and psychologically complex, have an effect on the etiology of Hyperemesis Gravidarum (Verberg et al., 2005). Hyperemesis gravidarum occurs as a result of the progesterone hormone's relaxation effect on smooth muscles and prolongation of gastric emptying (Çayır & Tanrıverdi, 2022). Usually 4-8. It has been reported that it is a problem that starts in the 16th week and continues until the 16th week, which affects the life of the pregnant with severe nausea and vomiting, disruption of electrolyte and acid/base balance, electrolyte loss, nutritional



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deficiency, and weight loss, causing hospitalization and associated with maternal morbidity (Veenendaal et al., 2011). In pregnant women with severe nausea and vomiting, excessive salivation, vitamin and mineral deficiencies, deterioration in liver tests, gastroesophageal reflux and acute kidney damage can also be seen (Bustos et al., 2017). In addition to these, studies have also emerged, such as Wernicke's encephalopathy, which is a neurological problem, caused by vitamin B1 deficiency, which seriously affects the brain (Kantor et al., 2014). In addition, it is known that HEG is among the most common reasons for hospitalization of pregnant women in the first trimester, which causes an increase in health costs and increases the length of hospital stay (Veenendaal et al., 2011). It has been reported that more than 26 thousand pregnant women apply to the emergency unit of the hospital due to HEG every year in the United States (Piwko et al., 2013). In a meta-analysis, it was reported that HEG was seen in 0.3% and 1.0% of pregnant women (Einarson et al., 2013). Although results are reported in pregnant women with hyperemesis gravidarum and their babies, such as a high female/boy ratio, babies weighing less than 2500 grams, birth weeks are lower, and HEG is not associated with APGAR scores, perinatal deaths, and congenital anomalies. In the long term, there seems to be no conclusive evidence for the health effects of HEG (Veenendaal et al., 2011).

The first-line treatment of hyperemesis gravidarum includes diet, lifestyle changes, avoiding triggering factors, and using CAM methods (Köşger & Kaygusuz, 2014). For these reasons, the use of CAM is quite common in pregnant women. In a study, the rate of CAM use in pregnant women was found to be 47.3% (Kıssal et al., 2017). The results of studies show that the quality of life of pregnant women with severe nausea and vomiting decreases (Yılmaz et al., 2018). In a study conducted with pregnant women with HEG in Turkey, it was reported that 84.2% of the pregnant women used the CAM method, and 97.5% of the CAM methods mostly used biological-based treatments (Iskender & Kaplan, 2021). In a study on severe nausea and vomiting in adolescents; HEG was observed in 74.5% of pregnant adolescents. The findings of the same study revealed that there is a negative relationship between HEG severity and quality of life (Yılmaz et al., 2018). Pregnant women tend to use CAM to reduce the symptoms of hyperemesis gravidarum (McCormack, 2010). The number of studies investigating the use of CAM for hyperemesis gravidarum is limited. It is thought that pregnant women may have turned to CAM because they are worried about the side effects of medical treatment and the use of drugs during pregnancy is not recommended too much (Matthews et al., 2015).

A systematic review (n=5449) found that the most commonly used CAM methods in severe nausea and vomiting were ginger, acupuncture, acupressure, chamomile, lemon and peppermint oil (Matthews et al., 2015). In another study, it was reported that the most used methods for nausea and vomiting during pregnancy were acupuncture, ginger and hypnosis (Sen et al., 2020).

Accordingly, the most commonly used methods in the treatment of HEG are presented under the following headings.

### *Ginger*

The guide published by the American College of Obstetricians and Gynecologists (ACOG) states that ginger is good for nausea but has no effect on preventing vomiting (ACOG, 2018). In addition, oral ginger is thought to be more effective in reducing nausea than vitamin B6 and is a CAM method that can be used to reduce the frequency of nausea and vomiting in pregnancy (Ding et al., 2013). It has been found that the effect of ginger on nausea and vomiting in pregnant women may be beneficial, but it is not conclusive, and in a small number of study data (3), ginger may be effective compared to placebo (Matthews et al., 2015). Since HEG occurs in the first trimester of pregnancy and covers the embryological period, it should be decided to use it considering the possibility that the biological-based CAM methods used in this period may have a teratogenic effect (Samavati et al., 2017). In a study conducted with pregnant women using ginger in Italy, it was observed that preterm labor occurred and the baby's skull was smaller (Trabace et al., 2015). In addition, it has been reported that ginger causes an increase in embryo loss in embryos exposed to ginger during early pregnancy, and it has been emphasized that it may have an embryotoxic effect in the first trimester (Samavati et al., 2017). In addition, there are studies showing that the use of ginger is similar to the mechanism of aspirin. In a systematic review, four of the eight included studies reported that ginger disrupts platelet coagulation and may cause bleeding (Marx et al., 2015). According to the ACOG, while the use of ginger was found



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to be safe, it was emphasized that it may have negative effects in the results of the study. In this context, it is thought that the evidence is contradictory and insufficient to say that the use of ginger in the first trimester can be beneficial or harmful in pregnant women. At this point, it is thought that a guide should be prepared including the benefits, risks and complications of the use of CAM methods specific to the pregnancy period and that health professionals should inform the pregnant women.

### *Acupuncture*

Another CAM method used for hyperemesis gravidarum is acupuncture. Acupuncture is the process of stimulating the organs with which it is associated, by providing energy generation thanks to the stimulations made with needles at certain points in the body. In the congress held in 1979, acupuncture; has taken its place in modern western medicine and has become a method that is increasing day by day due to its easy application and cheapness (Ceyhan & Yiğit, 2016). A few commonly known varieties; It consists of manual acupuncture, electroacupuncture, traditional acupuncture, and body acupuncture (Lu et al., 2021). Acupuncture has been used in the history of Chinese medicine for centuries, and today it has become a method of treatment that is increasing day by day. There are study results showing that it is effective on the endocrine, sympathetic, and parasympathetic nervous system and immune systems (Bishop et al., 2019). However, it has been emphasized that the USA, China, Germany, Australia, and Sweden are the main contributors to the literature on the subject (Wu et al., 2021). In the use of acupuncture, which is a method applied by stimulating certain points in the body and activating the neuroendocrine system, for the treatment of HEG, there are still more controversial results compared to the guidelines in the literature (Wise, 2016). In a study, it was found that acupuncture applied with the deep needling method for 2 days with PC6 stimulation normalized stomach activity and was effective in the treatment of HEG (Rosen et al., 2003). According to a meta-analysis of randomized controlled studies, acupuncture; was found that the conversion rate of urinary ketone was higher in pregnant women who experienced HEG, it was effective in reducing the length of stay in the hospital, and the termination of pregnancy was lower in the acupuncture group, it was more effective in the acupuncture group than any other method in the control group, it was statistically effective in the improvement rate of nausea and vomiting, and the improvement in food consumption. On the other hand, it was revealed that there was no effect of nausea intensity, vomiting episodes, fatigue status, serum potassium recovery level, and the probability of recurrence of HEG (Lu et al., 2021). As a result of a systematic review, it was reported that acupuncture had no significant benefit for pregnant women (Matthews et al., 2015).

### *Acupressure*

Another CAM method is Acupressure. It is defined as a noninvasive stimulation method used by applying different levels of pressure to acupuncture points (Rad et al., 2012). The method that includes all acupuncture, acupressure, and moxibustion treatments is called acustimulation. In a systematic review examining the effects of these acustimulation methods on nausea and vomiting and HEG, the quality of the included studies and their blinding status were moderate, and the evidence that acupuncture methods such as acupuncture and acupressure were beneficial for HEG and nausea and vomiting was insufficient, and better-designed studies with larger samples should be conducted. (Van den Heuvel et al., 2016; Matthews et al., 2015).

### *Hypnosis*

Hypnosis; is a very popular treatment method used in the treatment of psychological problems. It has been reported that it is also used in the treatment of HEG, as conditions such as heart rate, muscle tone, sympathetic nervous system, vasodilation and vasoconstriction in the body can be controlled with hypnosis (Tola, 2014). The effect of HEG treatment is thought to be deep relaxation in the muscles and hypnotic suggestions to alleviate symptoms (Tola, 2014). Although the use of hypnosis in the treatment of HEG has been applied in some studies, it has been reported that it is not included in the current treatment (Bülbül et al., 2017).

### *Aromatherapy*

Another CAM method used by pregnant women to cope with nausea and vomiting is aromatherapy. It is seen that peppermint, lemon, and lavender oils are mostly used for HEG in aromatherapy. In a study investigating the use of lemon oil in aromatherapy, it was found that the intensities of nausea, vomiting,





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and retching decreased, statistically different between the groups, and lemon oil was reported to be effective when compared to the placebo group when lemon oil was given to pregnant women in the intervention group to inhale as soon as they felt nauseated (Kia et al., 2014). The results of more studies on the use of lemon oil aromatherapy on HEG could not be found in the literature. Another product used in aromatherapy was peppermint oil. Peppermint is a product known as an analgesic, antiseptic, antispasmodic, and antiemetic (Stea et al., 2014). It has also been reported that peppermint is an analgesic product that can stop nausea and vomiting (Ozgoli & Saei Ghare Naz, 2018). In a study, it was found that peppermint aromatherapy was not effective in reducing nausea and vomiting (Pasha et al., 2012). In a different randomized controlled study, it was reported that peppermint oil did not have any effect on nausea and vomiting during pregnancy, and no significant difference could be obtained compared to placebo (Joulaeerad et al., 2018). In a randomized controlled study conducted by Ghani and Ibrahim with 101 pregnant women, it was found that aromatherapy using a combination of lavender and peppermint oil for three days significantly reduced nausea and vomiting in the intervention group (Ghani & Ibrahim, 2013). At the end of the study, they pointed out that not only peppermint oil aromatherapy but also the use of lavender and peppermint oil combination is effective. It is thought that studies on the effect of aromatherapy on pregnant women with HEG are insufficient and more studies should be conducted with larger samples.

### **Vitamin B6**

Pharmacological treatment includes the use of vitamin B6 for HEG. Studies investigating the effectiveness of vitamin B6 against CAM methods are available in the literature. The use of ginger and vitamin B6 in the treatment of nausea and vomiting in pregnancy was investigated in a randomized study. As a result of the study, it was revealed that pregnant women in the ginger group experienced less nausea than those in the vitamin B6 group (Ensiyeh & Sakineh, 2009). In another study, the effect of acupressure and vitamin B6 on nausea and vomiting during pregnancy was investigated. In a randomized study, it was found that the effect of acupressure on nausea and vomiting against vitamin B6 intake was not statistically significant (Jamigorn & Phupong, 2007).

### **Conclusion**

Among the problems encountered during pregnancy, HEG, which negatively affects the quality of life, has been a problem that has been tried to be overcome with interventions such as diet and lifestyle changes. It is thought that pregnant women resort to CAM methods because they avoid pharmacological treatments as much as possible during the pregnancy period when drug use should be avoided. Although the use of CAM methods is quite common among pregnant women, it is seen in some studies that pregnant women using CAM do not inform the physician. At this point, there are study results showing that biological-based treatment methods such as ginger, which are used without the knowledge of the physician, cause negative effects in pregnant women, during pregnancy, and even in the newborn. In this context, it is necessary for health professionals to inform pregnant women, to raise awareness about the use of CAM, and inform health professionals of pregnant women who use any of the CAM methods. It is recommended that health professionals be given training on the use of CAM in line with the regulations. It is recommended to give social education to pregnant women that they should be very careful and stay away from herbal-based drugs, which are known among the public, during this period, which reduces the quality of life such as hyperemesis gravidarum, which peaks in the first trimesters and corresponds to the organogenesis stage in the fetus.

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### CONSEQUENCES OF ENGLISH BEING AN INTERNATIONAL LANGUAGE

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#### **Abstract**

The purpose of this paper is to look at various consequences of English being an international language over the languages and cultures of other countries. Such consequences could be related to the extent of borrowings from the English language into the country's native language, to issues regarding the world's endangered languages which may no longer be used if they are no longer considered necessary, to the prominence of English as a foreign language in the curricula over other foreign languages. English language teachers may gain a certain type of identity, while teachers of other foreign languages may not find it easy to find jobs or to have enough students if all students or the majority will choose to study English. English is widely used currently within the group of young people, and some of them begin the study of English since very young, to the point to which we could even call them bilingual. However, if they do not have contact with native English language speakers and with a long exposure to such an environment their English may not reach the level of a native speaker. Proofreading by a native speaker when it comes to scientific research in philological domains especially but not only is considered nowadays a usual practice. Thus, some jobs gain prominence as a consequence. At the same time, rare languages can be better paid in the domain of translation and teaching, since there are already many English translators and teachers around. What matters is also which culture belonging to the English speaking world is more widespread, especially since the traditional British culture has been changing as well. Young people may feel closer to American culture, due to its values of freedom and equality.

**Keywords:** lingua franca, native speaker, proofreading, translation, teaching.

#### **INTRODUCTION**

The purpose of the present paper is to look at causes and consequences of English being an international language. Questions such as why has English become a global language, international language or lingua franca will be addressed, but also questions concerning consequences of English being an international language, such as pride of the nations where English is at least an official if not a national language, nationalistic issues of countries where English as a language and culture can become more popular than the language and culture native to the respective country, as well as the possibilities knowing English can offer to students and various professions, including studying and working abroad. Opportunities of wide collaboration are also included in the discussion, since collaborating on international projects can be facilitated by knowing the English language. What is more, scientific literature in all domains has larger impact when written in English, and also scientific literature is more easily available in the English language in all domains of activity. Scientific and academic domains favour the use of English, and, as a result, scientific literature in other languages may be used less or ignored altogether (Crystal, 2003). Those professionals writing in their native language and not in English may not benefit from enough visibility at international level. To sum up, thus, knowing English can increase our possibilities of communication at world-wide level with others in various domains and for our various personal interests (Aponte, 2018). Information related to knowledge about what is going on in the world is also in the English language, such as news; in this case, English is used "to transmit world knowledge and increase interconnectedness" (Aponte, 2018).

Some persons in various professional domains may feel that knowing English is an advantage for their being hired and for their CV. Some may also feel that knowing English can help them since many terms in various domains such as IT, advertising, business, project management, and engineering are borrowed or adapted from the English language. At the same time, when travelling



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for holidays we can believe we have an advantage when when we can speak and understand English, since we can visit countries whose language we do not have enough time to learn before our visit or maybe we are not gifted in learning foreign languages.

There is a range of difficulties we can encounter as far as English as an international language is concerned, though. One of the most worrying, especially nowadays, when we promote respect for all cultures, and for the heritage of all cultures which preserves their specificity, is related to the fate of rare languages, with a small number of speakers: “languages that are different than English could be perceived as unnecessary which, in turn, contributes to the loss of languages, especially minority languages”. Loss of certain languages, especially the rare ones, could occur once having a global language “leads to a lower interest in them” (Aponte, 2018). Speakers of the lost language disappear (Crystal, 2003), and then comes the moment we can speak of the death of a language. With the death of a language, “words, valuable traditions, knowledge, and life perspectives are lost” at a “biweekly” speed rate (Aponte, 1998).

The need for English language teachers can increase due to the status of English as a global language. Thus, “The spread of English as a global language [...] promotes the teaching of English” (Aponte, 2018). Learning English as a second language is part of everyone’s cultural background nowadays, and part of their personal development. This study of the English language creates for young people a second sense of cultural identity: first, they are part of their local culture, of their country, since they are taught their language and culture, and second, they are part of the international community of English-language speakers which are non-natives and which are also admirers of Anglophone cultures. It is normal for English to be taught to a larger extent compared to other foreign languages in kindergartens, schools, highschools and universities.

Non-native users of the English language are, apparently, a significantly higher number than the native speakers of this language. According to Seargeant (2012), English is spoken on a large scale, to the point that non-native speakers are more frequent users of this global language. Such situation could lead to changes in the English language itself, and to the point where the English language is no longer attached to a culture alone, like British or American, as it had been previously associated with, at least in the case of old Romanian textbooks used for learning English, before and after the 1990s. Afterwards, students had access to international English language learning textbooks, and moreover, the curricula started promoting the values of multiculturalism and raising awareness of the English-speaking world and of the fact that English can be one of the official languages in various countries, together with the languages spoken natively there. Awareness has been raised towards the existence of varieties of New English, which are used outside the territories where English is spoken natively and which are different from the standard, RP English (Trudgill and Hannah, 2013). Generally, these countries are former British colonies, e.g. India, certain African and Asian countries and islands. These countries have changed the pronunciation, grammar and vocabulary of standard English under the influence of their local languages. Thus, varieties of New English are a proof of changes brought to the English language while used at international level.

If everyone knows English since a very early age as a consequence of its popularity and its demand, however, it would be later considered an advantage to know a third foreign language at least. As an example concerning this situation, at the Technical University of Civil Engineering, where the author of the present paper teaches, there is a choice of foreign languages starting from English, French, Spanish, German and Italian that the students can learn for their first two academic years. In order to attract them towards other languages than English, which is generally their first choice since they feel secure as they have, the majority, studied it during school, they are told that they would have an advantage if they knew another language besides English. Spanish is also spoken as an official language in several countries, such as 18 countries in South America, Puerto Rico, Spain and Africa (Equatorial Guinea). The disadvantage of English teachers can, thus, be that, since the majority of students know English already at intermediate level, which is taught during seminars, then they will be tempted to choose to study a new language. At the same time, various faculties in Bucharest, Romania, such as the Economic Studies University, have English language specialized business faculties, where specialized business professors teach them directly in English. The Technical University of Civil Engineering Bucharest also has a faculty, of Engineering in Foreign Languages,



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where technical topics are taught and discussed directly in English by professors specialized in Engineering. At the National University of Political and Administrative Studies, there are Master's Degree programmes such as Project Management which are taught in English by specialized professors, without the support of foreign languages professors and seminars. At this point, we could feel that English is not an advantage for professors at university level, if they are trained in teaching foreign languages. However, at other levels, including proofreading, and article reviewing, they do have an advantage, function of their fields of study and research. University professors may also collaborate on translation projects, be it in the technical fields or in the domain of philology, e.g. poetry and novels. At the same time, if students wish to improve their English language level, even though they have various certificates for English recognized internationally, they can be instructed further in English for Specific Purposes, and learn not only domain-specific terms that can be found in dictionaries and glossaries, but also specific grammatical features of domain-specific, non-philology texts.

Once a language such as English is an international language, it can be used to one's advantage, but at the same time it can hinder our professional progress in some respects. We can use the English language to be in touch with our domain at world level, but at the same time, since there are so many speakers of English, we could say that it would be more advantageous to know a rare language, such as Japanese, French, Italian, German, or any language other than English.

### MATERIALS AND METHODS

In time, certain cultures gain popularity around the world, and various enthusiasts wish to know more about their culture identity manifestations, which consist of symbols, traditions, rituals and practices, heroes or personalities (Baciu, 2013), as well as to study their language. This popularity could be measured by the soft power index, which is checked and published every year. For the soft power index in 2022, the top position is occupied by the USA. In 2021, UK ranked on third position in the soft power index. This soft power index refers to the appeal of a certain culture compared with others. Some cultures can accommodate an interest and an admiration for a language and culture, which is the case of English in various parts of the world. In Romania, the young generation, especially, is attracted by British and American culture, as well as by their language. They are informed about various films and songs which are popular at the time, about books as well, all of which come to our country via Anglophone cultures. What is more, American culture values such as freedom, independence, self-achievement, are very popular nowadays, as much as they were in the past, due to the increasing individualism at world level (Hamamura, 2012) and also due to the popularity of fields such as personal development, but also due to the popularity of discussing motivation and of self-help books. Everyone wishes to attain his/ her own highest potential, to know themselves better, and to progress towards autonomy and individual achievement. Such preoccupations coincide with moments when individuals face certain changes in their lives, such as the passage to adolescence, youth, maturity, middle age, old age, various moments of changing their careers or moments when they wish to make changes for the better in their lives. All these natural preoccupations present in every individual's psychology overlap with the values promoted, in this case, by American culture. This is the reason why this culture, together with the language, can be found appealing by learners, teachers, students, speakers, and admirers of it. British culture can be seen by learners as promoting values such as politeness and elegance (in association with the fashion style promoted in magazines related to members of the royal house). Those for whom such values are considered important at personal level will be likely to adopt an admiration for this culture and will feel motivated in studying the RP English.

Nowadays, English is not only an appealing language due to all the possibilities of association with a certain culture and all the possibilities of keeping in touch with peers all over the world for entertainment purposes which could be associated with various elements of subculture (such as music and fashion subcultures, e.g. rock, Goth, Lolita, bikers, science fiction, fantasy, etc.). It is also considered as being "one of the most useful language than any language in the history of the world", due to details such as having politicians use it in international conferences, having menus written in English, using English when travelling to ask for directions, read signs and advertisements (Kastrati, 2017).



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The colonial age is what started the expansion of English as a global language. The British began it all, and this expansion continued with the consumer era promoted by the US in the twentieth century (Kastrati, 2017). However, we could say that these historical events which could be regarded as conquests of various parts of the world continued and are still going on today due to the appeal of these cultures and of the language even in our times. The continuous appeal is ensured by the reinforcement of various values, symbols, practices, traditions, heroes and personalities which are considered attractive and which are relevant for people living in today's world.

Table 1 below shows how the phenomenon of English as an international language has occurred as a result of the changing external reality on the face on the earth beginning with the historical event of British colonialism. Once a country is very powerful, it can hold supremacy over others starting with the level of trade, and then exporting cultural identity manifestations as well to those interested and to those that can relate to them.

**Table 1.** Consequences regarding the spread of English as a global language

Psychological/ Personal Needs	Political/ Ideological/ Geopolitical	Professional Consequences	Identity Issues
Adhering to values held by Anglophone cultures, such as American individualism, promoted by autonomy, self-achievement, the self-made man, freedom	British Colonial expansion	Increased need to pay attention to learning English as a second language, since it is required by various domains of activity, e.g. Engineering, Political Studies, Business, the academic world, communication with the occasion of job interviews	Nationalistic concerns, since older generations may feel that younger generations do not share their feelings of patriotism, and are less attached to their country, due to them being attracted to products, language, culture and entertainment, and, implicitly, to values from Anglophone cultures;  Youths using English language words and phrases incorporated in their own native language.
Adhering to change due to a personal psychological crisis, and also due to a discrepancy in values held by the society one lives in and personal values	The status of America as a superpower (Huntington, 1999)	Possibilities to collaborate with international partners;  Ensuring international visibility for academic research.	Not having the English language associated with Anglophone cultures only; development of New Englishes in Hong Kong, Singapore, the Philippines, etc.
Needing personal motivation for self-development, and looking for inspiration in the values promoted	The English language becoming the main second language in territories under the	Benefits of those working in the tourist industry, e.g. guides, travelling agencies, due to the possibilities to	Living in one single globalized world, where we feel we are all the same, due to the use of English uniting





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<p>by Anglophone culture; looking up for models of behaviour from other cultures</p>	<p>rule and influence of the US and UK:</p> <p>“English is the main foreign language taught in every school in Europe, Asia, South America and Africa. English is widely spoken in British Isles, United States, Ireland, Canada, Australia, New Zealand, and many other territories under United States of America and United Kingdom” (Kastrati, 2017).</p>	<p>attract international tourists to help develop tourism in their country</p>	<p>us, and sharing values promoted such as cooperation, while no longer being aware of one’s own cultural specificities. Travelling can be made easier, more comfortable, culture shock can be reduced, yet in big cities of the world we may go as tourists to seek the respective country” specificity and only find it in its past, through its historical remains such as monuments, but not in the contemporary everyday life of its inhabitants. What is more, we can find co-nationals in cities of the world, working and travelling there, as well as other non-natives to the place. This can ensure an element of familiarity, yet it can also make us feel we lost the local specificity.</p>
<p>Easy contact with English-speaking cultures, for personal development and hobbies</p>	<p>English as official language in countries that have been under British rule in the past:</p> <p>“English Language is an official language of India with a number over 1000 million (over billion) people. Also we have other places ruled by Britain who continue to use English in their schools and as their official language such as Pakistan, Bangladesh and many other nations” (Kastrati, 2017).</p>	<p>The emergence of the importance of translations in all domains – scientific, academic, popular science, fiction, film subtitling, etc.</p>	<p>Language deaths in the case of rare languages, together with all the cultural heritage attached to them</p>



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<p>Broadening one's own personal horizons, through visiting other cultures where English is spoken as a lingua franca; discovering new values and lifestyles beneficial to personal understanding and development; developing friendships with likely-minded people</p>	<p>Popularity of American culture/ British culture  e.g. having Halloween/ Thanksgiving celebrations all over the world</p>	<p>The emergence of the job of proofreading the use of the English language for academic and scientific publications used by non-natives in order to be published in journals from Anglophone countries. A native English speaker is recommended for proofreading.</p>	<p>Feeling more as a citizen of the world rather than as a citizen of one's own country;  Feeling more comfortable while travelling to other countries rather than in one's own country.</p>
<p>Learning about pastimes belonging to Anglophone cultures, e.g. games such as billiards and golf, associated with British culture, or American football</p>	<p>Popularity of American consumerism all over the world</p>	<p>Increased chances and possibilities for migration to countries where English is used as lingua franca, finding a permanent workplace.</p>	<p>Making comparisons between one's own country related to lifestyle and living conditions, and the comparison being in favour of the foreign countries visited, not in favour of one's own native place</p>
<p>Learning about more relaxed attitudes towards learning and developing creativity. For instance, in America, during workshops and even during school students are encouraged to write, paint or work as they can, without fitting in certain standards. Teachers and students are equal, allowing for a very relaxed atmosphere in class.</p>	<p>Popularity of American film productions and books all over the world</p>	<p>Possibility to study abroad and establish future professional connections, such as in the case of PhD students</p>	<p>Developing two senses of identity, a native, local one, attached to the place of birth and living, together with an international one, associated with a common background of all cultures, made up of the use of the English language and the common mindset of respect for the values of multiculturalism and diversity, the latter which helps us feel at home anywhere in the world.</p>

The purpose of an international language is to create a community centred on it, to create the possibility of communication at world level, a phenomenon which can generate security and stability, as well as peace, together with improvement in various areas of life. This can be inferred from the definition given for a global language, such as the following definition: "Smith (1976) was one of the first that defined the term International Language by stating that International Language is a communication between different nations with one another" (Kastrati, 2017).

The supremacy of a language all over the globe is often, up to a point, at least in the beginning, the result of the political supremacy of the respective country or countries, such as in the case of English. First of all, we witness the rise to power of the British Empire, then of the United States of America,



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the latter beating up the supremacy of Russia (including the imposition of the use of its language over the dominated countries), as mentioned below:

For a few centuries it was the language of the world superpower, namely, the British Empire where “the sun never set”. This superpower was superseded by that of the USA where the language of communication was again English. The opposition of the USA and the USSR for about 50 years after World War II delayed the progress of the USA and the English language in the world, but the collapse of the Soviet Union in early 1990ies ensured the rapid progress of the USA as the only world superpower and English as its language. The fall of the USSR was immediately accompanied by the consequent fall of the Russian language and culture on the world scene. Since that moment the position of the English language, the language of two subsequent world superpowers for the last two centuries, the global language of the globalizing world has become firm and unrivalled. (Ter-Minasova, 2014, p. 9)

At the same time, a language and culture, in order to be used at global level, need to have the acceptance of the population in the non-native countries. One way to get their acceptance is by noticing how they could relate to at least some of the values and practices belonging to the culture that is about to bring about a global language. In the case of English, we have seen this in Table 1. We need to resort to universal wishes and values that can lead to personal gains for the ones adopting the English language as an international language.

Cultural products are considered in the case of the US, such as adventure films, which fit in with the daydreaming of everyone, regardless of culture, and of age.

One of the main advantages of a n international language is that it provides some familiar ground in any environment, no matter if it is an unfamiliar one otherwise. For instance, if we are Westerners travelling to Hong Kong, we may experience two worlds: a Western one, where English is spoken, and an Eastern one, where local languages are spoken and where Chinese culture is practiced.

### RESULTS

Information and access to it are keywords of today’s world, together with communication. All these are made readily available with the help of English as an international language. Once we live in a globalized world, we need a common, international language, which is ensured by English. English is going to facilitate cultural exchange with other countries, and as a result we can improve our own personal development. We can understand various frames of mind belonging to other cultures which can be very appealing for our own individual benefit. We can realize that what we have held as universal rules for living our life or for taking over learning of anything is not the only way. We can realize we prefer a less authoritarian and rigid methodology of learning and a more relaxed one, focused on understanding and discovering, not on the way we may or may not have certain skills. For instance, if we felt insecure during school in our drawing classes, we may take over drawing as a hobby, as doing something fun, creative and relaxing, without worrying about the artistic value of it measured according to rigid classifications. The teacher can be there to encourage us in our creativity, and not to judge us. This is the difference between what Hofstede (Rinne et al., 2012) called high and low power distance cultures. Our relationship with authority at all levels, family, school, work, even relationship with institutions of the state, may require us to adopt a subordinating attitude or a more relax attitude, where everyone is equal. Discovering other ways to look at various areas of life, personal and professional, is facilitated by using a global language, since we can have easy access to information and communication.

### DISCUSSION

Once English is declared a global language, we as teachers need to take this status into account when developing the curricula and when adjusting our teaching methodology. We need to take into account the fact that the students are already familiar with many cultural products of the Anglophone countries and of the English speaking world, especially through forms of entertainment such as films, music, fashion subcultures, and subcultures with their international communities in general. Youth culture is in itself a subculture, and is facilitated by easy communication with peers from all over the world using the English language. Practices such as using social media in order to become an influencer come from the international scene, and have become popular and adopted by youths in Romania, the country of the



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author of the present paper. Social media products and practices have become well-known and performed by speakers of English from all over the world. The teacher should take into account this world that preoccupies the young generation in order to communicate efficiently with them, addressing their own interests and needs. Technology with its various gadgets and their reviews done on social media is also a practice taken from cultural spaces where English is used which has been successfully adopted by enthusiasts from all over the world knowing English. Once the teachers show that they share the same background as their students they can set up a common ground for communication and establishing rapport, meaning an efficient relationship between teachers and students.

When teaching English as a foreign language, the teacher should also mention the use of English worldwide, even though, at university level, where the author of the present paper teaches, students are already aware of this. Yet, their knowledge can be completed by mentioning varieties of New English and a few features of differences from standard RP English, can increase their interest in the English language seminars.

### CONCLUSION

The topic of English as a global language is an actual one, and could be used in the English as a foreign language seminars at university level as a subject of discussion. In this way, students can be made aware of their status in the contemporary world, at both professional and personal level. Table 1 can be used as a starting point for discussion with them during class. Each student can contribute with his or her own view on the consequences of English being an international language, regarding both advantages and disadvantages. Such a discussion could be considered as a lesson containing both language and notions of culture elements. During the discussion, students can use spoken English language, and their proficiency can be evaluated by the teacher, while knowledge of the way our world of today functions can be presented as a lesson in culture and civilization. We can test the knowledge our students have of the contemporary world, in an attempt to help them adapt professionally to the demands of today's globalized and thus interconnected world. They should be encouraged to develop their collaboration skills in group or pair exercises, so that they will be efficient in future international collaboration in projects. Students are also encouraged to share their own, personal experiences with other cultures via the English language used at international level.

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### LANGUAGE USE AS A MEANS TO CONSTRUCT REALITIES: THEME PATTERNS IN JOE BIDEN'S SPEECH ON THE ANNIVERSARY OF THE CAPITOL ATTACK

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#### **Abstract**

This research work aims at analyzing Joe Biden's speech on the Capitol attack anniversary from a systemic functional perspective (Halliday & Matthiessen, 2004) so as to decode the thematic choices made by the President to construct some realities through language use as a message. Actually, the article particularly focuses on the textual metafunction to highlight which meaning is prioritized and why. The quantitative and qualitative analyses of Theme patterns have revealed that topical Themes are dominant, followed by textual and interpersonal ones. The thematization of rioters and mob is aimed at emphasizing the actions, feelings and attitudes that have led to the attack and therefore menaced the American democratic system; whereas the use of Donald Trump, he, the former President in topical position has enabled the author of the speech to clarify the former President's role or responsibility in this attack. As for Joe Biden, the American people and we, they are at the center of a message that restores democratic values. The speech also has an attitudinal connotation expressed through interpersonal Themes, which takes the form of warnings against undemocratic practices and behaviors while marked Themes have underlined the gravity of the attack as regards the place and the time at which it took place. The realization of these meanings is achieved through a coherent arrangement of the message in terms of extension and enhancement. Thus, language use can construct any reality.

**Keywords:** Systemic functional perspective, textual metafunction, thematic Choices, American democracy, topical Themes

#### **Introduction**

The American democracy is rightly or wrongly considered as the best one and that is why it has often been exported or copied. This can be explained by the fact that it is the longest-lived constitutional democracy in the world (Fabbrini, 1999); thus, a lot of experiences in terms of democratic practices have been drawn from this longevity. Consequently, many peoples and Americans themselves take the American democratic system for granted. However, the system seems to suffer from incoherences. It threatens to go off the rails owing to costly government shutdowns, stolen Supreme Court seats, impeachments, mounting concerns about the fairness of elections, and of course a president who did not want to leave the Oval Office though he had been legally defeated at the polls in 2020 (American Educator, 2020).

On the anniversary (January 6th, 2022) of the Capitol attack, Joe Biden made a speech that basically emphasizes president Trump and his followers' responsibility in the violation of this symbol of the American democracy. This research work uses Systemic Functional Linguistics theory (Halliday & Matthiessen, 2004) to analyze the discourse. The paper actually focuses on the textual meaning which is one of the functions of language as defined by Koussouhong & Dossoumou (2015: 24): "language is viewed as network of systems or interrelated sets of options for making meanings". This approach fundamentally takes language as a means to construct social, political and economic realities through the use of specific linguistic tools.

The validity of such an approach has been demonstrated by many researchers through the analyses of profoundly written literary works and lyrics; for example, Koussouhon & Dadjo (2015) thoroughly described textual elements in Flora Nwapa's *Never Again* and found out that the novel concentrates on the Nigerian civil war, the prevailing collective interest (fatherland), the limited power of women



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and the roles of women and children in our societies especially during war time. Similarly, Firdaus (2013) concentrates his analysis on the textual metafunction to determine the occurrences of topical, textual and interpersonal themes. He concludes that the messages in the lyrics are basically about love which is divided into three aspects which are the question of love to an opposite sex, to a son, and to life.

More and more researchers contend that Systemic Functional Grammar can also be applied to real-life discourse, for instance newspapers, magazines articles, court verdicts, and presidential and/or political speeches. This article uses the above approach to analyze President Joe Biden's speech on the anniversary of the Capitol attack, focusing on theme patterns in the speech to understand the deep meanings of the message.

### Methods

This paper adopts the mixed method which consists in combining qualitative and quantitative findings in order to get more insights. The assumption is that the qualitative approach or the quantitative approach alone may have limits that can be filled by the integration of both qualitative and quantitative results (American Psychological Association, 2020; Creswell, 2015). Thus, the text or the speech has been divided into clauses and the various themes have been identified quantitatively; whereas the analysis has been carried out both on the quantitative and the qualitative bases. Actually, the quantitative analysis focuses on what is thematized while the qualitative analysis emphasizes the meaning of such a thematisation.

### Theoretical Framework

#### 3.1 Systemic Functional Linguistics

Systemic Functional Linguistics is a linguistic theory which adopts the structuralist approach coined by Ferdinand de Saussure (Schmid, 2012) to understand language. Indeed, it contends that language is a complex semiotic system structured to convey three distinct and complementary types of meanings: textual, interpersonal and experiential. While the interpersonal and experiential functions of language deal respectively with how culture influences language use and the different aspects of human experiences, the textual function of language is about the organization of these into message. According to Halliday and Matthiessen (2004), the text or clause, in all languages, has some form of internal organization whereby it fits in with, and contributes to, the flow of discourse. This is realized through the thematic structure. The clause has two parts: Theme and Rheme. In English the Theme or the element which serves as the point of departure of the message is put first whereas the Rheme, which is the part in which the Theme is developed, comes after.

There are three types of themes: topical, interpersonal and textual:

A Topical Theme is the constituent of the clause which has a Transitivity function such as actor, behavior, sensor, carrier, circumstantial elements (place, time, etc.);

An Interpersonal Theme is the element of the message to which a Mood function can be assigned: finite (in interrogative mood) and adjuncts (vocative, mood, comment, polarity);

A Textual Theme is a component of the clause which has a cohesive function such as Continuity Adjuncts and Conjunctive Adjuncts.

In addition to this categorization, there is another level of the thematic structure referred to as markedness and unmarkedness. An unmarked Theme is defined by Eggins (1994) as a "typical" or "usual" Theme while a marked Theme means simply "atypical" or "unusual".

An unmarked Theme is a Theme which conflates with the Mood constituents such as Subject, Finite, Predicator, WH elements.

A marked Theme is a Theme which conflates with any other constituents from the Mood system, the usual type of marked Theme being circumstantial elements.

The textual meaning or metafunction is defined by Eggins (1994) as the enabling metafunction in that it is essential for the realization of the other meanings, notably the experiential and interpersonal



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meanings. Actually, the thematic organization of the message helps express the other meanings coherently.

### Theme Analysis of the Speech

The occurrence of the themes is summarized in table 1 below:

N0	THEME	Textual	Inter pers.	Topi cal
1	MADAM VICE PRESIDENT, MY FELLOW AMERICANS: TO STATE THE OBVIOUS, ONE YEAR AGO TODAY, in this sacred place	-	+	+
2	[The will of the people	-	-	+
3	[THE CONSTITUTION — our Constitution		+	+
4	OUTNUMBERED and in the face of a brutal attack	+	+	+
7	And WE the people	+	+	+
8	For the first time in our history,	-	-	+
9	[he	-	-	+
10	-[as a violent mob	+	-	+
11	But they	+	-	+
12	-[They	-	-	+
13	qnd on this day of remembrance	-	-	+
14	-that such an attack	+	-	+
15	[I	-	-	+
16	[This	-	-	+
17	-[where the House of Representatives	+	-	+
18	[This	-	-	+
19	on this floor	-	-	+
20	-[A YOUNG CONGRESSMAN OF ILLINOIS, Abraham Lincoln	-	+	+
21	Above him	-	-	+
22	[In her hands,	-	-	+
23	[Clio	-	-	+
24	[as she	+	-	+
25	[She	-	-	+
26	what	-	-	+
27	[The real history	-	+	+
28	THE FACTS AND THE TRUTH that Vice President Harris	+	+	+
29	and that you and I and the whole world	++	-	+
30	[The Bible	-	-	+
31	[that	-	-	+
32	-and the truth	+	-	+
33	[Clio	-	-	+
34	Well, here	+	-	+
35	[Close	-	-	+
36	[Go back	-	-	+
37	[What	-	-	+
38	[Rioters	-	-	+





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39	[that	-	-	+
40	Even during the civil	+	-	+
41	But it	+	-	+
42	-[What else	-	-	+
43	-[A mob	-	-	+
44	[American flags	-	-	+
45	[Fire extinguishers	-	-	+
46	A crowd	-	-	+
47	Over 140 police officers	-	-	+
48	[We	-	-	+
49	[who	-	-	+
50	-[that	-	-	+
51	[what	-	-	+
52	[One officer	-	-	+
53	[-and that he	++	-	+
54	[than he	+	-	+
55	[They	-	-	+
56	[How	-	-	+
57	[they	-	-	+
58	[We	-	-	+
59	[Rioters	-	-	+
60	[But what	+	-	+
61	[We	-	-	+
62	[who	-	-	+
63	[as police	+	-	+
64	[This	-	-	+
65	[This	-	-	+
66	[They	-	-	+
67	[They	-	-	+
68	[They	-	-	+
69	[They	-	-	+
70	[They	-	-	+
71	[They	-	-	+
72	[They	-	-	+
73	[This	-	-	+
74	[This	-	-	+
75	[the past	-	-	+
76	[That	-	-	+
77	[They	-	-	+
78	[This	-	-	+
79	[Sounds	-	-	+
80	-but that	+	-	+
81	[They	-	-	+
82	[We	-	-	+
83	[MY FELLOW AMERICANS, in life	+	+	+



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84	-and, TRAGICALLY, there	+	+	+
85	[We	-	-	+
86	[what	-	-	+
87	-and what	+	-	+
88	-And here	+	-	+
89	[The former president of the United States of America	-	-	+
90	and, TRAGICALLY, there	+	+	+
91	-[because he	+	-	+
92	-because he	+	-	+
93	and because his bruised ego	+	-	+
94	[He	-	-	+
95	[EVEN THOUGH that	-	+	+
96	[what 93 United States senators, his own Attorney General, his own Vice President, governors and state officials in every battleground state	+	-	+
97	[He	-	-	+
98	[That	-	-	+
99	What	-	-	+
100	-as you	+	-	+
101	[He	-	-	+
102	what no president in American history	+ +	-	+
103	[He	-	-	+
104	-[While some courageous men and women in the Republican Party	+	-	+
105	[TOO MANY others	-	+	+
106	[They	-	-	+
107	[But WHATEVER my other disagreements	+	+	+
108	[who	-	-	+
109	[They	-	-	+
110	[Because if we	+	-	+
111	[then anything	+	-	+
112	[And so, at this moment	+	-	+
113	[What kind of nation	-	-	+
114	[ARE we	-	+	+
115	[ARE we	-	+	+
116	[where we	+	-	+
117	[ARE we	-	+	+
118	[a nation	-	-	+
119	[We	-	-	+
120	[The way forward	-	-	+
121	[The Big Lie	-	-	+
122	[who	-	-	+
123	[Think	-	-	+
124	[IS that	-	+	+
125	[IS that	-	+	+
126	[when you	+	-	+



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127	[Taking	-	-	+
128	[IS that	-	+	+
129	[you	-	-	+
130	[Or DID you	+	+	+
131	[you	-	-	+
132	[The former president and his supporters	-	-	+
133	[They	-	-	+
134	[and the riot	-	-	+
135	[CAN you	-	+	+
136	[I	-	-	+
137	[Here	-	-	+
138	[The election of 2020	-	-	+
139	[MORE OF you	-	+	+
140	[OVER 150 million Americans	-	+	+
141	[They	-	-	+
142	[RIGHT NOW, in state after state	-	+	+
143	[but because the former president	+	-	+
144	[INSTEAD OF LOOKING AT THE ELECTION RESULTS FROM 2020 AND SAYING they	-	+	+
145	[the former president and his supporters	-	-	+
146	[It	-	-	+
147	[It	-	-	+
148	[And FRANKLY, it	+	+	+
149	[The second Big Lie being told by the former President and his supporters	-	-	+
150	[that the results of the election of 2020	+	-	+
151	[The truth 152	-	-	+
152	[that NO ELECTION — NO ELECTION in American history	+	+	+
153	[EVERY legal challenge	-	+	+
154	[that	-	-	+
155	[Recounts	-	-	+
156	[GEORGIA — Georgia	-	+	+
157	[Phony partisan audits	-	-	+
158	[None	-	-	+
159	[And in some of them,	+	-	+
159	[the margin of victory	-	-	+
160	[the margin of victory	-	-	+
161	[So, let's	+	-	+
162	[what	-	-	+
163	[Even BEFORE the first ballot	+	+	+
164	[the former president			+
165	[He	-	-	+
166	[It	-	-	+
167	[He	-	-	+
168	[He	-	-	+
169	[He	-	-	+



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170	[There	-	-	+
171	[the election results	-	-	+
172	[IN FACT, in every venue	-	+	+
173	[the former president	-	-	+
174	[Just think	+	-	+
175	[The former president and his supporters	-	-	+
176	[how they	+	-	+
177	-[that	-	-	+
178	[elections	-	-	+
189	[They	-	-	+
180	[The President's name	-	-	+
181	[then we	+	-	+
182	[SOMEHOW, those results	-	+	+
183	[but the presidential race	+	-	+
184	[And on the same ballot	+	-	+
185	[The only difference:	-	-	+
186	[he	-	-	+
187	[that	-	-	+
188	[FINALLY, the third Big Lie being told by a former President and his supporters	-	+	+
189	[that the mob	+	-	+
190	[IS that what	+	+	+
191	[when you	+	-	+
192	[Patriots	-	-	+
193	[Not in my view	+	-	+
194	[TO ME, the true patriots	-	+	+
195	[who	-	-	+
196	[the election workers	-	-	+
197	[and the heroes	+	-	+
198	[You	-	-	+
199	[ONLY when you	+	+	+
200	[You	-	-	+
201	[when	-	-	+
202	[You	-	-	+
203	[You	-	-	+
204	[when you	-	-	+
205	[Those	-	-	+
206	[and those who	+	-	+
207	[and those who	+	-	+
208	[They	-	-	+
209	[They	-	-	+
210	-[Those who	-	-	+
211	[who	-	-	+
212	[But their plot	+	-	+
213	[CONGRESSMEN — Democrats and and Republicans	-	+	+



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214	[SENATORS, REPRESENTATIVES, STAFF — they	-	+	+
215	[They	-	-	+
216	[LOOK, FOLKS, now	-	+	+
217	[That promise	-	-	+
218	[that	-	-	+
219	[Make	-	-	+
220	[We	-	-	+
221	[Both at home and abroad,	+	-	+
222	[From China to Russia and beyond	-	-	+
223	[that democracy's days		-	+
224	[They	-	-	+
225	[democracy	-	-	+
226	[And they	+	-	+
227	[They	-	-	+
228	[America	-	-	+
229	[They	-	-	+
230	[that America	+	-	+
231	[I	-	-	+
232	[That	-	-	+
233	[who	-	-	+
234	[That	-	-	+
235	[who	-	-	+
236	[And that	+	-	+
237	[who	-	-	+
238	[OUR FOUNDING FATHERS, as imperfect as they	-	+	+
239	[that	-	-	+
240	[Here in America	-	-	+
241	[power	-	-	+
242	[And they	+	-	+
243	[that	-	-	+
244	[that	-	-	+
245	[YES, in America	-	+	+
246	[We	-	-	+
247	[that if you	++	-	+
248	[I	-	-	+
249	[if you	+	-	+
250	[I	+	-	+
251	[if I	+	-	+
252	[I	-	-	+
253	[THE FORMER PRESIDENT, who	-	+	+
254	[and the mob	+	-	+
255	[They	-	-	+
256	[or they	+	-	+
257	[what		-	+
258	[WHAT — and what	+	+	+



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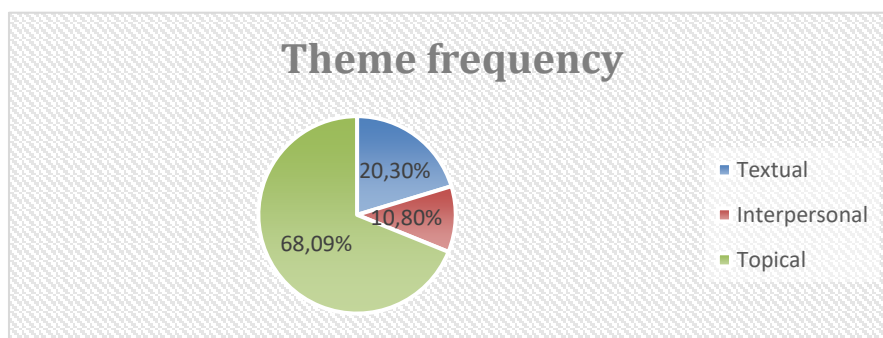
259	[And with rights	+	-	+
260	[MAYBE we	-	+	+
261	[but they	+		+
262	[the responsibility to accept defeat	-	-	+
263	[the responsibility to see	-	-	+
264	[As we	+	-	+
265	[the lies	-	-	+
266	[we	-	-	+
267	[They	-	-	+
268	[So, we	+	-	+
269	[Some	-	-	+
270	[Jill and I	-	-	+
271	[who	-	-	+
272	[and a second time	+	-	+
273	[We	-	-	+
274	[who	-	-	+
275	[DON't kid	+	+	+
276	[The pain and scars from that day	-	-	+
277	[I	-	-	+
278	[and it	+	-	+
279	[than when	+	-	+
280	[We	-	-	+
281	[A battle	-	-	+
282	[Believe	-	-	+
283	[I	-	-	+
284	[how difficult	-	-	+
285	[And I	+	-	+
286	[But I	+	-	+
287	[that our darkest days	+	-	+
288	[From the death and destruction,	-	-	+
289	[in Pearl Harbor	-	-	+
290	[From the brutality of Bloody Sunday on the Edmund Pettus Bridge	-	-	+
291	[So, now	+	-	+
292	[I	-	-	+
293	[but I	+	-	+
294	[I	-	-	+
295	[I	-	-	+
296	[And I	+	-	+
297	[We	-	-	+
298	[the will of the people	-	-	+
299	[that the ballot	+	-	+
300	[that authority in this nation	+	-	+
301	[I	-	-	+
302	[DEEP in the heart of America	-	+	+
303	[This	-	-	+



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304	[We	-	-	+
305	[Here in America	-	-	+
306	[and their will	+	-	+
307	[So, let us	+	-	+
308	[TOGETHER, we	-	+	+
309	[God	-	-	+
310	[MAY God	-	+	+
311	[And MAY God	+	+	+
TOTAUX		92	(20,30	49( 312(
		%)	10,8	68,0
			0%)	9%)

Table 1: Theme occurrence



Grah1: Theme frequency

While table 1 summarizes the occurrences of Theme types, Graph 1 gives an exact quantitative representation of the three types of Themes: topical, interpersonal and textual. In fact, 68.09% of the Themes are topical, meaning that the speech is essentially concerned with carriers, actors, sensors, behavers sayers, agents, behavers, etc. which stand for they, you, we, I, America, Democracy, the rioters, Biden, in clauses (12, 15, 38, 59, 82, 83, 94, 97, 225, 230) This is the main focus of the message. Interpersonal Themes represent 20.30%. This implies that the text contains an attudinal connotation, that is, the speaker has expressed some judgements about the meaning of the attack or its consequences on the American democratic system through the use of modal adjuncts or modulated finites (maybe, finally, can, well, my fellow Americans, etc.) in clauses (34, 83, 90, 135, 148, 188, 194). As for the textual Themes, they have served not only to realize cohesion but also to give the text its written character, that is, language is being used to reflect on experience rather than to enact it (Eggins, 1994). Therefore, a lot of textual Themes (20.30%) such as but, so, and, or, if, that are used in clauses (226, 247, 251, 256, 261, 268).

#### 4.1 Topical Themes Analysis

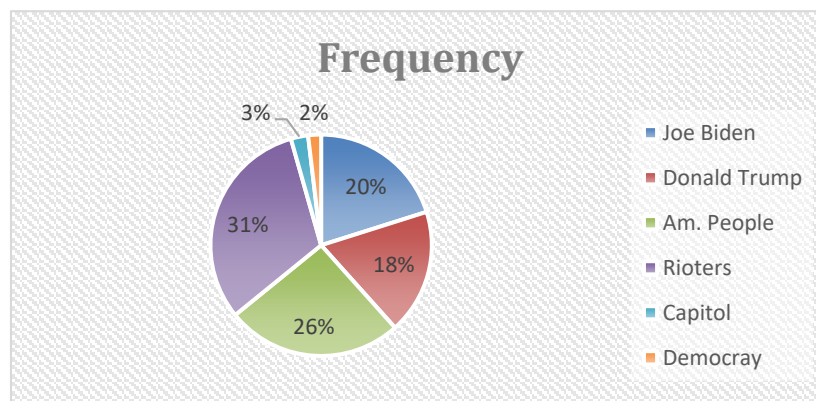
Table 2 recapitulates the distribution of topical Themes among the participants whereas graph 2 highlights this distribution.

Participants	Frequency	Percentage
Joe Biden	32	20,10%
Donald Trump	29	18,20%
American People	41	25,80%
Rioters mob violence	50	31,40%
Capitol	04	02,50%
Democracy	03	02%
Total	159	100%



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Table 2: Topical Themes distribution



Graph 2: Topical Theme frequency

As it can be noticed in table 2 and graph 2, rioters, mob and violence occur 50 times as Theme, corresponding to 31.40% and occupying the first position; whereas American People is thematized 41 times with a percentage of 25%, followed by Joe Biden or I used 32 times as Theme in the speech, representing 20.10%, just a little bit more than Donald Trump which occurs 29 times as Theme, that is, 18.20%. This highlights the central message in terms of actions, feelings, behaviors, which constitute the main experiences related to the Capitol Attack.

#### 4.2 Marked and Unmarked Theme Analysis

The last Theme elements which require attention are Marked and Unmarked Themes. The occurrence of Marked and Unmarked Themes is summarized in the table below:

Theme	frequency
Marked	24 (07, 70%)
Unmarked	288 (92, 30%)
Total	312 (100%)

Table 3: Marked and Unmarked Themes frequency

Table 3 shows that 288 Themes [92.30%] are unmarked whereas 24 Themes [7.70%] are marked, which means that there is a high level of preparedness for communication on the part of President Joe Biden. Additionally, the use of circumstantial elements of place, time, and manner in thematic position situates the message in a specific context, clarifying the setting of the event which is the focus of the communication: the Capitol Attack.

#### Discussion and Interpretation of the Findings

This section discusses the findings so as to give them a meaning, for language is not a simple exchange of words or sounds but actually a contextualized and purposeful communication of experiences and attitudes. The thematic analysis of the speech reveals a high occurrence of topical Themes in the speech [60.09%]. The thematized topical elements I, they, we, he, it, you standing for the attack, rioters, Joe Biden himself, American people and Donald Trump or the former President in clauses (147, 146, 1665, 167, 168, 169, 198, 202, 249, 256, 261, 267, 273, 293, 294, 293, 297, 304). Some of the participants (Donald Trump and the rioters) constitute a dangerous threat against the American democratic system considered by the author of the speech as the best example and therefore needs to be protected by Joe Biden himself and by the American people or the upholders of law and order. Table 2 confirms this message in that rioters or mob (representing 31.40% of the Themes) manipulated by the president have taken actions, believed things or said things that are undemocratic or un-American. American people, we, you, fellow or citizens are used 41 times [25.80%] as topical Theme, for example in clauses (48, 58, 61, 140, 191, 198, 199, 200, 202, 203, 220, 246). This highlights the author's intention to warn his fellow citizens against lies which can construct perilous or menacing realities. Such realities are aimed at satisfying personal interests rather than serving the interests of the American nation. As for Joe Biden





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or I, it is thematized 32 times [20.10%], realizing basically mental or verbal processes aimed at restoring the democratic instinct ascribed to the American people as something ancestral or cultural.

Furthermore, Interpersonal Themes, which occur 49 times (10.80%), have emphasized the attitudinal meaning of the text through the use of modal adjuncts and modal operators such as well, can, maybe, finally, my fellow Americans, to me, just, in fact, frankly, somehow in clauses (34, 83, 135, 148, 172, 174, 182, 188, 194, 260, 275). President Joe Biden has expressed clear judgments about the attack, depicting it as the fruit of lies and inviting his fellow citizens to live by the fundamental values of freedom based on democratic principles.

Regarding textual Themes, they occur 92 times, corresponding to 20.30%. These textual elements express cohesive dimensions such as extension and enhancement. Extension elements (and, but, or, both) occur 44 times whereas enhancement (so, as, if, because) ones occur 48 times. Extension elements have been used to construct coherent facts aimed at convincing Americans to recognize lies elaborated by the former President while enhancement textual constituents organize the arguments logically in terms of time, cause and condition.

The speech also contains a significant number of marked Themes that highlight the circumstances of time and place at which the tragic event of the attack took place. Indeed, the analysis reveals that 24 thematic elements are marked, representing 7.70%. This has basically served to convey an important message: America and especially the symbol of its democracy must not be violated by people who strive towards personal or selfish interests.

### Conclusions

The speech made by Joe Biden on the anniversary of the Capitol attack has been analysed on the basis of the Systemic Functional Linguistic theory, especially the textual grammar which defines language as a message organized through the system of Theme, that is, what meaning is prioritized and why. The analysis has revealed a high occurrence of topical Themes followed by textual and interpersonal ones. The distribution of topical Themes shows that rioters or mob occupy the first position as Theme. They are the actors, sensors, behavers, agents and carriers of undemocratic facts or feelings that have led to the attack of the Capitol, the symbol of the American democracy. The American people is used in thematic position to emphasize their role against such actions, which consists in understanding or making the difference between lies and truth in order to protect the American democratic system. Donald Trump or the former President is at the center of the undemocratic behaviors that have caused the tragic event of the attack whereas President Biden appears in thematic position as the protector of the American heritage which is democracy. Interpersonal Themes have expressed Biden's judgments related to the attack; they take the form of advice and warnings that are also conveyed through marked Themes, carrying the meanings of indignation regarding the place and the time at which the attack took place. Actually, the Capitol Attack has provided an opportunity for the Democratic Party represented by Joe Biden to demolish the Republican Party by constructing a favorable reality for his Party.

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### INTERSECTIONAL ROLE OF GENDERED NORMS AND SOCIO-ECONOMIC STATUS IN WOMEN'S POLITICAL PARTICIPATION: CASE OF TURKEY

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#### **Abstract**

Inclusiveness in decision and policy-making processes is a pivotal instrument in constructing a more accountable and equal society. Nevertheless, this fundamental prerequisite for a healthy society is quite absent on a global scale, particularly in the context of gender inequalities. The Global Gender Gap Report by the World Economic Forum (2020) reveals that inequality between genders appears to be far higher in political empowerment both globally (75.3%) and on a national level in every country. Turkey as well is not immune to the uneven distribution of power in the political sphere, which is construed as a man's domain within the patriarchal socio-cultural structure of the country. The insufficient presence of a female voice in Turkish politics is perspicuously visible from the meagre rates of women's political participation. However, certain explicit and implicit factors, either individually or collectively, hinder Turkish women from moving to the public sphere from the private domain (household). Intersections of these impedimental factors are frequently overlooked in the discourse of political egalitarianism. Hence, the topic of this paper aims to present a concise assessment on the intersectional role of gender and other specific inhibitory constituents that impede women from active participation in Turkish politics. The principal questions the paper seeks to address include what the major challenges are on the way to the gender-egalitarian political arena in Turkey; how the intersecting dynamics of gender and socio-cultural norms and socio-economic conditions impact the gender balance in Turkish politics; and why the elimination of these intersectional factors is significant. The paper will initially examine the intersecting impacts of gender and socio-cultural norms on the political sphere of Turkey and then analyse the importance of socio-economic status alone and intertwined with the foregoing factors. To build a theoretical and methodological framework, the paper will be utilising the theory of intersectionality, and through analysing an array of relevant materials – mainly scholarly journal articles based on mostly qualitative research methodology, it will attempt to answer the major questions and eventually assess the topic of choice. In the case of necessity, it will also be using recently updated macro-level data derived from national and international institutions.

**Keywords:** gender inequality, women, politics, egalitarianism, Turkey.

#### **1. Introduction**

Inclusiveness in the decision and policy-making processes is a key instrument to construct a more accountable and equal society. Diverging voices and perspectives indisputably benefit society as a whole. Nevertheless, this fundamental prerequisite for a healthy society is quite absent on a global scale, particularly in the context of gender inequalities. Despite the fact that women contribute twice more towards societal development owing to their double roles with regard to both reproduction in the family and production in the economic sphere, their voices are missing in the decision-making processes. The Global Gender Gap Report by the World Economic Forum (2020) on the basis of quantifiable data reveals that gender gaps vary considerably across the subindexes of educational attainment, health and survival, economic participation and political empowerment, and inequality between genders appears to be far higher on political empowerment both globally (75.3%) and on a national level in every country. Turkey as well is not immune to the uneven distribution of power in the political sphere, which is construed as a man's domain within the patriarchal socio-cultural structure of the country. The insufficient presence of a female voice in Turkish politics at both national and local levels is perspicuously visible from the meagre rates of women's political participation (will be discussed in the succeeding sections). It is also important to clarify that political representation of women is not necessarily about holding a governmental office, but it is more about demanding an egalitarian society



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in all facets of life and taking part in the decision-making processes to thread a solid societal fabric. However, certain explicit and implicit factors either individually or collectively hinder Turkish women from moving to the public sphere from the private domain (household). Intersections of these impedimental factors and gender in politics are frequently overlooked in the discourse of political egalitarianism. Hence, the topic of this critical review paper aims to present a concise assessment on the intersectional role of gender and other specific inhibitory constituents that impede women from active participation in Turkish politics. The principal questions and arguments that the paper seeks to answer and address include what are the major challenges on the way to the gender-egalitarian political arena in Turkey; how the intersecting dynamics of gender and socio-cultural norms and socio-economic conditions impact the gender balance in Turkish politics; and why the elimination of these intersectional factors are significant. The topic of my choice was determined according to the intersectionality of my background in the department of international relations and current study program, which is “Women, Society and Development.”

In order to meet the objective, the paper will first introduce a general picture of political representation in Turkey, and after that, in the following sections it will initially examine the intersecting impacts of gender and socio-cultural norms on the political sphere of Turkey, and then analyse the importance of socio-economic status alone and intertwined with the foregoing factors. Furthermore, to conclude, the paper will look into the main arguments presented in the paper, and it will also put forward some suggestions to promote gender-balanced politics in Turkey.

To build a theoretical and methodological framework, the paper will be utilising the theory of intersectionality<sup>1</sup> and through analysing an array of relevant materials – mainly scholarly journal articles which used mostly qualitative research methodology, it will attempt to answer the major questions that are addressed above, and eventually assess the topic of choice. In the case of necessity, the paper will also be using recently updated macro-level data derived from national (Turkish) and international institutions.

### 2. Overall View of Women’s Political Representation in Turkey

Article 10 of the Constitution of the Turkish Republic asserts that “men and women have equal rights before the law and the State has an obligation to ensure that this equality exists in practice.” Turkish law explicitly states equal rights and equal status of men and women. Nonetheless, apropos of the application of equal rights before the law, there always exists contradictory practices where frequently law is undermined by patriarchal socio-cultural structures and ideologies. The magnitude of gender inequalities is much more evident at the political level in Turkey. In the discourse of political participation, the emphasis must be placed on the distinction between local and national levels of representation. In contradistinction to the general political picture of the globe (globally, women’s formal political representation at local levels is higher than at national levels), in Turkey, the gender gap is highly visible in both local and national politics (Kasapoglu & Ozerkmen, 2011: 98). As stated in the preceding section, the proportion of seats held by women in the national parliament in Turkey (there are six hundred seats in total) is 17.3 as of 2020, which is only three per cent increase since the last decade, and this ratio is below the world average which is 25.6 per cent (World Development Indicators (WDI), World Bank, 2020). And when it comes to the local politics, as of the most recent (2019) local elections in Turkey, the proportion of female politicians in district municipal councils is 11 per cent which is only 1.4 per cent growth since the preceding – 2014 elections (KA-DER, 2020). These meagre rates of female representation in Turkish politics at both national and local levels exhibit that Turkey has a long road ahead to achieve balanced political participation with even distribution of power between men and women, which ultimately promotes a more inclusive and egalitarian society. However, in order to break the glass ceiling, the grounds behind this negligible number of women in Turkish politics must be identified. Indubitably, there does not exist one, but an array of drivers inhibiting women’s active political participation, and here the most omitted detail is that these drivers can not only individually but

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<sup>1</sup> Intersectionality is a qualitative analytical and theoretical concept that examines diverging grounds of identity collectively in order to determine the factors behind discrimination and oppression (see more Crenshaw, K. W. (1989). Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics. *University of Chicago Legal Forum*, 1(8), pp. 139-167).



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also collectively build walls around women. Hence, in the ensuing sections, I will be discussing the intersections of gender and other several diverging factors that include prevalingly socio-cultural norms and socio-economic status as either impediments or facilitators in women's political engagement in Turkey.

### 3. Intersectional Role of Gender and Socio-cultural Norms in Turkish Politics

It is hardly possible to examine the grounds engendering the meagre rate of women's political representation in Turkey free from gendered attitudes and perceptions towards politics within the society. The juxtaposition of female political participation and gendered socio-cultural norms is considerably critical to be examined in order to promote gender equality in the political arena. Turkey is a country that is viewed as a moderately more engaged nation in politics apropos of the number of electors and voter turnout as in 2018, 86.2 per cent of electors turned out during both presidential and parliamentary elections (International Institute for Democracy and Electoral Assistance, 2018). Nonetheless, this does not make the country immune to the masculine character of politics, that is, as in many parts of the world in Turkey as well, politics is perceived to be men's domain (Bayraktar, 2017: 26-27). A co-conducted empirical research study by Turkish sociologists Kasapoglu and Ozerkmen displays via zero-order correlation<sup>2</sup> that there is a positive significant relationship between the variables of woman's political activism and political party membership of a member from her family (mostly father or husband) – this clearly indicates that a woman in Turkey is still dependent upon her family's political activism and affiliation (Kasapoglu & Ozerkmen, 2011: 104; 106). It thus appears that within the Turkish context, there is an absence of women's own agency in politics, and women are men's proxies (Drechselová, 2020: 1). Even the conditions in the political environment are designed for mostly men, as well as the political discourse and rhetoric have been masculinised, such as the usage of masculine language and terminology (Bayraktar, 2017: 27).

It also needs to be stressed that even if women are able to enter politics at either national or local level, they have to 'prove their capability' with regard to educational qualifications and professional achievements. During her structured, focused interviews with thirty-one district municipal council's women politicians from various political parties in different cities of Turkey, the professor of gender studies, Zeynep Alemdar ascertains that male political representatives are condescending to female politicians who own relatively moderate level of experience or education compared to their male peers (Alemdar, 2020: 29). In another empirical study that was conducted with female mukhtars (local government chief in a village or town) in Turkey in 2018, the results of semi-structured interviews with open-ended questions substantiate that when a man is elected as mukhtar, he is called merely mukhtar; however, when a woman is elected as mukhtar, she is called 'female mukhtar' which genderises the position and impresses the sexist assumption upon people that women are incompetent in holding a public post (Yildirim, Ucaray-Mangitli & Tas, 2018: 671). And masculine attributes that construe mukhtarship career, hamper women's efforts to achieve a career-defined and gender-neutral work environment; so, to hold a local governmental position, a woman in Turkey has to use her bargaining power and negotiate with structural constraints that identify and acknowledge women according to solely their roles within the family (as mothers, sisters, daughters – caretakers) and even inhibit them from looking 'inappropriate' as mukhtars like wearing coloured clothing or jewellery or having fancy hairstyle (Yildirim, Ucaray-Mangitli & Tas, 2018: 676). In bare outlines, the patriarchal structure of Turkish society hinders women from moving to the public sphere and drives them back to the private sphere (household).

As mentioned above, patriarchal values within Turkish society that incessantly characterise women as incompetent in political administration constructs both national and local politics in consonance with traditional expectations that deem women tied to the private sphere (Sumbas, 2019: 577), and people, including female members of the society born into this societal structure, naturalise and eventually internalise these cultural norms (Bayraktar, 2017: 27). Nevertheless, it must be pointed out that socio-cultural norms markedly differ in terms of geography and ethnicity, particularly social representations

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<sup>2</sup> Zero-order correlation coefficient is a 'simple' correlation coefficient that indicates the magnitude and direction of the relationship between two variables for which there is no 'partialling.' (see more in Powers B. A. (2010). Dictionary of Nursing Theory and Research (4<sup>th</sup> ed.). Springer Publishing Company).



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that vary across Turkey. Especially underscoring cultural relativism<sup>3</sup> based on the dyad between *Easternised* and *Westernised* Turkey is essential as the Western parts of Turkey are associated with more secularist values, and the Eastern parts of Turkey, where Kurds mainly reside, are associated with predominated patriarchal values. However, this general (mis)conception needs to be examined in line with also a correlation between gender and ethnicity. Speaking about Kurdish women's political participation, it should be elucidated that Kurdish parties or nationalist movements highly encourage Kurdish women to be politically active, whereas the Kurdish women's voices are undermined by nationalism. So, even though Kurdish women penetrate the public sphere, 'national cause' becomes a matter of priority instead of common sense (Sahin-Mencutek, 2016: 481).

The intersectionality between gender and patriarchal socio-cultural norms in the policy-making arena cannot be discussed separately from socio-economic factors since a woman's socio-economic status is one of the primary contributing facets to either her marginalisation or autonomy within the socio-political sphere. On this account, the following section and its two subparagraphs will be discussing the prominence of social and economic circumstances in women's endeavours to closely engage in Turkey's political life.

#### 4. Intersectional Role of Gender and Socio-economic Status in Turkish Politics

The socio-economic status of women plays an essential role in increasing their participation and representation in the political arena of Turkey. Low socio-economic status opens a door for more cultural and structural burdens and becomes a barrier to empowerment. There are a number of key determinants that create inequities within society. The following subparagraphs will be looking into two of these driving factors – the role of education, as well as the importance of urban-rural differentials in women's socio-economic status.

##### 4.1. Education as a Tool

It is common knowledge that there is a positive association between education and socio-economic status as adequate schooling is conducive to better economic and social conditions, which ultimately generate an active contribution to equal rights and effective engagement in political life. "No one shall be deprived of the right of education, and primary education is compulsory for all citizens of both sexes," – Article 42 of the Turkish Constitution expressly provides equal opportunities for men and women in education. While women's status is equally high before the law, their social status is not at the anticipated level, and the primary indicator of this is the uneven educational level between the genders. Although a year after the establishment of the Republic of Turkey, on March 3rd of 1924, the Law of Unification of Instruction (Tevhid-i Tedrisat Kanunu) was passed, which placed education under the state's authority and conferred educationally more egalitarian society (Kasapoglu & Ozerkmen, 2011: 99), today 5.6 per cent of an adult female in Turkey (% of females ages 15 and above) are still illiterate, although this percentage is below one for men (WDI, World Bank, 2019). In addition, only half of the female population (56.3 per cent) complete lower secondary education, while this number is 75.9 for men (WDI, World Bank, 2019). Notwithstanding the fact that secularism is an immutable precept of the Turkish Constitution, socio-cultural values and patriarchal interpretations of religion impede women from getting a proper education. In their research study, Kasapoglu and Ozerkmen show that 98 per cent of the research respondents suggested the provision of better education for all women to ameliorate the female political participation rate (Kasapoglu & Ozerkmen, 2011: 105). Additionally, further research carried out by Alemdar among female members of district municipal councils in Turkey also demonstrates the significance of education in political activism, as the in-depth interviews revealed that almost all district council members were university graduates (Alemdar, 2020: 15). Here it needs to be elucidated that acquiring education is not necessarily scholastic attainment but also a learning process that also comprises vocational training, language teaching and others. The findings of another empirical study by Turkish scholar Ulas Bayraktar accentuates that through occupational education, women gain

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<sup>3</sup> Cultural relativism is the concept that a person's behaviour ought to be perceived in conformity with his own culture (see more Dall, W. H. & Boas, F. (1887). *Museums of Ethnology and Their Classification*. *Science*, 9(228), pp. 587-589).



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economic power as this training induce income-generating opportunities, which are instrumental in women's relative independence and agency (Bayraktar, 2017: 24).

Educational solutions for women at scholastic level – enhancing women's scholastic skills is unquestionably at the very heart of empowering women to achieve a more egalitarian society in Turkey. But also, it is essential to familiarise women with modern-day sophistication – provide them with technological guidance. Digital technology can be considered as the novel frontier for furthering political objectives. An observational and qualitative case-study research that was carried out within one of the most prominent non-governmental organisations for women's rights in Turkey – Ka-der (Association for the Support of Women Candidates), which is based in Istanbul, shows that through supplying tutoring on the digital world to mostly economically disadvantaged women, the aforementioned WNGO (women's non-governmental organisation) attempts to fill the gender gap on information and communication technology (ICT). Although it is arguable that the new technology is the most democratic tool to disseminate information, the utilisation of the internet is certainly essential to building a support system or rallying for social justice (Polat & Cagli, 2014: 180; 183). Still, one of the principal matters in the usage of digital technology by women as a support system is the accessibility to it by socio-economically more underprivileged women, particularly women living in the rural provincial parts of Turkey.

In conformity with the foregoing line, it is substantial to emphasise the distinction between urban and rural communities. On the question of educational distribution, Kasapoglu and Ozerkmen's empirical study shows a significant correlation between education and birthplace as there exists a higher level of educational attainment among women who were born in cities of Turkey. Hence, the following subsection will be centring on the important discrepancy between urban and rural differentials in women's socio-economic and ensuing political status in terms of societal structure and accessibility, availability and feasibility of infrastructure.

### 4.2. Urban-rural Discrepancy

When analysing the role of socio-economic status in Turkish women's political participation, particular attention needs to be accorded to also the rural and urban division. While talking about women living in urban areas in Turkey, the importance of urban citizenship in women's political activism ought to be underlined. Unlike rural areas, the city furnishes a distinct location in which there is substantial scope for high levels of political engagement, and accordingly, it fosters active citizenship, facilitates communal interactions among inhabitants, and eventually creates an environment for advanced rights claims (Cakmakli, 2021: 4). This grants the opportunity to marginalised groups, including women, to be more social and politically active and empowered at both local and national levels. Considering that major governmental institutions and civil society organisations (CSOs) are located in central cities, and there also exists a higher level of educational attainment and lower prevalence of gendered socio-cultural norms in cities, women are afforded ground for self-actualisation<sup>4</sup> by developing self-confidence, moving from the private sphere (household) to the public realm, and seizing a power to positively impact other women to challenge the existing status quo which treats women as second-class members of the society (Cakmakli, 2021: 16). In the case of women living in rural parts of Turkey, more progress remains to be made taking into account the fact that the majority of these women are inadequately educated, allocate more time to reproductive work due to poor services and infrastructure, and also tackle specifically more potent conservative socio-cultural norms (Drechselova, 2020: 66). In rural provincial areas of Turkey that are less populated and characterised as more conservative-religious, the political arena, as well as discourses, are male-dominated, and this prevailing situation engenders a sexist environment for female politicians whose presence is ignored. All these, as well as the nonexistence of gender quota application, subsequently lead to the absence of women's voice within the local administrations in Turkey (Sumbas, 2019: 578). Hence, I can argue that although the general picture is the underrepresentation of women in Turkish politics at all levels, women's political participation in Turkey is more of an urban trait.

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<sup>4</sup> As per American psychologist Abraham Harold Maslow, self-actualisation is delineated as the ultimate echelon of the psychological development by becoming aware of one's highest potential (see more Maslow A. H. (1943). A Theory of Human Motivation. *Psychological Review*, 50(4), 370-396).



### 5. Conclusion

This critical review paper attempted to analyse interwoven axes that generate poor female representation in the political sphere of Turkey via accentuating the intersecting matrix of gender and patriarchal norms and socio-economic status. The overarching results from the foregoing sections of the paper exhibit that placing emphasis on one single front and discarding other decisive factors causing Turkish women's absence in politics does not produce sustainable solutions to ensure political justice and a more egalitarian society. The findings demonstrate that patriarchal cultural norms are used as an instrument to politically, economically and socially control the society and lock woman within the private sphere where she is regarded as only a mother, sister or daughter. Women's presence in politics is only encouraged as a destruction to conceal the other major problems during the campaigning of different political parties in the country which hold very divergent values, and this situation builds an empathy and solidarity wall within the society. Furthermore, homogenising and putting all women of different backgrounds into one box hides the detailed picture of the current situation. The results show that there still remains a general lack of data based on the binaries between urban-rural, educated-uneducated, high class-low class women, as well as ethnic identities on the assessment of the determining factors behind meagre rate female political participation in Turkey. Turkey is a country that still grants voluntary gender quotas instead of compulsory ones, lacks sufficient facilities and financial infrastructures to ease the working women's double burden, and patriarchal values are being inhabited within the society not only internally but also externally by the radical conservative leading party. Furthermore, lack of financial base to fund female candidates or gender-oriented organisations and scarce economic empowerment are some of the major factors that hamper women's political activism in Turkey. In order to achieve a gender-balanced political sphere that will unquestionably lead to a healthier society, solely grassroots movements are not enough; the aforementioned issues need to be overcome by simply providing what is necessary (mostly economically) and raising awareness among the population on gender equality.

And lastly, I should like to point out that to make an exhaustive analysis on this very subject matter is beyond the scope of this paper since the assessment of the existing literature shows that there is a necessity for more empirical studies on the female representation in Turkish politics at both national and local levels. Turkey is a relatively understudied country in the context of women's political participation; hence, there still exists an ample need for a more robust evaluation of the subject matter through conducting a more detailed, inclusive and thorough empirical research by taking into account the diverse geographical, cultural and ethnic aspects of the country.

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### TÜRKİYE'DE YÜKSEKÖĞRETİMDE KALİTE SÜRECİNDE DEVLET ARAŞTIRMA ÜNİVERSİTELERİNDE TOPLUMSAL KATKI POLİTİKASI ETKİNLİĞİNİN BELİRLENMESİ

DETERMINING OF SOCIAL CONTRIBUTION POLICY EFFECTIVENESS OF STATE  
RESEARCH UNIVERSITIES IN HIGHER EDUCATION QUALITY PROCESS IN TURKEY

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#### Özet

Bu çalışma, Yükseköğretimde Toplumsal Katkı Politikasının üniversitelerin teknik verimliliğine etkisini belirlemeyi amaçlamaktadır. Çalışmada Veri Zarflama Analizi (VZA) yöntemi kullanılarak etkinlik analizi yapılmıştır. Analizde Karar Verme Birimi (KVB) olarak Türkiye'deki Devlet Araştırma Üniversiteleri belirlendi. Analiz için Yükseköğretim Kalite Kurulu (YÖKAK) veri tabanından kalite etkinlik göstergesi olarak 2021 yılına ait iki girdi ve üç çıktı belirlenmiştir. Çalışma modeli çıktı odaklı ve ölçeğe göre değişken getiri (Banker, Charnes ve Cooper-BCC) olarak belirlenmiştir. Çalışmada, Devlet Araştırma Üniversitelerinden sekiz tanesi teknik etkin, on bir tanesi ise teknik etkisiz olarak belirlenmiştir. Teknik olarak etkin üniversiteler olan Orta Doğu Teknik Üniversitesi, İstanbul Teknik Üniversitesi, Gebze Teknik Üniversitesi ve Karadeniz Teknik Üniversitesi sabit ölçekte üretim yapmaktadır. Diğer taraftan İzmir Yüksek Teknoloji Enstitüsü, Erciyes Üniversitesi, Dokuz Eylül Üniversitesi ve Atatürk Üniversitesi azalan ölçekte üretim yapmaktadır. Analize göre Toplumsal Katkı Politikasında İstanbul Teknik Üniversitesi, toplam on iki kez referans olarak etkinlik sıralamasında ilk sıraya yerleşmiştir. VZA'da teknik etkisiz olan KVB'lerin, Toplumsal Katkı Politikası çerçevesinde etkin KVB'lere göre daha fazla girdi kullanmasına rağmen, verimlilik düşüşünü engelleyemedikleri görülmüştür. Etkin olmayan üniversitelerin etkin olabilmesi için analizde hesaplanan potansiyel iyileştirmeleri kendi girdi ve çıktılarına uygulayarak toplumsal katkı politikalarını referans üniversiteler doğrultusunda yeniden gözden geçirmeleri gerekmektedir. Bu çalışmanın en önemli ayırt edici yönü, Türkiye'deki devlet araştırma üniversitelerinin etkinlik ölçümleridir. Bir diğer önemli fark ise bu çalışmanın YÖKAK-Kurumsal Akreditasyon Programı (KAP) çerçevesinde belirlenen "Toplumsal Katkı Politikası" kapsamında yapılmış olmasıdır.

**Anahtar Kelimeler:** Teknik Etkinlik, Toplumsal Katkı, Yükseköğretim, VZA.

#### Abstract

This study aims to determine the impact of the Social Contribution Policy in Higher Education on the technical efficiency of universities. In the study, efficiency analysis was performed using Data Envelopment Analysis (DEA) method. In the analysis were determined as the Decision-Making Unit (DMU) state research universities in Turkey. In this study two inputs and three outputs for which the year 2021 were provided in the Higher Education Quality Board (HEQB) database as a quality efficiency indicator. The working model was determined as output-oriented and variable returns to scale (Banker, Charnes, and Cooper-BCC). In the study, eight of the state research universities were identified as technically efficient and eleven as technically ineffective. Middle East Technical University, Istanbul Technical University, Gebze Technical University and Karadeniz Technical University, which are technically efficiency universities, produce on a fixed scale. On the other hand, İzmir Institute of Technology, Erciyes University, Dokuz Eylul University and Ataturk University are producing on a decreasing scale. According to the analysis, Istanbul Technical University has been the first university to be the most successful in social contribution policy, twelve times in total. It has been observed that although technically inefficient DMUs in DEA use more inputs than efficient DMUs within the framework of Social Contribution Policy, they cannot prevent the decrease in efficiency. In order for



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ineffective universities to be effective, they should reconsider their social contribution policy in line with reference universities by applying the potential improvements calculated in the analysis to their own inputs and outputs. The most important distinguishing aspect of this study is the efficiency measurement of state research universities in Turkey. Another important difference is that it is within the scope of the “Social Contribution Policy” determined within the framework of the HEQB-Institutional Accreditation Program (IAP).

**Keywords:** Technical Efficiency, Social Contribution, Higher Education, DEA.

### GİRİŞ

Kalite Güvencesi Sistemi, Türkiye’de yükseköğretim kurumlarının eğitim ve öğretim faaliyetleri, AR-GE, toplumsal katkı ve liderlik faaliyetlerinin ve idari hizmetlerin iç ve dış kalite güvencesi ve akreditasyon süreçlerini planlama ve uygulama esaslarının tamamını kapsar. Türkiye açısından Yükseköğretim Kalite Kurulu’nun (YÖKAK) kurulması Kalite Güvence Sistemi ile ilgili atılan oldukça önemli bir adımdır. YÖKAK kapsamında üniversitelerin akreditasyon sürecini hızlandırarak toplam kalite artışıyla ülke kalkınmasına önemli katkı sağlayacağı düşünülmektedir. Bu kapsamda Kalite Güvence Sistemi içerisinde yer alan Toplumsal Katkı süreci yükseköğretim kurumlarının bulunduğu topluma katkısının artırılması hedefini taşımaktadır. Eğitim sektörü İnsani Gelişme Endeksi (İGE) içerisinde oldukça önemli bir yer tutmaktadır. Toplumun kalkınması sosyal sermaye oluşumunun önemli bir göstergesidir. Sosyal sermaye ekonomik kalkınmada itici bir güç olarak kabul edilmektedir. Amartya Sen, bireylerin özgürlüklerinin artması ile kalkınma arasında bir ilişki olduğunu ortaya koymuştur. Bu bağlamda Sen, eğitim, sağlık gibi oldukça önemli olan göstergelerin iyileştirilmesinin beşeri sermayeyi iyileştireceğini belirtmektedir. 1990 yılında James S. Coleman’ın, “Sosyal Teorinin Temelleri” adlı çalışmasına göre iktisadi kalkınma daha fazla sosyal sermaye oluşturmaktadır. Beşeri sermayenin artması sosyal sermayeyi de artıracak ve böylece toplumsal refah artacaktır (Healy & Côté, 2001: 9-14; Sen, 2001: 19; Kirmanoğlu, 2011: 26; Uğur, 2017: 91). Bu bağlamda eğitim sektörü ile toplumsal kalkınma ve ekonomik gelişme bir bütün olarak düşünülmektedir.

### VERİ VE YÖNTEM

Bu çalışma, göreceli bir etkinlik analiz tekniği olan Veri Zarflama Analizi (VZA) metodu kullanılarak, Yükseköğretim Kurumlarının toplumsal katkı performanslarının belirlenmesi amaçlanmaktadır. Çalışmada YÖKAK Kurumsal Akreditasyon Programı (KAP) kapsamında belirlenen alt başlıklardan birisi olan “Toplumsal Katkı” kurum göstergeleri çalışmanın temel verisi olarak kullanılmıştır. Çalışmada uygulama yöntemi olan VZA, üretim sürecinde girdi ve çıktı üzerinden hesaplamalar yapmaktadır. Girdi(ler) olarak toplumsal katkı göstergeleri seçilirken, çıktı(lar) olarak ise üniversitelerin performans göstergelerinden bazıları tercih edilmiştir. Performans ölçümünde kurumların Kurumsal Akreditasyon Eylem Planı (KAEP) ve Kurum Stratejik Plan göstergeleri hedef olarak belirlenmiştir. Çalışmada kullanılan veriler YÖKAK Kurum Göstergeleri veri tabanından elde edilmiştir. Çoklu girdi ve çıktılarının bulunduğu KVB’lerde etkinlik skorlarının belirlenmesi ve bu birimler arasında etkinlik kıyaslamasının yapılabilmesi için VZA metodu sıkça kullanılmaktadır (Cooper vd., 2011: 30).

Çalışmada üniversitelere ait iki girdi ve üç çıktı verisi kullanılmıştır. VZA’nın iki yönteminden birisi olan çıktı odaklı BCC (Banker, Charnes ve Cooper) model seçilmiştir. Bu model literatürde ölçeğe göre değişken getiri varsayımına dayalı VRS (Variable Return to Scale) modeli olarak da ifade edilmektedir (Ahn vd., 1988; 260-268; Cooper vd., 2007: 62-65). VZA’nın VRS modelinin tercih edilmesindeki temel sebep çalışma çıktılarının artırılması ya da daha az girdi kullanımının alternatif yollarının belirlenerek etkinlik hesaplamalarının yapılabilmesidir. Çalışmada kullanılan veriler Tablo 1 ile gösterilmektedir.



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**Tablo 1.** Değişkenler ve Veri Kaynakları

	<b>Değişkenler</b>	<b>Kaynak</b>
<b>Girdi Değişkenleri</b>	Kurumun Kendi Yürüttüğü Sosyal Sorumluluk Projelerinin Sayısı-SSPS	YÖKAK Kurum Gösterge Raporları
	Sürekli Eğitim Merkezi (SEM) vb. Yıllık Eğitim Alan Kişi Sayısı-SEM	YÖKAK Kurum Gösterge Raporları
<b>Çıktı Değişkenleri</b>	Üniversite Sanayi İşbirliği ile Yapılan Yayın Sayısı - ÜSYS	YÖKAK Kurum Gösterge Raporları
	TUBİTAK Girişimci ve Yenilikçi Üniversite Endeksi- 1/TGYÜE	YÖKAK Kurum Gösterge Raporları
	Kurumun Stratejik Planında Yer Alan Toplumsal Hizmet Faaliyetlerine İlişkin Hedefleri-THFH%	YÖKAK Kurum Gösterge Raporları

Çalışma için kullanılan girdi değişkenlerinde SSPS ve SEM, Toplumsal Katkı kategorisinden elde edilmiştir. Çıktı değişkenlerinden olan ÜSYS verisi, Araştırma-Geliştirme, TGYÜE ve THFH verileri ise Kalite Güvence Sistemi göstergelerinden elde edilmiştir.

Araştırmada Türkiye’de faaliyette bulunan ve A1, A2, A3 kategorisindeki 19 Devlet Araştırma Üniversitesi Karar Verme Birimi (KVB) olarak belirlenmiştir.

**Tablo 2.** Karar Verme Birimleri

<b>Sıra</b>	<b>Devlet Araştırma Üniversiteleri</b>	<b>Kategori Düzeyi</b>
1	Orta Doğu Teknik Üniversitesi	A1
2	İstanbul Teknik Üniversitesi	
3	Boğaziçi Üniversitesi	
4	İzmir Yüksek Teknoloji Enstitüsü	A2
5	Yıldız Teknik Üniversitesi	
6	Ankara Üniversitesi	
7	İstanbul Üniversitesi	
8	Erciyes Üniversitesi	
9	Hacettepe Üniversitesi	
10	Gebze Teknik Üniversitesi	
11	Ege Üniversitesi	A3
12	Marmara Üniversitesi	
13	Bursa Uludağ Üniversitesi	
14	Dokuz Eylül Üniversitesi	
15	Atatürk Üniversitesi	
16	Gazi Üniversitesi	
17	Çukurova Üniversitesi	
18	Fırat Üniversitesi	
19	Karadeniz Teknik Üniversitesi	

Türkiye’de araştırma üniversiteleri performansları açısından A1-A2-A3 olmak üzere üç kategoriye ayrılmıştır. Tablo 2’de gösterildiği şekilde A1 kategorisindeki üniversiteler Orta Doğu Teknik Üniversitesi (ODTÜ), İstanbul Teknik Üniversitesi (İTÜ) ve Boğaziçi Üniversiteleridir. Bu üniversiteler üst düzey araştırma performansı göstermektedir. A2 kategorisindeki üniversiteler İzmir Yüksek Teknoloji Enstitüsü, Yıldız Teknik Üniversitesi, Ankara Üniversitesi, İstanbul Üniversitesi, Erciyes



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Üniversitesi, Hacettepe Üniversitesi, Gebze Teknik Üniversitesi, Ege Üniversitesi ve Cerrahpaşa Üniversitesi olarak belirlenmiştir. Bunlar yüksek düzey araştırma performans sergilemektedir. A3 kategorisindeki üniversiteler ise Marmara Üniversitesi, Bursa Uludağ Üniversitesi, Dokuz Eylül Üniversitesi, Atatürk Üniversitesi, Gazi Üniversitesi, Çukurova Üniversitesi, Fırat Üniversitesi ve Karadeniz Teknik Üniversitesi olarak gösterilmektedir. Bu üniversiteler ise orta düzey araştırma performansına sahip üniversitelerdir. Bunların dışında kalan İhsan Doğramacı Bilkent Üniversitesi, Sabancı Üniversitesi ve Koç Üniversitesi vakıf üniversitesidir ve bu nedenle araştırma KVB'lerinin dışında bırakılmıştır. Devlet Araştırma Üniversitesi olup veri teminindeki kısıtlar nedeniyle KVB'ler dışında kalan bir üniversite ise Cerrahpaşa Üniversitesi'dir.

VZA'nın matematisel gösteriminde bazı denklemler bulunmaktadır. Bu denklemler bazı kısıtlar altında analizin yönünü belirleyerek hesaplamaları şekillendirmektedir. Buna göre;

$$j. \text{ karar noktası için, } \frac{u_1 y_1 + u_2 y_2 + \dots + u_n y_n}{v_1 x_1 + v_2 x_2 + \dots + v_m x_m} \quad (1)$$

(1) nolu denklem doğrusal programlama tabanlı formüldür (Charnes vd., 1997: 332).

Denklemden yer alan;

j. karar noktası için n adet çıktı ve m adet girdi bulunmaktadır.

$u_n$  = n. Çıktının ağırlığı

$y_n$  = n. Çıktının miktarı

$v_m$  = m. Girdinin ağırlığı

$x_m$  = m. Girdinin miktarını göstermektedir.

VZA'nın basit olarak formüle edilmiş hali aşağıdaki şekilde gösterilmektedir.

$$\frac{\text{Çıktıların Ağırlıklı Toplamı}}{\text{Girdilerin Ağırlıklı Toplamı}} = \frac{\sum_{i=1}^s u_i y_{iq}}{\sum_{j=1}^m v_j x_{jq}} \quad (2)$$

(2) numaralı denkleme göre;

$u_i$ ,  $i=1,2,\dots,s$ ; i. çıktının ağırlığını,

$y_{iq}$ ,  $iq=1,2,\dots,s$ ; "q" birimden elde edilen ilk çıktıyı,

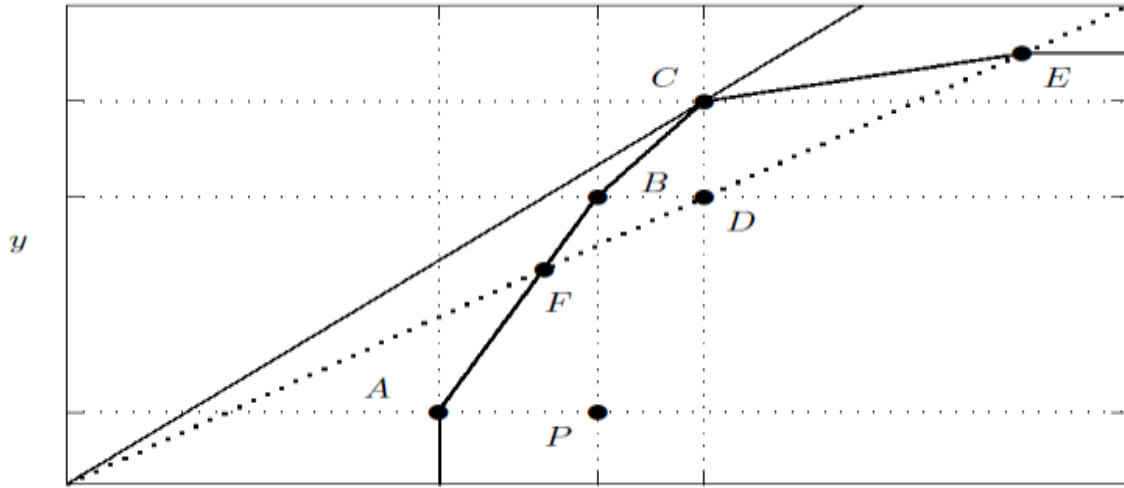
$v_j$ ,  $j=1,2,\dots,m$ ; j. girdinin ağırlığını,

$x_{jq}$ ,  $jq=1,2,\dots,m$ ; "q" birimi tarafından tüketilen ilk girdiyi göstermektedir.

VZA'da KVB'lerden her birisi ancak en iyi performansa sahip bir KVB ile kıyaslanabilmektedir. Etkinlik skorunda KVB'lerin her birisi için etkinlik skorlarının 1'e eşit ya da 1'den küçük olması gerektiği varsayılmıştır. Buna göre etkin üretim sınırı amaç fonksiyon değeri "1" olarak belirlenmiştir. Etkinlik skoru "1" değerinin altındaki birimler etkinsiz olarak kabul edilmektedir (Golany, 1988:1029-1031).

BCC modelinde üretim üst sınırı, var olan KVB'lerin oluşturduğu "içbükey zarf" tarafından taranmaktadır. Bu durum aşağıda şekilde açıkça gösterilmektedir.





Şekil 1. Teknik Etkinlik ve Verimlilik Sınırları

Kaynak: Tarım, 2001: 12

Şekil 1 ile gösterilen grafikte  $x$ , girdi miktarını gösterirken,  $y$  çıktı miktarını göstermektedir. Grafikte içbükey bir hal olan ve üzerinde aşağıdan yukarıya sırasıyla A,F,B,C,E KVB'lerinin yer aldığı eğri üretim imkânları eğrisi olarak da bilinmektedir. Bu eğri aynı zamanda **üretim sınırını** temsil etmektedir. Eğri üzerindeki her bir noktada faaliyette bulunan KVB'ler teknik etkin olarak kabul edilmektedir. Buna göre A,F,B,C ve E etkin KVB'lerdir. Üretim sınırının altında kalan D ve P KVB'leri ise teknik olarak etkin olmayan KVB olarak ifade edilmektedir. D ve P'nin VZA'ya göre kaynak israfı yaptığı ifade edilerek görece etkin olan diğer KVB'ler doğrultusunda üretim sürecinde kullandığı girdi ve çıktılarında Potansiyel İyileştirme (Pİ) yapması gerektiği anlaşılmaktadır (Cooper vd., 2000: 220; Canbek, 2007: 14-15).

$$E_0 = \max \sum_{r=1}^s u_r Y_{r0} - u_0 / \sum_{i=1}^m v_i x_{i0} \quad (3)$$

Kısıtlar;

$$\sum_{r=1}^s u_r Y_{rj} - u_0 / \sum_{i=1}^m v_i x_{ij} \leq 1 \quad j = 1,2, \dots, n \quad i = 1,2, \dots, m$$

$$v_i u_r \geq \varepsilon \quad r = 1,2, \dots, s$$

Yukarıda verilen modele  $u_0 = 0$  'inci KVB'nin serbest işaretli değişkeni eklenerek, modifiye edilen CRS modeli etkinlik sınırı değiştirilmektedir. Böylece VRS'nin primer modeli aşağıdaki şekliyle oluşmaktadır;

$$\max \sum_{r=1}^s u_r Y_{r0} \quad (4)$$

Kısıtlar;

$$\max \sum_{i=1}^m v_i X_{i0} = 1,$$

$$\sum_{r=1}^s u_r Y_{rj} - u_0 \leq \sum_{i=1}^m v_i X_{ij} \quad j = 1,2, \dots, n$$

$$v_i u_r \geq \varepsilon \quad r = 1,2, \dots, s \quad i = 1,2, \dots, m$$

VRS dual modelinde ağırlık ( $\lambda$ ) toplamları 1'e eşittir. Buna göre VRS'nin Dual modeli;

$$\min \theta - \varepsilon (\sum_{i=1}^m s_i^- + \sum_{r=1}^s s_r^+) \quad (5)$$

Kısıtlar,



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$$\sum_{j=1}^n x_{ij}\lambda_j - \theta x_{i0} + s_i^- = 0, \quad i = 1, 2, \dots, m$$

$$\sum_{j=1}^n y_{rj}\lambda_j - y_{r0} - s_r^+ = 0, \quad r = 1, 2, \dots, s$$

$$\sum_{j=1}^n \lambda_j = 1$$

$$\lambda_j, s_i^-, s_r^+ \geq 0 \quad r = 1, 2, \dots, s, \quad i = 1, 2, \dots, m, \quad j = 1, 2, \dots, n$$

### BULGULAR

2021 yılında Türkiye’de faaliyette bulunan devlet araştırma üniversitelerinin toplumsal katkı performansının göreceli olarak ölçülmesi sonucunda elde edilen bulgular bu bölümde detaylıca gösterilmektedir. BCC-O modeli sonuçlarına göre oluşturulan Tablo 3 ile üniversitelerin etkinlik değerleri, ölçek durumu ve sıralaması gösterilmektedir.

**Tablo 3.** KVB’lerin Etkinlik Derecesi, Sıralaması ve Ölçek Durumu

Sıra	KVB	Skor	Ölçek
1	Orta Doğu Teknik Üniversitesi	1	Sabit (Constant)
2	İstanbul Teknik Üniversitesi	1	Sabit (Constant)
3	İzmir Yüksek Teknoloji Enstitüsü	1	Azalan (Decreasing)
4	Erciyes Üniversitesi	1	Azalan (Decreasing)
5	Gebze Teknik Üniversitesi	1	Sabit (Constant)
6	Dokuz Eylül Üniversitesi	1	Azalan (Decreasing)
7	Atatürk Üniversitesi	1	Azalan (Decreasing)
8	Karadeniz Teknik Üniversitesi	1	Sabit (Constant)
9	Hacettepe Üniversitesi	0,8985	Azalan (Decreasing)
10	Fırat Üniversitesi	0,8241	Azalan (Decreasing)
11	Bursa Uludağ Üniversitesi	0,7827	Azalan (Decreasing)
12	Gazi Üniversitesi	0,7651	Sabit (Constant)
13	Çukurova Üniversitesi	0,7206	Azalan (Decreasing)
14	Ankara Üniversitesi	0,6522	Sabit (Constant)
15	İstanbul Üniversitesi	0,6447	Azalan (Decreasing)
16	Marmara Üniversitesi	0,6192	Azalan (Decreasing)
17	Ege Üniversitesi	0,6176	Azalan (Decreasing)
18	Yıldız Teknik Üniversitesi	0,4199	Azalan (Decreasing)
19	Boğaziçi Üniversitesi	0,3768	Azalan (Decreasing)

Tablo 3’e göre Toplumsal katkı performansında teknik olarak etkin olup ilk üç sırayı paylaşan üniversiteler Orta Doğu Teknik Üniversitesi, İstanbul Teknik Üniversitesi ve İzmir Yüksek Teknoloji Enstitüsü’dür. Bununla birlikte 19 üniversite içerisinde toplumsal katkı performansına göre teknik etkin olan KVB’ler Erciyes Üniversitesi, Gebze Teknik Üniversitesi, Dokuz Eylül Üniversitesi, Atatürk Üniversitesi ve Karadeniz Teknik Üniversitesi ile birlikte toplamda 9 olarak saptanmıştır. Geri kalan 10 devlet araştırma üniversitesi ise teknik etkinsiz olmuştur. Etkinsiz olanlar içerisinde Hacettepe Üniversitesi, Fırat Üniversitesi, Bursa Uludağ Üniversitesi, Gazi Üniversitesi ve Çukurova Üniversitesi “1” skorunun altında fakat “1” skoruna yakın yerde olması nedeniyle etkin KVB olmaya daha yakın olduğu anlaşılmaktadır. Diğer yandan toplumsal katkı performansında İstanbul Üniversitesi, Marmara Üniversitesi, Ege Üniversitesi, Yıldız Teknik Üniversitesi ve Boğaziçi Üniversitesi’nin teknik etkinsiz olarak son beş sırada yer aldığı görülmektedir. Etkin olan KVB’lerden 6 tanesi sabit ölçekte üretim yaparken geri kalan 13 KVB ise azalan ölçekte üretim yapmaktadır.



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Etkin olmayan herhangi bir KVB'ye referans olan KVB, o KVB'de etkin olmak için yapılacak Pİ miktarına da belirlemektedir. Pİ ile özellikle kaynak israfının en aza indirilmesi ve hedeflenen (potansiyel) çıktılarının elde edilmesi için gerekli olan uygulamaların yapılması sağlanmış olmaktadır.

**Tablo 4.** Referans Üniversiteler ve Referans Olma Dereceleri ( $\lambda$ )

No.	KVB	Skor	Referans KVB (Lambda- $\lambda$ )														
			Orta Doğu Teknik Ünv.	İstanbul Teknik Ünv.	Boğaziçi Ünv.	İzmir Yüksek Tek. Ens.	Yıldız Teknik Ünv.	Ankara Ünv.	İstanbul Ünv.	Erciyes Ünv.	Hacettepe Ünv.	Gebze Teknik Ünv.	Ege Ünv.	Marmara Ünv.	Bursa Uludağ Ünv.	Dokuz Eylül Ünv.	Atatürk Ünv.
1	Orta Doğu Teknik Ünv.	1,0	Orta Doğu Teknik Ünv.	1,0													
2	İstanbul Teknik Ünv.	1,0	İstanbul Teknik Ünv.	1,0													
3	Boğaziçi Ünv.	0,4	Orta Doğu Teknik Ünv.	0,1	İstanbul Teknik Ünv.	0,9											
4	İzmir Yüksek Tek. Ens.	1,0	İzmir Yüksek Tek. Ens.	1,0													
5	Yıldız Teknik Ünv.	0,4	Orta Doğu Teknik Ünv.	0,4	İstanbul Teknik Ünv.	0,1	Dokuz Eylül Ünv.	0,4	Atatürk Ünv.	0,06							
6	Ankara Ünv.	0,7	İstanbul Teknik Ünv.	1,0													
7	İstanbul Ünv.	0,6	İstanbul Teknik Ünv.	1,0	Atatürk Ünv.	0,0											
8	Erciyes Ünv.	1,0	Erciyes Ünv.	1,0													
9	Hacettepe Ünv.	0,9	Orta Doğu Teknik Ünv.	0,8	İstanbul Teknik Ünv.	0,2											
10	Gebze Teknik Ünv.	1,0	Gebze Teknik Ünv.	1,0													
11	Ege Ünv.	0,6	İstanbul Teknik Ünv.	1,0	Atatürk Ünv.	0,0											
12	Marmara Ünv.	0,6	Orta Doğu Teknik Ünv.	0,1	İstanbul Teknik Ünv.	0,2	Dokuz Eylül Ünv.	0,7	Atatürk Ünv.	0,02							
13	Bursa Uludağ Ünv.	0,8	İstanbul Teknik Ünv.	0,0	Gebze Teknik Ünv.	0,8	Dokuz Eylül Ünv.	0,1	Atatürk Ünv.	0,03							
14	Dokuz Eylül Ünv.	1,0	Dokuz Eylül Ünv.	1,0													
15	Atatürk Ünv.	1,0	Atatürk Ünv.	1,0													
16	Gazi Ünv.	0,8	İstanbul Teknik Ünv.	0,8	Gebze Teknik Ünv.	0,2											
17	Çukurova Ünv.	0,7	İstanbul Teknik Ünv.	0,1	Gebze Teknik Ünv.	0,5	Dokuz Eylül Ünv.	0,4	Atatürk Ünv.	0,01							
18	Fırat Ünv.	0,8	İstanbul Teknik Ünv.	0,1	İzmir Yüksek Tek. Ens.	0,6	Gebze Teknik Ünv.	0,3	Dokuz Eylül Ünv.	0,03							





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19	Karadeniz Teknik Ünv.	1,0	Karadeniz Teknik Ünv.	1,0						
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Tablo 4, referans üniversiteleri göstermektedir. Teknik etkin üniversiteler hem kendisine hem de etkinsiz olan üniversitelere referans olmuştur. Tüm KVB'ler içerisinde en fazla referans olan (12 defa ) üniversite İstanbul Teknik Üniversitesi olmuştur. Tablo 4'e göre etkin olmayan üniversitelerden olan Çukurova Üniversitesi'ne İstanbul Teknik Üniversitesi, Gebze Teknik Üniversitesi, Dokuz Eylül Üniversitesi ve Atatürk Üniversitesi aynı anda referans olmuştur.

**Tablo 5. KVB'lerin Pİ Değerleri**

No.	KVB	ÜSYS			1/TGYÜE			THFH%		
		Veri	Hedef	Pİ.(%)	Veri	Hedef	Pİ.(%)	Veri	Hedef	Pİ.(%)
1	Orta Doğu Teknik Ünv.	69	69	0	1	1	0	54	54	0
2	İstanbul Teknik Ünv.	69	69	0	0,33	0,33	0	125	125	0
3	Boğaziçi Ünv.	26	69	165	0,13	0,42	239	44	116	165
4	İzmir Yüksek Tek. Ens.	8	8	0	0,11	0,11	0	73	73	0
5	Yıldız Teknik Ünv.	21	50	138	0,2	0,49	144	49	116	138
6	Ankara Ünv.	45	69	53	0,07	0,33	400	78	125	60
7	İstanbul Ünv.	43	67	55	0,06	0,32	480	95	148	55
8	Erciyes Ünv.	7	7	0	0,08	0,08	0	58	58	0
9	Hacettepe Ünv.	62	69	11	0,09	0,85	837	63	70	11
10	Gebze Teknik Ünv.	5	5	0	0,14	0,14	0	96	96	0
11	Ege Ünv.	41	66	62	0,07	0,32	349	93	151	62
12	Marmara Ünv.	24	39	61	0,05	0,17	271	63	102	61
13	Bursa Uludağ Ünv.	7	9	28	0,05	0,13	168	88	113	28
14	Dokuz Eylül Ünv.	29	29	0	0,06	0,06	0	86	86	0
15	Atatürk Ünv.	5	5	0	0,03	0,03	0	750	750	0
16	Gazi Ünv.	43	56	31	0,08	0,3	284	78	119	54
17	Çukurova Ünv.	16	22	39	0,04	0,14	264	74	103	39
18	Fırat Ünv.	10	12	21	0,02	0,13	447	69	83	21
19	Karadeniz Teknik Ünv.	7	7	0	0,03	0,03	0	52	52	0

Üniversite Sanayi İşbirliği ile Yapılan Yayın Sayısı – ÜSYS, TUBİTAK Girişimci ve Yenilikçi Üniversite Endeksi'nin tersi- 1/TGYÜE ve Kurumun Stratejik Planında Yer Alan Toplumsal Hizmet Faaliyetlerine İlişkin Hedefleri-THFH% olarak belirlenen çıktılar için yapılan Pİ değerleri Tablo 5 ile gösterilmektedir. Araştırma modeli BCC-O olduğu için Tablo 5, tüm KVB'ler için yalnızca çıktılar üzerinden elde edilen Pİ değerlerini göstermektedir. Tablo 5 incelendiğinde etkin olan üniversitelerde her üç çıktı için Pİ değerinin "0" olduğu görülmektedir. Bu üniversitelerde elde edilen çıktı ile hedeflenen çıktılar birbirine eşit olduğu anlaşılmaktadır. Etkin olmayan üniversitelerin Pİ değerlerinde ise oldukça farklılıklar görülmektedir. Örneğin ÜSYS ve 1/TGYÜE çıktısı için Pİ değeri Boğaziçi Üniversitesinde her ikisi için %165 ile en yüksek değerde iken TUBİTAK Girişimci ve Yenilikçi Üniversite Endeksi sıralaması için Pİ değeri en yüksek olarak %480 ile İstanbul Üniversitesi'nde görülmektedir.

### TARTIŞMA

Araştırmada VZA ile elde edilen görelî etkinlik hesaplamaları göstermektedir ki, Türkiye'de faaliyette bulunan Devlet Araştırma Üniversitelerinde toplumsal katkının üniversite performansı üzerindeki etkisi önemli farklılıklar arz etmektedir. Çalışmada araştırma üniversiteleri içerisinde diğer kategorilerde (Eğitim ve Öğretim-Ar-GE- Liderlik) oldukça başarılı olan bazı üniversitelerin "Toplumsal Katkı"



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kategorisinde etkinsiz olduğu anlaşılmıştır. Bu durum çalışmanın yükseköğretim kurumlarının etkinlik belirlemede KAP'ın alt kategorileri bakımından her bir başlık için ayrı ayrı irdelenmesinin önemini ortaya koymaktadır. Yapılacak proses ve prosedürlerin her bir KVB için iyileştirmeye açık kategorilerde belirlenen Pİ düzeyinde ve özellikle referans KVB'ler doğrultusunda uygulanması gerekmektedir.

### SONUÇ

Çalışmada uygulanan VZA analizi ile “Toplumsal Katkı” performansının yükseköğretim kurumlarında görece etkinliğe katkısı belirlenmiştir. Çalışma sonucunda Türkiye'deki 19 Devlet Araştırma Üniversitesi'nin ortalama %43'ü etkin, %57'si ise etkinsiz KVB olarak tespit edilmiştir. Hesaplamalar sonucunda Türkiye'de Devlet Araştırma Üniversitelerinin 2021 yılında toplumsal katkı performansında ortalamada etkinsiz olduğu anlaşılmaktadır. Etkin olan KVB'ler, Orta Doğu Teknik Üniversitesi, İstanbul Teknik Üniversitesi, İzmir Yüksek Teknoloji Enstitüsü, Erciyes Üniversitesi, Gebze Teknik Üniversitesi, Dokuz Eylül Üniversitesi, Atatürk Üniversitesi ve Karadeniz Teknik Üniversitesi'dir. Diğer 11 KVB ise etkinsiz olarak hesaplanmıştır. Etkinsiz olan KVB'lerden Hacettepe Üniversitesi, Fırat Üniversitesi, Bursa Uludağ Üniversitesi, Gazi Üniversitesi ve Çukurova Üniversitesi etkin üretim sınır çizgisine yakın yerde faaliyette bulunduğu anlaşılmaktadır. Bu üniversiteler girdilerinde veya çıktılarında kendi Pİ değerleri ve yine kendilerine referans olan KVB'ler doğrultusunda hareket ederek kısa zamanda etkin KVB olabilecektir.

Elde edilen bulgular göstermektedir ki Toplumsal Katkı göstergelerinde etkinsiz olan üniversitelerde iyileştirmeler her bir KVB açısından farklılık göstermektedir. Çalışmada çıktı odaklı olarak çözümlenen araştırma modeline göre etkin olan İstanbul Teknik, Dokuz Eylül, Ortadoğu Teknik, Gebze Teknik ve Atatürk Üniversiteleri kendileri de dahil en çok referans olan üniversiteler olmuştur. Kendisine en fazla referans alan araştırma üniversiteleri ise Marmara Üniversitesi, Çukurova Üniversitesi, Boğaziçi Üniversitesi, Yıldız Teknik Üniversitesi, Bursa Uludağ Üniversitesi, Fırat Üniversitesi, Hacettepe Üniversitesi ve İstanbul Üniversitesi olmuştur.

Çalışma sonucunda etkinsiz olan üniversitelerden Gazi Üniversitesi ve Çukurova Üniversitesi Pİ ve referans alından üniversiteler bakımından birbirine oldukça benzerlik göstermektedir. Bu iki üniversitenin toplumsal katkı performansının iyileştirilmesi bakımından atılacak adımlarda bu analizde elde edilen hesaplamalar doğrultusunda stratejik plan belirlenip uygulamaların yapılması önerilmektedir. Bu doğrultuda özellikle Çukurova Üniversitesi, Gazi Üniversitesi, Marmara Üniversitesi ve Boğaziçi Üniversitesinin, TÜBİTAK girişimci ve yenilikçi üniversite endeksi çıktısını %250-300 bandında iyileştirmesi gerekmektedir. Etkinsiz olan Hacettepe Üniversitesinin, üniversite sanayi işbirliği ile yapılan yayın sayısı ile kurumun stratejik planında yer alan toplumsal hizmet faaliyetlerine ilişkin hedeflerine ait göstergesini tüm üniversiteler arasında en az iyileştirme (%11-Pİ) yaparak etkin üretim sınırına ulaşabileceği anlaşılmaktadır. Diğer yandan Hacettepe Üniversitesi'nde TÜBİTAK girişimci ve yenilikçi üniversite endeksinin %837 oranında iyileştirilmesi gerekmektedir ki bu oran tüm KVB'ler içerisindeki en yüksek Pİ oranıdır. Dolayısıyla bu çıktı Hacettepe Üniversitesi için KAP eylem planında öncelikli iyileştirilmesi gereken çıktıdır.

Araştırma sonuçlarına Çukurova Üniversitesi ve benzer konumda olan KVB'ler açısından bakıldığında ise birincil referans olan üniversite verileri doğrultusunda hesaplanan Pİ değerlerini mevcut çıktılarında uyarlayacak stratejilerin belirlenmesi ve bu kapsamda PUKÖ döngüsünün elde edilmesine dönük eylemlerin oluşturulmasının öncelikli planlamalar arasında olması gerektiği düşünülmektedir.

Elde edilen bulgular, üniversitelerin ölçek büyüklüğünün optimizasyonunda, karar mekanizmalarına yön vermede ve özellikle atıl kullanılan girdi miktarını azaltarak kaynak israfının önlenmesinde büyük öneme sahiptir. Yükseköğretim kurumlarında etkinliğin belirlenmesi konusunda yapılacak çalışmalar bu çalışmanın devamı ve tamamlayıcısı niteliğinde olacağından yapılan bu çalışmanın literatüre özgün bir çalışma olarak önemli bir katkı sunacağı düşünülmektedir.

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### FEATURES OF MODERN DEVELOPMENT OF INTERNATIONAL TRADE AS THE MAIN FORM OF INTERNATIONAL ECONOMIC RELATIONS

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#### ABSTRACT

In modern times, the process of globalization, the deepening of the international division of labor, the internationalization of economic life, which is spreading in the world, leads to the closer connection of national economies to world economic relations and strengthens the interrelationships and dependencies between countries. In such conditions, international trade, as the main and oldest form of international economic relations, plays an important role in the development of national economies and their effective integration into the world economic system. In the direction of effective integration into the world economic system, Azerbaijan should achieve the goals of forming an efficient structure of the economy, acquiring more advanced techniques and technologies, scientific innovations, and realizing the advantages it has in the international division of labor, on the other hand. It is for this reason that the development of foreign trade relations and the provision of effective integration into the world economic system have been determined as one of the strategic directions of the economic reforms implemented in the Republic of Azerbaijan. In other words, determining the products of the non-oil sectors that are competitive in the world markets, as well as having a potential comparative advantage in terms of creating jobs and incomes, stimulating exports, attracting foreign investments, is one of the important tasks ahead. Solving such important, complex and multifaceted issues requires a comprehensive study of foreign trade relations, the study of its commodity and geographical structure, development problems, and determination of future prospects, as well as researching directions for improving the regulation of foreign trade relations, and these studies are of great relevance. It is for this reason that the investigation of the subject is of great importance.

**Keywords:** international economic relations, trade, modern economic development, world economic system

#### INTRODUCTION

The first signs of international trade, one of the main forms of BIM, are still there began to be observed during the period of slavery. That's why it's BIM historically, it is considered the first and currently the most developed form. International trade means the foreign trade of all the countries of the world the sphere of commodity-money relations reflecting the totality is understood. Other in other words, international trade labor between sellers and buyers of different countries is a system of exchange with products (goods and services). Subject of International Trade Theory:

- The main goal of International Trade Theory is between countries is to explain the causes of flows of goods and services.

- Abstraction for the purpose of theory formation as a result of its activity, sometimes in this sphere of the International Economy

Abstract International Trade Theory (Pure Theory of International Trade) or for short, Abstract Theory as well it is said.



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### Development concept of international trade

As one of the main forms of the system of international economic relations/ International trade in all historical periods is quite serious theoretical as well as practical is important. Theoretical and conceptual provisions related to international trade relations are undoubtedly related to the features of its implementation and is focusing on the features of the application of foreign trade policies. From commercial concepts to classical theories (Mercantilism and Physiocratism) to modern trade concepts (Classical in modern conditions enrichment and improvement of the principles of theories, International the study of new problems of trade from a classical standpoint and International to modern alternative (different from the classical theory) theories of trade, etc.). All theoretical and methodological provisions of the country's export-import in one way or another the formation of relations (policy) from the context of national interests based on its application in various modifications.

Foreign for national economies in the conditions of the modern global economic crisis. The implementation of trade policies is of strategic importance is doing. It is from this point of view that we are the basis of international trade relations faced with the need to explore the essence of leading theoretical concepts we are.

So, it is precisely in such conditions that national economies develop their own economic development quite strict and regular protective measures in their strategies uses that this has led to a trend change in foreign trade policy takes out.

International trade theories and ensure the systematicity of their study to group it within the scheme below and accordingly it would be appropriate to analyze. As can be seen from the scheme, it was carried out in this direction the first studies are concepts up to classical theories and from this context two important schools are distinguished. The first of these schools, mercantilism the other is undoubtedly physiocratism. Explain different aspects of foreign trade. Mercantilism can be cited as the first theory that tries to do this.

As the main representatives of mercantilism theories, Thomas Meny, Featuring Antoine Moncretien, Charles Davenant, William Stafford and others can According to mercantilists, the economic system consists of three sectors – production sector, agricultural sector and foreign colonies (Gültekin, S. 2011).

According to them, merchants are the most important subject of the economic system, and labor is the most important subject of production was the main factor. Mercantilists believed that the country's economic strength is its gold and should be measured by precious metal reserves. Growth of gold reserves The main task of the state should be, and foreign trade is primarily a service to this should do. Therefore, the state to strengthen its position, follow the following should:

A positive trade balance should be supported, i.e. export more goods should be done;

This ensures the flow of gold, domestic production and employment allows to increase;

With the help of trade policy instruments, exports should be stimulated and imports must be limited; in the end, a positive trade balance is ensured again;

The export of raw materials or strictly limit and at the same time, not produced within the country create conditions for duty-free import of raw materials;

This is to collect gold reserves and would create conditions to ensure low export prices of the finished product;

Colonies to trade with countries other than metropolises and prohibit the manufacture of finished goods. Apparently, mercantilists gold and other precious metals country. Considers the source of wealth, the state treasury of the country's economic and political they looked at it as the foundation of their power (Proceedings of the United Nations Conference on Trade and Development, 2010).

The contribution of mercantilists to the theory of international trade It is undeniable, not least because they are the first foreign trade in the country's economy noted the importance of the so-called balance of payments in the modern economy have described the concept. The theory of physiocratism, which arose shortly after mercantilism, is similar to foreign trade. Although not of great importance, it played an important role in the development of economic science. Francois Kenny, Jacques Turgon, Victor as



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representatives of this theory Mirabo can be shown. They are different from the mercantilists of the country the basis of its wealth is not in trade, but in production, or rather, agriculture they saw in production and thought that the state is a natural part of economic life should not interfere with the flow. F. Kene, one of the founders of this training, thought so that the state owns by adopting laws relevant to the processes of public life must complete its mission. All these are the first signs of a free trade policy it seemed.

According to A. Smith, the founder of the classical school, the total wealth of the world is not stable. Foreign trade based on the international division of labor ultimately world leads to an increase in production. That is, two countries that trade with each other higher levels of production and consumption as a result of the international division of labor they achieve an increase in living standards. Indirectly, A. Smith mercantilists "in foreign trade, one side wins while the other side loses" overturns his opinion. Because both sides benefit from foreign trade.

A. Smith works in his work and is called the theory of absolute preferences according to the concept, countries produce at lower costs (i.e. in production those with an absolute advantage) export goods and by other countries produced at lower costs (i.e. the partner of absolute advantage in production countries) imports goods.

According to D. Ricardo, international trade is not only it would not be correct to explain based on absolute preferences. It is international labor by explaining the convenience of distribution based on the principle of comparative advantage proved that trade between two countries, even one of them against the other even if they don't have an absolute advantage, it's profitable for each of them. According to the theory of comparative advantage, if countries with other countries goods they can produce at relatively lower costs. If they specialize in production, then trade is mutually beneficial for both parties will be At this time, the absolute efficiency of production in one of them relative to the other having will not matter (Aliyev R, N. Novruzov, M. Mammadov, 2003).

D. Ricardo based his theory on the example of trade exchange between two countries was explaining. He defined the criterion of international specialization, two countries showed the extent to which the exchange between them is possible and desirable. According to him, each country has a greater advantage in the production of goods it will be more useful for that country. Therefore, international production of the same commodity at different costs as a necessary condition of trade since each country has lower costs compared to other commodities it would be appropriate to specialize in commodity production.

In the 19th century, various variants of the theory of factors of production supplanted the labor theory, which were the successors of the classics representatives of the neoclassical school, international trade factors of production began to explain through the theory. At this time, there are many options was being driven. However, a truly significant progress in this direction was made in the 20s of the 20th century. happened in the middle of the Swedish neo-classical economists Eli Heksheer and his student Bertil Olin developed a new concept, which later called the theory of the ratio of factors of production.

This theory is based on a very simple and rational premise. In theory the main idea defended can be formulated as follows: with what factor of production a country if it is rich, on commodities whose production requires more of that factor will have a comparative advantage, that is, it will produce them cheaper, and in this field as well specialize ( Broda, C., Greenfield, J. and Weinstein, D., 2010)

From the theories of the neoclassical school about international trade while speaking, one should not touch upon equilibrium models in international trade. History as international trade theories are developed, more commodities and production. Attention is paid to the supply factors and the demand factor is taken into account at the appropriate level was not received. However, it is known that the supply of goods in the world market follows the demand occurs and therefore the same level of attention to both the student and the offer must be done.

Balance of supply and demand based on neoclassical propositions or in other words. The standard model of international trade is the efforts of many neoclassical economists is the general result. Those economists are a collective student within society they paid special attention. Basic concepts used in the



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standard model in different years, the Irish economist Francis Ecuort and the Austrian-American economist Gottfried Heberler formed.

Classical models of supply and demand for a limited range of specific commodities were based on The standard model has increased the range to aggregate supply and demand. For simplicity, it is assumed that there are only two countries in the world and production in these countries there are two commodities available. Standard model from general economic theory proceeds from the well-known "increasing costs of replacement" law. This is him means that for the production of one additional unit of another commodity "Sacrifice" should be given in increasing quantity, not constant. The most of the balance transformation until the countries join trade with each other between the final threshold level (supply) and the most recent threshold level of substitution (demand) formed through interaction. The last threshold level of transformation of any commodity. The "sacrifice" of the production of other goods is given for the creation of an additional unit quantity is understood. The last level of substitution is the one of any commodity is a quantitative unit that is the addition of another commodity by "sacrificing" it unit can be obtained and at the same time the current level of consumption provide protection (Aliyev R, N. Novruzov, M. Mammadov, 2003).

### The main features of international trade

As mentioned above, the balance when there is no trade between countries supplied by supply and demand. The balance in trade conditions is internal to the commodity. Reconciliation of the relative prices available in the market and abroad and its is ensured by the movement towards the equilibrium price. Each country has its own comparison expands the production of the commodity based on its advantage and it to another country by selling and importing goods based on that country's comparative advantage. This type of operation allows him to profit from the trade, which is his structure divided into gains from exchange and specialization. Win from exchange means what the country has obtained due to establishing trade relations with other countries preference is understood. The country's winnings from specialization, comparative efforts obtained by concentrating on the production of goods in which it has an advantage wins based on preference.

Another model is the general equilibrium model. This model is based on the theory of the popular neoclassical economic school developed by representative Alfred Marshall. This model is "reciprocal demand" based on the concept. Mutual demand is an indicator that synthesizes supply and demand encouraging the country to export goods in different quantities shows how much other goods the country needs to import to make to the model according to general/international balance in domestic and international trade (domestic and in the world markets) when demand and supply are equalized at the same time is obtained (Haddad, M., Lim, J., and Saborowski, C., 2010).

Therefore, economists in the second half of the 20th century international trade have been searching for new theories explaining various aspects. Classic These concepts, which try to go beyond the theories, the following development they try to go in one of the following directions:

-they develop the principles of classical theories, more of them apply to a number of commodities, countries, and factors of production and show that despite the quantitative increase of variables, the basis of these theories its provisions are unchanged (the theory of specific factors of production);

-to question the correctness of classical theories in general study of new problems of international trade from a classical point of view they do;

-many modern economists have not been touched by the classics worked out new models explaining the problems and proved theorems (the theory of the distribution of income from international trade, trans demand theory) finally, some newer theories try to prove that classical theories are unable to explain modern international trade and therefore, they should be replaced by new theories (scale effect theory, international trade model within the field, international trade speaker models).

One of the theories explaining international trade from a new perspective is the technological difference theorem. Technological difference hypothesis in 1961 M. Posner put forward by According to this hypothesis, trade between industrial countries a large part is based on the production of new goods. Such goods are modern developed by innovative (innovator) enterprises of industrialized countries and is produced. Innovations are protected by patent and intellectual property rights. In other words, the



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enterprise that first discovers any innovation becomes its monopoly. The unauthorized use of this innovation by others is prohibited by law. According to the technological difference theorem, an industrialized country that discovers a new commodity becomes the first exporter of this commodity. But over time, the new commodity is imitated or a free commodity becomes a commodity and passes into the possession of other countries (Awokuse, T.O., 2007).

About because of cheap labor or natural resource advantages in these countries the commodity in question starts to be produced cheaper than the country of first production. In this way, the commodity starts to be exported by less developed countries and the country that invented the commodity first lost the competition with these countries, that commodity starts importing.

Products of human labor as objects of international trade - goods and services are differentiated. In a broad sense, a commodity produced for exchange and any public It is an object designed to satisfy a need. Within this understanding services can also be considered goods. In the narrow sense, a commodity is produced for exchange, meeting a public need, visible and tangible object of human labor. The service is aimed at meeting public needs, for exchange produced, but invisible and intangible object of human labor. But not all goods and services are objects of international exchange they don't pretend to be. Hence tradable and unknown commodities concepts are distinguished. Different countries mean tradable goods that can move between Their prices are both determined by the interaction of supply and demand in domestic and world markets is done (Ahmadov M.A., A.C. Huseyn, 2011). Commodities that cannot be traded are consumed in the country of production means goods that do not move between countries. Their its price is determined by the ratio of supply and demand in the national framework.

### CONCLUSION

Foreign trade mainly has a positive effect on the economic growth of countries no doubt. For many countries, foreign trade is the "engine" of economic growth played a role. The positive effects of foreign trade on the national economy called dynamic profits. The importance of foreign trade for the national economy can be broadly grouped as follows:

1. Elimination of production and resource shortages. Development which are necessary for the development of developing countries, but they cannot produce themselves. They import goods, services and resources they don't know from abroad, thus their own meet their needs.
2. Achieving production in excess of domestic demand. Foreign trade country due to low domestic demand in an economy where it is not resources may not be fully utilized. Foreign trade is one of these resources allows you to use it more efficiently. At the same time, this time is large access to the market volume to the organization of mass production, from new technologies provides conditions for use. On the other hand, the volume of the domestic market is expanding and relations between the domestic market and the world market are formed.
3. Competition. Foreign trade pits domestic producers against foreign producers and creates competition between them. This is domestic production increases efficiency, develops technology and more skilled creates conditions for the emergence of entrepreneurs. In the absence of competition productivity is reduced and excess resource costs are incurred.
4. Development of domestic market demand. Imported goods increasingly country expands the market for that commodity within, and thereby, the commodity. There is a positive basis for the organization of production in the country, a new business places arise.
5. Income generation. Production costs involved in international trade additional income is obtained due to the difference between the national and international levels allows to do.
6. Economic dynamism. Countries with each other as a result of foreign trade interact, consumers in different countries behave differently, becomes aware of their needs, living, thus, new needs occurs, better quality goods and services are demanded and changes are taking place in economic structures. All this country gives positive dynamism to the economy, better use of resources and leads to an increase in consumer welfare.

The place of international trade in the BIM system is determined by the following:





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- 1) all forms of world economic relations (capital export, production cooperation, scientific-technical cooperation, etc.) the results are through it is realized;
- 2) the development of international trade in goods and ultimately in services determines the dynamics of international exchange;
- 3) the development of international trade is important for regional economic integration is conditional and creates conditions for further deepening of the international division of labor;
- 4) international trade, foreign investment and international settlements stimulates the process.

Thus, commodity-money relations based on the international division of labor One of the main forms of international trade BIM, reflecting its stable sphere creates fertile conditions for the development of its other forms.

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### STABILITY CALCULATION OF DISCONTINUOUS PARAMETRIC LAYERED PLATE STRUCTURES

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#### **Abstract**

An approximate and accurate method of calculating the stability of a three-layer plate weakened by slits or cut-outs located anywhere concerning the contour is presented. The composition of the sequential approximation process is investigated and means of its improvement are proposed.

When considering such problems, a new approach is used, based on the solution of the corresponding static problem and the construction of the Green's function, the obtained simple formulas and algorithms are easily implemented in computer programs.

By using the Bubnov-Galiorkin variational method, in the first approximation, a system of homogeneous algebraic equations is achieved, and the equation for the critical load parameter is obtained from the equality of the determinant to zero.

This task is solved analytically and using special discrete functions. The bending function is obtained so quickly by the assembly row that it is sufficient to maintain only one of its members. After integration, an algebraic equation is obtained to find the critical load, for which the approximation of the bending function is used, but since the solution of the static problem is obtained in the form of a fast collection line, the performed approximation leads to a fast collection of discontinuous functions on the line, and therefore the results of the simple algorithm are obtained with fairly high accuracy.

**Keywords:** stability, plate, cut-outs.

#### **Introduction**

In the construction of modern large-scale buildings, the practical introduction of low-modulus materials with high strength characteristics leads to the need to take into account fairly large deflections compared to the thickness during the calculation of thin-walled structures.

In the construction of modern large-scale buildings, the practical introduction of low-modulus materials with high strength characteristics leads to the need to take into account fairly large deflections compared to the thickness during the calculation of thin-walled structures [1,2,3,4].

The development of various fields of industry and construction is related to the improvement of the existing ones and the creation of such new thin-walled structures, which include: shells, plates, and rods, with reinforcing, humps, holes, cuts, and point supports. It is customary to call the groups of mentioned irregularities intermittent parameters [5].

The most natural way to increase the strength of the shells is by inserting the edges. During the action of local loads along the edges of the hole, it is advisable to strengthen the spatial structures by employing



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rods of the appropriate length. The arrangement of these edges and the type of reinforcement affect the behavior of the structure during deformation [6, 7, 8, 9, 10, 11, 12].

Irregularities of geometric and physical parameters in thin-walled constructions lead to a significant concentration of stresses and create dangerous zones for the propagation of cracks or plastic deformations. In most cases, their bearing capacity is determined by the strength conditions or by the loss of stability of stresses in the construction zone. Other types of irregularity include surface cracking, which occurs in corrugated and multi-wave roofs. They are similar to edges due to their influence on the tense situation [5, 13, 14, 15, 16].

Cuts, humps, holes, cracks, as well as various reinforcing rods, type rigid inclusions [17, 18, 19, 20] especially intensively break the regularity [17, 18, 19, 20].

Stress concentration zones in places of irregularity (end of the edge, discrete bonds) have a significant impact on the tensile strength and stability of thin-walled structures [20]. At this time, the known traditional analytical and numerical methods for investigating the stress-deformed state of edged thin-walled constructions are less effective. Therefore, it is necessary to develop new effective methods for solving the problems of this class. Recently, intensively developing generalized, in particular, intermittent impulse functions theory, significantly expands the possibility of calculating thin-walled constructions with various irregularities [5, 21, 22, 23].

Multilayer systems can also be considered as systems with regularity violations in terms of thickness. A three-layer plate with a light filler and two outer load-bearing layers can be widely used in dwelling and public buildings according to destination with various structural features such as additional joints, holes, humps, door and window openings [24, 25, 26, 27, 28].

The calculation methodology of three-layer flat elements with cuts and holes for strength and stability is still insufficiently developed. Currently, for engineering calculations, there are practically no relatively simple and convenient formulas for determining the critical compressive load, taking into account the peculiarities of the construction.

### **Main part**

In constructions, the rational distribution of forces provides the opportunity to use the strength indicators in the best way, which is why the operational requirements imposed on the construction are often formulated in the form of certain conditions of strength and stiffness, which are mainly expressed in the fact that the dimensions of the construction should regulate the values of maximum stress and maximum displacements. The existing method of calculation, as a rule, has a checking character, therefore, the development of an algorithm that ensures the fulfillment of the mentioned requirements (conditions of strength and stiffness) in advance has a great practical value.

Consider a layered plate with a circular outline of the ideal construction ("sandwich") type, which consists of the same facing layers and intermediate light fillers (Fig. 1). It is implied that the stresses acting parallel to the middle plane of the plate will affect the working layers, and the transverse forces will fill the layers.



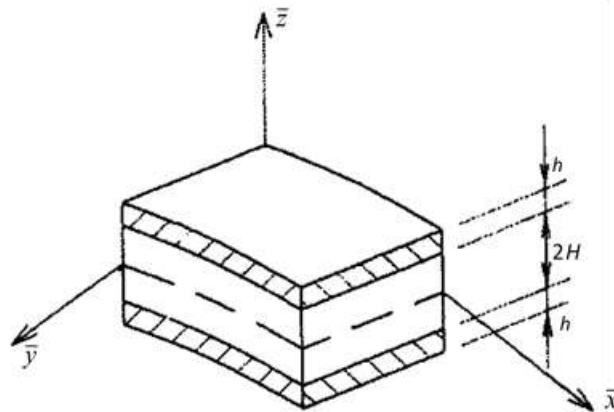


Figure 1. Sandwich panel

Bending moments and curvatures are determined according to the following formulas

$$\begin{aligned}
 M_r &= (\sigma_r^+ - \sigma_r^-)Hh = 3\sigma_r^+Hh = 2\sigma_rHh; \\
 M_\theta &= (\sigma_\theta^+ - \sigma_\theta^-)Hh = 3\sigma_\theta^+Hh = 2\sigma_\thetaHh; \\
 \chi_r &= -\frac{d^2W}{dr^2} = \frac{\varepsilon_r^+ - \varepsilon_r^-}{2H} = \frac{\varepsilon_r^+}{H} = \frac{\varepsilon_r^-}{H}; \\
 \chi_\theta &= -\frac{1}{r} \frac{dW}{dr} = \frac{\varepsilon_\theta^+ - \varepsilon_\theta^-}{2H} = \frac{\varepsilon_\theta^+}{H} = \frac{\varepsilon_\theta^-}{H};
 \end{aligned}
 \tag{1}$$

where h is the thickness of the working layer, 2h - intermediate filler  $\sigma_r, \sigma_\theta, \varepsilon_r, \varepsilon_\theta$ , respectively radial and annular stresses and deformations, as for the signs (+) and (-), denote the upper and lower facing layers of the plate, respectively.

According to Hooke's generalized law, we will have

$$\begin{aligned}
 \frac{M_r}{2Hh} &= \frac{EH}{1-\nu^2} (\chi_r + \nu\chi_\theta), \\
 \frac{M_\theta}{2Hh} &= \frac{EH}{1-\nu^2} (\chi_\theta + \nu\chi_r).
 \end{aligned}
 \tag{2}$$

The investigation of plates and shells with discontinuous parameters is often reduced

$$D\varphi + \sum_{k=1}^e D_k \varphi \cdot (x - a_k) = q(x, y)
 \tag{3}$$

Before solving equation (3).

Here D and  $D_k$  are differential operators.

The method of separation of variables leads to a one-dimensional problem and the solution of the following equation:

$$L_\varphi = q - \sum_{k=1}^e L_k \cdot \varphi \cdot \delta(x - a_k)
 \tag{4}$$

where L is the 8th differential operator with constant coefficients of the 4th order:  $L_{k0}$  is a differential operator whose order does not exceed the order of the operator L (variable coefficients may be included).

If  $l = 1$ , then equation (4) will take the form:



$$L\varphi = q - L_1\varphi\delta(x - a) \tag{5}$$

Use the gradual approach method. A first approximation is to solve  $L\varphi_1 = q$ . The second approximation would be to solve the equation  $L\varphi_2 = q - L_1\varphi_1\delta(x - a)$ , where  $\varphi_2 = \varphi_1 + \varphi'$ ; But, due to the property of superpositions, the solution of  $\varphi'$  is the solution of  $L\varphi' = -L_1\varphi_1\delta(x - a)$ . It consists of a uniform solution and a private solution, which in the general case has the form

$$\varphi^* = \frac{1}{d} \int_0^x \Delta(x - \eta)L_1\varphi_1\delta(x - a_1)d\eta = \frac{1}{d}L_1\varphi_1(a_1)\Delta(x - a_1)H(x - a_1) \tag{6}$$

where  $d$  is the Vandermonde limit of the corresponding character from the roots of the equation; is a function  $\Delta(x - a_1)$  depending on the roots of the characteristic equation;  $H(x - a_1)$  unitary function.

Thus,  $\varphi'^*$  is proportional to the  $L_1\varphi_1(a_1)$ , because the constants included in the general solution  $\varphi'^0$  and determined from the boundary conditions are proportional to the particular solution  $\varphi'^*$ .

Therefore, the function  $\varphi'$  is also proportional to the multiplier  $L_1\varphi_1(a_1)$ . Considering the mentioned, we will have:

$$\varphi_2 = \varphi_1\varphi' = \varphi_1 + L_1\varphi_1(a_1)\psi_1, \tag{7}$$

Where  $\varphi_1$  is

$$L\varphi_1 = -\delta(x - a_1), \tag{8}$$

Solving the equation, i.e.  $\psi_1$  is the Green's function.

Considering the third approximation, we have  $L\varphi_3 = q - L_1\varphi_1\delta(x - a_1)$ ,

Where  $\varphi_3 = \varphi_1 + \varphi''$ . But according to the above,  $\varphi''$  is proportional to  $\varphi_1''(a_1)$ . Therefore  $\varphi'' = L_1\varphi_2(a_1)\psi_1$ .

From equation (7):

$$\varphi_3 = \varphi_1 + [L_1\varphi_1(a_1) + L_1\varphi_1(a_1) \cdot L_1\varphi_1(a_1)]\psi_1.$$

With this kind of reasoning, we will have the fourth approximation

$$\varphi_4 = \varphi_1 + L_1\varphi_1(a_1)\{1 - L_1\varphi_1(a_1) + [L_1\varphi_1(a_1)]^2\}\psi_1.$$

For the fifth approach

$$\varphi_5 = \varphi_1 + L_1\varphi_1(a_1)\{1 - L_1\varphi_1(a_1) + [L_1\varphi_1(a_1)]^2 + \dots + (-1)^{n-2}[L_1\psi_1(a_1)]^{n-2}\}\psi_1. \tag{9}$$

It represents the expansion of the function  $\frac{1}{1+L_1\varphi_1(a_1)}$ .

Finally:

$$\varphi = \varphi_1 + \frac{L_1\varphi_1(a_1)}{1+L_1\psi_1(a_1)} \tag{10}$$

Now consider the case when the equation  $l = 2$  (4) takes the form:

$$L\varphi = q - L_1\varphi\delta(x - a_1) - L_2\varphi\delta(x - a_2) \tag{11}$$



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A first approximation is to solve  $L\varphi_1 = q$ . In the second approximation,  $L\varphi_2 = q - L_1\varphi_1\delta(x - a_1) - L_2\varphi_2\delta(x - a_2)$  is solved. Using the superposition principle, we have  $\varphi_2 = \varphi_1 + L_1\varphi_1(a_1)\psi_1 - L_2\varphi_1(a_2)\psi_2$ ,

Where  $\psi_1$  is the solution of the equation  $L\psi_1 = \delta(x - a_1)$ , and  $\psi_1 - L\psi_2 = \delta(x - a_2)$  is the solution of the equation.

With this kind of reasoning, we will have for n-th approximation:

$$\begin{aligned} \varphi_n = \varphi_1 - [L_1\varphi_1(a_1)(1 - x_1 + x_1^2 - x_1^3 - 2x_1\bar{x}_1 \cdot \bar{x}_2 + \bar{x}_1 \cdot \bar{x}_2 - x_2\bar{x}_1 \cdot \bar{x}_2) - & -L_2\varphi_1(a_2)(1 - \\ x_1 + x_1^2 - x_2 + x_2^2 + x_1x_2 + \bar{x}_1 \cdot \bar{x}_2 + \dots)\bar{x}_2]\psi_1 - & -[L_2\varphi_1(a_1)(1 - x_2 + x_2^2 - x_2^3 - \bar{x}_1 \cdot \\ \bar{x}_2 - x_2\bar{x}_1 - 2x_1\bar{x}_1 \cdot \bar{x}_2 + \dots) - & \\ -L_1\varphi_1(a_1)\bar{x}_1(1 - x_1 + x_1^2 + \bar{x}_1 \cdot \bar{x}_2 - x_2 + x_2^3 + x_1x_2 + \dots)]\psi_1 & \end{aligned} \quad [12]$$

where the following notations are introduced:

$$L_1\varphi_1(a_1) = x_1, \quad L_2\varphi_2(a_2) = x_2, \quad L_1\varphi_2(a_2) = \bar{x}_2, \quad L_2\varphi_1(a_2) = \bar{x}_1$$

Rows placed in parentheses are summed with the following formulas:

$$1 - x_1 - x_2^2 + x_1 \cdot x_2 + \bar{x}_1 \cdot \bar{x}_1 + x_1^2 + x_2^2 - \dots = \frac{1}{1 + x_1 + x_2 + x_1 \cdot x_2 + \bar{x}_1 \cdot \bar{x}_2}.$$

To summarize the rest of the rows, we can transform them

$$\begin{aligned} 1 - x_1 + x_1^2 - x_1^3 - 2x_1 \cdot \bar{x}_1 \cdot \bar{x}_1 + \bar{x}_1 \cdot \bar{x}_1 - x_2 \cdot \bar{x}_1 \cdot \bar{x}_1 \dots = & \\ = (1 - x_1 + x_1^2 - x_1^3 - x_2 + x_2^2 - x_2^3 + \bar{x}_1 \cdot \bar{x}_2 + \dots) + & \\ + x(1 - x_1 + x_1^2 - x_2 + x_2^2 - \bar{x}_1 \cdot \bar{x}_2 + \dots) = & \\ = \frac{1}{1+x_1+x_2+x_1 \cdot x_2 - \bar{x}_1 \cdot \bar{x}_2} + \frac{x_1}{1+x_1+x_2+x_1 \cdot x_2 - \bar{x}_1 \cdot \bar{x}_2}, & \\ 1 - x_2 + x_2^2 - x_2^3 - \bar{x}_1 \cdot \bar{x}_2 - x_2 \cdot \bar{x}_1 \cdot \bar{x}_2 \dots = & \\ = (1 - x_1 + x_1^2 - x_2 + x_2^2 - x_2^3 + \bar{x}_1 \cdot \bar{x}_2 - x_1x_2 - \dots) + & \\ + x_1(1 - x_1 + x_1^2 - x_2 + x_2^2 - x_1 \cdot x_2 - \bar{x}_1 \cdot \bar{x}_2 + \dots) = & \\ = \frac{1}{1+x_1+x_2+x_1 \cdot x_2 - \bar{x}_1 \cdot \bar{x}_2} + \frac{1}{1+x_1+x_2+x_1 \cdot x_2 - \bar{x}_1 \cdot \bar{x}_2} & \end{aligned}$$

Finally, we get the solution of equation (11) in the following closed form:

$$\begin{aligned} \varphi = \varphi_1 - \frac{1}{1+x_1+x_2+x_1 \cdot x_2 - \bar{x}_1 \cdot \bar{x}_2} [L_1\varphi_1(a_1)(x_2 + 1) - L_2\varphi_1(a_2)\bar{x}_2]\psi_1 - & \\ - \frac{1}{1+x_1+x_2+x_1 \cdot x_2 + \bar{x}_1 \cdot \bar{x}_2} [L_2\varphi_1(a_2)(x_1 + 1) - L_1\varphi_1(a_1)\bar{x}_1]\psi_2. & \end{aligned} \quad [13]$$

Further simplifications are possible. The denominator of the formula can be represented as a delimiter.

$$1 + x_1 + x_2 + x_1 \cdot x_2 - \bar{x}_1 \cdot \bar{x}_2 = (x_1 + 1)(x_2 + 1) - \bar{x}_1 \cdot \bar{x}_2 = \begin{vmatrix} x_1 & \bar{x}_2 \\ \bar{x}_1 & x_2 + 1 \end{vmatrix} = \Delta_0.$$

As a delimiter, images placed in parentheses can also be represented

$$\begin{aligned} L_1\varphi_1(a_1)(x_2 + 1) - L_2\varphi_1(a_2)\bar{x}_2 &= \begin{vmatrix} L_1\varphi_1(a_1) & \bar{x}_2 \\ L_2\varphi_1(a_2) & (x_2 + 1) \end{vmatrix} = \Delta_1, \\ L_2\varphi_1(a_2)(x_1 + 1) - L_1\varphi_1(a_1)\bar{x}_1 &= \begin{vmatrix} x_1 + 1 & L_2\varphi_1(a_2) \\ \bar{x}_1 & L_1\varphi_1(a_1) \end{vmatrix} = \Delta_2. \end{aligned}$$

Finally:



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$$\varphi = \varphi_1 - \frac{1}{\Delta_0} [\Delta_1 \psi_1 + \Delta_2 \psi_2] \quad [14]$$

Cases where  $l = 3, l=4, l = 5$ , etc. are subject to similar consideration. The rows obtained at this time are summed up in the same way as the above formulas. Due to their size, these transformations are not brought to us. We bring only the final results. As a result of reasoning using the induction method, we conclude: when  $l = n$  (3), the solution of the equation has the form:

$$\varphi = \varphi_1 - \frac{1}{\Delta_0} \sum_{k=1}^n \Delta_k \psi_k. \quad [15]$$

Where

$$\Delta_0 = \begin{vmatrix} L_1 \psi_1(a_1) + 1 & L_1 \psi_2(a_1) & L_1 \psi_3(a_1) & \dots & L_1 \psi_n(a_1) \\ L_2 \psi_2(a_2) & L_2 \psi_2(a_2) + 1 & L_2 \psi_3(a_2) & \dots & L_2 \psi_n(a_2) \\ \dots & \dots & \dots & \dots & \dots \\ L_n \psi_2(a_n) & L_n \psi_2(a_n) & L_n \psi_3(a_n) & \dots & L_n \psi_n(a_n) + 1 \end{vmatrix} \quad [16]$$

$\Delta_k$  delimiter will get from  $\Delta_0$  delimiters by changing the  $k$ th column  $\left\| \begin{matrix} L_1 \varphi_1(a_1), \\ L_2 \varphi_1(a_2), \\ \dots \\ L_n \varphi_1(a_n), \end{matrix} \right\|$

Thus, we come to an important conclusion: if the differential equation along with constant coefficients contains variable coefficients in the form of  $\delta$  functions, then its solution can be obtained in a closed form. The stepwise approximation method leads to quality series that are summed by formulas of the type (15).

If the operators  $L_k$  represent coefficients  $L_k = C_k(a_k)$ , for example, when considering a coil on elastic supports, then the limiter (16) is simplified and takes the form.

$$\Delta_0 = c_1(a_1) \cdot c_1(a_1) \cdot \dots \cdot c_1(a_1) \times \begin{vmatrix} \psi_1(a_1) + 1 & \psi_2(a_1) & \dots & \psi_n(a_1) \\ \psi_1(a_2) & \psi_2(a_2) + 1 & \dots & \psi_n(a_2) \\ \dots & \dots & \dots & \dots \\ \psi_1(a_n) & \psi_2(a_n) & \dots & \psi_n(a_n) + 1 \end{vmatrix} \quad [17]$$

In addition, due to the property of the Green's function  $\psi_i$ , symmetry  $\psi_i(a_j) = \psi_j(a_i)$  is preserved. Thus, the limiter (16) can be considered as a generalization of the limiter of the coefficients of the canonical equations of the method of static forces of elastic systems.

The function  $\varphi$  constructed by the formula (15) has a smooth character, but its derivatives have breaking areas (moments epigraphs) and discontinuities (transverse force epigraphs), the solution obtained in the form of (15) allows us to effectively solve several problems of discrete, continuous systems, the calculation problem of a multi-wave roof composed of corrugated sheeting.

### Conclusion

Calculation formulas obtained for the calculation of shells with different cross-sectional cuts allow to describe all the peculiarities of the variables of the components of the stressed-deformed state in the vicinity of regularity violations, to reflect the changes and redistributions of forces and moments during the loading process.



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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### LEXICAL - SEMANTIC AND GRAMMATICAL FEATURES OF IDIOMATIC EXPRESSIONS IN TURKISH LANGUAGE

#### TÜRKİYE TÜRKÇESİNDE İDİOMATİK İFADELERİN LEKSİKOLOJİK SEMANTİK VE MORFOLOJİK ÖZELLİKLERİ

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#### ABSTRACT

Idiomatic expressions are characterized by stability and metaphor. These expressions form a single lexical item. There is a strong unity between the components. When the components are separated from each other, then the meaning within the compound is lost. Idiomatic expressions consist of certain groups of words and do not include complex words. The definition of idiomatic expressions in Turkish varies. Haydar Ediskun defined idioms as "compound verbs with altered meaning", Z. Korkmaz - as "compound verbs with altered and idiomatic meaning" and D.Aksan as sayings.

Idiomatic expressions were shaped by centuries-long traditions, customs and worldview of a people. We do not know when exactly the majority of idiomatic expressions were created. Idioms act as a lexic equivalent of a particular word. We can perceive the variety and richness of idiomatic expressions in the following sample of "etekleri zil çalmak – sevinmek", "yelkenleri suya indirmek – teslim olmak", "etekleri tutuşmak – heyecanlanmak", "bacakları suya ermek – ayılmaq, yanlış yoldan dönmek". These expressions are one of the stylistic means to expand the expressive power of the language. Idiomatic expressions are a stylistic means of beautifying the language.

Most idiomatic expressions have a stable lexical structure. Lexical-semantic completeness creates the basis for the stability of the word order in these combinations. Although it is possible to change the structure of some idiomatic expressions, it is not possible to make lexical and grammatical changes in other combinations. The expression "gözleri fal taşı gibi açılmak, boynu kıldan ince olmak, şirazeden çıkmak" belongs to the latter category. The expression "canından bıkmak" is an example in which it is possible to alter the composition, as it can also be expressed as "canından bezmek".

Some idiomatic expressions owe their origin to specific events and facts. However, in most expressions it is impossible to define the relationship with a specific place and time. Lexical-grammatical dependence between the components of idiomatic expressions disappears and fixed word combinations with figurative meaning are formed. Idiomatic expressions can be associated with religious myths, legends, historical figures, geographical names. Since idiomatic expressions are taken as equivalent to a single word, they absorb the lexical-semantic features of words. Synonyms, antonyms, homonyms and ambiguities also exist among idiomatic expressions.

**Key words:** Idioms, idiomatic expressions, sayings, figurative meaning.

#### ÖZET

İdiomatik ifadeler sabitlik ve mecaz anlamları ile farklılandırılan ifadelerdir. Söz konusu ifadeler leksikolojik birim içeriği taşırlar. Deyimi oluşturan öğeler arasında sıkı birlik mevcuttur. Eğer deyim oluşturan unsurlar birbirlerinden ayrılacak olurlarsa, o zaman birleşim anlamını kaybeder. İdiomatik ifadeler birtakım sözcük öbeklerinden oluşur ve genellikle birleşik sözcüklere ait edilmezler. Türkiye Türkçesinde idiomatik ifadeler türlü şekillerde adlandırılabilir. Haydar Ediskun bu ifadelerin bir grubunu "anlamca kaynaşmış birleşik fiiller", D.Aksan "deyimler, deyim aktarmaları", Z.Korkmaz "anlam kaymasına uğramış ve deyimleşmiş birleşik fiiller" adlarıyla ifade ederek araştırmıştır.



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İdiomatik ifadeler her bir halkın yüzyıllar boyunca oluşmuş gelenekleri, yaşam tarzı ve dünyaya bakış açısına bağlı olarak oluşur. İdiomatik ifadelerin büyük bir kısmının çoğunlukla ne zaman oluştuğu belli değildir. İdiomatik ifadeler anlamca sözcüğün karşılığı olabilir. “Etekleri zil çalmak – sevinmek”, “yelkenleri suya indirmek – teslim olmak”, “etekleri tutuşmak – heyecanlanmak”, “bacakları suya ermek – ayrılmak, yanlış yoldan dönmek” örneklerinde idiomatik ifadelerin anlam zenginliği ve çeşitliliği görülmektedir. Söz konusu ifadeler dilin bedii etkisini güçlendiren üslubi araçlardan biridir. İdiomatik ifadeler dili güzelleştiren ifadelerdir. İdiomatik ifadelerin büyük bir kısmı değişmez leksikolojik yapıya sahiptir. Leksikolojik-semantik bütünlük adı geçen ifadelerde söz sırasının da aynı şekilde değişmez olmasını sağlar.

Kimi idiomatik ifadelerin yapısında bazı değişimleri yapabilmemize rağmen kimi ifadelerde bunu yapmamız mümkün olmaz. “Gözleri fal taşı gibi açılmak, boynu kıldan ince olmak, şirazedenden çıkmak” ifadelerini şu kategoriye ait edebiliriz. “Canından bıkmak” ifadesi ise “canından bezmek” şeklinde de ifade edilebildiği için değişim yapılması mümkün olan örneklerdendir. İdiomatik ifadeler arasında somut olay ve olgulara dayanarak oluşturulmuş ifadeler de yer almaktadır.

Lâkin çoğunlukla birçok ifadelerde somut mekan ve zaman kavramlarını belirtmek mümkün değildir. İdiomatik ifadelerin öğeleri arasında leksikolojik morfolojik bağ yeni aşamaya girer ve mecaz anlam taşıyan sabit yapıları kelime öbekleri oluşur. İdiomatik ifadeler dini efsaneler, rivayetler, tarihi şahsiyetler, coğrafi adlarla bağlı olarak türetilir. İdiomatik ifadeler anlamca tek bir sözcüğü de karşılayabilecekleri için sözcüklerin leksikolojik semantik özelliklerini de taşıyabilirler. Sözcüklere has eş anlamlılık, zıt anlamlılık, eşseslilik ve çokanlamlılık özellikleri idiomatik ifadelerde de görülmektedir.

**Anahtar sözcükler:** idiomlar, idiomatik ifadeler, deyimler, mecaz anlam.

### GİRİŞ

“İdiom” sözcüğü Yunancadan alınmıştır, anlamı “kendine özgü özellikleri olan ifade” olarak algılanmaktadır. “İdiom” sözcüğü terim olmasına rağmen çokanlamlılık ifade edebilir. İdiomatik ifadeler durağanlıkları ve mecaz anlamları ile farkedilen ifadelerdir. Söz konusu ifadeler leksikolojik birim içeriği taşırlar. Deyimi oluşturan öğeler arasında sıkı birlik mevcuttur. Eğer deyim oluşturan unsurlar birbirlerinden ayrılacak olurlarsa, o zaman birleşim anlamını kaybeder. İdiomatik ifadeler birtakım sözcük öbeklerinden oluşur ve genellikle birleşik sözcüklere ait edilmezler. Türkiye Türkçesinde idiomatik ifadeler türlü şekillerde adlandırılabilir. Haydar Ediskun bu ifadelerin bir grubunu “anlamca kaynaşmış birleşik fiiller” (Haydar Ediskun, 2017, s.246), D.Aksan “deyimler, deyim aktarmaları” (A.Doğan, 2006, s.113), Z.Korkmaz “anlam kaymasına uğramış ve deyimleşmiş birleşik fiiller” (Z.Korkmaz, 2014, s.729) adlarıyla ifade ederek araştırmıştır.

İdiomatik ifadeler her bir halkın yüzyıllar boyunca oluşmuş gelenekleri, yaşam tarzı ve dünyaya bakış açısına bağlı olarak oluşur. İdiomatik ifadelerin büyük bir kısmının çoğunlukla ne zaman oluştuğu belli değildir. İdiomatik ifadeler anlamca sözcüğün karşılığı olabilir. “ Etekleri zil çalmak – sevinmek”, “yelkenleri suya indirmek – teslim olmak”, “etekleri tutuşmak – heyecanlanmak”, “bacakları suya ermek – ayrılmak, yanlış yoldan dönmek” örneklerinde idiomatik ifadelerin anlam zenginliği ve çeşitliliği görülmektedir. Söz konusu ifadeler dilin bedii etkisini güçlendiren üslubi araçlardan biridir. İdiomatik ifadeler gerçek anlamlı sözcükleri mecaz anlamlı sözcüklerle ifade eder. İdiomatik ifadeler dili güzelleştiren ifadelerdir. İdiomatik ifadelerin büyük bir kısmı değişmez leksikolojik yapıya sahiptir. Leksikolojik-semantik bütünlük adı geçen ifadelerde söz sırasının da aynı şekilde değişmez olmasını sağlar. İdiomatik ifadeler bir veya birden çok isimleri

### 1. İDİOMATİK İFADELERİN YAPISAL ÖZELLİKLERİ

İdiomatik ifadeler belli sözcük gruplarından oluşur. İdiomatik ifadeler değişmez kelime sırasına sahip olabilirler. Bu tümlüğü oluşturan ifadenin anlamının ayrı ayrı öğelerden alınmaması ile açıklanabilir. Kimi durumlarda idiomatik ifadenin anlamını bozmadan kimi yapımların değişimlerinin gerçekleştirilmesi mümkün olabilir.

Türkiye Türkçesi anlam kaymasına uğramış fiillerine göre oldukça zengindir. Z.Korkmaz söz konusu



fiillerin yeteri kadar araştırılmadığını ve diğer birleşik fiil çeşitleri ile birarada tasnif olunmasını, konunun tam incelikleriyle araştırılmadığını haklı olarak vurgulamıştır (Z.Korkmaz, 2014, s.). H.Ediskun anlamca kaynaşmış birleşik fiilleri üç grupta incelemektedir. Bunlardan birincisinde birinci sözcük kendi sözlük anlamını korur, ikinci sözcük kendi anlamından kayan fiildir. Örneğin: laf atmak. İkinci tip deyimlerde bütün kelimeler kendi sözlük anlamından kayarlar: boy ölçüşmek. Üçüncü çeşit deyimlerde birinci sözcük isim çekim eklerini alabilirler: gözünü kırpma, elini açma vb. (Haydar Ediskun, 2017, s.246). Afad Kurbanov frazeolojik sözcük gruplarını oluşturulma yöntemlerine göre 3 grupta incelemiştir: frazeolojik kavuşukluk, frazeolojik birlik, frazeolojik birleşmeler adlandırdığı bu gruplar içerisinde birinci grupta bulunanların asıl idiomatik ifadeler olarak adlandırılabilceğini vurgulamıştır. Frazeolojik kavuşuklarda her bir sözcüğün anlamca son derece kaynaşmış birleşmesini, söz konusu ifadelerin bölünmez bir parça olduğunu vurgulamıştır (Afad Kurbanov, 2010, s.364). “Su bulandırmak, bel bağlamak, gözü su içmemek” ifadeleri anlamca kaynaşmış, tam kalıplaşmış ifadelerdir örnek olabilir. İdiomatik ifadelerin yapısında öge sayısına bağlı olarak üç temel yapının bulunması kanısındayız. Bunlar bir ögeli, iki ögeli, üç ve daha fazla ögeli idiomatik ifadelerdir. “Yüreği hoplamak, dili dolaşmak, rengi kaçmak, can atmak, bel bağlamak, gün görmek” ifadeleri tek unsur+fiil yapıları idiomatik ifadeler arasında yer alır.

“Gözleri yolda kalmak, yelkenleri suya indirmek, eli ayağına dolaşmak, yumurta kapıya dayanmak, ateş bacadı sardı” ifadeleri 2 unsur+fiil ifadeleri arasında yer alır. Ama başka yapıları idiomatik ifadeler de bulunmaktadır.

**1.1. Ad+fiil yapıları idiomatik ifadeler.** Bu yapıda bir isim ve fiilden oluşan idiomatik ifadeler görülmektedir:

göz atmak  
sinek avlamak  
parmak basmak  
yakışık almak  
yüreği hoplamak  
ders almak  
dilini yutmak  
şirazeden şıkmak  
beti benizi atmak

**1.2. Ad+ad+fiil yapıları idiomatik ifadeler.**

Etekleri zil çalmak  
Ağızından baklayı çıkarmak  
Dişini tırnağına takmak  
Deveye hendek atlatmak  
Yelkenleri suya indirmek  
Ağızını bıçak açmamak  
İşi inada bindirmek  
Kendini ateşe atmak  
Burnundan kıl aldırmmamak  
Ağızından yel almak

“Gözünü dört açmak” ifadesinde ise “ad+sayı+fiil” şeması görülmektedir.



### 1.3. Ad+ad+ad...+fiil yapılı idiomatik ifadeler:

Elini sıcak sudan soğuk suya sokmamak

Anasından emdiği sütü burnundan getirmek

Şeytana papucunu ters giydirmek

Bu tip şemalı ifadelerde 3 ve daha fazla ad (ifadeyi oluşturan sözcükler arasında diğer sözcük türleri de yer alabilir.) ve fiilden kurulan şema görülmektedir.

### 1.4. ad+fiil+ad+fiil yapılı idiomatik ifadeler :

İnce eleyip sık dokumak

Boş atıp dolu tutmak

“Ad+fiil”şemalı idiomatik ifadeler Türkiye’de daha sık rastlanılır. Z.Korkmaz kalıplaşma yolu ile oluşan deyimlerin tek ögelilerinin 5700 civarında olduğunu, iki ögeli olan deyimlerin sayısının 517 civarında olduğunu tespit etmiştir.( Zeynep Korkmaz, 2014, s.744) Üç ögeli kalıplaşmış deyimlerin sayısı ise diğerlerine oranla epeyce az bulunmaktadır.

## 2. İDİOMATİK İFADELERİN LEKSİKOLOJİK SEMANTİK ÖZELLİKLERİ.

Kimi idiomatik ifadelerin yapısında bazı değişimleri yapabilmemize rağmen kimi ifadelerde bunu yapmamız mümkün olmaz. “Gözleri fal taşı gibi açılmak, boynu kıldan ince olmak, şirazedden çıkmak” ifadelerini söz konusu değişmez kategoriye ait edebiliriz. “Canından bıkmak” ifadesi ise “canından bezmek” şeklinde de ifade edilebildiği için değişim yapılması mümkün olan örneklerdendir.

İdiomatik ifadeler arasında somut olay ve olgulara dayanarak oluşturulmuş ifadeler de yer almaktadır. Lakin çoğunlukla birçok ifadelerde somut mekan ve zaman kavramlarını belirtmek mümkün değildir.İdiomatik ifadelerin ögeleri arasında leksikolojik morfolojik bağ yeni aşamaya girer ve mecaz anlam taşıyan sabit yapılı kelime öbekleri oluşur. İdiomatik ifadeler dini efsaneler, rivayetler, tarihi şahsiyetler, coğrafi adlarla bağlı olarak türetilir.

### 2.1.Coğrafi Mekanların Yer Aldığı İfadeler:

Mısır`daki sağır sultan duydu

Göklü`nün akıllı gelini

Nasip ise gelir Hint`ten ,Yemen`den,

Nasip değilse, ne gelir elden

### 2.2. Beden Organlarının Adlarının Geçtiği İdiomatik İfadeler:

Alnı açık olmak

Bacakları suya ermek

Boynu kıldan ince olmak

Gözleri yolda kalmak

Eli ayağına dolaşmak

Gözden sürmeyi çekmek

Saçını süpürge etmek

Darısı başına

Yarım ağız davet

Ne verirsen elinle, odur giden seninle

İlk göz ağrısı

Azizim öldü, boğazım ölmedi



Yüzüne bak da, keramet um.

Dilinde tüy bitmek

### 2.3. Su Sözcüğü ile Kurulan İdiomatik İfadeler:

Suya götürüp susuz getirmek

Saman altından su yürütmek

Kırk dereden su getirmek

Geçme namert köprüsünden , koy aparsın su seni

İçinde su kaçığı varmış .

Merkep sudan gelinceye kadar

Bacakları suya ermek

Yelkenleri suya indirmek

### 2.4. Hayvanlarla Bağlı Olarak Oluşturulan İdiomatik ifadeler:

Tilkinin varacağı yer

Havlamasını bilmeyen köpek

İnsanoğlu arslanı kedi değil, siçan yaparmış

Keçileri kaçırmak

Keçinin palamuta ettiğini palamut da keçiye eder.

Acemi çaylak

Karınca kararınca

Aslan payı

Her koyun kendi bacağından asılır.

Ya bu deveyi güdersin,ya bu diyardan güdersin

Pire için yorgan yakmak

### 2.5. Günlük yaşamda vuku bulan olaylar sonucunda oluşan idiomatik ifadeler:

Şirazeden çıkmak

zıvanadan çıkmak

papucu dama atılmak

İdiomatik ifadeler anlamca tek bir sözcüğü de karşılayabilecekleri için sözcüklerin leksikolojik semantik özelliklerini de taşıyabilirler. Sözcüklere has eş anlamlılık, zıt anlamlılık, eşseslilik ve çokanlamlılık özellikleri idiomatik ifadelerde de görülmektedir.

### 3. İDİOMATİK İFADELERİN TÜRLERİ.

S.Ceferov idiomatik ifadelerin daha somut anlam ifade ettiğini vurgular. Söz konusu ifadeleri kavuşuk, birleşme ve uyumlu idiomlar halinde bölümler. Kavuşuk idiomları oluşturan sözcükler tamamen mecaz anlamı taşırlar (S.Ceferov, 2007, s.88). Genellikle kavuşuk idiomatik ifadeler değişime uğramazlar. Kavuşuk idiomların öğelerini oluşturan sözcüklerde taraflar arasına sözcükler giremez. Kavuşuk idiomlar olarak elealnan ifadelerde ayrı ayrı unsurların anlamına bağlı olmadan ifadenin bir temel anlamı oluşur. “Deriden kabuktan çıkmak” ifadesinde sözcüklerin ayrılıkta ifade ettikleri anlama bağlı olmadan bir idiomatik ifadenin yeni anlamı oluşmuştur. Kavuşuk idiomatik ifadeler birleşik sözcüklere doğru bir gelişim sürecinden geçmiş bulunurlar. Bunların içerisinde fiillerin karşılığı olan idiomlarla beraber diğer sözcük türlerinin karşılığı olan idiomlar da bulunmaktadır: örtülü pazar, açık yürek, açıktan açığa vb.



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Birleşme idiomatik ifadeler kavuşuk idiomlardan farklıdır. Taraflarından biri ek alarak değişime uğrayabilirler. En sık olarak ifadenin birinci tarafı değişime uğramaktadır. Elim boşta çıktı.

Uyumlu idiomatik ifadeler birleşme idiomlardan farklıdır. Söz konusu ifadelerde ifadeyi oluşturan taraflardan birinin değiştirilmesi mümkündür. Örnek olarak “yüreği yanmak” ve “yüreği sızlamak” ifadelerini örnek verebiliriz. Uyumlu idiomatik ifadeler canlı dilde tam bir leksikolojik birim olarak kullanılabilirler: papucu dama atılmak, yelkenleri suya indirmek vb.

Kavuşuk idiomlar: bel bağlamak, göz yummak, kolaçan etmek, dil dökmek,

Birleşme İdiomlar: dilini saklamak, rengi kaçmak, göz önünde bulundurmak

Uyumlu idiomlar: Gözleri yolda kalmak, yelkenleri suya indirmek, eli ayağına dolaşmak, yumurta kapıya dayanmak, ateş bacayı sardı, evdeki hesap çarşıya uymaz.

### SONUÇ

İdiomatik ifadeler her bir halkın yüzyıllar boyunca oluşmuş gelenekleri, yaşam tarzı ve dünyaya bakış açısına bağlı olarak oluşur. İdiomatik ifadelerin büyük bir kısmının çoğunlukla ne zaman oluştuğu belli değildir. İdiomatik ifadeler anlamca sözcüğün karşılığı olabilir.

Kimi idiomatik ifadelerin yapısında bazı değişimleri yapabilmemize rağmen kimi ifadelerde bunu yapmamız mümkün olmaz. Buna bağlı olarak da idiomatik ifadelerin türleri : kavuşuk idiomlar, birleşme idiomlar, uyumlu idiomlar oluşur.

İdiomatik ifadelerin yapısında öge sayısına bağlı olarak üç temel yapının bulunması kanısındayız. Bunlar bir ögeli, iki ögeli, üç ve daha fazla ögeli idiomatik ifadeleri içermektedir. “Ad+ fiil”, “Ad+ad+fiil” yapıları idiomatik ifadeler daha sık rastlanılmaktadır. “Ad+fiil + ad+fiil”, “ad+ ad” yapıları idiomatik ifadeler de bulunmaktadır.

İdiomatik ifadeler anlamca tek bir sözcüğü de karşılayabilecekleri için sözcüklerin leksikolojik semantik özelliklerini taşıyabilirler. Sözcüklere eş anlamlılık, zıt anlamlılık, eş seslilik ve çok anlamlılık özellikleri idiomatik ifadelerde de görülmektedir. Örnek olarak “deriden kabuktan çıkmak” ve “can koymak” ifadeleri bir işin yapılması için çok emek verilmesi anlamını vererek eş anlamlı idiomatik ifadeleri oluşturabilirler.

İdiomatik ifadeler arasında somut olay ve olgulara dayanarak oluşturulmuş ifadeler de yer almaktadır. Lakin çoğunlukla birçok ifadelerde somut mekan ve zaman kavramlarını belirtmek mümkün değildir. İdiomatik ifadelerin öğeleri arasında leksikolojik morfolojik bağ yeni aşamaya girer ve mecaz anlam taşıyan sabit yapıları kelime öbekleri oluşur. İdiomatik ifadeler dini efsaneler, rivayetler, tarihi şahsiyetler, coğrafi adlarla bağlı olarak türetilir. Vücut organlarının, hayvan adlarının yer aldığı idiomatik ifadelerin sayısı daha fazladır.

Türkçede idiomatik ifadelerin anlam zenginliği ve çeşitliliği görülmektedir. Söz konusu ifadeler dilin bedii etkisini güçlendiren üslubi araçlardan biridir. İdiomatik ifadeler dili güzelleştiren ifadelerdir. İdiomatik ifadelerin büyük bir kısmı değişmez leksikolojik yapıya sahiptir. Leksikolojik-semantik bütünlük adı geçen ifadelerde söz sırasının da aynı şekilde değişmez olmasını sağlar.

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### TARİHİ KAYNAKLARDA İLK İSLAM SİKKELERİ: DİNİ VE SİYASAL SÖYLEM THE FIRST ISLAMIC COINS in HISTORICAL SOURCES: RELIGIOUS AND POLITICAL DISCOURSE

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#### Özet

Araplar Cahiliye Dönemi'nde Bizans ve Sasani sikkeleri kullanıyordu. Hz. Muhammed ve Dört Halife Dönemi'nde ticari nedenlerle yeni para basılmamış, bu sikkelerin kullanımı devam etmişti. Emevî halifesi Muaviye Dönemi'nde ise Bizans ve Sasani tarzında dinar ve dirhemler basılmaya başlanmış ve paraların üzerinde bazı önemli değişikliklere gidilmiştir. Örneğin haç gibi Hıristiyan sembolleri çıkartılarak, yerine bazı şekiller ve Arapça “*Bismillah*” gibi İslami ibareli yazılar eklenmiştir. Sasani üslubundaki sikkelerde ise şekillere dokunulmamış portrenin kenarında Pehlevice olarak Sasani kralının adı yazılırken, Arapça yazı ile “*Bismillah*” yazılmıştır. Bu sikkeler “Arap-Bizans” ve “Arap-Sasani” biçiminde isimlendirilmiştir. Abdümelik b. Mervan ise tarihte ilk müstakil İslami sikkeleri darp ettirmiş ve ilk ekonomik reform hareketini gerçekleştirmiştir. Makalenin amacı ilk İslam sikkelerinin Cahiliye Dönemi'nde ve Emevî devletinin başlangıcında kullandıkları paraların niteliklerini ele almak; daha sonra Abdümelik b. Mervan'ın ekonomik reformu ve bastırdığı sikkeleri Hıristiyanlara karşı İslami bir sembol olarak kullanım biçimini ortaya koymaktır. Araştırma, sikkelerde yapılan incelemeler ve elde edilen bulgular yanında tarihi kaynaklara dayandırılarak yorumlanmıştır.

**Anahtar Kelimeler:** Emevîler, Muaviye b. Ebu Süfyan, Abdümelik b. Mervan, İslami sikkeler

#### Abstract

Arabs had been using the coins of Byzantine and Sassanids in the pre-Islamic era of ignorance. For commercial reasons, Arabs preferred not to coin but these coins have been used in the era of Prophet Mohammad and four caliphates. Dinars and drachmas, imitation of Byzantine and Sassanids coins were coined during the era of Umayyad caliphate Muawiyah and certain significant changes were made on the coins. For instance, Christian symbols such as cross were removed from the coins and certain figures and Islamic expressions such as Arabic “*Bismillah*” (in the name of God) were engraved onto the coins. As for the Sassanids imitations, figures were remained untouched and the name of the Sassanid king was engraved in Pahlavi language on the edges of the portrait, and Arabic “*Bismillah*” was again engraved. These coins named in the form of “Arabic-Byzantine” and “Arabic-Sassanid” were revealed to set an example for the first Islamic coin models to be realized in the future. As a conclusion, the content and layout of the scripts on the Umayyad coins are the same for the entire caliphates. Name of the caliphates is not encountered on the dirhams, and the year of mintage indicates the era of the caliphate. Abd el-Malik b. Merwan made the first Islamic coins minted in history and also carried out the first economic reform movement. In the beginning of Islam, the money was minted by imitating the silver drachmas of Sassanids in the east and soliduses of the Byzantines in the west. During the period of Abd el-Malik b. Merwan, the first independent Islamic coins were minted in order to protect the economic structure of the state from the Byzantine influence. In the article, firstly the qualities of the money, used by Arabs during pre-Islamic age of ignorance and the beginning Islamic period, were dwelled upon. Then, economic reform started by Abd el-Malik b. Merwan and usage of the coins minted by him as an Islamic symbol against the Christians were told. The findings obtained at the end of the research were interpreted on the basis of historical chronicles besides the examination made in the coins.

**Key Words:** Umayyads, Muawiyah b. Ebu Süfyan, Abd el-Malik b. Merwan, Islamic coins



### GİRİŞ

Hız. Muhammed'in vefatından sonra ittifakla Halife Ebu Bekir İslam Devletinin başına getirilmişti. Onun zamanında, Muaviye b. Ebu Süfyan Suriye üzerine gönderilen orduda görevlendirilmiş ve Ürdün ile çevresine yönetici atanmıştı (17/638).<sup>1</sup> Sonra Halife Ömer tarafından Dimaşk valiliğine, Osman Dönemi'nde de Suriye genel valiliğine yükseltildi (25/645).<sup>2</sup> Osman öldürülünce yerine Medine'de Ali halife ilan edildi ve kendisine biat edildi. Fakat Muaviye Osman'ın amcaoğlu olarak hukuken onu öldürenlerin cezalandırılmadığını iddia ederek Ali'ye biat etmedi. Mekke'de ise Talha, Zübeyr ve Hz. Muhammed'in eşi Ayşe, Osman'ın katledilmesinin hesabını sormak üzere Ali aleyhine harekete geçmişlerdi.<sup>3</sup>

Bu anlaşmazlıklar neticesinde Halife Ali ve Muaviye taraftarları Cemel Vakası<sup>4</sup> olarak anılan savaşta karşı karşıya geldi. Ali, Cemel Vakası'nda galip gelince Muaviye'yi kendisine biat etmeye davet etti. Buna karşılık Muaviye de Ali'den, Osman'ın katillerini kendisine vermesini ve halifelikten çekilmesini talep etti.<sup>5</sup> Muaviye'nin biat etmediğini gören Ali Suriye üzerine sefere çıktı. Siffin'de meydana gelen savaş Ali lehine iken, Muaviye taraftarlarına mızrakların üzerine Kur'an sayfaları taktırarak savaşın durmasını ve işin hakemler kanalıyla çözülmesini sağladı.<sup>6</sup> Hakemlere gidilmesi kararıyla hem Muaviye'nin ordusu mağlubiyetten kurtuldu hem de Halife Ali'nin ordusu bölünerek Hariciler hareketinin ortaya çıkmasına sebep oldu.<sup>7</sup>

Bu savaş sonunda Haricilerin çıkardığı bölünme yüzünden çok sayıda asker yitiren Ali, Mısır gibi halifelik için önemli şehirlerini de Muaviye'ye kaybetti.<sup>8</sup> Muaviye, 40/661 yılında Ali'nin şehit edilmesinden sonra Suriyelilerden "*Emirü'l-Mü'minîn*" unvanıyla biat aldı.<sup>9</sup> Muaviye'nin "*Halifetullah*" "Allah'ın halifesi" unvanını kullanarak hilafet makamına geçmesiyle İslam tarihinde yeni bir dönem başlamıştır. Hz. Muhammed ve Dört Halife Dönemi'nde halifenin seçimle gelme geleneği terk edilerek, hilafet kabileci bir saltanat sistemine dönüştürülmüştür.<sup>10</sup> Ali'den sonra yerine halife olarak biat edilen oğlu Hasan'ın da kendi hakkını Muaviye'ye devretmesiyle İslam tarihinde Emevîler Dönemi olarak bilinen devir başlamış oldu.<sup>11</sup>

### İlk İslam Devleti Sikkeleri: Abdülmelik b. Mervan Dönemine Kadar

Belazurî'ye göre İslamiyet'ten önce Mekkeliler alış-veriş yaparken Heraklius dinarları<sup>12</sup> (solidus) ve bağıliyye dirhemleri<sup>13</sup> (drahmi) kullanıyordu.<sup>14</sup> Makrizi Bizans'tan getirilen altınlara Kayser dinarları denildiğini, Arapların kullandığı gümüş sikkelerin de sevda-i vafiye ve taberiyye-i utuk adıyla iki çeşit olduğunu nakletmiştir.<sup>15</sup> Bu arada -az da olsa- piyasada Yemen menşeli Himyeriyye denilen dirhemler

<sup>1</sup> İbnü'l-Esîr, 1991a, 394, 395; Belâzurî, 2013, 128; Ahmed Cevdet, 1985a, 150; Hawting, 2000, 840.

<sup>2</sup> İbnü'l-Esîr, 1991b, 194; Ahmed Cevdet, 1985b, 175; Yiğit, 1995, 87, 88.

<sup>3</sup> İbnü'l-Esîr, 1991b, 205 vd, 209, 338; Ahmed Cevdet, 1985a, 59; Wellhausen, 1963, 24, 25; Üçok, 1968, 15-17.

<sup>4</sup> Ahmed Cevdet, 1985b, 39 vd; Wellhausen, 1963, 25; Üçok, 1968, 18.

<sup>5</sup> İbnü'l-Esîr, 1991b, 209 vd.

<sup>6</sup> İbnü'l-Esîr, 1991b, 321; Üçok, 1968, 21, 22.

<sup>7</sup> İbnü'l-Esîr, 1991b, 328, 329, 331; İbn Haldun, 1997, 519, 542-544; Ahmed Cevdet, 1985b, 94 vd. 125; Wellhausen, 1963, 26, 27; Abd Dixon, A. 2014, 155-188; Yiğit, 1995, 88.

<sup>8</sup> İbnü'l-Esîr, 1991b, 384-388.

<sup>9</sup> İbnü'l-Esîr, 1991b, 364.

<sup>10</sup> Ahmed Cevdet, 1985b, 174, 179 vd; Hawting, 2000, 846.

<sup>11</sup> İbnü'l-Esîr, 1991b, 410, 412; Ahmed Cevdet, 1985a, 169-172; Wellhausen, 1963, 27; Yiğit, 1995, 88; Aycan, 1999, 147; Üçok, 1968, 26.

<sup>12</sup> Kelime Grek-Latin kökenli denariustan (aureus) Arapça'ya geçmiş ve İslam dünyasında altın para karşılığında kullanılmıştır. İslam altın para birimidir. Daha ayrıntılı bilgi için bk. Sahillioğlu, 1994a, 352.

<sup>13</sup> Bağıliyye, vafiye adı verilen Sasani (Fars) dirhemleridir. Bunların ağırlığını hesap etmekte de altın tartmak için kullanılan miskal ölçüsü esastır. Yedi bağıliyye on dirheme eşittir. Ayrıntılı anlatımı için bk. Makrizi, 1946, 26. Ayrıca dirhem hem ağırlık ölçüsü hem de gümüş para birimidir. Eski Yunan Devleti'yle ilişkiler sırasında drahmi kelimesinden Farsça'ya oradan da Arapça'ya geçmiştir. Ağırlık ve para birimi olarak kullanılmıştır. Sahillioğlu, 1994b, 352.

<sup>14</sup> Broome, 1985, 4-5.

<sup>15</sup> Makrizi, 1946, 26.



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de kullanılmaktaydı.<sup>16</sup> Ancak Araplar çoğunlukla Rumların dinarlarını ve İranlıların dirhemlerini kullanırlardı. Bunun için Rum altınlarını daha kıymetli ve daha revaçta kabul ederlerdi.<sup>17</sup> Mekkeliler, bu paraların yalnızca külçe olduklarını kabul edip bunlarla alış-veriş bu şekilde yaparlardı. Mekkelilere göre paraların ağırlığını belirlemede kullanılan miskalin<sup>18</sup> ölçüsü yirmi iki kırat<sup>19</sup>; on tane dirhem, yedi miskal ağırlığındaydı. Bir rıtl, oniki ukiyye; her ukiyye ise kırk dirhemdi.<sup>20</sup> İslamiyet'ten önce dirhem, altı danık (her danık dirhemden altıda biridir), miskal ise bir dirhem ve dirhemden yedide üçü ağırlığındaydı. Böylece on dirhem yedi miskal etmekteydi.<sup>21</sup>

Ayrıca yine bu devirde pazarlarda miskal (dinar) ile aynı ağırlıkta dirhemler olduğu gibi, 1/2 miskal ağırlığında, bazen de daha farklı ağırlıkta dirhemlerin bulunduğu, bu dinar ve dirhem arasında 7/10 gibi bir ağırlık oranının var olduğu belirtilmiştir.<sup>22</sup>

Arapların İslamiyet'ten önce Roma dinarlarını kullandığını Al-i İmran Sûresi, 75. Âyetten de öğrenmekteyiz. Âyette şöyle buyrulmuştur: “*Ehl-i Kitap içinde öyleleri var ki yığınla altını emanet etsen aldığı gibi geri verir. Öyleleri de var ki bir dinarı emanet etsen, tepesine dikilmezsen vermezler. Böyle yapmalarının sebebi, (bu kesimin) “Bizim ümmülere (Tevrat’ı bilmeyenlere) karşı (dini) bir sorumluluğumuz yoktur.” demeleridir. Onlar Allah’a karşı bile bile yalan söylerler.*”<sup>23</sup>

Âyette zikredilen Ehl-i Kitap; toplumda bir arada yaşadıkları Yahudiler ve Hıristiyanlardır. Anlaşılacağı üzere İslam Devleti'nden önce dinar kavramı bir değer ölçüsü olarak alış verişlerde Arap toplumunda kullanılıyordu.

Kur'an-ı Kerim'in başka bir yerinde Yusuf Sûresi 20. Âyette: “*Yusuf'u pek ucuza, bir kaç dirheme, sattılar. Yanlarında değeri yokmuş gibi davrandılar*”<sup>24</sup> ifadelerinden dirhemden de maddi bir değer ölçüsü olarak kadim zamanlardan beri alış verişlerde kullanılan bir para olduğunu anlamaktayız.

İslam'ın ortaya çıktığı çevre, Hint-Çin ticaret yolunun bu bölgeden geçmesi sebebiyle ekonomik yönden hareketli bir yapıya sahipti. Hz. Muhammed böyle bir pazar içinde yeni bir para basmaya ihtiyaç görmemiş; o zamana kadar kullanılan paraları kullanmaya devam etmişti.<sup>25</sup> Ondan sonra yerine geçen halifeler Ebu Bekir, Ömer, Osman ve Ali zamanında da ölçülerde her hangi bir değişikliğe gidilmemişti. Emevîler yönetimi ele geçirdiğinde bile ilk halifeleri Muaviye b. Ebu Süfyan da bu ölçülerini olduğu gibi bırakmıştı.<sup>26</sup> Abdülmelik b. Mervan Dönemi'nde ise dinar ve dirhemlerin ayarı düşürülüp hile karıştırıldığı anlaşılınca, onun talimatıyla 74/693-94 yılında ilk İslam sikkeleri -yeni dinar ve dirhemler- basılmıştı.<sup>27</sup> Bu konu yerli geldiğinde ayrıntılı olarak anlatılacaktır.

Makrizi eserinde İslam Devleti'nin başlangıcından itibaren halifelerin sikke basma işini anlattığı kısımda konu hakkında farklı nakillerde bulunmuştur. Onun nakline göre Halife Ömer nakış ve şekil itibarıyla Kisrevî dirhemleri taklidi sikkeler bastırmış; bunların bazılarını “*Elhamdü Lillah*”, “*Muhammedün Resullulah*” ve “*Lailahe İllalahü Vahdehü*” şeklinde İslami yazılar ekletmiştir. Yönetimi Osman devralınca üzerinde “*Allahu Ekber*” yazan dirhemler kestirmiştir.<sup>28</sup> Corcî Zeydân,

<sup>16</sup> Erkal, 1985, 79.

<sup>17</sup> Corcî Zeydân, 2012, 181.

<sup>18</sup> Miskal eski bir ağırlık ölçüsü ve para birimidir. Miskal “ağır olmak” manasındaki sikal kökünden türemiş ve “ağırlık” demektir. Altın, gümüş, ilaç ve gülyağı gibi değerli şeylerin tartılmasında kullanılan bir ağırlık ölçüsü birimini ifade etmektedir. 1 miskal ağırlığındaki dinarlara da bu isim verilmiştir. Kallek, 2005, 182; Allan, 1997, 373.

<sup>19</sup> Kırat; kıymetli taşların, sikke ve ecza ölçümünde kullanılan ağırlık ölçüsü birimidir. Müslümanlar Suriye ve Mısır'ı fethettiklerinde yürürlükte olan Bizans ölçü sistemini aynen korumuşlardır. Buna göre 1 Kırat 0.188 gr.'dır. Halife Abdülmelik b. Mervân devrinde yapılan ölçü ve para reformuyla 1 Kırat 0.212 gr. olarak benimsenmiştir. Kallek, 2002, 437, 438; Zambaur, 1977, 734-735.

<sup>20</sup> Belâzurî, 2013, 532.

<sup>21</sup> İbn Haldun, 1997, 14.

<sup>22</sup> Erkal, 1985, 81.

<sup>23</sup> Kuran meali için bk. S. V. M., 2019a.

<sup>24</sup> Kuran meali için bk. S. V. M., 2019b.

<sup>25</sup> Erkal, 1985, 81, 82.

<sup>26</sup> Belâzurî, 2013, 532, 533; Makrizi, 1946, 29.

<sup>27</sup> İbn Haldun, 1997, 13.

<sup>28</sup> Makrizi, 1946, 31.



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Demîrî'den nakille “bagliyye” adında bir çeşit paradan söz ederek, bunun “Re’sü’l-bagl” adında bir kişi tarafından Hz. Ömer adına İran sikkesi damgasıyla basılmış olduğunu veya bu sikke üzerinde padişahın resmi ve şahın tahtı altında Farsça (nûşhor) kelimesinin konduğunu rivayet etmiştir.<sup>29</sup> Bu anlatımlar doğru ise bu iki halifenin İslam devletinde ilk kez üzerine İslami ibareler yazılmış Sasani tarzında dirhemler bastırıldığını anlıyoruz. Ne var ki bu dirhemler günümüze ulaşmamıştır.

Halife Muaviye dönemine atfedilen Bizans tarzı dinar ve dirhemlerin yazı ve betimlerinde zamanla bir takım değişikliklere gidilmiş; dinarlarda haç gibi Hıristiyan sembolleri çıkartılarak, dini açıdan huzursuzluk vermeyecek şekilde sikke darpları gerçekleştirilmiştir.<sup>30</sup> Sasani tarzı dirhemlerde ise hükümdarın portresi ve ateş mihrabı gibi önemli unsurlar korunmuş, ancak Arapça “*Bismillah*” yazısı ile Pehlevi halife veya vali isimleri eklenmiştir. Walker, 41 yılında Darabjird’de basılmış Sasani tarzı sikkede, Pehlevi “Adaletli Komutan Muaviye” yazılmış örnek yayınlamıştır.<sup>31</sup> Bu uygulamalardan dolayı sikkeler “Arap-Bizans” ya da “Arap-Sasani” biçiminde tanımlanmıştır<sup>32</sup> (Foto 1). Doğuda Sasanilerin gümüş drahmileri model alınırken, batıda Bizans solidusları kullanılmıştır.<sup>33</sup>



Foto 1. Erken Emevî Dönemi Arap-Sasani dirhemi; Portrenin yanında Pehlevi olarak Sasani Kralı Yazdigirt’in adı yazar. Arapça yazıda ise “*Bismillah*” yazılmıştır. Arka yüzde üç basamak üzerinde ateş altarı ve Pehlevi Sistan’da (Sijistan) basıldığını belirten yazı bulunmaktadır.<sup>34</sup>



Foto 2-3. Bizans solidusları. Ön yüzlerinde İmparator Herakleios ve oğullarının portreleri; arka yüzünde basamaklar üzerinde yükseltilmiş haç ve Hz. İsa’yı sembolize eden monogramlar bulunmaktadır. Emevîler bu solidusların taklitlerini yapmışlardır.<sup>35</sup>

Emevî halifesi Muaviye devlet yönetimini devralınca Küfe ve Basra’ya müşterek vali atadığı Ziyad b. Ebihi’nin teklifiyle günlük alışveriş işlerinde kullanılması için Kara Dirhem denilen ayarı düşük paralar kestirdi.<sup>36</sup> Makrizi, Muaviye’nin Bizans sikkeleri tarzında üzerinde kılıç kuşanmış bir portresinin olduğu dinarlar kestirdiğini rivayet etmişse de bu sikkeler de günümüze kadar gelememiştir. Rivayete göre bu dinarlardan biri yaşlı bir askerin eline geçmiş, Asker doğruca Muaviye’nin yanına giderek sikkeleri suratına fırlatmış ve şöyle demiş: “Senin sikkeni çok kötü ve şerli bulduk”.<sup>37</sup>

<sup>29</sup> Corcî Zeydân, 2012, 182.

<sup>30</sup> Grierson, 1960, 243; Aydoğan, 4, 2018.

<sup>31</sup> Walker, 1941, 26.

<sup>32</sup> Grierson, 1960, 242; Eagleton ve Williams, 2011, 121, 122; Aykut, 1982, 5.

<sup>33</sup> Artuk ve Artuk, 1970, 4-6, No 14-19; Broome, 1985, 8-9; Heidemann, 2009, 23.

<sup>34</sup> Emevî Dönemi Arap-Sasani dirhemi için bk. D. C., 2019.

<sup>35</sup> Bizans solidusları için bk. C. A., 2019.

<sup>36</sup> Makrizi, 1946, 32, 33; Grodzki, 2014, 263-264.

<sup>37</sup> Makrizi, 1946, 32, 33.



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Ayrıca Muaviye Dönemi'nde Emevî valileri de kendilerine verilen yetkilere dayanarak, Sasani sikkelerinin üzerinde bazı ilaveler yaparak yeniden kullanıma sunmuşlardır. Yapılan bu değişiklikler şöyleydi: Sasani hükümdar portresinin sağında yazılı olan Hüsrev yazısını çıkartarak, Pehlevice kendi adlarını eklemişlerdir. Muaviye zamanında basılan bu dirhemlerin ölçüsü ise 6 danik olup, 16 kırıttan 1 veya 2 habbe eksiktir.<sup>38</sup>

72/691-92 yılından sonra Herakleios ve oğullarının tasvir edildiği Arap-Bizans tarzında sikkeler karşımıza çıkmaktadır. Bu sikkelerde tıpkı Sasani dirhemlerinde olduğu gibi portreler korunurken, Hıristiyanlığı çağrıştıran haç sembolünde değişiklikler yapılarak formu tamamen değiştirilmiş, haç yerine basamaklar üzerinde bir direk dikilmiştir. Hz. İsa'yı sembolize eden monogramlar ise atılmıştır. Haçın tapınmanın ve küfrün bir aracı görüldüğü, dolayısıyla putperestliğin sembolü olduğu düşüncesiyle bu değişiklikler yapıyordu. Başlangıçta paralara İslami bir yazı henüz konulmamışken kısa zaman sonra basılan sikkelerde basamaklı direğin çevresinde “*Bismillâh, Lâilâhe illallah, Vahdehû Muhammedün Resûlullah*” ibareli İslami yazılar eklenmiştir<sup>39</sup> (Foto 4, 5).



Foto 4. Herakleios ve oğullarının tasvir edildiği Bizans sikkelerinden taklit edilmiş Arap-Bizans dinarı. Sikkelerde İslami bir yazının henüz eklenmediği görülür.<sup>40</sup>



Foto 5. Herakleios ve oğullarının tasvir edildiği Arap-Bizans taklidi Emevî sikkesi. Arka yüzde basamaklı direğin çevresinde “*Bismillâh, Lâilâhe illallah, Vahdehû Muhammedün Resûlullah*” şeklinde İslami yazılar eklenmiştir.<sup>41</sup>

### Abdûlmelik b. Mervan Dönemi: İslami Semboller ve Propaganda Dönemi

Emevî devletini yeniden ayağa kaldıran Abdûlmelik b. Mervan bu amaç doğrultusunda devlette bir takım ciddi yeni yapılanma hareketlerine başvurmuştu. Kâbe'yi onartmak, Kubbetü's Sahra'yı imar etmek, yeni dinar ve dirhemler bastırmak bunlardan bazılarıdır. Özellikle Abdûlmelik b. Mervan'ın para reformu tarihe geçmiş ve yaşanan gelişmeler Ortaçağ kroniklerinde anlatılmıştır.

Abdûlmelik b. Mervan'ın, Bizanslılara karşı devletin dini ve ekonomik menfaatlerini korumak için sikke darbında yaptığı girişimler hakkında Belâzurî özetle şu malumatı vermektedir: “*Kâğıtlar, Rum ülkesine Mısır'dan; dinarlar da Araplara Rumlardan gelmekteydi. Önceleri Kıptiler kullandıkları kâğıtların başında Hz. İsa'nın adını zikreder ve haç koyarlardı. Abdûlmelik kâğıtların başına “Kulhüvellahu ehad” Âyetinin yazılmasını ilk defa emretti.*”<sup>42</sup>

Abdûlmelik b. Mervan'ın kâğıtların üzerinde yaptığı değişikliğin Bizans imparatoru tarafından hoş karşılanmadığı, ona çok kızdığı ve kendisine şu mektubu yazdığı belirtilmiştir: “*Sizler, kâğıtların başına*

<sup>38</sup> Emanet, 2014, 257.

<sup>39</sup> Grierson, 1960, 244; Aykut, 1982, 5; Heidemann, 2009, 24, 27; Aydoğdu, 2018, 5.

<sup>40</sup> Herakleios ve oğullarının tasvir edildiği Arap-Bizans dinarı için bk. AWAICC, 2019a.

<sup>41</sup> Arap-Bizans taklidi Emevî sikkesi için bk. AWAICC, 2019b.

<sup>42</sup> Belâzurî, 2013, 274.



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*bizim nefret ettiğimiz şeyleri yazmaya başladınız. Böyle şeyleri yazmaktan vazgeçiniz; yoksa dinarlar, üzerinde Peygamberiniz hakkında nefret edeceğiniz şeyler yazılmış olarak gelecektir.”<sup>43</sup>*

Bizanslıların dinarların üzerine Hz. Muhammedi küçük düşürecek ifadeler yazmakla tehdit etmesine kızan Abdülmelik b. Mervan, Hâlid b. Yezîd'in tavsiyesi ile Rumların dinarlarının yasaklanmasını ve bunlarla alış-veriş yapılmasına mani olunmasını; ayrıca Rum ülkesine kağıt gönderilmemesini Abdülmelik b. Mervan'e tavsiye etti. Rumlara bir müddet kağıt gönderilmedi ve kendi altın sikkelerini bastırmağa başladı. Hâlid b. Yezîd'in Abdülmelik'e şunları söylediği rivayet edilmiştir: “*Ey Mü'minlerin Emiri, korkunu terk et; onların dinarlarını yasakla; bunlar kullanılmasın. Halka para bastır; o kâfirlerin nefret ettikleri şeyleri de kâğıtlara yazmaya devam et.*”<sup>44</sup> Belâzurî, Abdülmelik onun bu cevabı üzerine: “*Benim endişemi giderdin; beni sevindirdin; Allah da seni sevindirsin*” dediğini ve dinarları bastırıldığını nakleder.<sup>45</sup>

Kesilen sikkelerden birazını hemen komutanı Haccac'a da göndererek, idaresinde bulunan bütün şehirlerde bu dirhemlerin kopyalarının basılmasını emretti. Yeni basılan paraların bir yüzüne “*Kulhüvellahu ehad*”, diğer yüzüne “*Lailahe illallah*”, ve yazıtın çevresine de “*Tevbe Sûresi 33. Âyet*” yazılmıştı.<sup>46</sup>

Abdülmelik b. Mervan başlangıçta Bizans tarzında sikkeler bastırmıştır. Bunlardan oldukça önemli bir grubu temsil eden Halep'te basılmış sikkelerin ön yüzünde geleneksel Arap kıyafeti içinde, elinde kılıç tutan halife portresi görülmektedir. Portrenin sağında “*Abdülmelik*”, solunda “*Emirü'l-Mü'minin*” yazılmıştır. Portrenin Abdülmelik b. Mervan'ın kendisi olduğu düşünülmüştür. Sikkenin arka yüzünde önceki örneklerde olduğu gibi haç yerine basamaklar üzerinde bir direk dikilmiş, direğin üzerine küre yerleştirilmiştir; tasvirin çevresinde ise “*Kelime-i Tevhid*” yazılmıştır.<sup>47</sup> Abdülmelik b. Mervan'ın kılıç kuşanmış resimli sikkelerinin halifenin cihada hazır vaziyette olduğunu vurgulayan dini ve siyasi bir propaganda aracı olarak kullandığı belirtilmiştir. Bu halifenin Bizans imparatorluğuna karşı bir meydan okuması olarak değerlendirilmiştir.<sup>48</sup>



Foto 6. Abdülmelik b. Mervan'ın geleneksel Arap kıyafeti içinde, uzun saçlı ve sakallı, elinde kılıç bulunan Bizans üslubunda yapılmış portresinin olduğu dinar.<sup>49</sup>

70/689-90 yılında Emevî Devleti'ni tanımayarak Mekkelilerden biat alan Abdullah b. Zübeyr Mekke'de, kardeşi Musab b. Zübeyr ise Irak'ta, az sayıda dirhem darp etmişlerdi. Abdullah b. Zübeyr dirhemlerin bir yüzüne “*Muhammedün Resullulah*”, diğer yüzüne “*Emerallahü bi'l-vefa-i ve'l-Adl*” yazdırdı.<sup>50</sup> Abdullah'ın emriyle kardeşi Musab, Sasani dirhemleri şeklinde, paralar basarak bunların bir yüzünde “*Bereke*” diğer yüzünde “*Allah*” ibarelerini yazdırdı. Daha sonra Abdülmelik b. Mervan'ın komutanı Haccac bölgeyi ele geçirincede, bu sikkeleri tedavülünden kaldırarak yasakladı.<sup>51</sup> Belâzurî, İbn Haldun ve Makrizi'nin naklettiği rivayetler doğru ise İslam tarihinde Abdullah b. Zübeyr'in Mekke'de, kardeşi

<sup>43</sup> Belâzurî, 2013, 274vd.

<sup>44</sup> İbnü'l-Esîr, 1991c, 374, 375; Belâzurî, 2013, 274.

<sup>45</sup> Belâzurî, 2013, 274.

<sup>46</sup> İbnü'l-Esîr, 1991c, 375; Makrizi, 1946, 36-38.

<sup>47</sup> Grodzki, 2014, 265-267; Sikkenin örnekleri için bk. Artuk ve Artuk, 1970, 3, No 9; Miles, 1967, 216-217.

<sup>48</sup> Erkoçoğlu, 2006, 182; Grierson, 1960, 261.

<sup>49</sup> Abdülmelik b. Mervan'ın Bizans üslubunda yapılmış portresi için bk. M. M. A., 2019.

<sup>50</sup> Makrizi, 1946, 33.

<sup>51</sup> Belâzurî, 2013, 533, 535; İbn Haldun, 1997, 13, 14; Makrizi, 1946, 33, 34.



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Musab'ın da Irak'ta Abdülmelik b. Mervan'ın sikkelerinden daha önce Sasani tarzında, İslami yazılar bulunan dirhemler bastırılmış olduğu anlaşılmaktadır.

Abdülmelik b. Mervan halife olunca dinar ve dirhemler üzerinde yeni bir siyaset ortaya koyarak İslâm tarihinde İslami yazıların yoğun şekilde yer aldığı yeni dinar ve dirhemler bastırarak ekonomik bir reform başlattı.<sup>52</sup> Bu amaç doğrultusunda Haccac b. Yusuf'a verdiği emirle, dinar kıratından on beş kıratlık dirhemler darp etmesini emretti. Bunun üzerine Haccac, önce bir yüzüne “*Bismillah*”, diğer yüzünde “*el-Haccac*” yazdırdığı bağıliye dirhemlerini bastırdı. Abdülmelik b. Mervan kendisi de, Dinar-ı Dimeşkîleri bastırdı. Haccac bir yıl sonra bağıliyelerin üzerine, “*Allahu ehad Allahu's-samed*” yazılarını eklettirdi.<sup>53</sup> Ancak âlimlerin, bu paralara cünüpler ve ay hali olan kadınların el sürebileceği gerekçesiyle Âyet yazılmasını doğru bulmadıkları için bunlara “mekrûhe” adı verildi.<sup>54</sup> Bu hususta Belâzurî, Râvilerden Osman'ın, babasından nakille şunları nakletmiştir: “*Bu darp edilen paralar, bize, Medine'ye geldi. Rasûlullah'ın (a.s) ahabından bazı kimselerle tabiînden olanlar oradaydı. Onlar bu paraları reddetmediler. Muhammed b. Sad şunları söyledi: Bizim kullandığımız şu dirhemlerden bir tanesinin ağırlığı, yirmi kırat olan miskalimizin ölçüsü ile on dört kıratdır. Bu ise, yirmi bir kırat ile yedide üç kırat on beş kırat ağırlık eder.*”<sup>55</sup>

Makrizi, Abdülmelik b. Mervan'ın âyet ve dualardan oluşan sikke bastırmasına siyasal ve ekonomik sebepler dışında farklı bir gerekçede sunmuş olsa da buna biraz ihtiyatla yaklaşmakta fayda vardır. Rivayete göre, Halid. B. Yezid halifeye en uzun ömürlü hükümdarların, kendi paraları üzerinde tanrıları takdis edenler olduklarını söylemiş. Abdülmelik b. Mervan da bunun üzerine İslami yazılar bulunan ilk İslam dinarını bastırmıştır.<sup>56</sup> Bu malumata diğer kroniklerde rastlanmaz.

İslâmiyet geniş bir coğrafyaya yayılınca çeşitli gramajlarda paraların bulunması, mali işlerde zekât, mihr (evlilik), nakdi cezalar, özellikle de cizye ve haracın toplanmasında sıkıntıya yol açarak vergiyi azaltıyordu. Bundan dolayı Abdülmelik b. Mervan vergi ve zekât sisteminin düzgün şekilde işlemesi için farklı gramajdaki paraları standart hale getirmeyi hedeflemişti. İslami hukuk olarak dirhemlerin her iki yüz adedi için beş dirhem zekât belirlenmiş; Kara vafiye ile zekât alınsa eksik alınarak hazinenin hakkı eksilmiş, Taberiyye dirhemleri ile zekât alınsa fazla alınarak halk mağdur edilmiş oluyordu. Abdülmelik b. Mervan bu iki dirhem in ağırlığının ortasını bularak yeni para bastırması böylece hem hazinenin kaybını engellemiş, hem de halkın mağduriyetini gidermiştir.<sup>57</sup>

Abdülmelik b. Mervan'ın para reformu sonunda dinarın ağırlığı bir miskâl, 4.25 gramdı. Ondan sonra gelen Emevî halifeleri de, Emevî Devleti'nin çıktığı 132/749-50 yılına kadar onun koyduğu ölçülere riayet etmişlerdir.<sup>58</sup>

Abdülmelik b. Mervan'ın dirhemlere yazdırdığı İslami yazıların rastgele değil, özenle seçildiği, belirgin bir mesajı olduğu ve İslami semboller taşıdığı anlaşılmaktadır. Böylece sikkeyi Bizans/Hıristiyanlık karşısında adeta bir propaganda aracına dönüştürmüş ve İslami sembollerin yükseldiği bir araç haline getirmiştir. Bizans'ın haç ve Hz. İsa'yı sembolize eden monogramları putperestlik olarak algılanmış ve Allah'ın birliğine vurgu yapan Âyet ve dualar dirhemlerde öne çıkartılmıştır. Dirhemlerin ön yüzüne eklenen “*Lâ ilâhe İllallâh vahdehû lâ şerîke leh*” yani “*Allah'tan başka ilah yoktur, tek ilah sadece odur, ortağı da yoktur*” yazılmakla tek Allah inancı belirtilmiştir. Belâzurî'nin rivayetine göre, Abdülmelik'in kâğıtların başına “*Kulhüvellahu ehad*” Âyetini yazması bile önemli oranda etki yapmışken<sup>59</sup>, günlük olarak herkesin elinde dolaşan paralar üzerinde Allah'ın birliği belirtilmesi Hıristiyan âleminde çok daha fazla etki yapmış olmalıydı.

Dirhemlerin arka yüzüne eklenmiş İhlas Sûresi rastgele değil, bilerek seçilmiş gözükmektedir. Surede Allah her türden şirki, Allah ile insanlar arasındaki aracılığı kesin bir dille reddederek kendinden başka

<sup>52</sup> İbnü'l-Esîr, 1991c, 374; Akkaya, 2011, 17.

<sup>53</sup> Bu paraların örneği için bk. Artuk ve Artuk, 1970, 6, No 19.

<sup>54</sup> İbnü'l-Esîr, 1991c, 375.

<sup>55</sup> Belâzurî, 2013, 533, 535; Makrizi, 1946, 41, 42. Ayrıca Benzer itirazlar Halife Ömer b. Abdülaziz'e de yapılmış paraların iptal edilmesi istenmiş; fakat Ömer bu talepleri ciddiye almamıştır. Bk. Makrizi, 1946, 43.

<sup>56</sup> Makrizi, 1946, 35.

<sup>57</sup> Makrizi, 1946, 38-40; Erkoçoğlu, 2006, 175.

<sup>58</sup> Emanet, 2014/1, 261.

<sup>59</sup> Belâzurî, 2013, 274vd.





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ilah olmadığını insanlara açıkça bildirmektedir. Böylece Hıristiyanlıktaki temel inanç sistemi olan teslis inancının, İslam nazarında şirkin temsili sayıldığı bildirilmiştir. Çünkü ilk Âyette geçen “*O Allah birdir*” buyrulması, bu inancın yanlış olduğuna doğrudan atıf göstermektedir. Sünenin devamında geçen “*Allahü’s-samed*” ifadesiyle, herkesin ona muhtaç olduğu ama onun kimseye muhtaç olmadığı belirtilmiştir. Böylece Hıristiyanlıkta Hz. İsa’dan yardım istenmesinin, onun aracı yapılmasının Allah’a eş koşmak anlamlarına geldiği ve bunun yanlışlığı anlatılmıştır. Son olarak “*O, doğurmamış ve doğmamıştır. Ona denk hiçbir şey yoktur*” ibaresiyle Hz. İsa’nın Allah’ın oğlu olduğu inancının doğru olmadığını, Hz. İsa’yı Allah’ın oğlu sayıp Allah’a onun aracılığı ile ulaşılacağına inanmanın, yoldan çıkmak (müşriklik) olduğu vurgulanmıştır.<sup>60</sup> Bu yazıyı çevreyen “*Muhammedün Resûlullâh*”, hitabı ve “*Müşrikler hoşlanmasalar da dinini bütün dinlere üstün kılmak için (Peygamberini) hidayet ve hak din ile gönderen O’dur.*” Âyetiyle Allah’ın son elçisinin Hz. Muhammed olduğu ve ona gelen vahyin, İslam dininin hak din olduğu, dolayısıyla Yahudilerin ve Hıristiyanların gerçek din üzere olmadıkları ve yanlış inançlara saptıkları belirtilmiştir. Böylece dirhemlerin ön ve arka yüzlerine eklenmiş âyet ve dualarla Allah’ın birliği ve Hz. Muhammed’in son peygamber olduğunu belirten İslami semboller öne çıkartılmış ve Müslüman toplum üzerinde psikolojik bir etki bırakılmıştır. Elbette “*Halifetullah*” unvanını kullanan diğer halifeler gibi Abdülmelik de kendini yeryüzünde Allah’ın temsilcisi/gölgesi ve onun siyasal gücü saymaktaydı. Dolayısıyla yazılarla verilen sembolik mesajlar, aynı zamanda İslam dünyasının mezheplerden gelen parçalı görüntüsü karşısında, bütün Müslümanların birlikteliği şeklinde yorumlanabilir.

Abdülmelik b. Mervan’ın ilk bastırıldığı sikkeler konusunda, yapılan çalışmalarda farklı darp tarihlerine rastlanmaktadır. Lane-Poole, British Museum Kataloğunda Emevî halifelerinin sikkelerini ayrıntılı şekilde yayınlayan ilk araştırmacıdır. Kataloğunda Abdülmelik b. Mervan’a ait en erken tarihli sikkelerin 78/697-98 yılında basılmış bir dinar ve 79/698-99 yılında Dimaşk ve Sukel-Ahvaz’da basılmış iki dirhem olarak yayınlamıştır.<sup>61</sup> Bu alanda çalışma yapan Nümismat Grierson, Abdülmelik b. Mervan’ın dirhemlerde yaptığı reform çalışmalarını 72/691-92 yılında başlattığını; ama İslami ibareli yazılardan oluşan sikkelerini ise ancak 79/698-99 yılında bastığını ifade etmektedir.<sup>62</sup> Nümismat Aykut ise, Emevî Sikkeleri Kataloğunda en erken tarihli olarak 77/696-97 yılında basılmış bir dinar ve 80/699-700 yılında darp edilmiş bir dirhem yayınlamıştır.<sup>63</sup> Özgüç ve Saatçi’nin Altın-tepe kazıları sırasında bulunduğu Altın-tepe definesinde ise Abdülmelik b. Mervan’a ait yetmiş dirhem ele geçmiştir. Bunlar arasında Darabgird’de 70/689-90 ve Serhes’te 75/694-95 yıllarında kesilmiş sikkeler yer almaktadır.<sup>64</sup> Akkaya, kronolojik olarak katalogladığı Mardin Müzesi örnekleri arasında 71/690-91’de Darabgird’de darp edilmiş erken tarihli dirhem yayınlamıştır.<sup>65</sup> Walker’da, 73/692-93 yılında kesilmiş yarı Arapça ve yarı Pehlevice “*Adaletli Komutan Abdülmelik*” ve “*Bismillah*” yazan sikkesini yayınlamıştır.<sup>66</sup>

Yezîd b. Abdülmelik’in halifeliği zamanına ise Ömer b. Hubeyre sikkelerin ağırlıkları ve ayarları konusunda işi oldukça sıkı tuttu ve saf gümüş sikkeler kestirdi. Ömer, dirhemlerin kalitesini yükseltmiş, bir takım tedbirlerle ayarlarını saflaştırmıştı. Hişam b. Abdülmelik halife olunca Vasıt’tan başka yerde basılan paraların tedavülden kaldırılmasını ve sikkelerin ayarlarının artırılmasını emretti. Valilerinden Halid Kasri, dinar ve dirhemleri iyileştirmeye son derece önem verdi, bastığı sikkelere “*Derahim-i Halidiyye*” ismi verildi.<sup>67</sup> Ondan sonra başa geçen Yusuf b. Ömer bu konudaki ciddiyeti daha da ileri götürdü. İbnü’l-Esîr’in rivayetine göre: “*Yusuf bir gün dirhem ayarlarını kontrol etmekte iken bir dirhem bir habbe ağırlığına eksik geldiğini fark etti. Bunun üzerine dirhem basan kişileri biner kamçı ile cezalandırdı. Bunlar yüz kişiydi. Böylelikle bir habbe eksik için yüz bin kamçı vurmuş oldu.*” Hubeyriyye, Hâlidiyye ve Yûsufiyye diye bilinen paralar Emevîler’in en kıymetli paralarıydı.<sup>68</sup>

<sup>60</sup> İhlas Suresi için bk. S. V. M., 2019c.

<sup>61</sup> Lane-Poole, 1874, 1, 12, 21.

<sup>62</sup> Grierson, 1960, 246.

<sup>63</sup> Aykut, 1982, 13, 15.

<sup>64</sup> Özgüç ve Saatçi, 1197.

<sup>65</sup> Akkaya, 2011, 32.

<sup>66</sup> Walker, 1941, 27.

<sup>67</sup> Artuk ve Artuk, 1970, xxxvii.

<sup>68</sup> İbnü’l-Esîr, 1991c, 375; İbn Haldun, 1997, 13, 14; Makrizi, 1946, 43.



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Emevî paraları sadece dirhemlerden ibaret değildir. Abdülmelik b. Mervân'ın yönetiminden başlayarak son halife II. Mervan b. Muhammed'e kadar çok miktarda dinar ve fels düzenli olarak değiştirilmeden basılmıştır. Bunlar bir miskal 4.30 gr ağırlığında tam dinarlar yanında yarım (nisf) ve üçte bir (sülüs) dinarlardır.<sup>69</sup> Bu sikkeler, Abdülmelik'in reformu sonrası basılan dinarlar ve dirhemler ile aynı yazı düzenine sahiptir.



Foto7. Emevî dirhemleri (Mardin Müzesi).

### SONUÇ

Hız. Muhammed ve Dört Halife döneminde Bizans ve Sasani sikkeleri kullanılıyordu. Emevîler bu sikkelere bir takım yenililer eklediler. Emevî dirhemlerinin ana temasını kûfi hatlı yazılar oluşturmuş; yazıların çevresinde onu tamamlayan unsur olarak iç içe geçmiş dairesel şeritler yerleştirilmiştir. Emevî dirhemlerinde bezeme ve yazının içerikleri ve yerleşim kurgusu bütün halifelerde aynıdır. Dirhemlerin hiç birinde halife adı yer almaz, darp yılı sikkenin hangi halifeye ait olduğunu anlamayı sağlar; durum dinarlarda da aynıdır. Ancak burada şunu belirtmek gerekir. Bazen taht aynı yıl içinde iki halife arasında el değiştirebilmektedir. Bu durumda sikkenin hangi halifeye ait olduğunu tespit etmek zordur.

Dirhemlerin ön yüzünde; inci dizilerinden meydana gelmiş daireler yerleştirilmiş; bu dairelerin merkezinde üç satır "*Lâ ilâhe illallahü vahdehü lâ şerîke lehü.*" şeklinde Tehlil Duası yazılmıştır. Merkezde bulunan bu yazının etrafında ise saat yönünün tersine doğru "*Bismillah duribe haze'd-dirhem (darp yeri) fi sene (tarih)*" yazıtı ile dirhemlerin basım tarihi, yeri ve cinsi bilgileri bulunmaktadır.

Dirhemlerin arka yüzünde; yine inci dizilerinden oluşmuş daireler ve bu dairelerin aralarına yerleştirilmiş kûfi yazı kuşaklarından meydana gelmiş kurgular görülmektedir. Dairelerin merkezinde dört satırda; İhlâs Süresi: "*Allahu ehad Allahu's-samed lem yelid ve lem yûled ve lem yekün lehü küfüven ehad.*" Dışta bulunan saat yönünün tersine yazılmış dairesel yazıtta: "*Muhammedün Resûlullâh*" ve Tevbe Süresi 33. Âyet: "*Erselehü bi'l-Hüdâ ve dîni'l-Hakkı liyuzhirahü ale'd-dîni küllihî ve lev kerihel-müşrikün.*" Yazmaktadır.

Emevîler Devri'nde toplum Müslümanlar, müşrikler ve köleler (savaş esirleri) olmak üzere üç tabakadan meydana geliyordu. Devletin başlıca gelir kaynakları gayri Müslimlerden alınan fey, fetihlerde ele geçirilen ganimetlerin beşte biri olan humus ve öşri arazilerden gelen zekât vergileriydi. Emevî Dönemi'nde iktisadi hayatta kullanılan sikke miktarını belirtmesi bakımından verilen şu bilgi önemlidir. Halife Muaviye Dönemi'nde 60 milyon dirhem tutan Basra haraç gelirinin, 4 milyonu, 40 milyon tutan Küfe gelirinden ise 4 milyonun üçte ikisini Dimaşk'a göndermişti.<sup>70</sup>

Emevîler Dönemi iktisadi ve ekonomik hayatın en önemli olaylarından biri Abdülmelik b. Mervân Dönemi'nde ilk İslam sikkelerinin darp edilmesidir. Emevîler farklı bölgelere yayılmış; her bölge kendi toprakları içinde tedavülde olan sikkeleri kullanmıştı. Bölgeler arasında dinar ve dirhem ayarlarındaki dengesizlik devletin vergi gelirlerinde düşüşe ve zarara uğramasına sebep oluyordu. Abdülmelik b. Mervân bu zararı telafi etmek ve paralarda birlik sağlamak için; bastırdığı paralar üzerine âyet ve dualar yazdırarak önemli bir reform hareketi başlattı. Para reformundaki bir diğer etken de kurulduğu günden beri Bizans tesirinde kalan ekonomiyi bağımlılıktan kurtarmaktı.

Dirhemler, Dimaşk, Basra, Bîrâmkuş, Sûku'l-Ahvâz, Cey, Şakku'l-Tamara, Mâhu'l-Basra, Merv, 84; Meysân; Erdeşir-Kurre, el-Cisr, Cündişapur, Deşt-i Meysân, Râmehurmuz, Sâbur, Sûs, Menâzır, Nehru

<sup>69</sup> Damalı, 2001, 22.

<sup>70</sup> Yiğit, 1995, 100, 102



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Tîrâ, Hemedân, Cezîre, Mâhu'l-Kûfe, Ermeniye, Beyân, Rey, Surrak, Furât, Abarkubâz, Debil, Vâsıt ve Tiflis şehirlerinde geniş bir alanda basılmıştır.<sup>71</sup>

Sonuç olarak; sikkeler üzerinde Emevîler tarafından kullanılmış İslami yazı sembolizmi, İslami para anlayışının temelini oluşturmuş ve bu tasarım, değişmeden uzun zaman bazı farklılıklarla Abbasiler de dâhil olmak üzere yüz yıllar boyunca çok çeşitli İslam devletleri tarafından kullanılmıştır.<sup>72</sup>

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<sup>71</sup> Erkoçoğlu, 2006, 181.

<sup>72</sup> Dursun, 2014, 160.



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### OTTOMAN-ERA MOSQUES IN PRIZREN

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#### **Abstract**

Prizren is one of the Republic of Kosovo's most important and largest cities. "The City of Minarets", "Medina of Europe", and "Museum City" are just a few of the nicknames attributed to Prizren, which was a prominent political, administrative, cultural, economic, commercial, and artisan center throughout the Ottoman period. As a result of the Ottoman Empire's presence in Prizren for 457 years, the city has been enriched with many historical, architectural, and culturally important objects including mosques, schools, bridges, inns, hammams, fountains, etc. The values of Prizren's rich Ottoman heritage have a special place in Kosovo's and the Balkans' history. Prizren, as a place of an interweaving of different cultures with a history from antiquity, managed quite well to preserve the traces of the Ottoman heritage, the evidence of this is a large number of mosques. Today, there are around 29 Ottoman-era mosques in Prizren, ranging from the earliest, "Kërëk Mosque or Namazgah Mosque" which dates from 1455, to Emin Pasha's mosque, which is from 1831. Thus, this paper will examine the main mosques of the Ottoman period from 1455 to 1831. These mosques in different periods have been subjected to restoration, which has been damaged by natural conditions but also during the last war in Kosovo in 1999. Prizren now has around 77 mosques, making it one of the cities with the most mosques in Southeast Europe. The purpose of this research is to present Prizren's rich historical, architectural, and cultural Ottoman heritage through the mosques. The study will also examine the management and restoration of the "Sinan Pasha" mosque, which was constructed in 1615 and is the icon of the city of Prizren.

**Keywords:** Prizren, Vilayet of Kosovo, Ottoman Empire, Sinan Pasha Mosque, Ottoman Heritage.

#### **INTRUODOCTION**

Prizren is a significant urban, historical, municipal, and regional center. Prizren's geographical location has enabled important communication connections with Kosovo, the region, and beyond. (Vendbanimet e Kosovës, Qendrat Urbane, 2018, p. 85) Prizren has a land area of 627 km<sup>2</sup> and 76 localities. (Fjalori Enciklopedik i Kosovës, 2018, p. 1324) Prizren is the Republic of Kosovo's second biggest city after Pristina, with 193,806 residents according to the Statistics Agency of Kosovo's assessment of population statistics. (Vleresim, Popullsia e Kosovës 2021, 2022, p. 13) Forests cover approximately 35% of the land of the municipality of Prizren. (Fjalori Enciklopedik i Kosovës, 2018, pp. 1324-1325) The geography of Prizren is plain in the northern and northwestern parts, while high mountains dominate the southern and eastern parts. The plains of Prizren cover around 364 km<sup>2</sup> (40.80% of the entire territory). (Osmani, Prishtinë, p. 16) In 1559, an anonymous Venetian traveler going from Prizren to Skopje walked over exceedingly beautiful, completely cultivated fields. (Hrabak, 1970, p. 173) According to the examination of the metrological elements, Prizren has a medium continental climate influenced by warm currents from the west that pass through the Drin te Bardh valley. (Fjalori Enciklopedik Shqiptar, 2009, p. 2102) Archaeological research has discovered that the location of the Castle of Prizren has been inhabited from prehistoric times. Materials that date back from the Middle Bronze Age to the Iron Age have been discovered. (Hoxha, 2007, p. 270) Prizren became a significant cultural, economic, and political center of the medieval Serbian kingdom from the beginning of the 14th century. (Jericek, 1951, p. 97) On June 21, 1455, the Ottoman Empire, headed by Fatih Sultan Mehmed, conquered Prizren. (Malcolm, 1999, p. 91) The city of Prizren itself was registered in the Sanjak of Prizren in the Ottoman Register of 1591. (Rizaj, 1982, p. 57) During the Ottoman period, Prizren became the administrative center of the Vilayet of Kosovo in 1878. This has had a significant positive impact on the city's



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development. During the First Balkan War in 1912, Prizren was occupied by Serbs commanded by General Jankovi. (Kiel, 2007, p. 350) Prizren today is a city with old crafts and numerous cultural and historical monuments. (Enciklopedija Jugoslavije, Maklj-Put , 1965, p. 662)

### PRIZREN'S OTTOMAN HERITAGE: MOSQUES

Prizren's cultural heritage is rich and diverse, reflecting the long history of various cultures and civilizations that have contributed to its development from ancient times to the present. By studying the material traces of history, we can understand the country's rich past, which includes traces of Illyrian, Roman, Byzantine, and Ottoman cultures, and where cultural and religious influences have long met and impacted each other. (Arapi, 2012, p. 4) Following are some images showing the historical center of Prizren as defined by Kosovo legislation. We have a rich cultural heritage from the ancient time to the present day inside this historical center.



**Figure 1.** The boundary of the Historic Center of Prizren based on the law (2012) (Plani i menaxhimit i Qendrës historike të Prizrenit 2019-2028, 2018, p. 268)





**Figure 2.** Historic Center of Prizren and bazaars from the XVI-XVII century with the sub-zones of Conservation Plan (Plani i menaxhimit i Qendrës historike të Prizrenit 2019-2028, 2018, p. 270)

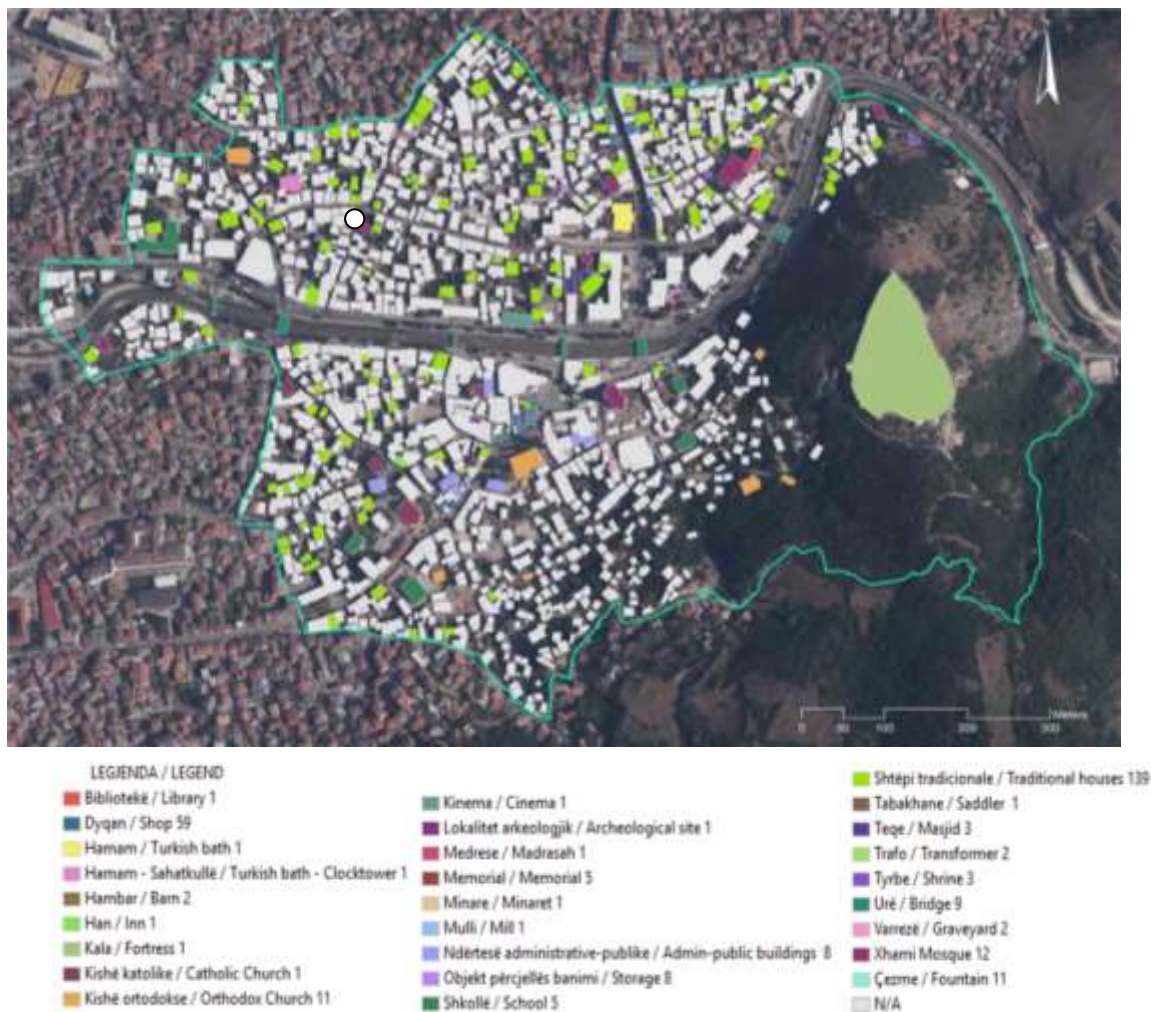


**Figure 3.** The Historic Center of Prizren and the mahalla's (neighbourhoods) from the XIX century. (Plani i menaxhimit i Qendrës historike të Prizrenit 2019-2028, 2018, p. 271)





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**Figure 4.** Prizren's historical center architectural typology. (Plani i menaxhimit i Qendrës historike të Prizrenit 2019-2028, 2018, p. 278)

The period which had a great influence in Prizren more than in any other place in Kosovo is the Ottoman period. Even today, the influence can be seen in the type and construction of buildings, as well as the city of Prizren's lifestyle and activities.

During the Ottoman administration in Kosovo, there was a lot of construction going on. During this period, Ottoman architecture dominated all of Kosovo's settlements and cities. Many examples of military, religious, and civil architecture built during Ottoman administration may still be seen today in Kosovo, especially the city of Prizren. (İğciler, 2004, p. 9) Many mosques, madrassas, fountains, bazaars, libraries, schools, baths, turbes, lodges, fountains, inns, caravanserais, clock towers, bridges, castles, and other works with varied functions were constructed in Kosovo during the Ottoman administration. (Virmiça, 1999, p. 2)

Mosques, which are wonderful architectural monuments, are the first surviving works of Ottoman architecture in Kosovo. The first mosques in Kosovo's territory date from the 15th century. During this time, almost every city had a huge mosque. Examples include the Fatih Mosque in Pristina, the Kırık Mosque in Prizren (Fatih Sultan Mehmet Namazgah), the Bayrakli Mosque in Peje and the Gazi Ali Bey Mosque in Vushtrri. (Loxha, 2008, p. 14)

Ottoman architecture is without a doubt the most powerful branch of art since the arrival of the Ottomans in the Balkans till today. For centuries, the most stunning examples of this architecture were exhibited in the Balkans and Kosovo, leaving the stamp of Ottoman culture on these lands. The most common examples of Ottoman architecture are mosques. Mosques, which are the symbols of the Islamic religion, function to encourage social unity and connect people with each other. (Efe, 2013, p. 85)



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Mosques during the Ottoman period in Prizren from the 15th to the 19th centuries. (Databaza e Trashëgimisë Kulturore të Kosovës, 2022)

- Namazgah Mosque, 1455.
- Mosqu of Suzi Celebiu. 1513.
- Mosque of Kukli Mehmed Bey – Saraçi, 1531.
- Mosque of Mehmet Pasha (Bayraklise), 1537.
- Arasta mosque minaret, 1526-1538.
- Mosque of Çatip Sinani-Levisha, 1577.
- Mosque of Müderris Ali Efendi, 1581.
- Mosque of Sinan Pasha, 1615
- Mosque of Maskud Pashes, 1641
- Mosque of Sejdi Beut, 1642-1644.
- Mosque of Çohaxhi Mahmudit, XVII.
- Mosque of Terzi Mahalles, 1721.
- Mosque Terxhyman İskender Bey, 1795.
- .Mosque of Emin Pasha, 1831.
- Mosque of Ahmed Beut (Tabakhanes) XIX.

The Sinan Pasha Mosque is listed as cultural heritage under permanent protection, while the others are listed as cultural heritage under temporary protection. (Plani i menaxhimit i Qendrës historike të Prizrenit 2019-2028, 2018, p. 264)

The latest war in Kosovo targeted Kosovo's cultural heritage from all periods. During the Kosovo War in 1999, 1282 Muslim, Catholic, and Orthodox monuments were damaged in Kosovo. 623 of these objects belong to Muslim Albanians in Kosovo. Out of 623 structures of the Islamic community, 80 were severely damaged, 48 were moderately damaged, 234 were slightly damaged and 263 were undamaged. To be more specific, 31 mosques, 2 madrasahs, 2 towers, 7 dervish lodges, 2 tombs, and 1 palace were completely destroyed. (Efe, 2013, p. 85)

### **SINAN PASHA MOSQUE: HISTORY, RESTORATION AND MANAGMENT**

The Sinan Pasha Mosque is located in the city of Prizren's Historic Center. With its dominant position, dimensions, shape, minaret-to-dome proportion, construction materials and technique, and rich interior decorations, the Sinan Pasha Mosque is one of Prizren's most unique structures. (Xhamia e Sinan Pashes, 2022) The mosque was built by Sofi Sinan Pasha, an Albanian from the village of Vil in Albania. Sinan Pasha was a senior military man who had received high ranks and titles while serving in the Ottoman Empire. (Raif Virmiča, 2001, p. 69) Sufi Sinan Pasha, served as governor of Budin, Kars, Erzurum and Bosnia, as governor of Grand Vizier and governor of Bosnia and Damascus. (Karakay, 2019, p. 508) Sinan Pasha Mosque, built in 1615, is considered to be the most important and most beautiful mosque in Prizren. (Kosovo in Unesco, AS WE ARE, 2015, p. 64) The building is registered as "Vakf-ı câmii-i şerîf-i merhûm Sinan Paşa der-Prizrin" in a document in the Archives of the General Directorate of Foundations in the Republic of Turkey. (Tuncer, 2021, s. 318) The mosque is the largest in Prizren. External dimensions are 17.80 square meters. Its interior is under a dome with a diameter of 14 meters. (Recepoğlu, 2009, p. 68) The mosque's minaret is built of pumice stones (siga), with a square base and a circular trunk. (Xhamia e Sinan Pashes, 2022) The minaret is on the right side of the mosque entrance. The minaret, which has a single balcony, stands 43.5 meters tall. (Ayverdi, 1981, p. 190) The mosque's interior walls are decorated with plant forms. The 43 windows of the mosque are decorated with Baroque-style ornamentation. A picture of a mosque with a dome and four minarets is carved among the ornaments of the mihrab. (Recepoğlu, 2009, pp. 68-69)



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The mosque's porch was covered with three small domes supported by three stone columns. The Sinan Pasha mosque is a one-of-a-kind example among Prizren mosques in that the porch was built in harmony with the structure, using the same material, stone. (Arapi, 2012, p. 9)

The mosque is covered by a large dome with a diameter of 42.5 meters. Inside the dome there're naturalistic motifs composed of curved branches, leaves and flowers, from which examples of early period decorations can be seen. The dome is decorated in red, yellow, green, and black colors. The dome painted with floral motifs was realized in three stages. The first two phases of the wall paintings date from the 16th to 17th centuries and were made using the "al seco" technique, while the third phase is from the 19th century and was made in the Baroque style. On the south side of the mosque, there is a large courtyard surrounded by stone walls. Sinan Pasha's mosque, according to typology, belongs to the type of mosques with a niche (mihrab) and a porch (portico) built of stone, in which there is also a mihrab. Until 1912, the mosque served for religious functions, while during the Balkan wars and the First World War, it suffered great damage, especially the porch. (Xhamia e Sinan Pashes, 2022)

On November 29, 1915, Serbian soldiers put bombs inside Sinan Pasha's mosque in an attempt to destroy it. The explosives caused a large explosion, causing extensive damage to the mosque's interior walls. (Muhamed Shukriu, 2001, p. 297) In 1948 the mosque of Sinan Pasha was placed under the protection of the state, while in 1952 its internal conservation began under the organization of the Organization for the Protection of Cultural Monuments of Prizren. By the Organization for the Protection of Cultural Monuments of Prizren in 1968 the Mosque of Sinan Pasha was opened as a museum of oriental manuscripts. (Xhamia e Sinan Pashes, 2022, p. 7)

The Sinan Pasha mosque was placed under official protection in 1948, and internal conservation began in 1952 with the formation of the Prizren Organization for the Protection of Cultural Monuments. But, only one year later at the request of the highest Muslim religious leader in the former Yugoslavia, Reis ul Ulema of the time Sylejman ef. Kemure, the mosque of Sinan Pasha was returned to the possession and maintenance of the Council of the Islamic Community of Prizren by the final court decision. In 1972, the repair of the central dome was carried out, as well as the conservation of the damaged Arabic calligraphy inside the mosque. (Virmiča, 1996, p. 20)

The international donor conference held in Paris in 2005 resulted in the collection of funds for several projects of cultural heritage protection and restoration in Kosovo. This also marks the beginning of Kosovo-Turkey collaboration in the field of cultural heritage. The cooperation between Kosovo's Ministry of Culture, Youth, and Sports and the Turkish Agency for International Cooperation and Development (TIKA) began with the restoration of two major mosques in Kosovo: the Sinan Pasha Mosque in Prizren and the Fatih Mosque in Prishtina. The current study and restoration project of the Sinan Pasha Mosque was designed by the Turkish government organization Vakıflar - Foundations, and the implementation of this project was given to the Turkish company Akcaylar Restorasyon. (Arapi, 2012, p. 20) Interior and exterior repair and conservation work was done between 2007 and 2011.

Based on the old traces and documents, the Porch was completely rebuilt (the entrance Porch in the northern part of the mosque, which was destroyed in 1919, was reconstructed using the old images and traces), the dome was structurally reinforced, the lead covering was replaced, and the wall paintings were restored and conserved. (Xhamia e Sinan Pashes, 2022) The structure was reinforced utilizing cutting-edge carbon fiber technology. (Arapi, 2012, p. 21) The total investment is estimated to be approximately 600,000 euros. (Projekte e Trashëgimisë Kulturore në Komunën e Prizrenit) The implementation of the restoration works was officially supervised by the Turkish representative and the Institute for the Protection of Monuments in Prizren. (Arapi, 2012, p. 21)

The Sinan Pasha Mosque, with the unique number TKRKS1A004, was declared under permanent protection by the Kosovo Council for Cultural Heritage in 2016 based on historical, artistic, scientific, social, and spiritual criteria and values. (Vendimi, 2016, p. 1)

*Historical values:* The Sinan Pasha Mosque is related with the donor, the technique of construction, the age, and the originality preserved until today, and it is evidence of 17th century architectural developments.



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*Artistic values:* The mosque of Sinan Pasha is distinguished by its grand composition, proportions, techniques of veneration with carved stones and rich decorative treatments of the interior.

*Scientific values:* The Mosque of Sinan Pasha serves as a case study for the traditional construction method and techniques, especially the construction of the dome with carved stones.

*Social values:* The mosque has served the population, it hasn't only served as a place for performing religious obligations, but has been a meeting place for residents. The most frequented mosque in Prizren. (Paraqitja e Asetit të Trashëgimisë Kulturore për Përcaktimi në Mbrojtje të Përhershme, 2016, pp. 2-3)

**Table 1. The functions of Sinan Pasha Mosque from its construction to the present day:** (Paraqitja e Asetit të Trashëgimisë Kulturore për Përcaktimi në Mbrojtje të Përhershme, 2016, p. 8)

1615-1912	The mosque served the Muslim community's religious needs.
1914-1917	The mosque is closed for religious services and has been used as a warehouse for ammunition by the Bulgarian army.
1919	The part of the porch of the mosque was demolished.
1920-1941	The mosque was used as a warehouse for ammunition by the Serbian army.
1941	The mosque is returned to the use of the Muslim religious community.
1954	The mosque is declared a monument of exceptional importance under the protection of the state.
1967-1968	The mosque is declared a museum of Oriental Manuscripts
1969-1972	The Islamic Community of Kosovo restores the right to use the mosque as a place of worship.
1972-1985	Conservation intervention on the mosque's interior; the mosque is only open for rituals during the winter season.
1989-1992	The mosque remains closed for the faithful.
1992	The mosque is reopening for religious services.
2007-2011	Restoration and conservation intervention in the building.
2011	The mosque is available to the public for religious services as well as visitors.
<b>Current function</b>	Mosque - a shrine that provides prayer services as well as a tourism destination for both local and foreign tourists.
<b>Property</b>	The Mosque of Sinan Pasha is the property of the Islamic Community and is managed by the Islamic Community - branch in Prizren.
<b>Current user</b>	The mosque is managed by the Islamic Community - branch in Prizren and is open for believers to perform religious rituals as well as for visitors.

**Table 2. Transformations: Interventions in Sinan Pasha's Mosque:** (Paraqitja e Asetit të Trashëgimisë Kulturore për Përcaktimi në Mbrojtje të Përhershme, 2016, pp. 8-9)

1671	Repair of wall paintings
1762	Mimber repair
1860	Re-painting of the interior wall paintings, reconstruction of the mahfil-gallery. A document in the Ottoman archive dated (6 Safer 1277) in the Gregorian calendar, August 24, 1860, also highlights the poor condition and restoration of Sinan Pasha's Mosque. (Başbakanlık Osmanlı Arşivi, A.MKT.MHM.761.29)
1912	The hayat of the mosque was closed and served as a madrasah.
1919	Demolition of the mosque porch
1968-1970	Restoration of the dome and research of the layers of wall paintings
1972-1987	Conservation of wall paintings
1989	Graphic documentation of the architectural state of the mosque, drawing up the plan of the current state
1991	Dome repair
2006	Drafting of the conservation plan of the mosque, by TIKa.
2007-2011	Implementation of conservation works in the mosque.
2012	Drafting of the plan of the courtyard of Xhamisa by QRTK Prizren.
2012-2013	Implementation of works in the courtyard of Xhamise, a project financed by TIKa.



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### CONCLUSION

Prizren, Republic of Kosovo, has a rich cultural heritage from several historical periods, especially the Ottoman period. Prizren's Ottoman Islamic heritage is magnificently portrayed in mosques dating from the 15th to the 19th centuries. These mosques are excellent examples of Ottoman architecture and art. Furthermore, these mosques are evidence of the Ottoman Empire's intensive construction activity. The number and unique architectural style of mosques in Prizren set it distinguish from other towns in Kosovo and the Balkans. The mosque of Sinan Pasha, one of Prizren's pearls, has been restored and serves as one of the best examples of strong collaboration between Kosovo and Turkey in the field of cultural heritage. The religious values and symbols of the Ottoman era are a common asset of the Albanian society of Kosovo and Europe, which must be preserved and treated with care. The preservation, protection, conservation, and presentation of Kosovo's cultural heritage is the strategic and policy focus of the Republic of Kosovo's institutions, especially the Ministry of Culture, Youth, and Sports. Kosovo's institutions have also given importance to the Ottoman heritage in Prizren and other parts of the country. Prizren, the city of minarets, continues to be the historical and cultural center of Kosovo's Albanians.

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### ANNEX



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Old photographs of Sinan Pasha's Mosque



**Figure 5.** The mosque of Sinan Pasha during 1912



**Figure 6.** The porch before demolition, 1918.

**Figure 7.** Porch after demolition, 1999.

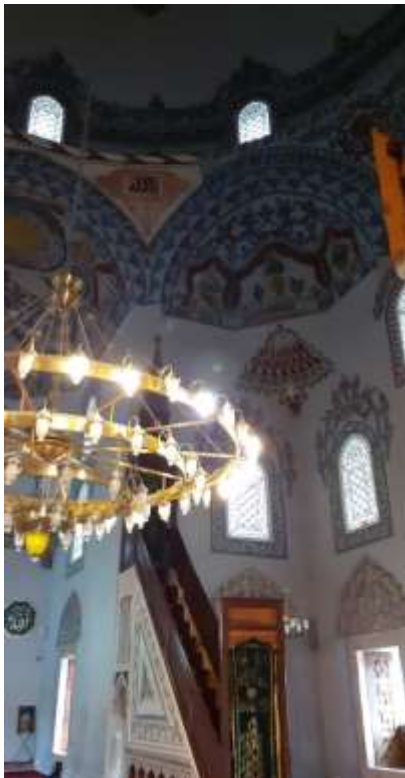


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**Figure 8.** Inauguration of the Museum of Oriental Manuscripts, 1967.

Interior view of the Mosque of Sinan Pasha



**Figure 9.** Minbar



**Figure 10.** Dome



**Figure 11.** Mihrab.





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Exterior view of the Mosque of Sinan Pasha



**Figure 12.** Porch and minaret.



**Figure 13.** Courtyard



**Figure 14.** Porch



**Figure 15.** Prizren's Stone Bridge, Fortress, and Sinan Pasha Mosque.



Sinan Pasha during the restoration.



**Figure 16.** Reconstruction of the porch.  
the porch



**Figure 17.** Completion of the construction of



### RƏQƏMSALLIĞIN ELMƏ VƏ TƏHSİLƏ TƏSİRİ THE IMPACT OF DIGITIZATION ON SCIENCE AND EDUCATION

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#### **Abstract**

We are undergoing rapid changes in the 3rd millennium. This kind of change takes place according to the requirements of the information society, regardless of our wishes. We are witnessing the transformation of the national economy into the world economy, national education into a part of global education. Changes seem to create the impression that the world is controlled from a single center. What is happening in the name of innovation starts with science and education, which is the basis of our economic, political, and cultural power, and affects everyone regardless of their social status. You can instantly find out what is happening regardless of time and place. Do we really need this news? Without knowing what is true or not in the chaotic pile of information, a resource is created that covers a large mass of readers, and we are becoming readers of this source every day, even if we don't want to. At first glance, everyone is excited to take advantage of the freedom provided by the Internet. But it is necessary not to overlook the service to the great interests of the great powers. Of course, the infinite number of resources that the Internet gives us, the use of artificial intelligence and the fact that everyone can take advantage of various resources are very progressive. Can educational institutions meet the rapidly changing innovations in the 3rd millennium?

Science and education, reflecting the strength of each country, are responsible for the completion of these heavy tasks. The basis of taking advantage of the chaotic situation in a positive sense is to do complex work with preschool or kindergartens and parents. The basis of taking advantage of the chaotic situation in a positive sense is to do complex work with preschool or kindergartens and parents. It does not seem easy to determine how toddlers want to be educated after five years. Scientific and educational institutions are responsible for the solution of fateful issues such as meeting the innovations immediately and protecting the interests of every country. How can innovations be used effectively? It should be ensured that education will be done in a completely new way like, toddler will be able to study in such an educational system after five years without getting bored, and that it will also be useful for the education he will receive in the future... Do we adequately meet the demands of the digital world? The new forms and methods of education management which is a dynamic and static field need to be searched and found immediately...

**Keywords:** education, information, artificial intelligence, method

#### **Xülasə**

III minillikdə sürətli dəyişikliklərə məruz qalırıq. Bu dəyişiklik bizim istəyimizdən asılı olmayaraq, informasiya cəmiyyətinin tələbləri doğrultusunda baş verir. Milli iqtisadiyyatın dünya iqtisadiyyatına, milli təhsilin global təhsilin bir parçasına çevrilməsinin şahidi oluruq. Dəyişikliklər sanki dünyanın vahid mərkəzdən idarə edilməsi təsuratı yaradır. Yenilik adına baş verənlər bizi və əsasən iqtisadi, siyasi, mədəni gücümüzün əsasını təşkil edən elm və təhsildə başlayıb, sosial durumundan asılı olmayaraq hər kəsə siyarət edir. Baş verənləri zaman və məkan məfhumundan asılı olmayaraq anında xəbər tuta bilərsiniz. Həqiqətən bizə bu xəbərlər lazımdır? Xaotik informasiya yığımında nəyin doğru olub olmadığını bilmədən böyük bir oxucu kütləsini əhatə edən resurs yaranır ki, istəməsək də hər gün bu mənbədən oxucu qismində iştirak edirik. İlk baxışda internetin verdiyi azadlıqdan yararlanmaq hər kəsi məmnun edir. Amma böyük güclərin böyük maraqlarına xidməti də nəzərdən qaçırmamaq zəruridir. Əlbətdə internetin bizə verdiyi sonsuz sayda mənbəni, süni intellektdən istifadə hər kəsin müxtəlif



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mənbələrdən yararlanmasını təmin etməsi çox mütərəqqi haldır. III minillikdə sürətli dəyişən yenilikləri, təhsil ocaqları qarşılaya bilirmi?

Hər ölkənin bütün gücünü əks etdirən elm və təhsilin üzərinə çox ağır bir o qədər də məsuliyyətli vəzifələrin yerinə yetirilməsi düşür.

Xaotik durumdan ancaq müsbət mənada yararlanmağın əsasını orta məktəbdən də əvvəl məktəbəqədər və yaxud uşaq baxçıları və valideyinlərlə kompleks işlərin görülməsini tələb edir.

Bir –iki yaşlı uşağın beş ildən sonra necə təhsil istədiyini müəyyənləşdirmək asan görünür. Yenilikləri vaxt itirmədən anında qarşılamaq hər ölkənin maraqlarını

qorumaq elm ,təhsil müəssələrinin üzərinə tale yüklü məsələlərin həlli dayanır.Hansı yollarla yenilikləri faydalı şəkildə istifadə etmək olar..

Təhsilin tamamiilə yeni, yəni indiki bir yaşında uşağın beş ldən sonra elə bir təhsil sistemində darıxmadan təhsil alsın, həm də gələcəkdə aldığı təhsillə yararlı olacağı təmin edilsin...

Rəqəmsal dünyanın tələblərini laiqincə qarşılaya bilirikmi?

Dinamik, statik və stuativ sahə olan təhsilin idarə edilməsinin yeni forma və metodlarının axtarılıb vaxt itirmədən tapılmasını gərəkdirir...

**Açar sözlər:** təhsil, informasiya , süni intellekt, metod

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### ELABORATION ON THE THEME OF REPRESSION IN THE CONTEMPORARY NOVEL

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#### **Abstract**

In the post-Soviet countries, including Azerbaijan, the appeal to the themes of repression, personality worship, and war gained relevance in the 1980s. However, since the 1960s, writers began to write about 1937, Stalin, ruined destinies and human deaths without risking censorship.

In Russian literature, the image of repression had an officially approved form. It was not the officials, but the bureaucracy, Stalin who was to blame. In Russia, I. Erenburg's "Softening" (1954), and later A. Solzhenitsyn's "A Day of Ivan Denisovich" were published on this topic. A. Rybakov's work "Summer in Sosnyak", which tells about the ruined life of the daughter of the enemy of the people, was written during the time when Khrushchev left power.

If in Russia the topic of repression is addressed more quickly, censorship in Azerbaijani literature treated such issues more seriously. That's why we write works on such topics in later years.

If we pay attention to the Azerbaijani novels of the 1960s, the attention is drawn to issues such as collective farm life, the processes taking place there, attitude to public property, high labor discipline, respect for work, action, struggle for belief, and resistance to ugliness. However, in parallel with this, the theme of the inner world of a person coming to the fore, speaking philosophically, interest in psychological problems, war, and a little later, the subject of repression also began to open its doors to novel creation.

Although I. Huseynov "Burning Heart" (1956) and S. Ahmadli "Cubit of the World" (1969) did not openly touch on this topic, they managed to penetrate the inner face of the social environment with their courage.

It should be noted that 1937 was the heaviest period of repressions in the USSR. Repressions in Azerbaijan began in the 1920s. Russia, which occupied Azerbaijan, began to destroy intellectuals from that period. It is no coincidence that one of the first intellectual victims of repression in Azerbaijan was literary critic and scientist F. Kocherli (in 1920), who was shot by Armenian Dashnaks in Ganja prison.

The issues mentioned in the article are extensively analyzed, the tragedies caused by repression in contemporary novels (Yusif Samadoglu's "Day of Murder", Isa Huseynov's "Hell", Gani Jamalzade's "Quarry", Nariman Abdulrahmanli's "Cucle", etc.) are investigated.

Deporting families, destroying intellectuals, sending them to and fro, shooting, exterminating, branding them with the name "pan-Turk" are the realities of the period of repression. We follow these realities in the fate of the heroes of the novel, on the path of life. Even after years have passed, that fear has not been removed from hearts and eyes. The Dying Patient ("Cucle") reminds of those who become homeless, those who were arrested under the name of "turkish spy", and finally finds the courage to express their painful memories and reveal the inner face of the Soviet regime. It turns out that the USSR, which won the war with Germany in 1945, continued to look for an enemy of the people and a traitor in Azerbaijan in those years, and exile and repression left hundreds of families with old eyes.

**Keywords:** Azerbaijan, contemporary novel, Soviet repression, Stalin



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### Özet

Azerbaycan da dahil olmak üzere geçmiş Sovyet ülkelerinde represiya (baskı), şahsiyete perestiş ve savaş temalarına yapılan çağrı 1980'lerde önem kazandı. Ancak 1960'lardan itibaren yazarlar 1937, Stalin, mahvolmuş kaderler ve insan ölümleri hakkında sansür riskini göze almadan yazmaya başladılar.

Rus edebiyatında, represiya imajının resmi olarak onaylanmış bir formu vardı. Suçlanacak olan yetkililer, bürokrasi değil, Stalin'di. Rusya'da bu konuda ilk olarak I.Erenburg'un "Yumuşama" (1954) ve daha sonra A. Solzhenitsyn'in "Ivan Denisovich'in bir günü" eserleri yayımlandı. A. Rıbakov'un halk düşmanı kızının mahvolmuş hayatını anlatan "Sosnyak'ta son bahar" adlı eseri, Kruşçev'in iktidardan ayrıldığı dönemde yazılmıştır.

Rusya'da represiya konusu daha hızlı ele alınıyorsa, Azerbaycan edebiyatında sansür bu tür konuları daha ciddiye almıştır. Bu nedenle bu tür konularda eserler daha geç yazılmıştır.

1960'lı yılların Azerbaycan romanlarına dikkat edersek, daha sık olarak kolektif çiftlik hayatı, orada gerçekleşen süreçler, kamu mülkiyetine karşı tutum, yüksek emek disiplini, işe saygı, çirkinliğe karşı direnç, eylem, inanç mücadelesi gibi konular dikkatimizi çeker. Ancak buna paralel olarak insanın iç dünyası, felsefi konuşma, psikolojik sorunlara ilgi, savaş ve biraz sonra represiya konusu öne çıkıyor.

İsa Hüseyinov "Yanan Yürek" (1956) ve Sabir Ahmedli "Dünyanın arşını" (1969) romanlarında bu konuya ağıktan değinmeseler de cesaretleriyle toplumsal ortamın iç yüzüne sızmayı başarmışlardır.

1937'nin SSCB'deki en ağır baskı dönemi olduğuna dikkat edilmelidir. Azerbaycan'da baskılar 1920'lerde başladı. Azerbaycan'ı işgal eden Rusya, o dönemden aydınları yok etmeye başladı. Azerbaycan'da baskının ilk entelektüel kurbanlarından birinin Gence hapishanesinde Ermeni Taşnaklar tarafından vurulan edebiyat eleştirmeni ve bilim adamı F. Kocherli (1920'de) olması tesadüf değildir.

Makalede bahsedilen konular kapsamlı bir şekilde incelenmiş, çağdaş romanlarda (Yusif Samadoğlu'nun "Katil Günü", İsa Hüseyinov'un "Cehennem", Gani Jamalzade'nin "Karhane", Nariman Abdulrahmanlı'nın "Dönelge" vb.) represiyanın yol açtığı trajediler araştırılmıştır.

Aileleri sürgün etmek, aydınları yok etmek, ölüme göndermek, kurşuna dizmek, imha etmek, pantürkist adıyla damgalamak baskı döneminin gerçekleridir. Bu gerçekleri romanın kahramanlarının kaderinde, yaşam yolunda takip ediyoruz. Aradan yıllar geçmesine rağmen o korku kalplerden ve gözlerden silinmemiştir. Ölüm döşeginde yatan Hasta ("Dönelge"), elleriyle ayaklarıyla gidenleri, evsizleri, "Türk casusu" adı altında tutuklananları anımsatır, sonunda acı dolu anılarını dile getirme cesaretini bulur ve Sovyet rejiminin iç yüzünü ortaya çıkarır. 1945'te Almanya ile savaşı kazanan SSCB'nin o yıllarda da Azerbaycan'da halk düşmanı ve hain aramaya devam ettiği, sürgün ve baskıların yüzlerce aileyi gözleri yaşlı bıraktığı ortaya çıkar.

**Anahtar Kelimeler:** Azerbaycan, çağdaş roman, Sovyet represiyesi, Stalin

### Giriş

SSCB'deki represiya 1920'de başladı ve en kötü dönem 1937-1938 idi. Azerbaycan Türkleri, geçmiş sovyet ülkeleri içinde hem toprak hem de nüfus bakımından en çok baskı altına alınan milletlerden biri ve Kafkasya'da birinciydi. Genel olarak, "bu represiya iki milyondan fazla Türk, topraklarından çok uzak yerlere sürülmüş, bu sürgünde Türklerin çoğu bindirildikleri trenlerde ve götürüldükleri çalışma kamplarında yaşanan kötü şartlar yüzünden hayatlarını kaybetmiştir" (Uludağ ve Serin 1990).

O yıllarda Rusların Azerbaycan toprakları pahasına oluşturduğu Ermenistan'da (İrevan) Azerbaycan türklere yaşıyordu. Ermeniler bu topraklardaki Türk sayısını azaltmak için onları baskıya maruz bırakmış, Azerbaycan'da Rusya'nın güçlenmesi politikasını desteklemiş, bir yandan da Azerbaycan toprakları pahasına topraklarını genişletmek istemişlerdir. Azerbaycan'da çalışanların çoğunluğunu ermeniler (Grigoryan, Mirzoyan, Arakelov, Khachaturov, Zargaryan, Makaryan, Kazıyan, Babayan, Avakyan, İsrailyan, Zakaryan, Petrosyan, Bagdasarov, İonesyan vb.) oluşturuyordu. Azerbaycan'ın 51 bölgesinde baskı uygulayan Halk İçişleri Komiserliği daire başkanlarından 31'i Ermeni'di. Onlar bolşeviklere de gönülden hizmet ettiler ve Türkleri musavatchi, golçomag, Pantürkist diyerek yok etme



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politikasını yürüttüler. "1926'da yapılan I. Bakü Türkoloji Kongresi'ne katılanların yüzde 90'ı, yeni alfabe taraftarı, baskı mağduru oldu." (Nerimanoğlu, 2008, s.63)

Bütün bu meseleler tarihi bir gerçek olmanın yanı sıra çağdaş roman yaratımına da yansımıştır. Modern yazarlar genellikle represiya konusuna atıfta bulunur, o dönemin manzarasını anlatıyorlar.

### Material ve metod

Baskı döneminin gerçekleri birçok bilimsel çalışmada yansıtılmaktadır. Birçok bilim adamları (Z.Bünyadov, F.Ashnin, V.Alpatov, D.Nasilov, K.V.Nerimanoğlu, E. Nechiyev ve b.) bu dönemin tarihi gerçeklerini araştırmış ve Stalin'in baskılarının Azerbaycan'da ne gibi trajedilere yol açtığını göstermişler. Son dönemlerde bu konuda romanlar yazılmaktadır. Azerbaycan edebiyatında represiya konusu üzerine bazı çalışmalar vardır. Ancak bu çalışmaların hiç birinde 2000-ci yılların romanları represiya konusu bakımından araştırılmamıştır. İlk kez makalemizde bu konu incelemekte, modern romanda baskı dövrünün gerçeklerine olan bakışlar ortaya koyulmaktadır. Makale tarihsel-karşılaştırmalı ve analitik yöntemlerle araştırılmıştır. Edebiyatta represiya konusunun tarihi Rus edebiyatı ile karşılaştırmalı olarak ele alınmış, karşılaştırma kapsamında hem tarihi bilgilere, hem de Kumuk edebiyatına değinilmiştir.

### "Yumuşama", represiya döneminin gerçekleri ve represiya teması

Stalin'in ölümünden sonra SSCB'de yumuşama başlar. Yumuşama süreci (1960'lar) ekonomik ve politik faktörlere bağlıydı. 1953'te Beria'nın tutuklanması ve N.Kruşçev'in iktidara gelmesi edebiyatı da etkiledi. Bu dönemden itibaren Rusya ve Sovyet ülkelerinin literatüründe represiya konusu ön plana çıkmaktadır. Baskı, kişilik kültü ve savaş temalarını ele almak 1980'lerde daha anlamlı hale geldi. Bazı araştırmacılar, baskı temasının 20. yüzyılın 90'lı yıllarından itibaren Azerbaycan edebiyatına yansımaya başladığını belirtiyor (bkz. Jafarova, 2019. s.131) Buna rağmen, 1960'lardan itibaren yazarlar, 1937, Stalin, mahvolmuş kaderler ve insan ölümleri hakkında sansür riskini göze almadan yazmaya başladılar. Aslında yumuşama döneminde bile Sovyet liderliğinin yönetim sistemi ve ahlakı değişmedi. N.Kruşçev'in "soyutçu ve modernist sanatçılara karşı tutumu ve aşağılayıcı benzetmeleri, Sovyet tipi cezanın biçim olarak değişmesine rağmen içerik olarak değişmediğini göstermektedir" (Nerimanoğlu, 2008. s.73)

Stalin'in ölümünden bir ay sonra, Moskova'daki "Edebiyat gazetesinde" ilk kez Olga Berggols'un bir makalesi yayınlandı. Bununla ilgili Natalia Antropova ve Olga Rosenblum'un edebiyatta represiya konusunun araştırılmasından bahs eden röportajında tartışılıyor. Olga Berggols şairlerin sadece pozitif değil, aynı zamanda hüznü ve üzücü duygularını da yazabileceklerini söylemişti. Bugün bunu yargılamak bizim için şaşırtıcı olurdu, duygular farklıdır, o zamanlar insanlar bunu biliyordu, ancak bu tür görüntüler bir değişimin işareti olarak kabul edildi, kötü karşılandı. (bkz. Antropova ve Rosenblum, 2019)

Stalin döneminde bir Sovyet yazarı, Sovyet yaşamından şikayet edemez ve duygularını açıkça ifade edemezdi. Sovyet toplumu demokratik, hümanist bir toplum olarak tanımlandı. Stalin döneminde birçok yazar eserleri nedeniyle tutuklanmış, Sovyet yaşamını doğru yansıtmamakla, karşı-devrimci, solcu ve Türkçü olmakla suçlanmıştır. Örneğin, Y.V. Çemenzeminli, "Öğrenciler" (1931 ve 1936) adlı romanı yüzünden Azerbaycan Yazarlar Birliği'nden kovulmuş, işsiz kaldığı için 23 Urgenç'e öğretmen olarak çalışmaya gitmiş ve kısa süre sonra tutuklanmıştır. (bkz. Mammadova, 2019. S.22).

M. Mushfiq, A. Javad, H. Javid gibi daha birçokları da aynı kaderi yaşadı. Azerbaycanlı nesir yazarı A. Caferzade'nin "Hikâyeler" adlı ilk kitabı 1948'de yayınlanmış olmasına rağmen, Moskova'nın özel bir kararıyla satışa çıkmadan önce yasaklanmış ve yakılmıştır. 1946'da A.Zhdanov Moskova'da edebi konularda bir konuşma yaptı. M. Zoshshenko ve A. Akhmatova'ya Sovyet yaşamını doğru yansıtmadıkları için saldırılar oldu. Rusya'da yaşanan süreçlerin izleri diğer geçmiş Sovyet ülkelerinde de aranmıştı. Azerbaycan'da da bu tür benzerini bulmak ve ifşa etmek gerekiyordu. Bu nedenle Azerbaycanlı yazar Sabit Rahman'ı Sovyet hayatını siyah renklerle anlattığı için, Aziza Caferzade'yi salon lirikasını terennüm etdiği için "teşhir ettiler" ve kitabını yaktılar. 1945'te yazar, "halk düşmanı" olarak görülen bir Türk nesir yazarının Arap alfabesinde bir romanıyla yakalandığı için üniversitenin ilk yılından atıldı. Bu nedenle yazarın ilk kitabı ("Natavan hakkında hikâyeler") çok geç, yumuşama



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sürecinden sonra 1963 yılında yayınlanmıştır. Mirvarid Dilbazi, Nıgar Rafibeyli, Madina Gülgün gibi kadın şair ve yazarlar da bir çok nedenlerle acı çekmişlerdir.

1954'te İ.Erenburg'un Rusya'da represiyanı konu alan "Yumuşama" adlı eseri yayınlandı. Romanın kahramanları zor bir hayat yaşıyor. Birinin babalığı baskı kurbanı olur, birinin ailesi yurt dışında, diğeri doktor olarak sürekli korku ve heyecan içinde yaşar, doktorların ona güvensizliğinin sonuçları ne olur bilinmez. Böyle bir zamanda, "yumuşama" dönemi başlar. Geçmişini konuşmaya ihtiyaç ve imkan yaranar.

Rus edebiyatında, represiya imajının resmi olarak onaylanmış bir formu vardı. Suçlanacak olan yetkililer, bürokrasi değil, Stalin'di. Baskı konusundaki bir sonraki eser Rus yazar A. Solzhenitsyn'in "Ivan Denisovich'in hayatından bir gün" (1962) romanıydı. V. Shalamov'un "Kolım hikayeleri" 1954-1962'de yazılmış olmasına rağmen, 1966'da yayımlandı. Anatoliy Rybakov'un halk düşmanı kızının mahvolmuş hayatını anlatan "Sosnyak'ta ilk bahar" adlı eseri, N.Kruşçev'in iktidardan ayrıldığı dönemde yazılmıştır.

Rusya'da baskı konusu daha hızlı ele alınıyorsa, Azerbaycan edebiyatında gecikmeler fark edilir. Bunun elbette, tarihsel ve politik nedenleri vardı. Rusya Azerbaycan'ı kontrol altında tutuyordu, milli ve manevi dönüşüne izin veremiyordu. Bu nedenle bu tür konularda eserler Azerbaycanda daha geç yazılır.

1960'lı yılların Azerbaycan romanlarında kolektif çiftlik hayatı, orada yaşanan süreçler, kamu mülkiyetine karşı tutum, yüksek emek disiplini, işe saygı, çirkinliğe karşı direnç, inanç mücadelesi gibi konular dikkat çekiyor. Ancak buna paralel olarak insanın iç dünyası teması ön plana çıktı, felsefi konuşma, psikolojik sorunlara ilgi, savaş ve biraz sonra represiya konusu da romanlarda yer almaya başladı.

### Sovyet dönemi edebiyatında represiya konusu

İsa Hüseyinov, "Yanar ürek" (kalp) eseriyle açıkça olmasa da, baskı konusunu ele alan ilk yazarlardan biridir. Burada Mir Ghazab imajını Stalin döneminde Azerbaycan'ın başına geçen Mir Cafer Bagirov'un prototipi olarak görenler yanılmıyorlar. (bkz. Celal Gasimov, 2020 320). 1956'da yazılan bu eser baskıyla karşılandı. Yazar bile eserin yazarlığından vazgeçmek zorunda kalır. Eser 1965 ve 1980 yıllarında yeniden geliştirilmiş ve "İdeal" adı altında yayınlanmıştır.

Süleyman Valiyev (1966) "Düğümler" adlı romanında Azerbaycan edebiyatında represiya maruz kalmış insanların kaderinden bahseder. Sabir Ahmedli, 1969 yılında yayınlanan "Dünyanın arşını" adlı romanında bu konuya açıktan değinmese de yazar cesaretiyle toplumsal ortamın iç yüzüne nüfuz etmeyi başarmış ve buna paralel olarak Tebriz konusunu da canlandırmıştır. "Bu pencereden Araz'ın ötesindeki dağlara bakıyorum. Bakışlarımız, duygularımız oraya ulaşır, orada çırpınır. Bu büyük özlem yüz yıldır kanımıza ve gönlümüze işledi. Biliyorum ki, burada oturanların – Valid hoca, Niyazov ve tüm toplumun kalbinde aynı heyecan var. Bu hayal gücüne her hangi Azerbaycanlıyı heyecansız getirmek mümkün değildir. Ben bu masaya bakıyorum, düşünüyorum ki, mezarın sessizliğine gömülü, mezarlık otlarıyla kaplı köprülerin üzerinden o taraftan bu tarafa, bu taraftan o tarafa giden düğün kervanının sevinci Araz'ın şırlıtısına karışacak..." (Ahmedli. 1985)

Eleştirmen E. Akimova bu esere atıfta bulunur ve "Sovyet idari denetim mekanizmasının aktif ve güçlü olduğu bir dönemde Sabir Ahmedli nasıl oldu da çevre ve gerçekler hakkında bu kadar net bir vizyon gösterebildi?" diye yazar. (Akimova, 2020) Bu romanın yazarın en tartışmalı eserlerinden biri olduğunu ve eserin orijinal halinin 500 sayfa uzunluğunda olmasına rağmen, "Azerbaycan" dergisinin 4. sayısında sadece 200 sayfa olarak basıldığını belirtmek gerekir. Yazar, "Yazılmamış Yazı" adlı otobiyografik eserinde (bkz. Ahmedli. 2010.) bu konuda bilgi vermekte ve aslında eseri bu şekilde kısaltan genel yayın yönetmeni J. Mammadov'un hem de eserin yayınlanmasına yardımcı olduğunu belirtmektedir. Yazar, eserin 4 numarada yayınlanmasının sebebinin okuyucuları (sansürcüleri!) yanıltmak olduğunu belirtmektedir. S. Ahmedli'nin Azerbaycan köyü imajında Sovyet toplumunun gerçeklerini açıkça ortaya koyması yumuşama ile ilgili olsa da, bu eser Azerbaycan Yazarlar Birliği'nin toplantılarında eleştiriye konu olur. Yayıncı kitabı yayınlamayı reddediyor. Eserin el yazması kaybolur. Biraz sonra, eserden çıkarılan Rus karşıtı kısımlarla birlikte DTK'ya bir açıklama yazılır. Romanda Sovyet ordusunun Azerbaycan'dan Tebriz'e gitmesiyle ilgili cümle ("Bu ordu nereyese ölüm götürüyordu,





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kendileri de öleceklerdi") tartışmaya neden oluyor. Yazar, Sovyet ordusunun "kurtarıcı" rolünü inkar ettiği için eleştirilir. S. Ahmedli, "Yasak Oyun" adlı eserinde 1937 baskılarına doğrudan değinir.

Y. Samadoğlu'nun "Katl Günü" adlı romanı da bu konuda yazılmış eserler arasındadır. Üç farklı dönemi birleştirmeye çalışan yazar, bu dönemler arasında ilginç bir fikir-içerik yakınlığı yaratır. Meçhul hükümdar dönemi ile represiya dönemi arasında ilginç bir bağlantı kuran yazar, anlattığı sorunların tüm çağlar için aynı içerikten kaynaklandığını anlamaya çağırıyor. Hükümdar işgal etmek istediği komşu devletin kalesini kolaylıkla alır. Ona yardım edenler kalenin sakinleridir. Dedikleri gibi, iç düşmanlar "kendi sapsarı olan baltalardır". Şairlerinin (aydınlarının!) başını hükümdardan isterler. Ancak o zaman kalenin anahtarlarını hükümdara teslim edecekler. Hükümdarın "böyle bir ülkenin sadece kalesini değil, kalelerini de satın almak mümkündür" (Samadoğlu. 1987) düşüncesi romanda gösterilen her üç dönem için tipiktir. Kaleyi ihanete dayalı olarak ele geçiren hükümdarın sözleri, sonraki represiya döneminin düşmanca politikasına hizmet eden Azerbaycanlı görevliler için de geçerlidir. Baskı döneminde, iç düşmanların, "kendi sapsarı baltaları"nın ihaneti ve namerdliyi sayesinde Rusya, Azerbaycan'ın yüzlerce aydınını (M. Mushfiq, A.Javad, H.K.Sanılı, S.Mümtaz, V.Hulufu, H.Cavid, A.Muznib, A.Nazım, S.Hüseyin ve diğerleri) mahv etdi.

Daha sonra "Ölüm Hükümü" (Elçin), "Aile Sırrı" (Cengiz Hüseyinov), "Göç" (Movlud Süleymanlı) gibi eserlerde baskı teması ifadesini bulur. Aynı acıyı bu romanlarda da görüyoruz.

### 2000'lerin romanlarında represiya teması

Azerbaycan bağımsızlığını kazandıktan sonra bu konu daha çok ilgi görmektedir. "Cehennem"(İ. Muğanna) eserinin kahramanı Bünyad Bey, represiya döneminde birçok trajedinin sebebkarı olarak anlatılır. Yazar, Stalin, L.P.Beria, M.C.Bagirov iktidarı dövrünün trajedilerini göstererek, dünya güçlerinin politikalarına ve onun arka planında Azerbaycan tarihinin gerçeklerine dikkat çekiyor. Ancak eleştirmen I. Musayeva'nın belirttiği gibi, bu görüntüler sadece "yazarın hayal gücünün sınırsızlığı, sanki tüm zamanlara ve yerlere kozmik seyahatin bilgeliğinin bir göstergesi" (Musayeva, 2017. s.23) gibi anlaşılmalıdır. Bu aynı zamanda yazarın dünyayı anlama ve olayları analiz etme, tarih ve siyasi bilgileri inceleme yeteneğinden de kaynaklanmaktadır.

Sovyet imparatorluğuna hizmet eden ve onun tüm emirlerini kayıtsız, şartsız yerine getiren Bünyad bey halkın gerçek düşmanıdır. Birçok ölümlerin sebebkarıdır. Kendisini komünist, Sovyet istihbarat subayı, rusa çevrilmiş, rus olmuş biri olarak adlandırması ve Türklere karşı yetiştirildiğini ve nefretin vücut bulmuş hali olduğunu kabul etmesi tesadüf değildir. Yazar, Bünyad beyin şahsında, represiya döneminin resmini oluşturmayı başarır. İlk bakışta cennete gittiğini sanan kahraman yavaş yavaş yaptığı haksızlıkları ve zulümleri hatırlamak zorunda kalıyor: "SSCB'nin Chekistlerinden Chekist dersini, İranlı politikacıardan polis dersini öğrendiniz. Petersburg'dan Bakü'ye ve oradan uyezd'e gönderildiğinden beri kimlerle çalışmadığımı hatırla!" (Muğanna, 2013 s.4)..., "O zamandan beri Rusya'nın direkt dersleri neticesinde etnik bir hastalığa yakalandınız, tehlikeli gördüğünüz "muğları" (Muğ Türklerini) öldürüyorsunuz efendim" (Muğanna, 2013. s.6)..., "Göyce, Daralayaz, Vedi ümmetinin kaderini sana emanet ettiler. Sağdan soldan milleti yok ediyordunuz - Muğan'a, Sibiryaya, Kazakistan'a sürgün ediyordunuz!..." (Muğanna, 2013. s.26)

Gördüğümüz gibi Bünyad bey cehennemde represiyaya maruz koyduğu insanlarla görüşüyor, geçmişi hatırlamak zorunda kalıyor ve ondan yaptıklarının hesabını sorurlar. Bu sayede onun gerçek yüzü, iç dünyası ve yaptıkları okuyucuya açıklanır.

"Karkhana" (Jamalzadeh. 2016) adlı eserinde yazar bir yandan Ermeni olan Sani adında yasal bir hırsızın imajını yaratır, kaderi, ailesi, geçmişi ile ilgili anları gösterir, çeşitli insan manzaraları bakımından zengin olan Abşeron (Bakü) tarihinin zaman dilimini anlatırken, diğer taraftan esere tarihi bir hava katarak Azerbaycan'ın Rusya tarafından işgali sonrası halka olan zulmlere işaret etmektedir. Eserin kahramanı Gulu Nazioğlu'nun karakteri, ermeni bir kadınla evlendikten sonra yakın akrabalarını bile ölüme göndermesi ve kendisinin de bu politikanın kurbanı olması, Osmanlı'dan kovulan ermenilerin Azerbaycan topraklarına yerleştirilmesi ve bunun ağır sonuçları tarihin acı gerçekleri olarak hatırlanır.

Neriman Abdulrahmanlı'nın "Dönelge" adlı eseri de bu konudadır. Yatak hastası olan bir kadının gözleri önünden geçen hayatını, baskı yıllarını ve bu yıllarda yaşanan trajedileri kapsar. Vatanından, yurdundan edilenlerin yurda hasretliği, korkusu o yılların ne kadar üzücü olduğunu gösteriyor: "Öyle deme, kötü



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bir zamandır, duyan, hükümete haber veren olur, seni habs ederler, gidersin". (Abdulrahmanlı, 2015. s.163). Adaletsizlik hakkında konuşma korkusu, gerçeği konuşma tehlikesi, haksızlığı yutmaya zorlanmak baskı çağının gerçekleridir. Romanda, kahramanların kaderinde bunu takip ediyoruz. Aradan yıllar geçmesine rağmen o korku kalplerden ve gözlerden silinmemiştir. Zaman değişse ve yıllar geçse de konuşma, seslendirme ve doğruyu söyleme korkusu kaybolmadı. Ölmek üzere olan hasta, sanki kalbini boşaltmak istercesine bu konuları konuşmak, birine anlatmak için bir an aramaktadır. Represiya döneminin sarsıdıcı öyküleri, ölümle boğuşan bir hastanın düşüncelerinden, hayal aleminden okuyucuya aktarılır. Hasta kadın elli-ayaklı gidenleri, nerede olduğu bilinmeyenleri, kaybolanları, "Türk casusu" adı altında tutuklananları hatırlar. Acı hatıraların sadece 1930'ların olayları olmadığını, 1945'ten sonra bile Almanya ile savaşı kazanan SSCB'nin hala iğrenç eylemlerinden vazgeçmediğini, Sovyet hükümet makinesinin her yerde halk düşmanı aramaya devam ettiğini öğreniyoruz. Baskılar, bu yıllarda da yüzlerce aileyi gözünü yaşlı bırakmış ve sessizce boyun eğmeye zorlamıştır.

Eserin kahramanlarından biri Almanya ile savaşta esir düşür. Esirlikten kurtularak korkudan ailesine - Azerbaycan'a değil, memleketi Osmanlı'ya döner. Bu nedenle ona hain ve "halk düşmanı" derler ve tüm ailesini, tanıdıklarını, akrabalarını cezalandırarak yaşadığı topraklardan sürgün ederler, ölüme gönderirler. Gençleri, çocukları, yaşlıları bile sürgün etmek, mahv etmek yasal olmasa da Sovyet imparatorluğu için normal bir şeydi. Eserde annesi ermeni olan Dazbaş, hain Pachtalyon ve Ermeni Postacı, Sovyet rejimine her zaman hizmet etmiş insanlardır, halkın içine yeritilmiş düşmanlardır. Arkadaş gibi davranan, yeri geldiğinde Ruslardan şikayet eden ve onlar yüzünden evsiz kaldığını iddia eden Ermeni, aslında yukarılara asılsız raporlar göndermek ve evleri yıkmakla meşguldür. Yedi ailenin evlerinden, topraklarından sürgün olunmasını planlayanlardan biri de odur.

Eserde Sadr'ın gece vakti bölgeden gelen siyah 'emadin'li bir adamla kapı kapı dolaşan görüntüleri bize represiya döneminin meşhur sahnesini hatırlatıyor. Bu dönemde kapılar, geceleri dövülürdü ve bu hiç hayıra işaret değildi. Kumuk yazarı I. Karimov (2006) "Hayalim mi, gerçek mi?" adlı eserinde bir aile şahsında 1930'ların sosyo-politik bir resmini oluşturur. Bu eserde de Kumuk halkının represiya döneminde başına gelen trajedileri görüyoruz. Azerbaycan'da insanlar günahları olmadan nasıl haksız baskılara maruz kalırlarsa, burada da Kumuk halkının başına gelen aynı belaları görüyoruz. Olayları anlatırken burada da NKVD'nin geceleri çalıştığını görüyoruz. I.Karimov'un eserini inceleyen Filoloji Bilimleri Doktoru M. Hüseyinov, bu eserde "gece" faktörüne odaklanarak, halk geleneğinde gecenin kara güçlerin zamanı olduğuna dikkat çekiyor. Aynı zamanda baskıcıları kara güçler olarak adlandırır. (bkz. Quseynov, 2021)

"Dönelge"nin kahramanı Sadr, her gün yüz yüze geldiği, yıllardır tanıdığı ve bir parçası olduğu yedi aileyi kendi elleriyle sürgüne göndermek zorunda kalır. Bu yedi aile "halk düşmanı" olarak damgalanır ve köyden sürgün edilir. Onlar kötülük yapmadılar, milletin malını yemediler, helal emekleriyle yaşadılar. Sadrın iç ıstırapları, yüreğinden geçenler, dile getirmeye cesaret edemediği düşünceler, Sovyet rejiminin ne kadar yalanlar, ihanetler ve ihbarlar üzerine kurulduğunu bir kez daha kanıtıyor: "... kapısını "qara haber" çalanı "vatan için öldü" diye teselli etti. Peki ne olacak, şimdi bu insanlara ne demeli? "Sabırlı olun" diyerek onların dertlerini çözmek mümkün mü? Yarın iyi ve kötü günde kendini nasıl dik tutucaq, başını nasıl kaldıracak ve insanların gözlerinin içine bakacak? Ermeni Postacının ihbarlarından, hain Postacının eylemlerinden, annesi haxcık (ermenî) Hacı Dazbaş köpekoğlunun hiylelerinden, hizmet ettiğin devletin, Komünist partisinin haksız kararından, masum insanları koruyamadıysa, neden hayla görevdesin, demezler mi?" (Ebdülrehmanlı, 2015. s.183-184).

Kendini suçlayan ve yapmak zorunda kaldıklarıyla barışamayan Sadr'ın çaresizliği anlaşıldı. Sovyet Devlet yetkilileri, insanları saçma bir şekilde suçlayarak onları korku içinde tuttular, insanlar bu yüzden hiçbir şeye itiraz edemezlerdi. Aksi takdirde, aileleri ve akrabaları ile birlikte baskının kurbanı olacaklardır. Aynı ruh hali Kumuk edebiyatında I. Karimov'un (2006) "Hayalim mi gerçek mi?" eserinde de görüyoruz. Eserin kahramanı Mahmud, caminin duvarındaki listede adını görür. Ona kulak denilirdi, bu da "halk düşmanı" anlamına gelir. Baskıya maruz kalacağını anlıyor. Ömrü boyunca hukuka uygun çalışan Mahmud'un haksızlıklar karşısında acizliğini görüyoruz. Kendini ve ailesini savunamaz. Azerbaycan romanı "Dönelge"de Sadr sürgündeki ailelere üzüyor ve onları savunamıyorsa, Kumuk edebiyatı örneği "Hayalim mi gerçek mi?" eserinde köylüler Mahmud'un Kulak ilan edildiğini ona söylemeye cesaret edemiyorlar. Onun için ne kadar üzümlerse de, ona yardım etmeye güçleri yetmez.



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İki farklı Türk edebiyatlarında (Kumuk ve Azerbaycan) aynı konu ve düşüncenin anlatılması, olayların gerçeklerden kaynaklandığını bir kez daha kanıtlamaktadır.

"Dönelge" eserinde anlatılan Dazbaş, soğukkanlı olduğu kadar ikiyüzlüdür. Daha üst mevkilere getirilmek, rütbesinin yükseltileceği, hüküm, saygı sahibi olacağı düşüncesi onun ne kadar kötü biri olduğunu gösterir. Halkını ve yurttaşlarını düşünen Sadr, yaptığı işten ne kadar hayal kırıklığına uğrar ve kendini ne kadar suçlarsa, Dazbaş o kadar itaatkar, hain ve alçaktır. Sorun şu ki, Sadr kimiler Dazbaş ve Ermeni Postacıların karşısında zayıf ve güçsüzdür, çünkü Ermeni Postacıları Sovyet rejiminin emirlerini yerine getiren yüksek rütbeli yetkililer tarafından himaye edilmektedir. Onlar Sadrları da yok ederler, ezerler ve hedeflerinden vazgeçmezler.

Eser, aynı zamanda 1914 Rus-Türk savaşını ve Paşa'nın Sarıgamiş'i geri verme mücadelesini anlatıyor. Azerbaycanlı Hacı Ruslar tarafından esir alınan Osmanlıların bir kısmını esirlikten kurtarır, onlara kendi çocukları gibi davranır, onları evinde tutup büyütür ve onlara destek olur. Bu görüntüler bir yandan Rusya-Osmanlı arasındaki savaşı canlandırırken, diğer yandan Rusya tarafından silahlandırılan ermenilerin iç yüzünü gözler önüne seriyor. Osmanlı İmparatorluğu'ndaki ermeniler, amaçlarına ulaşmak için Türk askerlerine arkadan saldırmış, memur ve jandarmaları öldürmüş, silahsız halka saldırmışlardır. Yazarın eserde anlattığı Osmanlıda hamile bir kadını baltayla dövmek, gece yarısı evleri ateşe vermek, insanları diri diri yakmak ve küle çevirmek gibi ermeni vandalizminin tipik vahşetlerini Azerbaycan toprakları olan Karabağ ve Hocalı'da da gördük.

"Osmanlı yesirlerine" yardım eden Hacı Şura hükümetinin Azerbaycan'daki yerini zaten güçlendirmesinden, ana düşmanlarını ortadan kaldırarak yavaş yavaş halkın mülküne, dinine ve geleneklerine el koymasından boşuna endişelenmiyor. Hacı, bunların gelecekte daha büyük trajedilere yol açacağını önceden hissediyor. Hacı, ya kırmızıya dönüp Rus ideolojisine hizmet etmesi gerektiğini, ya da bir gece ailesini alıp sınırı geçmesi gerektiğini tesadüfen düşünmedi. Aynı fikri Farman Karimzade'nin (2006) "Karlı aşırım"ında da görüyoruz. Yazar, 1960'larda kaleme aldığı bu eserde Kerbelai İsmail karakteri üzerinden Şura hükümetinin iç yüzünü ortaya çıkarmayı başarır. Eser ilk bakışta yazıldığı dönemin ideolojisinden kaynaklanan bazı Şuravizm unsurlarını taşımasına rağmen, onun iç katmanında Kerbelai İsmail gibi cesur, geri adım atmayan, en zor anında bile düşmanın önünde eğilmeyen, onunla savaşmaktan çekinmeyen tarihi bir karakterin yüzünü görüyoruz. Gece ailesiyle birlikte Araz'ı geçen Kerbelai İsmaili yurdundan kaçırın Şura hükümetinin işgalci eylemleri idi. Herkese eşitlik sözü veren ve yalançı adaletle dolu olan Şura hükümeti, aslında zalim ve gaspçı bir yüz sergiledi.

Tıpkı Kerbelai İsmail ("Karlı aşırım") gibi Hacı'nın ("Dönelge") da malına, sürülerine, sığırlarına, koyunlarına ve arazilerine el konur. Dün kapısında işe alınan Lutkom, düşmanı olur. Hastalanan Hacı'yı tedavi etmeye gelen doktorun hissettiği korku, panik, çaresizlik duyguları tesadüfi değildir. Ailenin dostu olan Doktor anlıyor ki, "xalq düşmanı" Hacı'nı tedavi etmesi onun da suçlanmasına neden olacak. Hacı'nın kapısına gelip onu tedavi etmenin Lutgom'a iletileceğini, hükümete karşı çıkanların başına neler geleceğini biliyor. Eserde Hacı'nın "Lutgom"un yüzüne direnişi nedeniyle "Menşevik" denilerek öldürülmesi dönemin keskin gerçekleri olarak okunur. Hacı tarafından korunan "Osmanlı esirlerinin küçüğü" de aynı akıbete uğradı. Sadr yürek ağrısıyla, trene bindirdiği aileleri ona emanet eder. Çünkü o, dünyanın bütün zorluklarını görmüş bir adamdır.

### Sonuç ve değerlendirme

Çağdaş Azerbaycan romanları üzerine yapılan araştırmalar modern yazarların tarihi gerçekleri esas aldıklarını, represiya döneminin gerçekleri ile ilgili araştırmaları roman konusu haline getirdiklerini, sanatsal hayal gücü ile tarihsel ve siyasi bilgilerini birlikte sergilediklerini göstermektedir.

Sanatsal yaratıcılığın ürünü olan romanlarda 1920 yılında Azerbaycan'ı işgal eden Rusya'nın birçok eski Sovyet ülkelerinde olduğu gibi burada da baskıya başladığını görüyoruz. O yıllarda Azerbaycan'ın birçok toprakları Rusya tarafından ermenilere verilmiş, Taşnak Partisi ve Rus İmparatorluğu'nun ortak faaliyetleri sayesinde milyonlarca insan yurdundan edilmiş, birçok aydın Sovyet rejiminin (aynı zamanda ermeni politikasının) kurbanı olmuştur, pantürkist, panislamcı, karşı-devrimci adına kurşuna dizilmiş, sürgüne gönderilmiş, işkenceye maruz bırakılmışlardır.

Hem Azerbaycan edebiyatında hem de geçmiş Sovyet xalqları edebiyatında represiya konusunda yazılan eserlerde aynı atmosfer, aynı ceza faktörü, aynı baskı ve saçma suçlamalar göze çarpmaktadır. İki farklı



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Türk edebiyatlarında (Kumuk ve Azerbaycan) represiya konusunda yazılan eserlerde benzer hadiselerin, aynı düşüncenin anlatılması, olayların gerçeklerden kaynaklandığını bir kez daha kanıtlamaktadır.

Romanlarda, represiyanın gerçek doğası, nedenleri, bu baskıyı gerçekleştirenlerin ulusal kimliği, amaçları ve çıkarları anlatılır. Gösterilir ki, halkın içine işlenen düşmanlar, Sovyet eğitimi alıp Sovyet rejimine hizmet edenler, milli kimliği bilinmeyenler, rejimin göreve getirdiği kişiler binlerce, milyonlarca insanın trajedisine neden olmaktadır. Halk düşmanları iyi tanımalarına ve gerçek amaçlarını anlamalarına rağmen, onlara karşı direnme ve savaşıma konusunda güçsüzdür. Kendilerini destekleyen Sovyet rejimi, insanları korkuya sürükleyen koşulları yarattığı için, protesto ederlerse ailelerinin, yakınlarının, akrabalarının tehdit edilip sürgüne gönderileceğini ve ya öldürüleceğini biliyorlar.

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### CENTRAL VEIN CATHETERIZATION, INDICATIONS FOR IT, METHODS AND COMPLICATIONS

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#### **Abstract**

Safe and reliable venous access is a must in today's healthcare, however, central venous catheters also have significant complications and complications. In our study, central veins were catheterized in 1250 patients. 56.96% of patients with Covid-19 and 43.04% of victims after gunshot wounds. Internal screw catheterization was performed in 18% of patients, femoral catheterization-in 3.04%, subclavian artery catheterization-in 78.96%. Of these, only Covid-19 patients had complications. Thus, 32.57% of patients had thrombosis of the veins of the lower extremities during catheterization of the femoral vein, 2.67% had pneumothorax during catheterization of the internal screw vein. Arterial puncture was performed in 0.81% of patients who underwent catheterization of the subclavian vein. Thus, subclavian venous catheterization is considered more convenient than jugular venous catheterization for long-term parenteral nutrition. So, cases of inflection, twisting and thrombosis are more common when catheters



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are installed in the jugular veins, which causes discomfort to the patient. According to the results of the studies, there should be sufficient operator experience when installing central venous catheters, central venous catheters are more suitable for subclavian catheters with ultrasound, and for more severe and chronic patients, the introduction of subcutaneous ports is considered more appropriate.

**Key words:** Central venous pressure, central venous catheterization, femoral catheterization, hemothorax

### Introduction

Central venous catheters (CVC) are an important tool in the operating room and intensive care unit. Since the first discovery of CVC in 1952, it has been used for the rapid administration of drugs, chemotherapy, nutritional support, blood components, patient monitoring, or a combination of these [4]. Safe and reliable venous access is a must in modern healthcare, but CVC also have significant complications and worsened [13]. The procedure, indications, administration, registration and application of CVC were first implemented by members of the working group of the Swedish Society for Anesthesiology and Intensive Care [1]. The CVC installation for access and monitoring is one of the most frequently performed procedures in the intensive care unit [2].

### Purpose

Our goal in this article is to review the indications, methods, advantages, disadvantages, and complications of various approaches to installing CVC and share our findings.

Central venous catheters (CVCs) are tunneled and non-tunneled. Non-tunneled venous catheters are fixed at the point of entry into the skin, the catheter penetrates directly into the skin and vessel wall. Quinton's catheter is a common type of non-tunnelable CVC [5]. Tunneled catheters pass through a tunnel under the skin from where they enter the skin to a distant site where they enter a vein. As a rule, the exit site of the catheter through the skin is in the chest area, which makes the location of the catheter and its lines more inconspicuous than in the neck. Passing the catheter into the skin canal reduces the risk of infection and provides stronger fixation. The most commonly used tunneled catheters are Hickman, Groshong and Biometrix catheters [23]. There are absolute and relative indications for CVC.

1. **Imperative indications:** the need to ensure constant and reliable vascular access, regardless of body position; the impossibility of catheterization of peripheral veins due to hypovolemia, edema, burns, vascular damage, the absence of a visible peripheral venous network; monitoring of central venous pressure (CVP) in patients with acute illness to control fluid balance.
2. **Relative indications:** Long-term intravenous administration of drugs (antibiotics, parenteral nutrition medium); treatment of prolonged pain syndrome; chemotherapy; the introduction of drugs that can cause phlebitis when injected into peripheral vessels (amino acids, KCl, CaCl<sub>2</sub>, amiodarone, vasopressors); plasmapheresis; collection of stem cells from peripheral blood; dialysis.

CVC is usually used for long-term intravenous access, especially when parenteral nutrition (PN) is required in chronically ill patients. Due to the low risk of infection with these types of catheters in these patients, the use of tunneled catheters, peripherally inserted central venous catheters (PICV), or ports should be considered [21]. CVC are one-, two-, three-lumen-distal, proximal and medial. In hospitalized patients, transfer of PN is possible according to the established protocol through tunnelless CVC or PICV, depending on the osmolarity and composition of the solution, if it is short-term. According to Saugel B, PICV is usually required for PN [32]. Researchers believe that long-term venous access devices: tunneled catheters and fully implantable ports should be used if PN and chemotherapy are planned for a long or indefinite period in cancer patients [28, 33]. Patrick S.P. et al reviewed records of 502 consecutive long-term central venous catheterizations placed in patients in the operating room over 1 year and analyzed 230 subclavian venous catheters. There were technical difficulties with the installation of catheters. Thus, it was found that there are certain difficulties, such as puncture of the artery, incorrect installation of the mandrel, catheter, the need to change the access site, the impossibility of installing the catheter [27].



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### Central Venous Port Catheterization Technique

A central venous port catheter (CVPC) is implanted completely under the skin. Medicines are injected into the catheter through the pierced skin. Some CVPC have a reservoir that can be filled percutaneously. After filling the reservoir, the drug is slowly released into the bloodstream. CVPC is less visible than a tunneled catheter and requires significantly less maintenance. Its presence has less impact on the patient's daily activities compared to peripherally inserted and tunneled catheters. A surgically implanted CVPC is placed in the subclavian region and then delivered via a vein to the right atrium [20]. During CVC, the weight, height, length, and diameter of the patient's catheters must be fully analyzed. The skin is treated with an antiseptic, the location of the vein is determined by anatomical landmarks or using ultrasound [22]. In many cases, the catheter is inserted into the central veins using the Seldinger method [34]. Placement of these catheters requires technical skill and practice. A hollow needle is inserted through the skin until some of the blood is aspirated. The color of the blood and the intensity of the blood flow help to distinguish venous from arterial blood. A mandrel is passed through the needle, after which the needle is removed. In addition, a dilator is inserted along the conduit to slightly expand the channel for inserting a soft catheter. At the final stage, the CVC itself is inserted through the conductor and the mandrel is removed. The entire lumen of the catheter is aspirated, after which the catheter is washed and fixed to the skin [7].

However, a number of scientists do not consider blind central venous catheterization to be the standard. The placement of central catheters under ultrasound guidance is considered the gold standard for venous access [24]. In their study, Martin Jonczyk et al state that the right jugular vein is a convenient and safe vein for any CVC or port placement [20]. Hessel EA. and Ishizuka M consider catheterization of the right internal saphenous vein to be safer in critically ill patients [15,16]. Many researchers recommend ultrasound-guided subclavian, screw, and femoral venipuncture for infusion into any central vein [3, 6, 24, 26]. A group of scientists does not support catheterization of the femoral veins due to thrombotic complications [8, 36]. Rezayat T et al proved in their study that the success rate is increased and mechanical complications can be avoided when inserting an internal screw or catheter into the subclavian vein accompanied by an ultrasound transducer [29]. Saugel B recommends the adoption and implementation of the use of ultrasound as the standard protocol for CVC placement to improve patient safety [32]

### Long-term CVC and its complications

CVC can be used to control central venous pressure, parenteral nutrition, chemotherapy, and save the patient's life [18], but leads to complications in 15% of cases. Operator experience, familiarity with the advantages and disadvantages of different catheterization sites, and careful attention during insertion help to reduce the mechanical complications associated with catheterization. A study by Robert W Taylor et al. showed that strict aseptic technique and CVC care reduce the incidence of catheter-associated infections [30]. When using CVC from traditional main vessels: subclavian, jugular and femoral vessels, the frequency of complications varies up to 15% and mainly mechanical dysfunctions, infections and thromboses occur [19]. Girbes A.R. according to the authors, PIVC is considered an alternative option, especially in children [14]. According to Flora Habas et al., subclavian venous catheters are aesthetic, painless, and comfortable for infants [12]. Felipe Kenzo Yadoya Santos et al showed that, compared with CVC, children with PVC had catheter-associated phlebitis, deep vein thrombosis, hematomas, venous thromboembolism, and repeated interventions due to catheter dysfunction [10, 36]. Bueno T.M. in his studies in newborns with severe course, the catheter was installed mainly in the superior vena cava (SVC) in 65.5% of patients, in the subclavian vein in 34.5% of patients. The average duration of catheterization was 13.5+/-9.6 and 8.9+/-5.8 days, respectively. 45.9% of patients complete referral to CVC; 21.3% cause phlebitis/edema; Suspicion of infection in 3.2%; Rupture of the proximal end from 3.2%; In 4.9%, the catheter was removed due to pleural leakage of the infusion fluid and breakage of the catheter bottom. In 21.3% of patients, the catheter accidentally left the vein during removal [7]. The use of CVC is associated with both mechanical and infectious complications. Saltsman M.B. and Rubin L.G. studied important causes of morbidity and mortality in patients hospitalized with infection associated with vascular catheters, and the average incidence of bloodstream infections was 2.4 episodes per 1000 days. Fully implantable central venous catheters had a lower risk of infection [31]. With a duration of CVC of more than 30 days, microorganisms that cause





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catheter-associated bloodstream infections mainly enter the bloodstream either from the site of the catheter insertion or from the center of the catheter. Infection of peripheral and central venous catheters usually resolves after removal of the catheter [25]. In their study, Pu YL et al confirmed the safety and tolerability of insertion of a fully implantable venous port through the percutaneous subclavian vein with high technical success and low complication rates [28]. Yusuf Velioglu found that early complications such as arterial puncture, catheter malfunction, superficial hematoma and pneumothorax, infection, catheter blockage, venous thrombosis, wound problems, catheter migration and embolization, and pinch-off syndrome developed in 143 patients during the placement of venous ports. The researcher proved that, in contrast to subcutaneous venous ports, it is possible to timely detect complications arising from the presence of visible catheters on the skin surface and prevent possible complications [37]. A number of researchers support the installation of a fully implantable central venous port system (CVPS) in cancer patients undergoing long-term chemotherapy. Thus, Dong Hyun Kim et al. retrospectively examined 827 patients who underwent CVPS. It has been found that although CVPS implantation is a 100% successful and easy-to-apply procedure, 34% of patients experienced a number of complications such as obstruction, thrombosis, erosion, and infection [9]. During the years 2019-2021, in the Republic of Azerbaijan where we live, central veins were catheterized by the staff of the Anesthesiology-resuscitation department of the Scientific Surgery Center named after Academician M. Topchubashov, where 1250 people were injured after firearm injuries during the Second Karabakh war and patients suffering from the Covid-19 virus. 712 (56.96%) patients with Covid-19 and 538 (43.04%) injured. In 225 (18%) patients, internal catheterization was performed, in 38 (3.04%) - femoral, in 987 (78.96%) - subclavian vein. Of these, only 4.49% of Covid-19 patients had complications. Thus, out of 38 catheterizations of the femoral veins, 12 (31.57%) patients had thrombosis of the lower peripheral veins, and out of 225 catheterizations of the internal screw veins, 6 patients (2.67%) had pneumothorax. Of 987 patients with subclavian vein catheterization, 8 (0.81%) had an arterial puncture.

Floor L. F. van Baarle and Mitsuru Ishizuka consider it more appropriate to place CVC in the subclavian vein and ports with ultrasound examination, given the risk of bleeding due to coagulopathy in critically ill patients with thrombocytopenia [11, 35].

### Conclusion

Thus, with long-term parenteral nutrition, catheterization of the subclavian veins is considered more convenient than the jugular veins. Thus, cases of kinking, twisting and thrombosis are more common when catheters are installed in the jugular veins, which causes discomfort to the patient. Studies have shown that when inserting central venous catheters, the operator should have sufficient experience, and more subclavian veins should be catheterized using ultrasound. For more severe and chronic patients, placement of subcutaneous ports is considered more appropriate.

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### ÖZEL OKULLARIN PERSPEKTİFİNDEN FEN BİLGİSİ ÖĞRETMENLİĞİ LİSANS PROGRAMI

UNDERGRADUATE SCIENCE EDUCATION PROGRAM FROM THE PERSPECTIVE OF  
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#### Özet

Türkiye'nin temel işsizlik sorunlarından biri olan öğretmen işsizliğinin azaltılmasında öğretmen kalitesinin artırılması önemli bir etkiye sahiptir. Özel okullar, fen bilimleri öğretmenliği mezunlarının kendi alanlarında iş aradıkları kurumların başında gelmektedir. Bu çalışmanın amacı, özel okulların fen bilgisi öğretmenliği lisans eğitimini, öğretmen adaylarına sağladığı kazanımlar açısından, nasıl değerlendirdiğini ortaya koymaktır. Bu çalışma nitel araştırma yöntemi kapsamında fenomenolojik bir araştırma olarak gerçekleştirilmiştir. Araştırmanın örneklemini amaçlı örnekleme yöntemiyle seçilen 10 özel okul yöneticisi oluşturmaktadır. Araştırmanın verileri içerik analizi ile çözümlenmiş ve bulgular bölümünde tablolar halinde sunulmuştur. Araştırma sonucunda özel okul yöneticilerinin fen eğitimi alanındaki lisans programının öğretmen adaylarına teorik bilgileri uygulama, mesleki yeterlilik kazanma ve mesleki deneyim kazandırma açısından eksik olduğunu düşündükleri görülmüştür. Yöneticilere göre programdan mezun olan fen bilimleri öğretmenlerinin özel okullarda çalışacak yeterli mesleki bilgi, beceri ve yetkinliklere sahip olmadığı görülmektedir. Ayrıca özel okul yöneticileri fen bilgisi öğretmenliği lisans programlarında çok fazla öğrenci olduğunu düşünmektedirler. Bu durum fen öğretiminde lisans eğitiminin kalitesini olumsuz yönde etkilemektedir. Bu bağlamda yöneticiler programa öğrenci alırken seçici olunması gerektiğini vurgulamışlardır. Ayrıca özellikle uygulama derslerinin etkinliğini azaltmayacak şekilde sınıf mevcudunun optimal düzeyde tutulması gerektiğini düşünmektedirler.

**Anahtar Kelimeler:** Fen bilimleri öğretmeni lisans programı, Özel okullarda istihdam, Fen eğitimi

#### Abstract

Increasing the quality of teachers has an important impact on reducing teacher unemployment, which is one of the main unemployment problems of Turkey. Private schools are the leading private institutions where teachers with science degrees are looking for a job in their field. The aim of this study is to reveal how private schools evaluate science teaching undergraduate education in terms of the gains it provides to teacher candidates. This study was carried out as a phenomenological research within the scope of qualitative research method. The sample of the research consists of 10 private school administrators selected by purposive sampling method. The data of the research were analyzed by content analysis and presented in tables in the findings section. As a result of the research, it was seen that private school administrators thought that the undergraduate program in the field of science education was lacking in terms of applying theoretical knowledge to teacher candidates, gaining professional competence and professional experience. According to the administrators, it is seen that the science teachers who graduated from the program do not have enough professional knowledge, skills and competencies to work in private schools. In addition, private school administrators think that there are too many students in science teaching undergraduate programs. This situation negatively affects the quality of



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undergraduate education in science teaching. In this context, the administrators emphasized that it is necessary to be selective while recruiting students to the program. In addition, they think that classroom availability should be kept at an optimal level, especially in a way that does not reduce the effectiveness of application courses.

**Keywords:** Undergraduate education; Science teacher; Employment in private schools, Science teaching

### GİRİŞ

Türkiye’ de öğretmen yetiştirme, 1848 yılında öğretmen yetiştiren kurumların atası olarak nitelendirilebilecek Darümuallimîn’in açılmasıyla birlikte, eğitim sisteminin en öncelikli konuları arasında ele alınmıştır (Akyüz, 2006). Özellikle Cumhuriyet döneminden itibaren eğitimi yaygınlaştırma politikası ile köy öğretmen okulları ve köy enstitüleri ile öğretmen yetiştirmek amaçlanmıştır. 1982 yılında gerçekleştirilen üniversite reformu öncesine kadar öğretmen yetiştiren kurumları ilköğretmen okulları, iki yıllık eğitim enstitüleri, köy öğretmen kursları, köy enstitüleri olarak saymak mümkündür. Dönemin mevcut koşulları ve değişen ihtiyaçlar doğrultusunda öğretmen yetiştirme için farklı dönemlerde farklı kaynaklardan öğretmen eğitimi ihtiyacı giderilmeye çalışılmıştır (YÖK, 1998; 2007). 1997-1998 yıllarında eğitim fakültelerinde gerçekleştirilen yapılanma ile birlikte ortaokula öğretmen yetiştirme konusu yeniden aktif hale gelmiş ve ortaokul düzeyinde fen bilgisi derslerini yürütecek öğretmenler, ilköğretim bölümü altında Fen Bilgisi öğretmenliği programında yetiştirilmeye başlamıştır. Bu tarihten itibaren eğitim fakültelerinde okutulacak derslerin programı Yükseköğretim Kurulu (YÖK) tarafından belirlenerek üniversitelere gönderilmiştir. Bölüm dersleri “Alan ve alan eğitimi dersleri”, “Öğretmenlik meslek bilgisi dersleri” ve “Genel kültür dersleri” olarak üç bölümden oluşmaktadır. 4 yıl süren lisans eğitimi sonunda bu bölümü başarı ile bitirenler Fen Bilimleri öğretmeni olarak mezun olmaktadır (YÖK, 2007).

1982 yılından itibaren YÖK çatısı altındaki üniversitelerdeki öğretmen yetiştirme sisteminde, eğitim fakültesi sayısının artması ile birlikte Fen Bilimleri öğretmenliği program sayısı da artmıştır (Arslan, 2000). 2021 yılı itibariyle ülkemizde devlet üniversiteleri bünyesinde bu alandaki program sayısı 65’e ulaşmıştır (YÖK, 2021). Programdan mezun olan Fen Bilimleri öğretmenlerinin sayısı da her geçen gün artmış, bu ise öğretmen istihdam sorunlarını beraberinde getirmiştir. Artan eğitim fakültesi sayısı ile atanmak için başvuru yapan Fen Bilimleri öğretmen sayısının MEB’in ihtiyacının ve tahsis edilen kadronun çok üzerinde olması, bu alanda arz talep dengesinin bozulmasına ve MEB’ in belirlediği ihtiyaçtan daha fazla sayıda atama bekleyen Fen Bilimleri öğretmen adayının varlığına sebep olmuştur. Bu durumun somut örneklerinden biri şu şekildedir; 2021 yılında atanmak isteyen 17941 Fen Bilimleri öğretmenin KPS S Öğretmenlik Alan Bilgisi Sınavına (ÖABT) girmiş olmasına karşın (ÖSYM, 2021), ataması yapılan Fen Bilimleri öğretmen sayısı 1698’dir (URL-1).

Atanamayan Fen Bilimleri öğretmen adaylarının bir kısmı KPS S’ ye yeniden hazırlanırken, bir kısmı da gelir elde edebilmek için özel okul, etüt merkezi, özel ders bürolarında ya da yine özel kurumlarda alanları dışında istihdam olanakları aramaktadır. Fen Bilgisi öğretmenlerinin kendi alanlarında istihdam edilebilmek amacıyla başvurdukları özel okullar, eğitimin her kademesinde faaliyet yürütebilen, bina ve personel giderleri devlet tarafından karşılanmayan ve sahipleri gerçek veya tüzel kişiler olabilen eğitim kurumları olarak tanımlanmaktadır. Giderlerini öğrenci ücretleri ve bağışlardan karşılayan özel okulların devlet okullarından eğitim süresi, içeriği, çalışma şartları, çalışma süreleri ve sosyal aktiviteler gibi başlıklarda farklı pek çok yönü bulunmaktadır (Özdemir & Tüysüz, 2017). Günümüzde veliler çocuklarını benzer gerekçelerle özel okullara belli bir ücret ödeyerek göndermeyi tercih etmektedirler. Bu tercihin en önemli nedenlerinin başında özel okulların devlet okullarına göre eğitim, beceri geliştirme ve sosyalleşme bakımından daha iyi görünmeleridir. Ayrıca yapılan sınav sonuçları analiz edildiğinde özel okulların devlet okullarına göre daha başarılı olduğu görülmektedir (SETA, 2009).

Ülkemizde eğitime verilen önem arttıkça, gerek eğitimin kalitesini arttırmak gerekse de eğitimden kazanç elde etmek adına devletin de desteği ile özel okulların sayısı da artmıştır. Öyle ki 2020-2021 eğitim öğretim yılında ülkemizdeki özel okul sayısı 13501’e ulaşmış ve bu okullarda toplam 174750 öğretmen istihdam edilmiştir (URL-2). Bu sayı ülkemizde yıllardır var olan ve kırılmaya çalışılan öğretmen işsizliğinin azaltılmasında, öğretmen istihdamının gerçekleşmesinde önemli bir paya sahiptir.



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Araştırmaya konu olan Fen Bilimleri öğretmenleri de özel okulların, 2021 yılı itibariyle sayıları 4392'ye ulaşmış olan (URL-2) ilköğretim kademelerinde istihdam edilmektedir. Fen Bilimleri öğretmenleri için özel okullar, mesleklerini icra edebilmek ve istihdam olanağı bulabilmek amacıyla başvurdukları kurumlar olarak karşımıza çıkmaktadır. Özel okullara iş başvurusunda bulunan Fen Bilimleri öğretmenlerin başvuruları öğretmenlerin CV, mülakat ve yaptıkları örnek ders anlatımı üzerinden değerlendirilmektedir. Bu süreçte öğretmenler birtakım beceri ve yeterlikler açısından ölçülmektedir. Özel okulların bekledikleri öğretmenlik mesleği beceri ve yeterliklerin birçoğu Fen Bilimleri öğretmenlerine lisans eğitimi sürecinde kazandırılmaya çalışılmaktadır. Bu bağlamda lisans eğitiminin Fen Bilimleri öğretmenlerine sağladığı kazanımlar, onların özel okullarda çalışabilmesi noktasında önem arz etmektedir. Peki özel okulların öğretmen istihdamından sorumlu yöneticileri, Fen Bilimleri öğretmenliği lisans programını nasıl değerlendirmektedir? Fen Bilimleri öğretmenliği lisans programında mezun öğretmenler, özel okullarda çalışmak için yeterli donanıma sahip midir? Soruları araştırmacıların merak ettikleri sorular arasında olmuş ve bu alanda çalışma yapılma gereği duyulmuştur. Özel okul yöneticilerinin Fen Bilimleri öğretmenliği lisans programını değerlendirmeleri üzerine kurgulanan araştırmanın problem cümlesi:

- *Fen Bilimleri öğretmen adaylarının almış oldukları lisans eğitimini özel okullarda çalışabilme yeterliliği açısından nasıl değerlendiriyorsunuz?*

olarak belirlenmiştir.

Alanyazında Fen Bilimleri öğretmenliği lisans programının çeşitli değişkenler açısından değerlendirildiği birçok çalışma bulunmaktadır (Arduç, Taşkın & Mutlu, 2020; Can Aran & Derman, 2020; Dağtekin & Zorluoğlu, 2019; Yılmaz & Sayhan, 2018; Çetin, 2018; Özyurt, Bahar & Nartgün, 2017; Ergun & Avcı, 2012; Bayrak & Erden, 2007; Meriç & Tezcan, 2005 ). Fakat Fen Bilimleri öğretmenliği lisans programının, özel okulların istihdam edecekleri Fen Bilimleri öğretmenlerinden bekledikleri yeterlikleri Fen Bilimleri öğretmen adaylarına kazandırma durumu açısından değerlendirildiği bir çalışmaya rastlanmamıştır. Oysaki özel okulları beklentileri ile lisans eğitim çıktılarının eşleşmesi, öğretmen adaylarının bu kurumlarda istihdam edilmeleri açısından oldukça önemlidir. Bu bağlamda çalışma ile ulaşılabilecek sonuçların Fen Bilimleri öğretmenliği lisans programcılarına, öğretmen işsizliğinin azaltılması ve öğretmen istihdamının desteklenmesi açısından, rehber olması beklenmektedir.

### YÖNTEM

Fen Bilimleri öğretmenliği lisans eğitiminden mezun olan öğretmenlerin özel okullarda istihdam edilebilmelerinin, özel okullarda istihdam sürecinden sorumlu yöneticilerin görüşlerine dayanarak değerlendirilmesini amaçlayan bu araştırma, nitel araştırma kapsamında olgubilim (fenomenolojik) deseninde yürütülmüştür. Olgubilim araştırmaları bir olgunun daha iyi tanınmasına ve anlaşılmasına yardımcı olabilecek örnekler, açıklamalar ve yaşantılar ortaya koymayı amaçlayan nitel araştırmalardır. Olgubilim araştırmalarında veri kaynakları araştırmanın odaklandığı olguyu yaşayan ve bu olguyu dışı vurabilecek birey veya gruplardır (Yıldırım ve Şimşek, 2005). Bu çalışmadaki olgu, Fen Bilimleri öğretmenliği lisans programının Fen Bilimleri öğretmenlerine, özel okullarda çalışabilmelerine ilişkin sağladığı kazanımlara yönelik algı ve anlamlandırmalardır.

### Çalışma Grubu

Araştırmanın çalışma grubu, amaçlı örnekleme yöntemlerinden tipik durum örnekleme ile belirlenmiştir. Bu örnekleme yöntemi derin bir incelemeye tabi tutulabilecek sınırlı sayıda ancak bilgi bakımından da aynı ölçüde zengin örnekleme çalışmasını öngörür (Akkaş Baysal, Ocak & Ocak, 2020). Bu yolla seçilen ve özel okulların Fen Bilimleri öğretmeni istihdamından sorumlu 10 yönetici ile görüşme gerçekleştirilmiştir. Çalışmada veri zenginliğini sağlamak amacıyla 3 yerel özel okul yöneticisi ve 7 ulusal faaliyet gösteren özel okul yöneticisi ile görüşülmüştür. Katılımcılara ilişkin veriler Tablo 1'de sunulmuştur.



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**Tablo 1.** Katılımcılara İlişkin Demografik Veriler

Katılımcı	Katılımcı Kodu	Cinsiyet	Mesleki Deneyimi	Okulun Faaliyet Alanı
Yönetici 1	Y1	E	9	Ulusal
Yönetici 2	Y2	E	2	Ulusal
Yönetici 3	Y3	E	5	Ulusal
Yönetici 4	Y4	E	10	Ulusal
Yönetici 5	Y5	E	5	Yerel
Yönetici 6	Y6	E	4	Ulusal
Yönetici 7	Y7	E	4	Yerel
Yönetici 8	Y8	E	4	Yerel
Yönetici 9	Y9	E	20	Ulusal
Yönetici 10	Y10	E	9	Ulusal

### Verilerin Toplanması

Çalışmanın verileri araştırmacılar tarafından hazırlanan “Yarı Yapılandırılmış Görüşme Formu” ile toplanmıştır. Yarı yapılandırılmış görüşmeler belli düzeyde sahip olduğu standartlığı ve esnekliği nedeniyle, testler ve anketlerdeki sınırlılığı ortadan kaldırarak, belirli bir konuda derinlemesine bilgi edinmeye yardımcı olması (Yıldırım & Şimşek, 2003) nedeniyle araştırmacılar tarafından tercih edilmiştir. Yarı yapılandırılmış görüşmeler çalışmaya gönüllü olarak katılan ve çalışmanın amacına uygun bilgi ve deneyime sahip 10 özel okul yöneticisi ile gerçekleştirilmiştir. Randevu alınarak saati belirlenen görüşmeler online (çevrimiçi) ortamda Zoom uygulaması üzerinden gerçekleştirilmiştir. Görüşmeler kayıt altına alınmış ve katılımcılara dinletilerek teyit ettirilmiştir.

### Veri Analizi

Öncelikle tüm görüşmeler yazılı hale getirilmiş ve görüşmeye katılan yöneticilerin isimleri gizli tutulmuştur. Çalışmaya katılan yöneticiler Y1,Y2,...,Y10 şeklinde kodlanmış ve örnek olabilecek ifadeler “tırnak” içinde sunulmuştur. Elde edilen veriler içerik analizi ile analiz edilmiştir. İçerik analizi yapılırken veriler anlamlı bir şekilde düzenlenir ve verileri en iyi şekilde açıklayacak ilişkiler doğrultusunda kategoriler oluşturulur (Yıldırım & Şimşek,2005). İçerik analizi sonucu ulaşılan veriler bulgular kısmında tablo halinde sunulmuştur.

### BULGULAR

Yöneticilerin “Fen Bilimleri öğretmen adaylarının almış oldukları lisans eğitimini özel okullarda çalışabilme yeterliliği açısından nasıl değerlendiriyorsunuz?” ana sorusu ve bu soruyu destekleyen sonda sorulara yönelik verdikleri cevaplara ilişkin analizler sonucu oluşturulan kategori ve kodlar tablo 2’de sunulmuştur.

**Tablo 2.** Özel Okul Yöneticilerinin Fen Bilimleri Öğretmenliği Lisans Eğitimine İlişkin Görüşler

KATEGORİ	KOD	FREKANS	KATILIMCILAR
Lisans eğitimi	Teorik bilgileri uygulama becerisi yetersiz	10	Y1,Y2,Y3, Y4,Y5, 6,Y7,Y8,Y9,Y10
	Stajın mesleki yeterliliğe etkisi yok	7	Y2,Y4,Y6,Y7,Y8,Y9,Y10
	Özel okullarda da staj olmalı	7	Y2, Y4,Y6,Y7,Y8,Y9,Y10
	Lisans ders içerikleri yetersiz	5	Y1,Y3,Y6,Y8,Y10
	Meslek bilgisi eksik	4	Y3,Y6,Y9,Y10
	Akademisyen sayısı yetersiz	3	Y2,Y4,Y8
	Lisansüstü eğitim alınmalı	1	Y2
	Sınıf mevcudu kalabalık	1	Y4



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Tablo 2 incelendiğinde katılımcıların tamamının Fen Bilimleri öğretmenliği lisans eğitiminde öğrenilen teorik bilgilerin uygulama becerisine dönüştürülmesinde eksik kaldığı yönünde ortak görüş bildirdikleri görülmektedir. Bu düşüncesini Y1: “Sadece kitaplar üzerinden eğitimlerini tamamlıyoruz, sonra insanlar sahaya geldiğinde o formasyonun ne anlama geldiğini, nelerle karşılaşabileceğini hangi sorunlara karşı ne çözümler üretebileceğini, hep sahada öğreniyor. İşler biraz da deneme yanılma yöntemi ile oluyor dolayısıyla, bu durum kimisini öğretmenlikten soğutuyor, çok sevdiği işi yapmamaya itebiliyor. Belki o eğitimler sahada hakkıyla yapılırsa, belki o stajlar sadece formalite değil de gerçek anlamda öğretmenlik becerisi anlamında yapılabilirse olur.” şeklinde ifade etmiştir. Katılımcıların tamamına yakını öğretmenlik uygulaması dersi kapsamında yapılan staj uygulamalarının Fen Bilimleri öğretmen adaylarına mesleki yeterlilik kazandırmada etkisiz kaldığını ifade etmişlerdir. Bu düşüncesini belirtirken Y7: “Staja giden öğretmen adaylarının arka sıralarda oturarak dersi dinlediklerini, uygulamalı olarak ders anlatmadıklarını düşünüyorum. Buna bizzat şahit oldum, böyle bir staj uygulaması kimseye öğretmenlik deneyimi kazandırmaz.” ifadelerini kullanmıştır. Lisans eğitimi sürecinde özel okullarda staj yapılması yine katılımcıların çoğu tarafından olması gerektiği düşünülen bir uygulamadır. Bu beklentisini Y10: “Mesela bir öğretmen adayı lisansta okurken kalkıp masraf yapıp staja gidiyor. Oysa ben dedim ki ben servis aracını gönderirim kapıdan öğretmeni alayım, okuluma getireyim, yeme içmesi bizden. Özel okulların devlet okullarına göre programı uygulama şekilleri imkanları çok daha farklı. Yani bizim özel okullarımıza görmeli çocuklar. Bizi tanımalı, biz onu tanımalıyız. Belki beraber çalışacağız. Bu nedenle kesinlikle bu staj programlarına özel okullarda dahil edilmeli. Şu anda hiçbir eğitim fakültesi özel okullara stajyer öğrenci göndermiyor.” ifadelerini kullanarak açıklamıştır. Tablo 10’da katılımcıların yarısının alana ilişkin lisans ders içeriklerini yetersiz buldukları görülmektedir. Bu düşüncesini Y3: “Fen Bilimleri dersi doğa ile ilgili, teknoloji ile ilgili, uzay ile de ilgili. Dolayısıyla öğretmenler bu alanlarda da yetkin olarak yetiştirilmeli. Mesela STEM, Astronomi, gibi dersler eklenmeli.” şeklinde ifade etmiştir. Fen Bilimleri öğretmenliği lisans eğitimi sürecinde öğretmen adaylarının alan ve alan eğitimi bilgilerinin eksik kaldığı da katılımcı görüşleri arasındadır. Bu görüşünü Y10: “Kesinlikle alanda yeterliğine kanaat getirdiğimiz kişileri atamalıyız, baktık eksiği varsa, eğitim akademileri oluşturulmalı, o eksik gördüğümüz alanlarda özellikle mesleki bilgi anlamında o öğretmene eğitim verilmeli. Ama gerçek bir denetim yapılmalı, görülen eksiklikler tam olarak giderilmeden asla atama yapılmamalı.” şeklinde ifade etmiştir. Katılımcılardan üçü eğitim fakültelerinde akademisyen yetersizliğine dikkat çekmiştir. Bu düşüncesini Y2: “Akademik kadro yetersizliği de var bence. Bakıyorsunuz bir bölümde bir profesöre rastlamak nerdeyse imkansız. Çoğunlukla araştırma görevlisi ya da öğretim görevlisi kişiler var. Bu arkadaşlarında derdi biran önce doktoranı bitireyim ve kadromu alayım oluyor. Bu kişilerin lisanstaki öğrencilere pek bir şey kattıklarını düşünmüyorum.” katılımcılardan Y2 Fen Bilimleri öğretmenliğinin devamında öğretmen adaylarının lisansüstü eğitime devam etmeleri yönünde görüş bildirmiş ve bu düşüncesini “Lisansüstü eğitimini alan ya da devam eden öğretmenlerimizin, Tübitak projesi hazırlaması, derste farklı yöntemler uygulaması ile kurumumuzda ön plana çıktıklarını görüyoruz. CV’lerinde lisansüstü eğitim durumu varsa da bunları tercih ediyoruz.” şeklinde ifade etmiştir. Y4 te alanda eğitim gören öğrenci sayısına dikkat çekmiş ve “Şöyle söyleyeyim, ben öğretmen okulu mezunuyum. Öğretmen okulunda 4 öğrenciye bir laboratuvar malzemesi düşerdi. Yani şu anda eğitim fakültelerinin hoca bakımından, laboratuvar bakımından yeterli donanıma sahip değil. Sınıflarda olması gerekenden daha fazla sayıda öğrenci var, eğitimin kalitesi düşüyor. Bu nedenle herkesin eğitim fakültesine alınmaması gerektiğini düşünüyorum.” ifadelerini kullanmıştır.

### TARTIŞMA ve SONUÇ

Özel okul yöneticilerinden Fen Bilimleri Öğretmenliği Lisans Programını değerlendirmeleri istendiğinde katılımcıların tamamının programdan mezun olan öğretmenlerin sahip oldukları teorik bilgileri uygulama noktasında yetersiz kaldıkları düşüncesinde oldukları görülmüştür. Buna bağlamda bu süreçte yapılan mesleki uygulamaları yetersiz bulunmaktadır. Yöneticiler lisans eğitiminde öğretmenlik uygulamaları dersi kapsamında yapılan mesleki uygulamaları hem süre hem de mesleki beceri kazandırma açısından yetersiz bulmaktadırlar. Buna bağlı olarak mesleki staj olarak görülen bu sürecin Fen Bilimleri öğretmen adaylarına mesleki bir deneyim kazandırmadığını düşünmektedirler. Lisans eğitimindeki eksiklikler yalnızca bizim ülkemiz için geçerli değildir. Örneğin Kwak (2019) Kore’deki Fen Bilimleri öğretmen eğitimi ve istihdamını incelediği çalışmasında, lisans programındaki uygulama eğitimlerinin iyileştirilmesi gerektiği sonucuna ulaşmıştır. Yöneticilere göre okul





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uygulamalarında öğretmen adayları sınıfın arka sıralarında oturarak dersi bir öğrenci gibi dinlemekte, ders anlatımı yapmamaktadırlar. Hatta çoğu zaman okul uygulamalarına katılmamakta, sorumlu öğretmenden katıldıklarına dair imza alıp, okuldan ayrılmaktadırlar. Bu sürecin de öğretim üyesi tarafından takip edilmediğini düşünmektedirler. Bu bağlamda okul yöneticileri okul uygulamaları dersinde aktif ders anlatımı yapamayan Fen Bilimleri öğretmen adaylarının gerek alan bilgisi gerekse alan eğitimi açısından deneyime sahip olamadıkları düşünülmektedir. Buna göre okul uygulamaları dersinin, sorumlu öğretim üyesi tarafından, ciddiyetle takip edilmesi, öğretmen adaylarının bu süreçte aktif ders anlatımı yaparak gerekli mesleki deneyimi kazanmaları, mezun olduktan sonra özel okullarda istihdam edilebilmeleri açısından önem arz etmektedir. Ayrıca staj olarak tanımlanan öğretmenlik uygulaması derslerinin de sadece son sınıfta yapılması, süre açısından yetersiz bulunmaktadır. Buna göre öğretmenlik uygulamaları dersi son iki seneye yayılıp, öğretmen adaylarına daha fazla mesleki uygulama yapma olanağı sağlanabilir. Özel okul yöneticilerinin çoğunluğu Fen Bilimleri öğretmen adaylarının kendi kurumlarında da staj yapmalarını istemektedirler. Özel okulların çalışma şartlarının ve ortamının devlet okullarından farklı olduğunu ifade eden yöneticiler, Fen Bilimleri öğretmen adaylarının bu havayı teneffüs etmeleri gerektiğini düşünmektedirler. Özel okulların mezun olan Fen Bilimleri öğretmenleri için istihdam olanağı aradıkları kurumlar oldukları düşünülürse, Fen Bilimleri öğretmen adaylarının bu okulları tanımaları; okulların çalışma şartlarından haberdar olmaları oldukça önemlidir. Bunun yanında özel okul yöneticileri de kurumlarında staj yapan Fen Bilimleri öğretmen adayını tanıyabilecek; çalışmasından memnun kaldıkları stajyer öğretmenin mezun olduktan sonra kurumlarında çalışmasını talep edebileceklerdir. Ya da bu kişilere referans olabileceklerdir. Bu bağlamda Fen Bilimleri öğretmen adaylarının özel okullarda staj yapması; mezun olduktan sonra bu kurumlarda istihdam edilmelerini sağlayabilecektir. Özel okul yöneticileri Fen Bilimleri öğretmen adaylarının lisans sürecinde gördükleri dersleri de içerik açısından yetersiz bulmaktadırlar. Buna göre yöneticiler lisans sürecinde Fen Bilimleri öğretmenlerine, kurumlarında çalışabilecek yeterliği sağlamak üzere, 21. yy becerileri, teknolojik araçları kullanma, robotik-kodlama, STEM gibi becerilerin kazandırıldığı derslerin de eklenmesi gerektiğini düşünmektedirler. Günümüzde artık Z kuşağı öğrencilerinin yetiştirildiği düşünülürse; çağın gereksinimlerine uygun olarak öğretmen yetiştirilmesi önem arz etmektedir. Çünkü gelecek nesillerin niteliği şüphesiz onu yetiştiren öğretmenin niteliği ile özdeş olacaktır. Bu bağlamda öğretmenlerin yalnızca alana ilişkin teorik bilgiyi aktaran değil; eğitimde teknolojiyi etkili kullanabilen, inovatif düşünme becerisine sahip, iletişim becerisi yüksek, disiplinler arası uygulamalar yapabilen vb. birçok özellikle donatılmış olarak mezun olmaları gerekmektedir. Bu gereksinimi belirleyen ise, çağın eğitime sunduğu olanaklar ve eğitimi verecek kişilerden beklentileridir. Bunun yanında yöneticilerden bazıları Fen Bilimleri öğretmenlerinin özel alan ve mesleki bilgi açısından eksik olarak mezun olduklarını düşündükleri görülmüştür. Bu yöneticiler hem özel alan hem de mesleki beceri açısından lisans eğitimini yetersiz kaldığını, bu şekilde mezun olan Fen Bilimleri öğretmenlerinin sadece özel okullarda değil; hiçbir eğitim kurumunda derse girmemeleri gerektiğini düşünmektedirler. Buna göre son sınıf öğrencileri mezun olmadan önce mesleki beceri sınavı adında uygulamalı bir bitirme sınavına tabi tutulabilir. Bu sınav komisyonunda farklı üniversitelerin Fen Bilgisi Öğretmenliği Programlarında görev yapan akademisyenler; deneyimli Fen Bilimleri öğretmenleri; devlet okulu idarecileri; özel okul idarecileri ve öğrenciler yer alabilir. Komisyon öğretmen adayından sınav anında belirledikleri bir konuyu anlatmasını isteyerek; öğretmen adayının özel alan bilgisi, pedagojik bilgi ve uygulama becerisi, iletişim becerisi, sınıf hâkimiyeti gibi birçok alandaki yeterliğini puanlayarak, öğretmen adayını mezun olma durumuna karar verebilir. Mezun olamayan öğretmen adayı eksik bulunan alanlarda yeniden eğitime tabi tutulabilir. Görülen eksikler tamamlanana kadar eğitime devam edilebilir. Bu sayede hem özel hem de devlet okullarının bu şekilde bir komisyon kararı ile mezun olan öğretmen adayının, mesleğini icra edebilmesi hususunda güven duymaları da sağlanabilir. Gelişmiş ülkeler (Japonya, Amerika ve İngiltere) ile Türkiye'deki Fen Bilgisi Öğretmen Yetiştirme Programlarını karşılaştıran Meriç & Tezcan (2005); Japonya ve İngiltere de sadece lisans mezunu olmanın Fen Bilimleri öğretmeni için yeterli olmadığını; lisans eğitiminden sonra uygulama eğitimleri neticesinde başarılı olunması halinde öğretmenlik sertifikası alınması ile öğretmenlik mesleğinin icra edilebileceğini belirtmişlerdir. Çalışmada kimi özel okul yöneticilerinin de eğitim fakültelerindeki akademisyen sayısı yetersizliğine dikkat çektikleri görülmüştür. Burada akademisyenlerin çoğunlukla kadro alma niyetinde oldukları, kadro aldıktan sonra da alana ilişkin çalışmalar yapmadıkları, nitelik açısından yetersiz kaldıkları da vurgulanmıştır. Buna karşın çalışmanın yapıldığı Kayseri ili için; burada bulunan Erciyes Üniversitesi Eğitim Fakültesi Fen Bilgisi Öğretmenliği Programında görev yapan



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akademisyenlerin unvanları dikkate alındığında bu düşüncenin aksi bir durum olduğu görülmektedir (URL-3). Bunların yanında Fen Bilimleri öğretmenliğinden mezun olan kişilerin lisansüstü eğitime devam etmelerinin mesleki beceri açısından önemli gören yöneticinin de olduğu görülmektedir. Lisansüstü eğitim Fen Bilimleri öğretmenine birçok beceri kazandırmaktadır fakat öğretmenlik mesleğini icra etmek için ön koşul olarak düşünülemez. Ayrıca lisans derslerinde sınıfların kalabalık olması, özellikle laboratuvar gibi uygulama gerektiren derslerde, her bir öğretmen adayına uygulama için yeterli fırsat tanınmadığı düşüncesi de dikkat çekmektedir. Buna göre lisans eğitimine öğrenci kabulünde seçici olunması, sınıf mevcudunun verilen eğitimin kalitesinin olumsuz etkilemeyecek düzeyde tutulması istenmektedir. Bu sayede eğitim fakültelerinin mesleki beceri kazanmış Fen Bilimleri öğretmenleri yetiştirebileceği düşünülmektedir. Bu sonuçlara benzer olarak Tezcan ve Meriç (2005), Fen Bilgisi Öğretmenliği Lisans Programına ilişkin öğretmen adaylarının lisans programının süresini, verilen mesleki dersleri ve teknoloji eğitimini yetersiz buldukları sonucuna ulaşmışlardır. Sınıf mevcudunun fazla olması bütün eğitim kademelerinde eğitimi olumsuz etkileyen bir faktördür. Bu bağlamda özellikle öğretmen yetiştirilen sınıfların, özenli bir seçimle oluşturulması ve bu sınıfların mevcudunun verilen eğitimden bütün öğretmen adaylarının eşit şekilde faydalanacağı bir halde düzenlenmesi önem arz etmektedir.

### TEŞEKKÜR

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### FEN BİLİMLERİ ÖĞRETMENLERİNİN EĞİTİMDE TEKNOLOJİ KULLANIMINA İLİŞKİN GÖRÜŞLERİ

VIEWS OF SCIENCE TEACHERS ON THE USE OF TECHNOLOGY IN EDUCATION

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#### Özet

Teknolojik gelişmeler sosyal hayatın her alanında olduğu gibi eğitim hayatını da etkilemiştir. Günümüz öğrencilerinin teknoloji çağında doğup bu ortamda büyüdüğü düşünüldüğünde teknolojiden uzak bir eğitim-öğretim ortamı tasarlamak neredeyse imkansızdır. Fen bilimleri öğretmenleri ile gerçekleştirilen bu çalışmada, öğretmenlerin eğitimde teknoloji kullanımına ilişkin görüşlerini ortaya çıkarmak amaçlanmıştır. Nitel araştırma yöntemi kapsamında fenomenolojik araştırma olarak gerçekleştirilen araştırmanın örnekleme amaçlı örnekleme yöntemlerinden kolay ulaşılabilir örnekleme belirlenmiştir. Araştırma 2021-2022 eğitim öğretim yılında devlet okullarında görev yapan toplam 10 fen bilgisi öğretmeni ile gerçekleştirilmiştir. Araştırmanın verileri yarı yapılandırılmış görüşme formu kullanılarak yapılan görüşmeler yoluyla elde edilmiştir. Veriler içerik analizi yöntemiyle çözümlenmiştir. Araştırma sonucunda öğretmenlerin teknolojinin kullanımı ile eğitimin zamandan ve mekandan bağımsız hale geldiğini düşündükleri görülmüştür. Ayrıca öğretmenler eğitimde teknoloji kullanımının öğretim ortamını zenginleştirdiğini, öğretmeyi desteklediğini ve öğrenmeyi kolaylaştırdığını düşünmektedirler. Katılımcılara göre yeni bilgilerin öğrenilmesinde eğitim teknolojilerinin kullanılması öğretmenin işini kolaylaştırmaktadır. Ayrıca katılımcılara göre bilgisayar destekli fen eğitimi ile laboratuvar, atölye gibi uygulama alanı olmayan okullarda bile sanal laboratuvarlarda gerçeğe yakın deneyler yapmak mümkündür.

**Anahtar Kelimeler:** Eğitimde teknoloji, Fen eğitimi, Fen bilimleri öğretmenlerinin görüşleri, Bilgisayar destekli fen eğitimi.

#### Abstract

Technological developments have affected educational life as well as in all areas of social life. Considering that today's students are born in the age of technology and grow up in this environment, it is almost impossible to design an education-teaching environment isolated from technology. In this study, which was carried out with science teachers, it was aimed to reveal the views of teachers on the use of technology in education. It was carried out as a phenomenological research within the scope of qualitative research method. The sample of the study is an easily accessible sample, which is one of the purposive sampling methods. The research was carried out with a total of 10 science teachers working in public schools in the 2021-2022 academic year. The data of the research were obtained through interviews using a semi-structured interview form. The data were analyzed by content analysis method. As a result of the research, it was seen that teachers thought that education became independent of time and place with the use of technology. In addition, teachers think that the use of technology in education enriches the teaching environment, supports teaching and facilitates learning. According to the participant, the use of educational technologies in the learning of new information facilitates the work of the teacher. Also, according to the participants, it is possible to carry out experiments close to reality



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with computer aided science education and virtual laboratory application even in schools that do not have an area to practice such as laboratories and workshops.

**Keywords:** Technology in education, Science teaching, Views of science teachers, Computer aided science education.

### GİRİŞ

Tarihsel süreç içerisinde birçok aşamadan geçen insanoğlu bilgi ve teknoloji çağı olan 21. yüzyıla erişmiştir. Bilgi ve teknolojide yaşanan değişim ve gelişmeler, sosyal ve ekonomik yaşama önemli düzeyde katkı sunmuştur (Çalık ve Çınar, 2009:24). Teknolojik gelişmeler toplumsal yaşamın her alanında olduğu gibi eğitim-öğretim hayatında da etkisini göstermiştir. Günümüz öğrencilerinin teknoloji çağında dünyaya geldikleri ve bu ortamda büyüdüğü düşünülürken, teknolojiden soyutlanmış bir eğitim-öğretim ortamının tasarlanması neredeyse imkânsızdır. Eğitim ortamında teknoloji, öğrenme ve öğretme sürecinde programda belirlenen hedef ve amaçlara ulaşmak için gerekli görülen ve hem öğretmenler hem de öğrenciler tarafından kullanılan araçlar olarak tanımlanmaktadır (Demirci Güler& Irmak,2018). Eğitim-öğretim sürecine teknolojinin de entegre edilmesiyle birlikte ortaya çıkan öğretim teknolojileri, öğretim sürecinin etkinliğini arttırabilmektedir. Bu durum eğitim-öğretim sürecinde öğretim teknolojilerinin kullanılmasının önemini daha da arttırmaktadır (Tu, Blocher & Roberts, 2008).

20.yy itibariyle eğitimde teknoloji entegrasyonu fen sınıflarında anlamlı bir düzeyde yer almaya başlamıştır (Kartal, 2017). Okullarda Film, resim, slâyt, projeksiyon, radyo, video kaydedici, bilgisayar ve internetin kullanılmaya başlanmasıyla fen bilimleri derslerine teknoloji entegrasyonu sağlanmış, ve teknoloji entegre edilerek sunulan öğretimin öğrenci başarısı üzerine olumlu etkilerinin olduğu saptanmıştır (Köse, Ayas ve Taş, 2003; Yenice, Sümer, Oktaylar ve Erbil, 2003). 6-14 yaşları çocukların en meraklı, en araştırmacı olduğu yaşlardır. Bu yaş çocuklarının en çok merak ettikleri, en çok soru sordukları konuların başında fen konuları gelmektedir (Gürdal,1992:185). İlköğretimde fen konuları yaparak yaşayarak öğrenildiği için hem öğrenci hem de öğretmenler için, fen bilgisi dersi en çok ilgi çeken, merak ve öğrenme isteği uyandıran derslerin başında gelir (Howe, Jones,1998). Akpınar, Aktamış & Ergin (2005)'e göre Fen Bilgisi dersinde teknolojinin kullanılması öğrencilerin öğrendikleri bilgilerin günlük hayatla ilişkisini kurmalarına yardımcı olmanın yanında teknolojiyi öğrenmelerine de imkan sağlayacaktır. Eğitim teknolojisinin fen derslerinde çok yönlü kullanılması ile öğrencilerin fene karşı ilgi ve merakları daha da artacaktır. Öğretim ortamını, öğrencilerin yaparak-yaşayarak bilgiye ulaşmalarını sağlayacak şekilde öğrenci ihtiyaçlarına uygun hale getirmek, kaynak çeşitliliğini arttırarak bunlara ulaşımı kolaylaştırmak, ilk elden bilgi edinmeye olanak sağlamak ve teknolojiden yararlanan yaratıcı bireyler yetiştirmek için eğitim teknolojisinin birçok özgesinin fen bilgisi derslerinde kullanılması önemlidir.

Fen eğitimi, olabildiğince uygulamaya dayalı öğrenme şeklinde verilmediği takdirde, öğrencilerin canlılığı, fiziksel ve kimyasal olayları, hayatın biyolojik temelini anlamaları zor olacaktır (Çakmak,1999:117). Özellikle ilköğretim çağındaki öğrencilerin öğrenmede zorlandıkları soyut kavramların öğrenci seviyesine uygun bir şekilde somutlaştırılmasında ve neredeyse canlı bir şekilde sunulmasında, derinlemesine öğrenilmesinde ve olayların tekrar tekrar gözlemlenmesinde eğitim teknolojisi araçları önemli bir rol oynamaktadırlar. Bununla birlikte bilgisayarlar, fen derslerinde laboratuvarlarda yapılması tehlikeli deneylerin yapılmasında, verilerin doğru ve hızlı bir şekilde elde edilmesinde, işlenmesinde ve anında geri bildirim sağlamada da önemli bir rol oynamaktadır. Cartier ve Stewart, bilgisayar simülasyonları ve araçlarının, öğrencilere birer bilim adamı gibi düşünmelerine olanak sağlayabileceğini belirtmişlerdir (Soderberg, Price, 2003).

Fen bilgisi dersinde öğretmen, öğrencilerin okulun ve çevrenin olanaklarına göre eğitsel değeri olan her türlü araç-gereç ve etkinliği kullanarak ünite içeriğini ve kazanımlarını öğrencilere edindirmelidir. Bunun için çağdaş öğretim yöntem ve teknikleri ile birlikte öğrencilerin yaratıcılıklarını ortaya çıkaracak ve bilimsel yöntemi kullanmaya fırsat tanıyacak, yeterli düzeyde kaynak, araç-gereç, deney, gezi-gözlem, araştırma, inceleme, proje ve uygulamalardan yararlanılmalıdır. Ayrıca öğrenciler, internet dahil her türlü teknolojik kaynaklardan fen ile ilgili bilgilere ulaşmak için gerekli becerilerle donanmalı, bunun gerekliliğine inanmalı ve çalışmalarında daha değişik kaynaklardan etkin olarak yararlanmalıdır



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(MEB,2000:1012). Bu beklentinin karşılanması için eğitimde teknoloji entegrasyonuna öğretmenlerin yaklaşımı da önem arz etmektedir. Bu bağlamda bu araştırmanın amacı Fen Bilimleri öğretmenlerinin eğitimde teknoloji kullanımına ilişkin görüşlerini açığa çıkarmaktır.

### YÖNTEM

#### Araştırmanın Deseni

Araştırmada Fen Bilimleri öğretmenlerinin eğitimde teknoloji kullanımı hakkındaki görüşlerini ortaya çıkarabilmek için nitel araştırma desenlerinden fenomenoloji kullanılmıştır. Fenomenoloji deseni, bir konu hakkında katılımcıların düşünce ve deneyimlerini derinlemesine belirleyerek yaşantıları ve anlamları ortaya çıkarmayı hedeflemektedir (Yıldırım, ve Şimşek, 2005; Smith ve Fowler, 2009). Fenomenoloji olarak yürütülen araştırmalarda temel veri toplama aracı görüşmelerdir. Bu çalışmada Fen Bilimleri öğretmenleri ile yarı-yapılandırılmış görüşmeler gerçekleştirilmiştir. Yarı-yapılandırılmış görüşmeler içerik analizi yöntemi ile analiz edilmiştir.

#### Çalışma Grubu

Verilerin toplanması için kullanılacak çalışma grubu seçiminde amaçlı örnekleme yöntemlerinden kolay ulaşılabılır örneklem kullanılmıştır. Bu yöntem nitel araştırmanın felsefesini destekleyen, düşük maliyete sahip ancak zengin bilgiye ulaşmada yardımcı ve genellemeler yapmada kullanılabilecek bir yöntem olması bakımından tercih edilmektedir (Patton, 1987; Yıldırım ve Şimşek, 2013). Araştırma 2021-2022 eğitim-öğretim yılında devlet okullarında çalışan ve yüksek lisans yapan toplam 10 Fen Bilimleri öğretmeni ile yürütülmüştür. Araştırmaya katılan Fen Bilimleri öğretmenlerin demografik özellikleri Tablo 1’de verilmiştir.

**Tablo 1.** Çalışma Grubuna Ait Demografik Bilgiler

Öğretmen No	Cinsiyet	Yaş	Deneyim (Yıl)
Ö1	K	23-25	1-5
Ö2	K	23-25	1-5
Ö3	E	29 ve üzeri	6-11
Ö4	K	20-22	1-5
Ö5	E	29 ve üzeri	12 – 17
Ö6	E	29 ve üzeri	6 – 11
Ö7	K	29 ve üzeri	6 – 11
Ö8	E	29 ve üzeri	6 – 11
Ö9	K	29 ve üzeri	6 – 11
Ö10	E	23-25	1-5

#### Verilerin Toplanması

Fen Bilimleri öğretmenlerinin teknoloji kullanımına ilişkin görüşlerinin ve deneyimlerinin belirlenmesi için yarı-yapılandırılmış görüşme formu geliştirilmiştir. Görüşme formu, fen bilimleri alanında ve bilgisayar ve öğretim teknolojileri alanında uzman iki öğretim üyesine uzman görüşü için sunulmuştur. Sunulan görüş ve öneriler doğrultusunda form düzenlenmiştir. Görüşmeler çevrimiçi ortamda zoom uygulaması üzerinde gerçekleşmiş ve katılımcıların izniyle ses kaydı alınmıştır.

#### Verilerin Analizi



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Verilerin analize hazır hale getirilmesi için arařtırmacılar tarafından yarı-yapılandırılmıř grřmelerin ses kayıtlarının dkmleri yapılmıřtır. Veriler arařtırma amaları dođrultusunda ierik analizi yntemi ile analiz edilmiřtir. Arařtırmacılar tm dkmleri detaylı okuyarak kodlamıřtır. Geerlik ve gvenirlik iřlemi srelerini gerekleřtirdikten sonra kod ve kategorilere ayrılan veriler, bulgular kısmında tablolar halinde sunulmuřtur.

### BULGULAR

Fen Bilimleri đretmenleriyle yapılan grřmeler sonucu elde edilen bulgular  tema altında toplanmıř ve veriler tablolar halinde sunulmuřtur. Tablolarda aynı koda ynelik grřlerin frekansları ve katılımcıların isimleri verilmiřtir.

### đretmenlerin Eđitimde Teknoloji Kullanımına Ynelik Grřlerine İliřkin Bulgular

đretmenlerin “Eđitimde Teknoloji Kullanımı hakkında dřnceleriniz nelerdir?” ana sorusu ve bu soruyu destekleyen sonda sorulara ynelik verdikleri cevaplara iliřkin analizler sonucu oluřturulan kategori ve kodlar Tablo 2’de sunulmuřtur.

Kategori	Kod	Frekans	Katılımcılar
Eđitimde teknolojiyi kullanımı	Zamandan ve mekndan bađımsız eđitime ulařtırır	4	3,6,7,9
	đretimi destekler	3	1,6,10
	đretim ortamını zenginleřtirir	3	2,6,10
	đrenmeyi kolaylařtırır	3	4,8,9
	Gnmz eđitiminde gerekliliktir	3	5,7,10

**Tablo2.** Eđitimde Teknoloji Kullanımı

Fen Bilimleri đretmenlerinin eđitimde teknoloji kullanımına ynelik grřleri incelendiđinde teknolojinin bireyleri zamandan ve mekndan bađımsız eđitime ulařtırdıđını dřndkleri grlmřtir. Bu dřncesini 6: “*COVID 19 salgınının olduđu dnemde de grldđ zere mekndan bađımsız bir Őekilde eđitim faaliyetlerine kesintisiz bir Őekilde devam edebiliriz*” Őeklinde ifade etmiřtir. Teknolojinin đretimi desteklediđi dřncesine sahip olan katılımcılardan 1 bu dřncesini: “*Teknoloji dođru kullanıldıđı takdirde eđitime yardımcı ve faydalıdır.*” Őeklinde aıklamıřtır. Katılımcılardan bir kısmı teknolojinin đretim ortamını zenginleřtirdiđini dřnmektedir. Bu dřncesini 2: “*Teknolojinin faydalı olarak kullanıldıđı alanlarda eđitim zenginleřtirilmiřtir.*” Őeklinde ifade etmiřtir. Teknolojinin đrenmeyi kolaylařtırdıđı dřncesine sahip katılımcılardan 9 ise “*Teknolojinin eđitimde kullanılması đrenmeyi kolaylařtırıyor. Konuları somutlařtırıyor.*” ifadesini kullanmıřtır. Katılımcılardan bir kısmı ise teknolojinin eđitim iin bir gereklilik olduđunu dřnmektedir. Bu dřncesini 7: “*Pandemi ile ortaya ıkan zorunlu uzaktan eđitim teknolojiyle eđitimi i ie geirmiřtir. Ayrıca teknolojinin hayatın her katmanında olması eđitimde teknoloji kullanımını kaınılmaz hale getirmiřtir.*” Őeklinde aıklamıřtır.

### đretmenlerin Yeni Bilgilerin đreniminde Teknolojik Aralar Kullanmaya Ynelik Grřlerine İliřkin Bulgular

đretmenlerin “Bir eđitimci olarak siz yeni bilgiler đrenirken bu araların kullanılmasını ister misiniz?” ana sorusu ve bu soruyu destekleyen sonda sorulara ynelik verdikleri cevaplara iliřkin analizler sonucu oluřturulan kategori ve kodlar Tablo 3’te sunulmuřtur.

**Tablo 3.** Yeni Bilgilerin đreniminde Teknolojik Araları Kullanmak

Kategori	Kod	Frekans	Katılımcılar
Yeni Bilgilerin đreniminde Teknolojik Aralar	Kalıcı đrenme sađlar	6	1,2,3,4,5,10
	Eđitim ortamını zenginleřtirir	5	2,3,5,8,9
	Eđlenerek đrenme sađlar	4	1,3,6,8
	đretmenin iřini kolaylařtırır	3	5,6,7



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Tablo 3. incelendiğinde, çalışmaya katılan Fen Bilimleri öğretmenlerinin çoğunlukla, yeni bilgilerin öğrenilmesinde teknolojik araçların kalıcı öğrenmeler sağladığını düşündükleri görülmektedir. Bu düşüncesini Ö2: “Görsel, video, oyun, simülasyon, animasyon vb. birçok şekilde bilgiler karşı tarafa sunulabilmekte, kalıcı öğrenme sağlayabilmektedir.” şeklinde ifade etmiştir. Yeni bilgilerin öğrenilmesinde teknolojik araçlar ile eğitim ortamlarının zenginleştiğini düşünen katılımcılardan Ö3: “Bizler eğitimin birer neferleri olarak kalıcı öğrenmeyi sağlamak istiyorsak bunun farkındayız. Daha çok duyu organına hitap etmemiz lazım. Zaman zaman bizlerin de dikkatini çeken görsellerle öğrenme ortamlarını zenginleştirerek, daha aktif kullanmamızı sağlamaktadır.” ifadelerini kullanmıştır. Katılımcılardan bir kısmı teknolojik araçlar ile yeni öğrenmelerin daha eğlenceli hale geldiğini düşünmektedirler. Bu düşüncesini Ö1: “Eğitimi daha kalıcı, eğlenceli ve dikkat çekici hale getiriyor.” şeklinde ifade etmiştir. Bir kısımda katılımcılarda teknolojik araçların öğretmenin işini kolaylaştırdığını düşünmektedir. Bu düşünceye sahip Ö6: “Yaparak öğrenmeyi sağlayan bu araçların kullanılması öğrenme işlemi sırasında bizleri merkeze alması, bize sunduğu kolaylıklar ile hem işimizi kolaylaştırmakta hem de öğrencilerin öğrenmesini hızlandırmaktadır.” ifadesini kullanmıştır.

### Öğretmenlerin Bilgisayar Destekli Fen Eğitime Yönelik Görüşlerine İlişkin Bulgular

Öğretmenlerin “Bilgisayar Destekli Fen Eğitimi hakkında düşünceleriniz nelerdir?” ana sorusu ve bu soruyu destekleyen sonda sorulara yönelik verdikleri cevaplara ilişkin analizler sonucu oluşturulan kategori ve kodlar Tablo 4’te sunulmuştur.

Tablo 4. Bilgisayar Destekli Fen Eğitimi

Kategori	Kod	Frekans	Katılımcılar
Bilgisayar Destekli Fen Eğitimi	Öğrenmeyi kolaylaştırır	8	Ö1,Ö2,Ö3,Ö4,Ö5,Ö6,Ö7,Ö8
	Derse Motivasyonu artırır	4	Ö1,Ö2,Ö6,Ö8
	Soyut kavramları somutlaştırır	4	Ö1,Ö2,Ö3,Ö5
	Derse ilgiyi artırır	4	Ö2,Ö4,Ö6,Ö10
	Öğrenciyi aktif kılar	4	Ö1,Ö2,Ö4,Ö6
	Zengin öğretim ortamları sunar	4	Ö2, Ö3,Ö9,Ö10
	Zamandan tasarruf sağlar	3	Ö6,Ö9,Ö10

Tablo 4 incelendiğinde katılımcıların çoğunlukla bilgisayar destekli fen eğitimi ile fen konularının öğrenilmesini kolaylaştırdığı düşündükleri görülmektedir. Bu fikre sahip olan katılımcılardan Ö8 düşüncesini “Bu programlar fen derslerinin daha eğlenceli, daha akılda kalıcı hale gelmesine ve öğrenmenin de kolaylaşmasına yardımcı olmaktadır.” şeklinde açıklamıştır. Bilgisayar destekli fen eğitiminin fen dersine yönelik motivasyonu artırdığını düşünen katılımcılardan Ö1 bu düşüncesini: “Özellikle derse etkin katılımı sağlıyor, öğrencilerin motivasyonu artıyor, soyut konuları somutlaştırıyor da.” şeklinde açıklamıştır. Katılımcılarda bir kısmı bilgisayar destekli fen eğitimi ile soyut kavramların somutlaştırıldığını düşünmektedir. Bu düşüncesini Ö3: “Fen dersinde yoğun olarak görsel ve uzamsal zeka kullanılmaktadır. Bundan ötürü görsel ve çeşitli boyutsal desteklemelerle öğrencilerin soyut kavramları kalıcı bir şekilde içselleştirmelerine oldukça fazla katkı sağlayan bilgisayar destekli eğitim olmazsa olmazdır.” olarak ifade etmiştir. Katılımcılardan bir kısmı da bilgisayar destekli fen eğitimi ile öğrencilerin fen dersine yönelik ilgilerinin arttığını düşünmektedirler. Bu düşünceye sahip katılımcılardan Ö2 bu düşüncesini: “Fen alanında kullanılan bilgisayar destekli eğitim ile öğrenciler tarafından sıkıcı olarak görülen fen dersleri daha eğlenceli hale gelmiş ve öğrencilerin derse olan ilgileri artmıştır.” ifadeleri ile açıklamıştır. Bilgisayar destekli fen eğitimi ile öğrencilerin derse aktif katılım sağladığını düşünen katılımcılardan Ö6 düşüncesini: “Konuların öğretmen-öğrenci, öğrenci-öğrenci işbirliği ile öğretilmesi, öğrencinin dersin merkezine alınması öğretmenin de etkin rehber olması dersi hem daha faydalı hale getirmiştir hem de öğrenmeyi hızlandırmıştır.” şeklinde ifade etmiştir. Bilgisayar destekli fen eğitimi ile öğrencilere zengin öğrenme ortamlarının sunulduğunu düşünen katılımcılardan Ö2 bu düşüncesini: “Fen alanında yapılan deneyler için laboratuvar ortamı olmayan okullardaki öğretmenlerin derslerini sanal laboratuvar üzerinden yapabilmelerine de imkan sunmuştur.” şeklinde ifade etmiştir. Çalışmaya dahil olan katılımcılardan üç tanesi de bilgisayar destekli fen eğitimi ile zamandan tasarruf sağlandığını düşünmektedir. Bu düşünceye sahip katılımcılardan Ö10 bu düşüncesini : “Mesela ders süreleri kısa olduğu ve kazanımlar çok olduğu için konular





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*yetişmemektedir. Ancak bilgisayar destekli fen eğitimiyle konuları yetiştirebiliriz ve öğrencileri donanımlı hale getirebiliriz.” ifadeleri ile açıklamıştır.*

### SONUÇ

Fen Bilimleri öğretmenleri ile yürütülen bu çalışmada öğretmenlerin eğitimde teknolojinin kullanımı hakkındaki fikirlerinin ortaya çıkarılması amaçlanmıştır. Elde edilen bulgulara göre teknoloji ile bireyler mekândan ve zamandan bağımsız olarak eğitime ulaşabilmektedirler. Teknolojik araçların kullanımı ile öğrenciler günün her saati okul sınırlarının dışında dahi bilgiye erişebilmektedirler. Özellikle Covid-19 pandemisi sürecinde yoğun olarak kullanılmaya başlanan uzaktan eğitim uygulaması ile teknolojinin mekândan ve zamandan bağımsız olarak eğitime ulaşmayı sağladığı net bir şekilde görülmüştür (Metin, Gürbey & Çevik, 2021). Uzaktan eğitim uygulaması ile bireyler okul ortamının dışında derslere dahil olabilmişlerdir. Derslerin kaydedilebilmesi ve tekrar tekrar izlenilebilmesi eğitimi zamandan bağımsız hale getirmiştir. Bunların yanında eğitim teknolojisi kullanımıyla ulaşılan birçok web sitesi sayesinde, her türlü bilgiye istenilen anda ve mekânda ulaşma imkânı sağlanmıştır. Öğretmenler eğitimde teknoloji kullanımının öğretim ortamını zenginleştirdiğini, öğretimi desteklediğini ve öğrenimi de kolaylaştırdığını düşünmektedirler. Teknoloji ile okula giren bilgisayar, tablet, akıllı tahta, tepegöz, projeksiyon aleti, 3 boyutlu yazıcı ve çok sayıda yazılım programlarının kullanılması ile öğretim ortamları zenginleşmiştir. Bu araçların soyut konuların somutlaştırılması, görselleştirilmesi ve daha fazla duyu organına hitap etmesi sayesinde öğretimi desteklemekte ve öğrenmeleri de kolaylaştırmaktadır. Son yıllarda yapılan çalışmalarda, öğretmenlerin teknolojiyi eğitim ve öğretim sürecinde öğrenmeyi artırıcı bir araç olarak gördüğü ifade edilmektedir (Erbil ve Kocabaş, 2019). Alan yazın incelendiğinde, çalışmadaki bulguları destekleyecek şekilde teknolojinin öğrenciler açısından olumlu etkilere sahip olduğu ve çocukların öğrenme yaşantısını desteklediği sonucuna ulaşılmıştır (Haßler, Major & Hennessy, 2016). Yapılan araştırmalarda, eğitim ortamlarında teknoloji kullanımı ile öğrencilerin derse karşı motivasyon, dikkat süresi ve odaklanmalarının arttığı (Kennewell & Beauchamp, 2007), öğrencilere görsel ve işitsel açıdan zengin öğrenme ortamları sağlandığı (Beeland, 2002), derslerin daha eğlenceli ve ilgi çekici hale geldiği (Ateş, 2010; Beeland, 2002; Kaya & Aydın, 2011), öğretme ve öğrenme süreçlerinin desteklendiği (Kennewell & Beauchamp, 2007; Wall, Higgins, & Smith, 2005), eğitim kalitesini arttığı ve öğrenci başarısını yükseldiği de (Thompson & Flecknoe, 2003) ifade edilmiştir. Katılımcılar teknolojinin günümüz eğitiminde artık gereklilik olduğunu düşünmektedirler. Akkoyulu ve Kurbanoglu (2003)'na göre öğretmenlerin öğretimde bilgisayar ve teknolojiyi kullanmamaları halinde, eğitimde amaçlanan hedeflerin gerçekleşmesi mümkün değildir. Bu bağlamda eğitimin kalitesini arttırmak, hedeflenen kazanımlara ulaşabilmek adına teknoloji kullanımı eğitim için lüks olmaktan ziyade ihtiyaç halini almıştır.

Katılımcılar teknoloji kullanımı ile yeni bilgilerin öğreniminde kalıcılık sağlandığını düşünmektedirler. Bunun yanında öğretmenlere göre teknolojik araçlar sınıflarda zengin öğrenme ortamı oluşturmaktadır. Bu zenginlik, eğitim ortamlarında öğrenmeleri desteklemek ve kolaylaştırmak için kullanılmaktadır (Pekdağ, 2005). Eğitimde teknoloji kullanımı ile öğrenme sürecinde birden fazla duyu organı kullanılabilen ve kalıcı öğrenmeler sağlanmaktadır. Buna göre öğretmenler eğitim teknolojilerinin öğrenmede kalıcılık ve eğlenceli ders ortamı sağladığını düşünmektedirler. Ayrıca katılımcılara göre yeni bilgilerin öğreniminde eğitim teknolojilerinin kullanılması öğretmenin işini kolaylaştırmaktadır. Eğitim teknolojileri ile öğretmenler geleneksel yöntemlerin dışına çıkarak birçok farklı eğitsel programları da öğretim sürecine dâhil edebilmektedirler. Eğitim teknolojileri ile öğretmenler bir nesne ya da kavramın şekil, boyut, ses gibi özelliklerini öğrencilere görsel ve işitsel desteklemeyle öğretebilmektedirler. Benzer olarak Topçu, Küçük & Göktaş (2014) çalışmalarında eğitimde teknoloji kullanımı ile öğretmenin yükünün hafiflediğini belirtmişlerdir.

Çalışma bulgularından elde edilen bir başka sonuca göre bilgisayar destekli fen eğitimi öğrenmeleri kolaylaştırmaktadır. Buna göre kapsadığı geniş konu alanı ile birçok soyut kavramı da içinde barındıran fen dersinin görsel ve işitsel araçlarla desteklenmesi fen dersindeki öğrenmeleri kolaylaştırmaktadır. Özmen ve Ayas (2003)'a göre birçok öğrenci fen bilimini anlamada güçlük çekmektedir bu nedenle görsel-işitsel desteklerin fen eğitimde kullanılması uygundur. Diğer yandan bilgisayar destekli fen eğitimi sayesinde sunulan sanal eğitim ortamları ile öğrencinin sürecin içerisinde aktif olarak yer alması sağlanmakta; bu sayede öğrencinin derse olan ilgisi de artmaktadır. Öğretmenler bilgisayar destekli fen eğitimi ile bünyesinde laboratuvar, atölye gibi uygulama yapacak alan bulunmayan okullarda bile sanal



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laboratuvar uygulaması ile gerçeğine benzer deneyler yapabildiklerini ifade etmişlerdir. Bu bağlamda özellikle bilgisayar destekli fen eğitimi ile öğrenme ortamları zenginleşmekte; bu zengin ortamlarda öğrenciler öğrenmeye karşı daha istekli ve motive olmaktadır. Katılımcılar normalde ders süresinin yeterli gelmediği kazanımları bilgisayar destekli fen eğitimi ile daha kısa sürede sağladıklarını, bu bağlamda zamandan tasarruf ettiklerini ifade etmişlerdir. Bu sonuca benzer olarak Akçay, Aydoğdu, Yıldırım & Şensoy (2005) çalışmalarında bilgisayar destekli fen eğitimi ile derslerde daha hızlı öğrenme sağlandığını ve dolayısıyla zamandan tasarruf sağlandığını ifade etmişlerdir. Hegarty (2004)'e göre bilgisayar desteği ile öğrenciler zamandan tasarruf etmekte ve bu araçlar farklı yazılımlar sayesinde öğrenme hızları farklı olan öğrenciler için de verimli araçlar olarak hizmet etmektedir.

Araştırmada ulaşılan sonuçlar ışığında eğitim teknolojileri kavramının eğitimde teknoloji kullanımının ötesinde bir süreç ve çalışma alanı olduğunu bilen, mesleki hayatlarında eğitimde teknolojiyi kullanmanın ötesine geçerek teknolojiyi eğitim-öğretim ortamlarına etkili bir şekilde entegre ederek, bu ortamların kalitesini artırmak amacıyla kullanabilen ve öğrenme ortamlarını yeni yöntemlerle zenginleştiren öğretmenlerin varlığının oldukça önemli olduğu düşünülmektedir. Bu sayede gelişen dijital dünyada yadsınamaz bir öneme sahip eğitim teknolojilerinin öğretmenler tarafından doğru algılanması ve doğru uygulamalarla desteklenmesi için öğretmenlerin bu bilinçte olması ve teknoloji kullanma becerisine sahip olması gereklilik arz etmektedir.

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### EFFECT OF IN OVO FEEDING OF N-ACETYL-L-GLUTAMATE ON INCUBATION RESULTS AND PERFORMANCE TRAITS IN JAPANESE QUAIL

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#### **Abstract**

Antibiotics have been used for many years in order to use the intestinal system more effectively in poultry after hatching. However, the use of antibiotics in poultry except for their main purpose was banned in the majority of countries at the beginning of the twenty-first century due to antibiotic residue and bacterial resistance. As an alternative to this situation, numerous medicinal plants and alternative feed additives are studied to improve development and protect health. N-acetyl-L-glutamate, which plays an important role in the mechanism of arginine synthesis in poultry, is implicated in the development of intestine and muscular mass. This study aimed to examine the effects of in ovo N-acetyl-L-glutamate injection on hatching traits, growth, feed efficiency, and slaughter-carcass characteristics of Japanese quail eggs on the fourteenth day of incubation. For this purpose, positive control, negative control and in ovo N-acetyl-L-glutamate solution (5.0 g/liter N-acetyl-L-glutamate-containing solution and 0.1 ml/egg) each containing 150 fertile eggs. The treatment of N-acetyl-L-glutamate was found to have negative effects on late embryonic mortality and hatchability (P0.05). In contrast, the mean values of N-acetyl-L-glutamate-fed quails were higher than those of the other groups in terms of body weight, feed efficiency, and some carcass traits (P0.05). As a result, it was determined that in ovo feeding of N-acetyl-L-glutamate had a positive effect on the performance characteristics of Japanese quails. More in ovo feeding trials of various doses of N-acetyl-L-glutamate must be conducted to prevent significant embryonic mortality.

**Keywords:** In-ovo feeding, Glutamate, Alternative feeding, Promoting growth

#### **INTRODUCTION**

In the final period of incubation, the embryo within the egg consumes the amniotic fluid orally, the intestines become functional, glycogen reserve is provided in the muscles and liver with the consumed amniotic fluid, lung breathing begins, the yolk sac is drawn into the abdomen, and hatching occurs on the last day by attempting to break the shell from the inside (Moran, 2007; Peebles, 2018). Nutrients consumed during the last stages of embryonic development and for a few days after hatching have a significant impact on the quantity and quality of later performance of birds. During this period, from before and after hatching to feed intake, the need for nutrients is met from amniotic fluid and egg yolk residue. In this period, amniotic fluid and egg yolk residue may sometimes have limited content or be very insufficient for the basic nutritional needs of the rapidly growing embryo.

In embryonic development period, the intestinal system of the embryo is the main functional organ for growth and improvement. Since the intestinal system performs vital functions in the digestion and absorption of nutrients, it is one of the most important organ systems for the survival and growth of animals (Huycke and Tabin, 2018). The development of the intestine is a balanced and regular process, although physical development takes place during the mid-incubation period, mainly functional development is not completed until the amniotic fluid is consumed orally in the late embryonic period by the chick embryo. After hatching, modern broilers can starve for 36 to 72 hours (Zhang et al., 2018).



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In addition to causing malnutrition, delayed access to feed restricts the intestinal maturation and development of chicks (Kadam et al., 2013; Gao et al., 2017; Geyra et al., 2001). In ovo feeding studies, it has been revealed that nutritional supplements given positively affect intestinal development and can improve the negative situation between the late incubation period and the first feeding time after hatching (Gao et al., 2017).

It has been determined that the administration of various amino acids by in ovo injection during the late incubation period improves the growth performance of broiler chickens (Gao et al., 2017b; Nazem et al., 2017). Zhang et al. (2018) claimed that instead of direct in ovo injection of amino acids, in ovo injection of some catalysts that are effective in their synthesis may have a long-term positive effect. N-Acetyl-L-glutamate is a catalyst of carbamoylphosphate synthase-I (CPS-I) and plays an important role in the synthesis of carbamoylphosphate arginine synthesized by CPS-I. In a study by Wu et al. (2004), it was shown that administration of 0.1 mmol/L N-acetyl-L-glutamate to pigs during embryonic development increased pyrroline-5-carboxylate (P5C) synthase activity in enterocytes. N-Acetyl-L-glutamate is an activator of P5C synthase in enterocytes and is involved in arginine synthesis. It is known that N-Acetyl-L-glutamate plays an important role in regulating intestinal synthesis of citrulline and arginine by modulating P5C synthase and CPS-I activities (Wu et al., 2004). Therefore, it is possible to hypothesize that in ovo administration of N-Acetyl-L-glutamate may improve early intestinal development and growth performance of birds after hatching. In similar studies (Yang et al., 2013; Zhang et al., 2018), it was observed that N-acetyl-L-glutamate and its synthetic metabolically stable analogue, N-arbanyl glutamate, stimulated arginine synthesis in pigs and lambs during embryonic development. There is only one study conducted in poultry on the subject. In this study by Wang et al. (2020), while in ovo injection of N-acetyl-L-glutamate administration on the 17<sup>th</sup> day of incubation did not affect the hatchability of broilers and the number of healthy chicks, intestinal histomorphology and feed efficiency were positively affected in the first 2 weeks after hatching. The aim of this study was to determine the effect of in ovo injection of N-acetyl-L-glutamate to Japanese quail embryos on hatchability, chick quality, performance, and slaughter-carcass characteristics.

### MATERIALS AND METHODS

The study was carried out at Akdeniz University (Antalya-Turkey) and with the decision of the Animal Experiments Local Ethics Committee of Akdeniz University. Japanese quail (*Coturnix japonica*) was used as animal material. In the experiment, a total of 450 eggs obtained on the same day from a breeding Japanese quail flock were used. Eggs were transferred to the incubator fresh without any storage process. 150 eggs in each of the 3 experimental groups were incubated. These three experimental groups were formed as follows; non-in ovo injected control group (negative control group, C-); in ovo injected control group of 8.5 g/liter saline (positive control group, C+), 1 liter saline (containing 8.5 g/liter poultry suitable NaCl) and 5.0 g/liter N-acetyl-L-glutamate solution in ovo injected group (NALG group). The solution dose to be used was determined as 0.1 ml/egg. The solutions were freshly prepared and heated in the incubator for 30 minutes before in ovo injection. On day 14 of incubation, the eggs from the hatching trays were cleaned with 75% ethanol, punctured at the blunt ends, except for the eggs in the negative control group, then 0.1 ml was inserted through a 25 mm pinhole into the amnion of each egg in the positive control and N-acetyl-L-glutamate groups. solution was injected.

In the experimental groups, the chicks whose hatching process was finished were waited until they were dry, and then Tona scores were determined in order to evaluate the quality of the chicks. In determining the Tona score, different benchmarks such as the belly area, legs, yolk sac, and activity were evaluated, and the Tona score value was found (Tona et al. 2004).

The early and late mortality rates and infertile egg numbers of unhatched eggs were evaluated by macroscopic examination. The chicks were assigned a wing number at hatching and the measurements were made individually throughout the experiment. The chicks obtained from the experimental groups were raised in the brooder cages for the first three weeks, after sex determination in the third week, they were transferred to the fattening cages and housed there until the 42<sup>nd</sup> day of slaughter age. After hatching, 50 quail chicks were placed in each compartment (82.56 cm<sup>2</sup>/quail) in five-floor, heated brooder cages, where they were housed for the first three weeks. After the 21<sup>st</sup> day, the quails will be housed in 5-storey fattening cages with 19x55x21 cm compartments, at a stocking density of 150



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cm<sup>2</sup>/quail. The chicks were housed at 32 °C for the first three days and the temperature was gradually reduced to 24 °C at the end of the second week. The relative humidity in the poultryhouse was kept constant at 55%. A lighting program of 23 hours light and 1 hour dark was applied to the quails during the fattening period. In this process, quails were fed with powder compound feed containing 24% HP and 2900 kcal/kg ME for the first three weeks, and 21% HP and 3000 kcal/kg ME for the next three weeks.

In the study, the hatching weight and weekly live weights were measured individually until 6 weeks of age. Feed consumption was measured at group level in both brooder cages and fattening cages. The feed conversion ratio was determined individually by dividing the individual body weight gain with the average feed consumption values. The deaths that occurred in the study were recorded daily. At 6 weeks of age, the body weights of all quails were determined 8 hours after feed withdrawal and slaughtered in an experimental processing plant. The birds were manually cut, bled out, scalded (55 °C, 2 min), defeathered with equipment, manually eviscerated, and the abdominal fat pad (from the proventriculus surrounding the gizzard down to the cloaca) was taken, chilled in an ice -water tank, and drained (Narinç et al., 2014). Next day, after carcass dissection, breast with bone and the remaining abdominal fat on cold carcasses were weighed using an electronic digital balance with a sensitivity of 0.01 g. Slaughter and dissection were performed by the same experienced operators. The cold carcass, breast, leg, and wing yields were calculated in relation to body weight (Narinç et al., 2013).

Using the Shapiro Wilk and Levene tests, it was assessed whether the continuous data received from the experimental groups met the assumptions for parametric tests. The variance analysis was performed to assess the differences between group averages for body weight, feed conversion ratio, and characteristics of slaughter-carcasses. In situations where the null hypothesis was rejected, the Duncan multiple range test was used to establish which group or groups were responsible for the observed difference. The generalized linear model analysis with logit function was used to assess the fertility, mortality, hatchability, chick quality data. Statistical significance level was accepted as 0.05 for all hypothesis tests. Using SAS 9.4 software, all statistical analyses were conducted.

### RESULTS

Table 1 shows the averages for fertility, early and late embryo mortality, hatchability and chick quality characteristics, and statistical analysis results. Fertility and early embryonic mortality were not used as the cofactor in hypothesis testing because there were no statistically significant differences between experimental groups in terms of these traits (both  $P > 0.05$ ). Although chick quality characteristics were not affected by in ovo injection of N-acetyl-L-glutamate into embryos in the study, early embryonic mortality and hatchability characteristics deteriorated significantly (both  $P < 0.05$ ).

Table 1. The mean values of hatching results and chick quality characteristics, and statistical analysis results

Group	Fertility	Early Embryonic Mortality	Late Embryonic Mortality	Hatchability	Tona Score
C+	94.00	4.26	9.22 <sup>b</sup>	87.94 <sup>a</sup>	99.30
C-	94.67	4.23	9.15 <sup>b</sup>	86.62 <sup>a</sup>	99.37
NALG	94.67	5.63	30.28 <sup>a</sup>	64.08 <sup>b</sup>	99.36
SEM	1.08	1.03	1.73	1.89	0.07
P Value	0.959	0.816	0.000*	0.000*	0.876

SEM: Standard error of mean, <sup>a-b</sup>: At a significance level of 0.05, there is a difference between means with different letters in the same column

Table 2 presents the mean values for live weight, feed conversion ratio, and mortality characteristics of the experimental groups' quails, as well as the statistical analysis results. This table demonstrates that there is no difference between the hatching weights of the experimental groups' chicks ( $P > 0.05$ ). Therefore, it is known that the chicks are distributed homogeneously among the experimental groups. In terms of body weight of quails at 35 days of age, the highest average (190.24 g) was found in the NALG group ( $P < 0.05$ ), while the averages of the birds in the C+ and C- groups were the lowest. Similar



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results were also observed for the body weight averages at the age of 42 days, and the body weight average (210.37 g) of the quails in the NALG group were found to be higher than those of the other experimental groups ( $P < 0.05$ ). Feed conversion ratios with in ovo injection of N-acetyl-L-glutamate into embryos were better in NALG group quails at both 35 and 42 days of age. In the study, there was no statistical differences between the experimental groups in terms of mortality ( $P > 0.05$ ).

Table 2. The mean values of live weight, feed conversion ratio, and livability of quails in experimental groups, as well as statistical analysis results

Group	HW	BW35	BW42	FCR35	FCR42	Mortality
C+	8.55	184.72 <sup>b</sup>	202.34 <sup>b</sup>	3.07 <sup>a</sup>	3.51 <sup>a</sup>	3.23
C-	8.45	180.05 <sup>b</sup>	199.87 <sup>b</sup>	3.13 <sup>a</sup>	3.55 <sup>a</sup>	3.25
NALG	8.71	190.24 <sup>a</sup>	210.37 <sup>a</sup>	2.96 <sup>b</sup>	3.37 <sup>b</sup>	4.39
SEM	0.05	1.00	1.13	0.02	0.02	1.02
P Value	0.076	0.000*	0.001*	0.002*	0.004*	0.879

HW: Hatching weight (g), BW: Body weight (g), FCR: Feed conversion ratio, SEM: Standard error of mean, <sup>a-b</sup>: At a significance level of 0.05, there is a difference between means with different letters in the same column

Table 3. The mean values of slaughter-carcass traits of quails in experimental groups, as well as statistical analysis results

Group	Carcass, %	Carcass, g	Breast, g	Leg, g	Wing, g	Abdominal Fat, g	Edible Organs, g
C+	139.64	69.03	53.04	31.67	10.43	2.36	11.14
C-	140.58	70.35	51.76	31.18	10.44	2.36	10.52
NALG	147.18	70.01	53.96	33.28	10.99	2.89	11.46
SEM	0.97	0.29	0.43	0.25	0.09	0.07	0.11
P Value	0.005*	0.137	0.114	0.002*	0.022*	0.004*	0.002*

SE: Standard error, <sup>a-b</sup>: At a significance level of 0.05, there is a difference between means with different letters in the same column

The mean values of slaughter-carcass characteristics of quails in experimental groups, and statistical analysis results are presented in Table 3. There were no differences between the experimental groups in terms of carcass weight and breast weight. However, in terms of both carcass yield (%), and weights of leg, wing, abdominal fat, and edible internal organ, the average values of the NALG group quails were higher than those of the other experimental groups (all  $P < 0.05$ ).

### DISCUSSION

There is only one study (Wang et al., 2020) in the scientific literature on the administration of N-acetyl-L-glutamate to poultry embryos by in ovo injection. Wang et al. (2020) administered 0.3 mL of solution containing 1.5 mg/L N-acetyl-L-glutamate to broiler embryos by in ovo injection, and examined the intestinal histology of broiler chickens at hatching, 7 and 14 days of age. According to the results of the study of Wang et al. (2020), hatchability and healthy chick rates (80.34% and 92.62%, respectively) in broiler embryos given N-acetyl-L-glutamate were statistically indifferent compared to the mean values of the negative control group (84.62% and 97.64%, respectively). But interestingly, parametric test was applied for these data, which showed binomial distribution and could not fit normal distribution with transformation. In our study, late embryonic deaths were found to be quite high in the experimental group given N-acetyl-L-glutamate, which also negatively affected hatchability.

In the current study, it was determined that giving N-acetyl-L-glutamate to embryos has positive effects on body weight and feed efficiency. In the study performed by Wang et al. (2020), it was reported that giving N-acetyl-L-glutamate to embryos had no effect on 14-day-old live weight, but improved feed conversion ratio. In addition, in the study performed by Wang et al (2020), it was determined that giving N-acetyl-L-glutamate to embryos has positive effects on intestinal histology. In terms of performance



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characteristics of Japanese quail, the findings of the current study were found to be compatible with the results reported by Wang et al. (2020).

### CONCLUSION

In conclusion, administration of 0.5 mg/L N-acetyl-L-glutamate in 0.1 mL solution to Japanese quail embryos by in ovo feeding has detrimental effects on embryonic viability and hatchability; nevertheless, it has positive effects on live weight, feed efficiency, and slaughter-carcass characteristics. To avoid the negative effects, more studies should be conducted on the administration of various amounts of N-acetyl-L-glutamate via in ovo feeding, and the optimal dose should be determined.

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### EFFECT OF ADDING PASSIONFLOWER EXTRACT TO DRINKING WATER OF JAPANESE QUAILS ON PERFORMANCE AND CARCASS CHARACTERISTICS

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#### **Abstract**

Various organic and natural additives are given to birds in order to improve yield characteristics, protect health and reduce negative environmental effects in poultry. Passionflower (*Passiflora incarnata*) is used as raw phytotherapy material in the pharmacological industry due to its alkaloids, flavonoids, cyanogenic glycosides, sitosterol containing steroids and important fatty acids. This study aims to examine the effects of passionflower methanolic extract added to drinking water at various amounts (100, 200, 300 mg/L) in fattening period on the growth, feed efficiency, viability, and slaughter-carcass characteristics of Japanese quails. In the study, a total of 120 Japanese quails were used, and passionflower methanolic extracts were added to their drinking water daily between 21 and 42 days. In terms of livability, there was no significant difference between the control and experimental groups ( $P>0.05$ ). At 35 and 42 days of age, the control group had the highest average body weights (193.91 and 212.67 g, respectively), while the group that received 300 mg/L passionflower extract in their drinking water had the lowest average body weight ( $P<0.05$ ). At 35 and 42 days of age, there were no statistically significant differences between experimental groups in terms of feed conversion ratios. While there was no difference between experimental groups in terms of average carcass yield and weight, the control group's breast and edible inner organ weights were significantly higher than those of the other groups (both  $P<0.05$ ). Therefore, it was revealed that the addition of passionflower methanolic extract to drinking water had detrimental effects on live weight and some slaughter-carcass traits.

**Keywords:** Passionflower, Feed additives, Alternative feeding, Promoting growth

#### **INTRODUCTION**

Some supplements are provided to birds in order to improve the yield characteristics, protect health, and prevent the detrimental effects of environmental stress factors. These nutritional supplements are often organic components, obtained primarily from therapeutic and aromatic plants, and are given to birds as a feed addition, added to drinking water, or in-ovo. The plants of *Passiflora* family are also included in this group. The three most common species of Passionflower are *Passiflora edulis*, *Passiflora alata*, and *Passiflora incarnata*. This plant is a tropical fruit with a variety of uses. The stem, flower, and seed of the passionflower plant contain considerable amounts of the alkaloids called harmine, harmol, blend, and passiflora, which have sedative and anxiolytic effects in animals and humans. Additionally, it contains essential steroids and fatty acids. These values were determined to be 16.3% CP and 2770 kcal/kg ME, respectively, for the dry matter of *P. edulis* (Torres et al., 2019). Therefore, the majority of research on the usage of *Passiflora* plant in poultry has focused on determining the impacts on yield or the antibacterial effects. Torres et al. (2019) who added different amounts of *P. edulis* flour to the diets of broilers and Molina et al. (2018), who added *P. edulis* extract to their drinking water, reported that as the *P. edulis* intake of the animals increased, there was a decrease in slaughter weight and feed efficiency. In addition, in the study carried out by Molina et al. (2018), it was revealed that *P. edulis* extract added to drinking water has a highly effective antimicrobial effect against coccidiosis disease. In the study performed by Zanetti et al. (2017), various amounts of *P. edulis* seed by-products were



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added to broiler rations, and it was determined that this application had no effect on live weight gain, feed consumption, slaughter-carcass and meat quality characteristics, but had a linearly negative effect on feed efficiency. The aim of this study was to examine the effects of passionflower (*P. incarnata*) methanolic extract added to drinking water at various rates (100, 200, 300 mg/L) during the fattening period on growth, feed efficiency, viability, and slaughter-carcass characteristics of Japanese quails.

### MATERIALS AND METHODS

The study was carried out at Akdeniz University (Antalya-Turkey) and with the decision of the Animal Experiments Local Ethics Committee of Akdeniz University. Japanese quail (*Coturnix japonica*) was used as animal material. The Japanese quails used in the experiment were formed from a total of 120 individuals randomly selected from 800 quail chicks obtained at the same time from a breeder flock. The chicks were assigned a wing number at hatching and the measurements were made individually throughout the experiment. One of the experimental groups was the control group that did not add any additives, and the others were the groups in which 100, 200 and 300 mg/L of methanolic extract of *Passiflora incarnata* flower were added to the drinking water, respectively. A total of 30 chicks were randomly distributed to four experimental groups. Quail chicks were housed in heated brooder cages (82.56 cm<sup>2</sup>/quail) in duplicates for the first three weeks. From the third week onwards, quails were transferred to family type fattening cages (160 cm<sup>2</sup>/quail). In these cages, 100, 200 and 300 mg/L methanolic extract of *Passiflora incarnata* flower was added daily to the drinking water between the ages of 21 and 42 days. The feed containing 24% HP and 2900 kcal/kg ME was given to all quails as *ad libitum* during the fattening period (six weeks).

In the study, the hatching weight and weekly live weights were measured individually until 6 weeks of age. Feed consumption was measured at group level in both brooder cages and fattening cages. The feed conversion ratio was determined individually by dividing the individual body weight gain with the average feed consumption values. The deaths that occurred in the study were recorded daily. At 6 weeks of age, the body weights of all quails were determined 8 hours after feed withdrawal and slaughtered in an experimental processing plant. The birds were manually cut, bled out, scalded (55 °C, 2 min), defeathered with equipment, manually eviscerated, and the abdominal fat pad (from the proventriculus surrounding the gizzard down to the cloaca) was taken, chilled in an ice -water tank, and drained (Narinç et al., 2014). Next day, after carcass dissection, breast with bone and the remaining abdominal fat on cold carcasses were weighed using an electronic digital balance with a sensitivity of 0.01 g. Slaughter and dissection were performed by the same experienced operators. The cold carcass, breast, leg, and wing yields were calculated in relation to body weight (Narinç et al., 2013).

Using the Shapiro Wilk and Levene tests, it was assessed whether the continuous data received from the experimental groups met the assumptions for parametric tests. The variance analysis was performed to assess the differences between group averages for body weight, feed conversion ratio, and characteristics of slaughter-carcasses. In situations where the null hypothesis was rejected, the Duncan multiple range test was used to establish which group or groups were responsible for the observed difference. The generalized linear model analysis with logit function was used to assess the livability data hypothesis. Statistical significance level was accepted as 0.05 for all hypothesis tests. Using SAS 9.4 software, all statistical analyses were conducted.

### RESULTS

Table 1 presents the mean values for live weight, feed conversion ratio, and livability characteristics of the experimental groups' quails, as well as the statistical analysis results. This table demonstrates that there is no difference between the hatching weights of the experimental groups' chicks ( $P>0.05$ ). Therefore, it is known that the chicks are distributed homogeneously among the experimental groups. In terms of body weight of quails at 35 days of age, the highest average (193.91 g) was found in the control group ( $P<0.05$ ), while the averages of the birds that added 200 and 300 mg/L passionflower extract to the drinking water were the lowest. Similar results were also observed for the body weight averages at the age of 42 days, and the body weight average (212.67 g) of the quails in the control group were found to be higher than those of the other experimental groups ( $P<0.05$ ). In the study, there were no statistical differences between the experimental groups in terms of feed conversion ratio averages and livability ( $P>0.05$ ).



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Table 1. The mean values of live weight, feed conversion ratio, and livability of quails in experimental groups, as well as statistical analysis results

Group	HW	BW35	BW42	FCR35	FCR42	Livability
Control	8.46	193.91 <sup>a</sup>	212.67 <sup>a</sup>	2.57	3.19	0.97
P100	8.63	186.92 <sup>ab</sup>	205.90 <sup>ab</sup>	2.60	3.27	0.93
P200	8.91	181.08 <sup>b</sup>	202.27 <sup>ab</sup>	2.60	3.23	0.97
P300	8.55	180.59 <sup>b</sup>	198.38 <sup>b</sup>	2.64	3.28	0.93
SE	0.07	1.61	1.82	0.04	0.05	0.02
P Value	0.136	0.013*	0.044*	0.922	0.905	0.877

HW: Hatching weight (g), BW: Body weight (g), FCR: Feed conversion ratio, SE: Standard error, <sup>a-b</sup>: At a significance level of 0.05, there is a difference between means with different letters in the same column

Table 2. The mean values of slaughter-carcass traits of quails in experimental groups, as well as statistical analysis results

Group	Carcass, %	Carcass, g	Breast, g	Leg, g	Wing, g	Back-Neck, g	Abdominal Fat, g	Edible Organs, g
Control	68.68	146.16	56.92 <sup>a</sup>	33.16	11.11	46.58	2.28	12.13 <sup>a</sup>
P100	69.33	142.23	53.47 <sup>b</sup>	32.26	10.92	45.53	2.22	10.96 <sup>b</sup>
P200	69.46	140.97	52.78 <sup>b</sup>	31.95	10.10	44.96	2.42	11.12 <sup>b</sup>
P300	68.99	136.90	51.48 <sup>b</sup>	30.78	10.24	44.59	2.56	10.89 <sup>b</sup>
SE	0.52	1.67	0.66	0.38	0.16	0.76	0.11	0.17
P Value	0.952	0.278	0.031*	0.186	0.070	0.805	0.692	0.041*

SE: Standard error, <sup>a-b</sup>: At a significance level of 0.05, there is a difference between means with different letters in the same column

The mean values of slaughter-carcass characteristics of quails with different levels of passiflora extract added to drinking water and the control group, and statistical analysis results are presented in Table 2. There were no differences between the experimental groups in terms of carcass weight and carcass yield. However, in terms of both breast and edible internal organ weights, the averages of the control group quails were higher than those of the other experimental groups (both  $P < 0.05$ ).

### DISCUSSION

Torres et al. (2019), who added passionflower flour to the diet of broilers, reported that this practice adversely affected the body weight at the end of fattening. Molina et al. (2018) obtained comparable results when they administered aqueous extract to broilers and reported a decrease in body weight. The results for body weight values in the current study support the findings reported by Molina et al. (2018) and Torres et al. (2019). Levels of passionflower supplemented in drinking water in the rearing period did not influence the feed efficiency of the birds (Table 1). Similar results were observed by Marques et al. (2006) and Silva et al. (2010), who also had not verify any effect of the supplementation with valerian (*Valeriana officinalis L.*), chamomile (*Matricaria chamomilla L.*), and passionflower respectively, on the feed conversion of the birds. Zanetti et al. (2017), adding up to 12.5% passionflower seed by-product to broiler rations, reported that the average body weight and feed consumption did not change, but feed efficiency was adversely affected by this practice. Furthermore, in the study conducted by Torres et al. (2019), it was claimed that the addition of passionflower worsened feed efficiency without changing feed consumption. Torres et al. (2019) also reported that the administration of passionflower to birds had no effect on mortality rates, which is consistent with the current study's findings.

In the study conducted by Zanetti et al. (2017), it was determined that the addition of passionflower seed by-product to broiler rations up to 12.5% did not have any effect on the carcass yield and all of the carcass parts. In the study (Zanetti et al. 2017), which had findings consistent with the current study results, it was reported that liver weight was negatively affected by the addition of passionflower seed



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by-product. Similarly, in the current study, it was determined that the visceral weight average was negatively affected by the addition of passionflower extract to the drinking water of quails.

### CONCLUSION

It is surprising that the addition of passionflower extract to the drinking water of Japanese quails has detrimental impacts on a crucial characteristic, such as body weight, but has no negative effects on feed efficiency or carcass characteristics. The passionflower plant is thought to have a beneficial effect on behavioral traits of birds. In future studies including various doses of passionflower extract, it is advised that animal behavior be evaluated.

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## A REVIEW ON PROJECT-BASED LEARNING

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### Abstract

Following the technological, cultural, economic and social changes in the 21st century; the need for information, media and technology-literate individuals who can respond to the needs of the age and bring solutions to the problems they encounter has increased. Studies are carried out to create learning environments that can transform information in schools, which have an undeniable share in the upbringing of individuals, who can train students with a critical perspective, entrepreneurship and leadership. Project-based learning method, which is one of the contemporary approaches in education, consists of practices that contribute to critical thinking and creativity by improving students' metacognitive skills where group work based on communication and cooperation is made, and students actively participate. The place of the related method, which provides benefits such as taking responsibility, researching, organizing the information, providing interdisciplinary thinking, forming hypotheses, making evaluations and reaching a solution, is considered important in education. In this context, it is aimed to give detailed information about the project-based learning method in this study. Therefore, a review research was conducted by scanning the literature through document review. Following the study, it is concluded that the project-based learning method increases the students' success; improves their self-confidence; affects their analytical, creative and critical thinking skills; contributes to do research by regarding the scientific process; and arouses curiosity towards the course. Issues such as lack of adequate laboratories and materials, uncertainty in choosing a subject, indifference to the lesson were expressed as problems experienced in the project-based learning method. It is thought that the current study will contribute to the related field by being a source for the researches who will plan to carry out the related subject. Moreover, the research can be beneficial for the researchers by helping them to recognize the different aspects of the project-based method.

**Keywords:** Project-based learning, teacher and student roles, academic achievement, learning environment.

### INTRODUCTION

The rapidly increasing technological, cultural and economic changes in the world cause many needs in societies and innovations that can meet the requirements of the age become important and compulsory. In the field of education, which is affected by these global changes in the 21st century, the need for individuals who have the skills to reach the right information, analyze and use the information, shape the information with interdisciplinary studies and transform this information into production continues to increase. Students who can meet the needs of society and find solutions to the problems they encounter



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in daily life are expected to be advanced in 21st century skills such as information, media and technology literacy, creativity, innovation, communication, collaboration, critical thinking, individual and social responsibility, leadership, productivity, entrepreneurship, self-control, flexibility and adaptability (Çepni et al., 2016). Raising individuals who can meet these expectations seems possible by moving away from passive learning in traditional education and by active learning aimed by new approaches in education.

Active learning is a method in which the decisions about the learning process are taken by the student, the student determines his/her own deficiencies and gets help from the teacher when he/she needs it, the way of progress is determined by the student, and the student is active throughout the process. But it is not limited to these (Gurol, 2003). It is emphasized that different teaching methods, including teacher presentations, are important in the active learning method (Açıkgöz, 2005), and that the teacher should observe the student in the lesson and encourage participation in different activities such as asking questions, making explanations, and discussing (Felder & Brent, 1997). In active learning, which is similar to constructivist understanding, students organize and restructure their mental activities with new information. Constructivist approach argues that active participation of students is necessary in the activities and that the student is willing in the learning process (Özden, 2011). In individual or group studies, students should be able to use their learning as a solution to the problems they encounter and be active in the learning process. With all these aspects, the understanding on which active learning is based can be expressed as constructivist understanding (Taş, 2006).

Project-based learning method (PBLM) is one of the methods which is a student-centered learning process and directs students to work in cooperation by giving responsibility. William Heard Kilpatrick, a student of John Dewey, who put forward the first views that formed the basis of PBLM, stated that the concept of project is not new by putting forward ideas that form the basis of the project-based learning method with his article "Project Method" in 1918 (Yıldız, 2012). He emphasized that it consists of activities, theory applications, and value-adding elements, and that education is not a preparation for life, but a way of life and life itself (Korkmaz, 2002). Kilpatrick explains that project-based learning follows an activity-based method in gaining students social and ethical values and in the relationship between concept and learning (Oğuzkan, 1985:95). Some of the explanations about the Project-based learning method, which are seen to have many definitions in the literature review, are as follows:

It is a teaching method in which students gain knowledge and skills by working for a long time – from a week to a semester – to research a unique, complex, curiosity-inducing problem or question, to find solutions or answers. With this method, in which students are actively involved and exhibit a presentation or product as a result, students develop cooperation, creativity, critical thinking and communication skills as well as a deep knowledge of content (Buck institute for education, 2022). In the project-based learning method, which aims to find solutions to real-life problems in cooperation with learners, course principles, concepts and ideas are important (Demirhan, 2002). PBLM, which has features such as defining the problem, doing research in the process of developing solutions, planning and managing the process, integrating information by connecting old and new information, aims to enable students to use their experiences (Diffily, 2002). In a project-based classroom environment where real and meaningful problems are discussed, a learning opportunity is provided in which hypotheses are produced, ideas are explained through question and answer, different ideas are examined and new ideas are encouraged (Krajcik & Blumenfeld, 2006:318).

PBLM adopts a learning approach in which students can design their own processes, work collaboratively by taking responsibility in line with certain goals, individually or in groups. This learning method is based on imagination, planning, design and product development (Erdem, 2002). PBLM provides an environment for students to take responsibility, make decisions by collaborating, make choices, and reach their wishes and goals through in-school and out-of-school activities (Kember, 1995). The project process, which includes complex tasks, consists of decision making, problem solving and design activities that offer students free working environments and end with a product or presentation (Thomas, 2000). In the project-based learning method, the project is considered as an element that leads to a goal, not a goal, a design that foresees process-oriented product development, student-centered, relational learning and a constantly structured mental model. In the process of starting the project, the student can make predictions about the whole process and dimensions of the project (Erdem &



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Akkoyunlu, 2002). PBL, which helps life-long learning, provides students with features such as collaborative research by adding their own life experiences and skills to the problems they encounter, increasing their motivation, and developing resource management skills (Wang & Song, 2005).

PBLM helps students think about real-world problems, ask questions, construct information, and develop social skills by making positive contributions in skills such as creating meaningful structures by bringing together information, critical thinking, problem solving, research, and collaboration. In this process, the teacher acts as a guide, who creates opportunities for students to acquire these skills, evaluates the learning objectives, project content and structure, and students' experiences (David, 2008).

### Method

In this study, a review type research was conducted with the literature review method to determine the importance of the project-based learning approach and its place in the field of education. A literature review study is a study in which studies on the subject are brought together using a systematic method as a result of classification, analysis and comparison by making a literature review on the subject to be researched (Fink, 2009). In this context, the content of the research was formed from the data obtained through "document analysis". Document analysis is one of the qualitative research methods that aims to analyze the subject with a realistic and holistic approach and to reach a deep understanding through the examination of the written sources related to the investigated phenomena and events (Yıldırım & Şimşek, 2013). In the research process, the place and importance of the project-based learning approach in the field of education was tried to be established by using many different database resources such as Google Scholar, YÖK thesis center, and Web of Science. Turkish and English keywords such as "project-based learning method", "project-based learning in education", "project-based learning approach" were used while researching the relevant databases. The data obtained as a result of the studies are presented within the framework of sub-headings, reflecting the content after the analysis and evaluation process.

### Required Characteristics of a Project That Can Be Considered an Example of Project-Based Learning (Thomas, 2000)

1. Projects are in the curriculum. Projects made by students outside the curriculum are not considered as examples of PBL. In addition, the student encounters the disciplinary content through the project and learning takes place. Application projects made after traditional learning are not considered as examples of PBL.
2. Projects are question (Blumenfeld et al., 1991) and problem (Stepien & Gallagher, 1993) focused, which will guide students to the project content and principles.
3. Project activities should include students' structuring of knowledge and interpreting this knowledge by transforming it into new meanings and new skills (Bereiter & Scardamalia, 1999). Project activities that do not cause strain on the mind of the student and can be carried out with old knowledge and skills are an exercise and cannot be considered as a project-based learning project.
4. Projects are student-centered and offer students a space to take responsibility, a free perspective and develop ideas. Projects written by the teacher that lead to a known result using certain paths are not considered project-based learning projects.
5. Projects give a sense of reality with their concretization feature. It is possible to see this feature in criteria such as the role of the student in the project, collaborators, project products, project title and draft.

### The Most Important Features of Project-Based Learning (Powers and Dewaters, 2004)

- It is shaped according to the interests and needs of the student, related to real life problems.
- It is important that the objectives and criteria are well defined for its successful completion.
- It encourages an integrative and critical thinking oriented perspective with prior knowledge.



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- It allows students to take responsibility for their decisions and defend their preferences in the processes of defining, solving and designing the problem. In this process, technology supports project-based learning and helps it to happen effectively (Solomon, 2003).
- Effective cooperation requires teamwork.
- The student actively participates in the whole process of the project (Helle, Tynjala et al., 2006; Yurtluk, 2005), by preparing a presentation and a written report towards the end of the project.
- The project ends with a tangible and real product

### **Advantages (Benefits) and Disadvantages (Limitations) of Project Based Learning Method**

This method allows students to use technology effectively (Erdem & Akkoyunlu, 2002; Korkmaz, 2002; İçelli, Polat & Sülün, 2007), provides such advantages as self-control, scientific process and life skills (Korkmaz, 2004), analyze data, solve problems, and respond to their social environment. developing responsibility (Dori & Tal, 2000), discovering their knowledge and abilities, directing what they have learned to their interests (Preacher, 2003), meaningful, deep and permanent learning, contributing to academic success (Thomas, 2000; Solomon, 2003), critical thinking, responsibility learning, working in cooperation, self-worth and developing skills (Akt; Çiftçi, 2006), discovering different ways, using different intelligence dimensions, associating the acquired knowledge and skills with real life (Korkmaz & Kaptan, 2001), making plans, applying research, self-monitoring and evaluation (Demirhan & Demirel, 2003; Çepni, 2005; Çığık, 2006; Karamustafaoğlu & Yaman, 2006; İçelli, Polat & Sülün, 2007; Toprak, 2007; Kalaycı, 2008), product development learning (Erdem, 2002), active learning, and developing high-level skills (Moursund, 2002).

PBLM has some disadvantages (Çilenti, 1985). These are: It is difficult to determine how much each student worked and how much he contributed to the project in group work. Students who cannot control their own study process may have difficulties in this approach. Since it is a method that requires flexibility in terms of time, the teacher may lag behind in curriculum issues. The teacher may have difficulty in teaching at the same level in the classroom, making it difficult for the students to follow all of them at the same time.

Students may not want to do a project on a subject they do not understand. They may prefer the work to be done in the project to learning skills, may be worried about what might be a product, especially in a risky or uncertain project, and may have difficulty in evaluating (Demirhan & Demirel, 2003). He may be afraid of making mistakes during the project process and may not benefit from the advantages of project-based learning or may make limited use of it (İçelli, Polat, & Sülün, 2007). Teachers may have to learn and use new teaching strategies in order to achieve success, since PBLM is a method in which students actively participate and teachers assume the role of guide and model.

During the project process, teachers can feel that they are learning with their students (İçelli et al., 2007). The fact that the studies take too much time may cause the problem of not using the time effectively (Yurtluk, 2005). In case of indecision and unplannedness in the research process and drawing the boundaries, disintegration and deviation can be observed in the subject (İçelli et al., 2007).

### **Teacher and Student Roles in Project-Based Learning Method**

The teacher undertakes a task that guides students to information throughout the project and guides students to find solutions to the problems they encounter (Helle, Tynjala, & Olkinuora, 2006; İçelli, Polat, & Sülün, 2007). Teachers and students work together in project topic selection, planning activities, and identifying learning points. The teacher helps students in areas where they are needed by making observations throughout the process (İçelli, Polat, & Sülün, 2007; Yurtluk, 2005). The teacher assists students in finding materials and resources, holds group meetings as needed, controls the process and the groups, informs the general topic of the project, guides the groups in discussing topics and information, helps develop research skills, organizes the process for presentation, and discusses plans evaluates what has been learned and project summaries (Demirhan & Demirel, 2003).

Students are in the role of researcher who researches and defines problems in a project, develops hypotheses for solutions and creates products (Yurtluk, 2005). They can work on real-life problems, individually or as a group, in an area they decide for themselves, in line with their interests and abilities,





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and by assuming responsibility (Demirhan & Demirel, 2003; İçelli et al., 2007). Students collect information about their research topics, organize this information and present it through unifying and exploratory thoughts (İçelli et al., 2007). Students plan the subject they will research, do research, select resources and meet with people if needed, implement activities, take responsibility in the group and work in cooperation, collect data, organize information, make predictions, test hypotheses, interpret and determine solutions, find out the findings. They can do many tasks such as combining and summarizing, deciding on the presentation, planning and preparing material for the presentation (Demirhan & Demirel, 2003; İçelli et al., 2007)

### **Theses carried out in Turkey regarding the Project-Based Learning Method**

Ulukaya-Öteleş (2019) investigated the effect of PBLM used in social studies course in the 2017-2018 spring semester on students' academic success, permanent learning, attitudes towards the course and democratic attitudes in the classroom. In this study, in which a quasi-experimental design with pretest and posttest control groups was used, multiple choice questions, attitude scale and democratic attitude scale were used for the unit of the course. According to the data analysis results evaluated with descriptive statistics and Mancova analysis, it was seen that there was a significant difference between the experimental group and the control group, in which PBL was used, in terms of course attitude and academic achievement scores, and it was concluded that PBL approach increased success. However, when the democratic attitude scale score results regarding the classroom environment were examined, it was determined that there was no significant difference between the experimental and control groups. In addition, it was determined that the scores of the experimental and control groups decreased compared to the post-test achievement scores according to the achievement test retention scores of the economic and social life unit.

Taşkın (2018) investigated the effect of PBLM on writing skills and writing anxiety in the study he conducted with a group of 7th grade students in the 2016-2017 academic year. A total of 100 students, two in the control and two in the experimental group, who were selected by impartial assignment from Cengizhan Secondary School in the province of Istanbul, participated in this study. While PBL approach processes were followed in Turkish lessons in the experimental group classes, the current curriculum process was followed in the control group classes. Written expression samples were collected from the students before and after the study and scoring was done with a rubric for written expression skills. In this experimental study, which lasted for 10 weeks, the writing anxiety scale prepared by the researcher was used to measure the writing anxiety of the students. When the quantitatively collected data were analyzed, it was seen that the achievement scores of the experimental groups in written expression skills were higher than the control groups, and the writing anxiety scores changed significantly in favor of the experimental groups. As a result of this study, it can be said that the PBL approach improves the writing skills of the students in the Turkish lesson and is effective in eliminating their writing anxiety.

Koç (2019) investigated the effect of PBLM on students' achievement and metacognitive awareness in mathematics lessons in a study with 4th grade primary school students. This study, which was carried out with a total of 70 students, 36 in the experimental group and 34 in the control group, selected from a primary school in the Merkez district of Kilis in the spring term of 2018-2019, lasted for five weeks. In the pre-test and post-test, data collection tools "Fractures vs. achievement test" and "metacognitive awareness scale A-form for children" were used. As a result of the analyses, it was seen that PTÖY applied in the fractions unit of the mathematics lesson contributed positively to the success and metacognitive awareness of the 4th grade primary school students.

Karagül (2017) examined the effect of layered curriculum supported by PBLM on written expression skills and reading comprehension. In the first semester of the 2014-2015 academic year, an experimental model with pre-test and post-test applied was used in this study with two groups, the experimental group (21 students) and the control group (23 students). The effect of the layered education program supported by PBLM on the success of the students in the Turkish lesson was explained with quantitative techniques, and the views of teachers and students about this method were explained with qualitative techniques. In this study, in which the mixed method was applied, it was concluded that the layered curriculum supported by PBLM was more effective than the current curriculum on the students' written expression skills and reading comprehension. When the opinions of teachers and students were



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examined, it was determined that it was effective for students to adopt this method in Turkish lessons and to develop positive attitudes towards the lesson, and also contributed to the students' acquisition of skills in the lesson by having fun.

Topcu (2019) used a quasi-experimental design with pretest-posttest control group in his study named "The effect of the application of the project-based learning approach in the science course on the success of the students". Experimental and control groups selected by drawing lots from the 7th grade students in the 2016-2017 academic year constituted the universe of the study. The same academic achievement test was applied to the students selected from 75. Yıl Cumhuriyet Secondary School in İzmit district of Kocaeli province as pre-test-post-test and recall test. As a result of this study, in which 9 hypotheses were formed, the pretest-posttest, recall test, experimental group, and control group variables were compared and the independent sample t-test results were evaluated on the table. In these results, it was concluded that there was no difference between the group that teaches with PBLM and the group that teaches with traditional learning. When the statistical results were checked, it was seen that there was no statistical difference even though there was an arithmetic difference.

Bingöl (2019), in her study with 6th grade students, examined the effect of PBLM on students' academic success and critical thinking skills in the social studies course. A total of 59 students, including the control group (29 students) and the experimental group (30 students), participated in this study, which used a pre-test-post-test quasi-experimental design with a comparison group, one of the quantitative research methods. While PBL applications were made with the experimental group for 6 weeks, no additional application was made to the control group. In the study, it was concluded that there was a significant difference in the pretest-posttest scores of the experimental group of the achievement test, and that the PBL approach was effective in increasing academic achievement. It was concluded that there was a significant difference in the achievement test pre-test-post-test comparison of the students in the control group that PBLM increased academic achievement and contributed to critical thinking skills, but these effects were not statistically significant.

Arkan (2021), "Evaluation of the project-based learning approach in English teaching according to the opinions of students, teachers and administrators" participated in the study of 12 English teachers, 12 school administrators and 133 4th grade students who entered the 4th grade classes. Quantitative data were collected through a questionnaire, and qualitative data were collected using an interview form. When the answers given were examined, it was determined that the teachers did not experience difficulties in PBL practices in the English lesson, the students learned the foreign language more easily, their learning levels increased, the participation in the lesson increased, and it provided more permanent learning. In addition, it has been seen that PBLM contributes to student development, motivates students who are active in the process more, attracts students' attention and directs students to research. However, students' inability to use the time effectively, having difficulties in bringing materials, and conflict with their group-mates were stated as difficulties encountered. Teachers stated that during the periods when students have learning difficulties, they create a more understandable learning process with methods such as diversifying the subject, explaining it in different ways, and doing it again.

Börekcı (2018) conducted a study investigating the effect of project-based learning process on students' self-regulation and metacognitive skills with 204 10th grade students who took "secondary school elective project preparation course". The methods of coping with the problems faced by the students and the metacognitive and self-regulation skills they used in the face of problems were measured and compared with the study group in 68 lesson hours during 34 weeks. The only independent variable of the study, in which the voluntary design, which is one of the mixed methods, was used, constituted the quantitative data of PBL and these data were collected through "metacognitive awareness inventory, motivation and learning strategies scale" and qualitative data were collected through thinking aloud sessions over project scenarios. As a result of the study, in which the quasi-experimental model with the pretest-posttest control group was used, it was stated that the course, which was taught within the framework of practices and activities based on PBL, had a positive effect on the development of students' metacognitive and self-regulation skills.

Aydemir (2019) carried out his study named "The effect of science education supported by project-based learning approach on the academic success of 6th grade students and their attitude towards science



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lesson" in two classes as an experimental and a control group. While science education lessons supported by PBLM were taught in the experimental group, the course was taught with the current curriculum in the control group. When the data collected with the "systems in our body and the health of the systems achievement test, science and technology attitude scale, forms related to PBLM for the experimental group" were evaluated, it was seen that there was a significant difference between the pretest-posttest scores of the experimental group students compared to the dependent groups t-test data. . This result showed that students' academic achievement was positively affected in science education supported by PBLM. However, the fact that there was a significant difference between the pretest-posttest scores of the control group students according to the dependent groups' t-test data led the researcher to the conclusion that the current curriculum is rich. The post-test scores of the experimental group and control group showed a significant difference in favor of the experimental group as a result of the independent groups t-test evaluation. Considering the results of calculating the experimental group post-test average as 21.05 and the control group average as 16.85, it was concluded that science education supported by PBLM was more effective than the current program in increasing academic achievement.

### **Some article studies in the literature that include opinions about project studies**

Çetin and Şengezer (2013) conducted interviews with 27 secondary school students in the 6th, 7th and 8th grades through a semi-structured interview form in their study on "secondary school students' views on project work". When the results of the research were evaluated, it was revealed that the students were willing and positive in terms of personal development, cooperation, interest and satisfaction towards the project work, but there were deficiencies in the operation and process of the project. When the opinions they gave to the question of why the project work is interesting are examined, it is seen that it provides a good future, makes life easier, helps their development, increases group work and success, is interesting because they are different and interesting projects, makes it possible to make effort, gives pleasure to produce and explore. Expressions were found. In addition, it was stated that the project works developed dexterity, brought a sense of responsibility and a different perspective, affected the worlds of imagination and thought, made them understand the lessons better, developed unity and solidarity, contributed to the use of technology, developed self-confidence, and helped them to be useful to themselves and the society.

In the study of Sulün, Ekiz and Sülün titled "The opinions of the students about the attitudes of the students towards the science and technology lesson", the opinions of the students who participated in the project competition at the 6th, 7th and 8th grade levels were investigated. A 16-item Likert-type questionnaire was applied to the students and 5 more questions were asked, 1 of which was structured and 4 of which were open-ended, and the data were analyzed with the SPSS 11.0 program. As a result of the analysis, the attitudes of the 7th and 8th grade students towards the Science and Technology lesson were found to be lower than the 6th grade students and no significant difference was observed. In addition, female students' attitudes towards the course were found to be higher than male students and a significant difference was observed in favor of female students. In the research, among the reasons why project studies increase students' interest in science and science, it was concluded that obtaining new information, doing research, being scientific, finding solutions to problems, being close to the teacher, being popular subjects and knowing that it is important are important. Teachers' positive views on project work include developing scientific thinking skills, creativity, transferring them to daily life, doing research, social environment, acquiring new information, concentrating on interests, feeling of self-confidence, communication skills and cooperation. The answers given to the negative opinions were stated as no difficulties, time, financial problems, increased responsibility of teachers, lack of materials, and preparation for LGS.

Saracaloğlu and Çelik (2018) participated in the study titled "The evaluation of the use of project-based learning approach in web design and programming course teaching according to student opinions" and 24 11th grade students studying in the field of information technologies at vocational high schools. The students expressed their views on the use of PBLM in the web design and programming course through the questions in the semi-structured interview form. In the students' opinions about the effect of PBLM on learning, it was stated that it is practice-oriented, it provides permanence, it is effective in learning by research, reinforcement and active participation in the lesson, it provides web design proficiency, it has effects that increase motivation, interest and attention, and increase interest in the lesson. Inadequate



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time, lack of theoretical knowledge, problems with friends and teachers, hardware problems, communication problems, lack of application, problems related to evaluation are expressed as problems encountered. In the views about the teaching of the course, the themes of increasing the duration of the project, giving more space to group work, the necessity of projects compatible with life, the need to follow the projects well, the necessity of making learning environments ready, and the necessity of determining evaluation criteria were formed. The research revealed the idea that the approach should be used in other courses as it has features such as being practical, providing active learning and permanence, supporting the use of visual intelligence, supporting effective collaborative learning, developing critical thinking and creativity.

Atalrış, Ata, and Seluk (2018) evaluated their interviews with 178 school principals and project executive teachers and 192 students from a province in Turkey in the study titled "The views of administrators, executives and students on TUBITAK 4006 projects" with content analysis. In the research, results such as contributing to the cognitive development of students, increasing their willingness to participate in social cultural activities, gaining self-confidence, providing creativity, positively affecting their cognitive and affective behaviors, and supporting their visual and physical development have been achieved. In addition, it was stated that the projects increased the tendency of parents to contribute more to the school, turned the school into a science center, added a new and different excitement to education, and attracted the attention of local governments.

Okuyucu (2019) used a semi-structured interview form with 15 advisor teachers and 15 students in a school that organized the 4006-TUBITAK science fair in the spring semester of the 2017-2018 academic year and reached the results through content analysis. In the study, they expressed their views on the science fair with words such as creativity, production, leadership, abstract thinking, entrepreneurship, enjoyable, fun, brainstorming, research, discovery, curiosity, happiness and pride. In the opinions about the students' project preparation, it was concluded that the projects provided the students to be determined and patient, developed their self-confidence, contributed to their analytical, creative and critical thinking skills, had a positive effect on taking responsibility, and ensured planned work. On the other hand, it was observed that it contributed to the skills of mentoring teachers and carrying out project stages. In the study, they expressed the problems they experienced in the science fair as lack of laboratory, students' exam anxiety, lack of equipment, teacher's lack of course intensity and project experience, student's inadequacy in the project stages, and the administration's not giving enough importance.

### DISCUSSION & CONCLUSION

In the developing world, it seems possible to catch up with technological innovations and to have a say among successful countries by being a science literate society (Korkmaz & Kaptan, 2001). Such a society consists of individuals who have developed the ability to use scientific process skills effectively, can comprehend the cause-effect relationships between the events they encounter, can offer solutions to new problems, and can use high-level mental skills (Korkmaz & Kaptan, 2001; Koseođlu, Tumay & Budak, 2008). PBLM, the most important feature of which is to teach learning, is a method that enables students to access information with their own efforts, to use this information by carrying it into the fields they encounter, to conduct research by following the scientific process stages, and to present the collected information in a meaningful integrity. With this method, the student gains skills in discovering their own learning style (Preacher, 2003).

In the literature review on PBLM, it was found that the projects improved students' metacognitive skills (Borekci, 2018; Rahman et al., 2009; Sart, 2014; Sezer, 2019) and positively affected self-regulation skills (Boreki, 2018; Rahman et al., 2009). makes a significant difference in the perception of self-efficacy (Tonbulođlu et al., 2013), provides permanence in learning (Arıkan, 2021, Uzun 2007), brings responsibility (zpinar & Aydođan Yenmez, 2017; Hancock, Storey, Downing, & Szewczak, 2001), critical thinking, which increases course success (Baran, 2007; eliker, 2012; Deđirmenci, 2011; Gven, 2011; İmer, 2008; Keskin, 2011; Nikbay, 2009; zbek, 2010; Serttrk, 2008; Sezgin, 2008; Tortop, 2010). It has been concluded that it has a positive effect on creative thinking and scientific process skills (Birinci, 2008).



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In his meta-analysis study, in which he examined the effect of PBL on students' academic achievement and attitudes, Kaşarcı (2013) analyzed the experimental studies carried out with PBL in Turkey between 2001-2011 and brought together the findings numerically. In the study, the classification developed by Cohen (1977) was used and the effect size was found to be 84.85%, corresponding to 1.03 in the z-table. With this evaluation, the researcher concluded that project-based learning increased the academic success of students by 84%. When the result about the attitude with an effect size value of 76.73% was evaluated, it was concluded that PBL increased students' attitudes towards the course by 76.73% compared to the normal curriculum. When the findings of the study were examined, it was concluded that PBL statistically increased the duration of application, teaching level, subject area and generally the academic achievement and attitudes of the students towards the course.

Balemen (2016) calculated the overall effect size as  $d=1.06$  (corresponding value in the z-table=86.6%) in his research titled "Effectiveness of project-based learning approach in science education: meta-analysis study". According to this result, students showed 86.6% higher success with PBLM than with the traditional method. According to the education level effect size of the study, it was stated that PBLM is effective at all education levels and can be used at all levels. In addition, it was stated that PBLM applications were effective in Science, Physics, Chemistry and Biology lessons, had a high effect value when used alone or in combination with other techniques, and showed positive results at primary, secondary and higher education levels. When these studies in the literature are evaluated, it is considered important that the activities and practices related to PBLM continue increasingly at all grade levels and that the studies to be carried out in this field are examined in different courses and through different scientific methods.

When the studies conducted in the project area are examined in the literature, it is seen that there are studies on the effects of research projects and science fair activities organized by TUBITAK on student achievement and attitudes (Yıldırım, 2018; Avcı et al., 2016; Tortop, 2014; Şahin, 2012; Sözer, 2017; Similar and Universal, 2019; Okuucu, 2019; Başar et al., 2018). When these studies were examined, it was concluded that the projects contributed to the development of positive attitudes, and supported gains such as self-confidence and innovation, observation and research skills, self-knowledge, being conscious, contributing to daily life, communication skills, entrepreneurship, creativity, and problem-solving skills. Durmaz, Oğuzhan Dinçer, and Osmanoğlu's 3rd grade students taking the "Community Service Practices" course at the Faculty of Education, Department of Science Education, and 6th-8th grade students studying at different schools. In their study, they aimed to examine the effects of science fair practices on pre-service teachers' science teaching and students' attitudes towards science. As a result of the study, it was concluded that the practices significantly affected the attitudes of prospective teachers and students towards science teaching. In the literature review, it is seen that there are studies supporting this result (Bencze & Bowen, 2009; Hughes, 2004; Hume & Cool, 2008; Potvin & Hasni, 2014). In the study of Yaşar and Baker (2003) on the results of the study that science fair activities do not positively affect students' attitudes towards science lesson, they did not find a significant difference between the experimental and control groups in terms of attitude, Jaworski (2013) stated that there was no change in the attitudes of middle school students towards science, even a decrease. Finnerty (2013) stated that although there was no significant difference in the attitudes towards science between the students who attended and did not attend the science fair, the students benefited from the science fair applications. When these results are evaluated, it is considered important to conduct research that examines the contribution of science fair activities and research projects to the PBL method in terms of different variables.

In the study conducted by Timur and İmer Çetin (2017) on the competencies of science and technology teachers for project development, they concluded that the participants did not consider themselves competent about the project, but after the in-service training, they became more competent about the project development processes. The problems faced by the teachers during the project preparation process are stated as financial difficulties, not being able to allocate enough time, spatial difficulties (especially the inadequacy of science laboratories where experiments can be carried out), pressure from school administrations about the project, not giving the necessary importance to the projects, and lack of competence to compete with private schools in many respects. Bringing laboratories with the capacity to produce projects to schools, encouraging the National Education Directorates and school



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administrations to play an encouraging role in preparing projects, and supporting the teachers and students participating in the project financially and morally can be solutions to overcome these problems. In addition, it was stated that the biggest problem faced by teachers was generating new ideas and finding a project topic. In the literature review, it is seen that there are studies similar to this result (Akdağ & Çoklar, 2009; Arı, 2010; Baki & Bütüner, 2009; Kaya, 2020; Oğuz Ünver, Arabacıoğlu & Okulu, 2015; Öztuna Kaplan & Diker Coşkun, 2012). In addition, there are studies showing that teachers have difficulties in writing project evaluation reports (Alves et al., 2016; Arı, 2010, Timur & İmer Çetin, 2017). In order to eliminate these problems faced by teachers, the number of in-service trainings on the project can be increased, and thus more teachers can be trained to ensure that they are equipped on this subject. In addition, face-to-face trainings and practical group work on project activities can facilitate the project process by giving teachers ideas for more efficient training and integrating the projects into the lesson (finding a topic, writing an evaluation report, etc.). Arıkan (2021), in his study, determined that teachers' difficulties in setting goals in PBLM practices may be due to differences in students' interests and levels, differences in parent portfolios, and time-related reasons. In some studies, the reasons for the problems related to PBLM were expressed as students' indifference to the lesson and being disconnected from the lesson, the families not being interested in their children's lessons, and the low level of family education (Anılan, Kılıç, & Demir, 2015; Toker Gökçe, 2013). Encouraging students to do projects that are appropriate for their level of interest and curiosity, being able to guide them whenever they need, can be helpful in motivating students and keeping them interested in the lesson. In order to solve the time-related problem, project courses can be assigned to each school level, and cooperation can be made with academicians and project coordinators for these courses. Practices related to PBLM can be included in the lessons, and its applicability and effectiveness can be studied together with different methods.

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### PHYSICAL AND MECHANICAL PROPERTIES OF MORTARS CONTAINING WASTE STEEL SLAG INSTEAD OF PORTLAND CEMENT

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#### Abstract

Carbon dioxide (CO<sub>2</sub>) released into the atmosphere during the production of Portland cement (PC) is an important factor causing global warming. Therefore, studies are carried out on different materials to reduce PC consumption. The physical and mechanical properties of mortars containing waste steel slag (SS) instead of PC were investigated in this study. For this purpose, the effect levels of SS ratio and specimen age (effect variables) on the water absorption ratio, ultrasonic pulse velocity, flexural strength, and compressive strength (response variables) were determined. It is aimed to balance the ecosystem, reduce PC consumption, and minimize carbon footprint by using SS. Mortar specimens were produced using PC, SS, CEN standard sand, and distilled water. SS ratios are 0%, 10%, 25%, 35%, and 50% by weight of cement. Specimen ages are 28, 60, and 90 days. The water/cement ratio is taken as 0.5. In the study, 90 mortar specimens (40×40×160 mm) were produced. The specimens were cured in water saturated with lime at 20±2°C until the test date. The ultrasonic pulse velocity, flexural strength, and compressive strength at 28, 60, and 90-days are increased as the SS ratio is increased. However, the water absorption ratio is decreased. The compressive strength of specimens with a 10% SS and the reference specimens are almost the same at 60 and 90-days (44.4 MPa and 42.6 MPa, respectively). Therefore, it can be said that the optimum usage ratio of SS is 10%. In mortars with a 10% SS ratio, the decrease in compressive strength of the 28-day specimens is higher than the 60 and 90-day specimens. It shows that SS is more effective on the mechanical properties of specimens at advanced ages.

**Keywords:** Waste steel slag, water absorption, ultrasonic pulse velocity, flexural strength, compressive strength.

#### INTRODUCTION

Today, cement is one of the most consumed materials globally after water (Gencel et al., 2021). While the amount of cement produced in the world in 2021 is 4.4 billion tons, it is 76 million tons in Turkey (USGS, 2021). Considering that the carbon dioxide (CO<sub>2</sub>) emissions caused by the cement sector constitute about 8% of the total CO<sub>2</sub> emissions, it is seen how important a role it plays in global climate change (Holden et al., 2014). Different materials are used to reduce the amount of cement in concrete due to intense energy consumption and harmful environmental effects.

Waste materials obtained as a by-product of various metal industries are called slag. Slags have different chemical components and properties depending on the main product type and production methods of the metal industry from which they are obtained. While slags of metals such as nickel and copper have only pozzolanic properties, slags obtained from iron-steel production have binding properties on their own (Tokyay and Erdoğdu, 2009). Pig iron is prepared by pouring the liquid raw steel remaining at the



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bottom of the furnace into ingot molds as a result of processing the iron ore in the blast furnace. As a result of processing and cooling the pig iron, steel slag (SS) is obtained (Amran et al., 2021).

SS is used as a substitute for fine aggregate (Chunlin et al., 2011; Devi and Gnanavel, 2014; Olonade et al., 2015; Rajan and Suchithra, 2017; Rehman et al., 2018), coarse aggregate (Devi and Gnanavel, 2014; Nageib et al., 2014; Qasrawi, 2014; Subramani and Ravi, 2015), and Portland cement (PC) (Dongxue et al., 1997; Hidayah et al., 2016; Hu, 2017; Li et al., 2009; Pan et al., 2019; Peng and Hwang, 2012; Wang et al., 2013).

Hidayah et al. (2016), Pan et al. (2019), Peng and Hwang (2012), and Li et al. (2009) determined that the optimal SS usage ratio is 10% instead of PC. Substitution of 10% SS instead of PC increased the compressive strength by 27% compared to the reference sample. Workability decreased with the use of SS due to surface roughness (Hidayah et al., 2016). In the production of self-compacting concrete (SCC), 10% SS substitution instead of PC improved mechanical properties, decreased chloride permeability with carbonation depth (Pan et al., 2019), reduced slump value, extended setting time, and when the w/c ratio exceeds 0.28 increased compressive strength (Peng and Hwang, 2012). The compressive strength decreased with the increase of SS and when used with mineral additives the expansion rate resulting from alkali-aggregate reaction decreased below 50% (Li et al., 2009).

Hu (2017) and Dongxue et al. (1997) determined that the optimum rate of SS use is 30% instead of PC. With 30% SS instead of PC, the hydration time was prolonged compared to conventional concrete. Also, similar to the finding in the study of Pan et al. (2019), the carbonation depth decreased significantly after 720 days (Hu, 2017). Although SS substituted cement was more durable than PC, SS substitution slowed down the alkaline reaction.

Wang et al. (2013) determined that the optimum use of SS instead of PC is 25-45%. Too fine SS has higher early age compressive strength compared to standard slag and has lower compressive strength than cement. Substitution of very fine SS for cement due to its low activity index weakened the binding of concrete.

In the study, the effect of substituting SS for PC on the physical/mechanical properties of mortars was investigated. Models with high estimation accuracy were obtained depending on the effects of SS ratio and sample age on response variables (water absorption ratio, ultrasonic pulse velocity, flexural, and compressive strength). It is aimed to balance the ecosystem, alleviate the burden on natural resources, provide economic developments in the cement industry and reduce the carbon footprint through the efficient use of SS.

### MATERIAL AND METHOD

In this study, the effects of steel slag (SS) ratio and sample age on water absorption ratio (WAR), ultrasonic pulse velocity (UPV), flexural ( $f_f$ ), and compressive strength ( $f_c$ ) were investigated.

#### Material

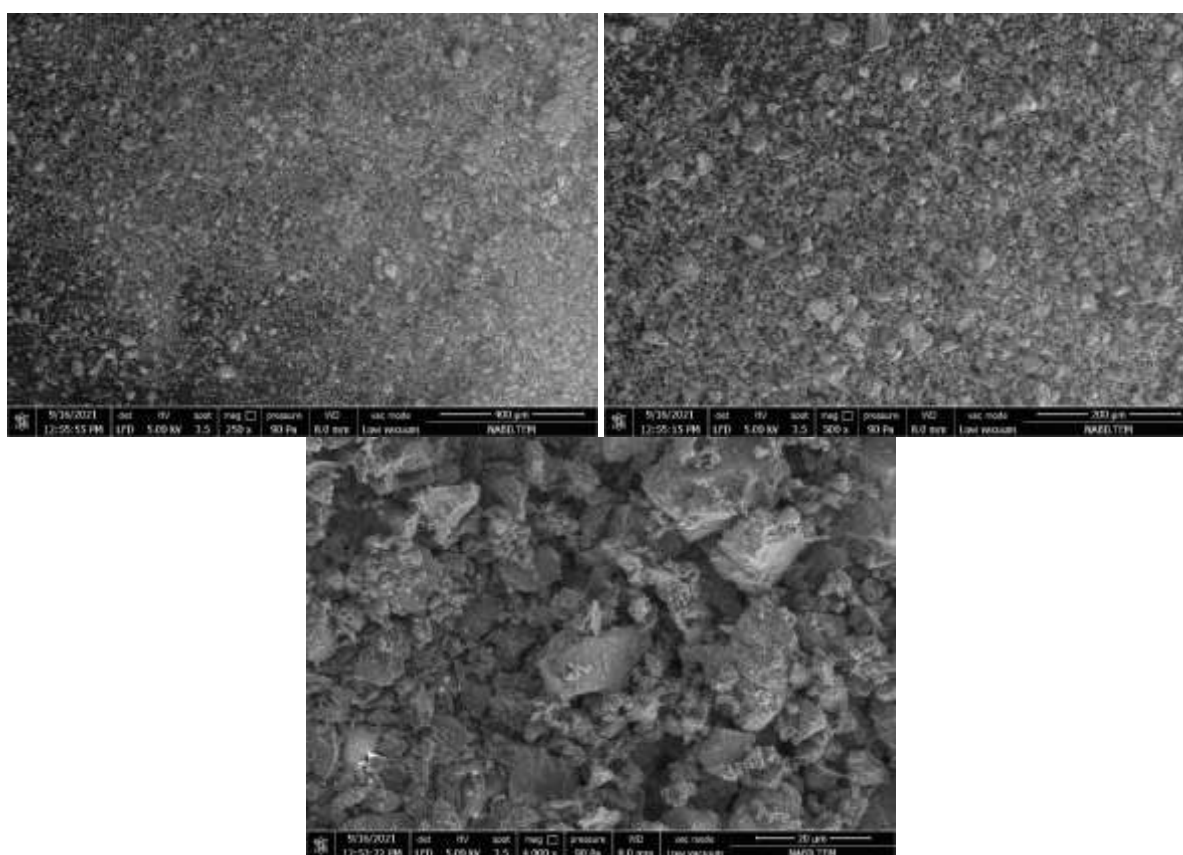
PC (CEM I 42.5 R), SS, CEN standard sand, and distilled water were used in the production of the mortar samples. The chemical and physical properties of the PC and SEM images are shown in Table 1 and Figure 1, respectively. No porous structure is observed in cement grains with angular and smooth surfaces (Figure 1).



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**Table 1.** The chemical and physical properties of the PC

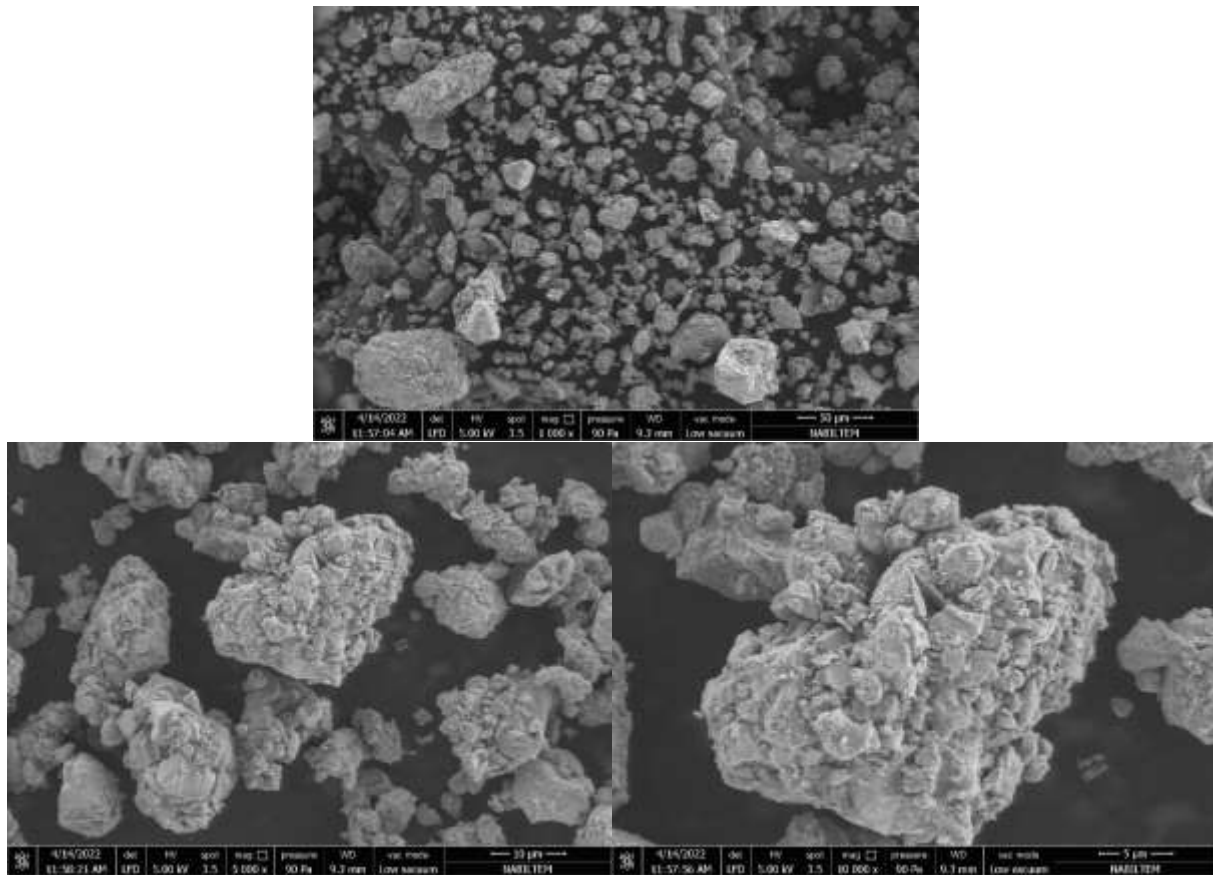
Chemical properties, %										
SiO <sub>2</sub> -Solute	CaO	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	SO <sub>3</sub>	Cl	Insoluble Residue	NaO/K <sub>2</sub> O	Loss of Ignition	F. CaO – Free Lime
19.88	62.62	5.23	3.60	0.85	3.23	0.03	0.96	0.58/0.74	2.45	1.20
Physical properties										
Specific Gravity, gr/cm <sup>3</sup>	Setting Time, min.		Volume Expansion, mm	Fineness						
	Start	Finish		Specific Surface, cm <sup>2</sup> /gr	Sieve Residue (45µm), %	Sieve Residue (90µm), %				
3.16	119	170	1	3550	3.1	0.2				



**Figure 1.** SEM images of PC

SS was obtained from an iron-steel factory located in the Thrace region and was sieved through 75-micron sieves. The SEM images of SS are shown in Figure 2.





**Figure 2.** The SEM images of SS

The chemical properties of the SS are shown in Table 2.

**Table 2.** The chemical properties of the SS

Properties	Method	Results	Standard Values (TS EN 450-1)
SiO <sub>2</sub> (%)	TS EN 196-2	8.63	> 25
Al <sub>2</sub> O <sub>3</sub> (%)		2.46	-
Fe <sub>2</sub> O <sub>3</sub> (%)		62.41	-
R <sub>2</sub> O <sub>3</sub> (Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> )		64.87	-
S+A+F (SiO <sub>2</sub> + Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> )		73.50	> 70
CaO (%)		6.24	-
MgO (%)		1.13	≤ 4
Cl <sup>-</sup> (%)		-	≤ 0.1
SO <sub>3</sub> (%)		0.18	≤ 3
Loss of Ignition (%)		0.60	≤ 5
Insoluble Residue (%)		1.49	-
Alkalinity (Na <sub>2</sub> O/K <sub>2</sub> O) (%)		1.29/0.31	-

### Method

In the study, 90 mortar samples (40×40×160 mm) were produced according to TS EN 196-1 (2016). The samples were cured in water until the test day. SS ratio is 0%, 10%, 25%, 35%, and 50% by weight of binder. The sample age is 28, 60, and 90 days. The experimental study plan is given in Table 3. Workability, ultrasonic pulse velocity, water absorption ratio, flexural, and compressive strength of the mortar samples were determined.





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**Table 3.** The experimental study plan

Codes	Number of Samples	SS Ratio (%)	Sample Ages (day)	PC (g)	Water (g)	Sand (g)	SS (g)
R-28	6	0	28	900	450	2700	0
PC-%10-28	6	10	28	810	450	2700	90
PC-%25-28	6	25	28	675	450	2700	225
PC-%35-28	6	35	28	585	450	2700	315
PC-%50-28	6	50	28	450	450	2700	450
R-60	6	0	60	900	450	2700	0
PC-%10-60	6	10	60	810	450	2700	90
PC-%25-60	6	25	60	675	450	2700	225
PC-%35-60	6	35	60	585	450	2700	315
PC-%50-60	6	50	60	450	450	2700	450
R-90	6	0	90	900	450	2700	0
PC-%10-90	6	10	90	810	450	2700	90
PC-%25-90	6	25	90	675	450	2700	225
PC-%35-90	6	35	90	585	450	2700	315
PC-%50-90	6	50	90	450	450	2700	450

An ultrasonic pulse velocity test was carried out by TS EN 12504-4 (2012). The workability of the fresh mortar samples was determined by the flow-table test (Figure 3) performed by the TS EN 1015-3 (2000). The flow-table value of SS substituted mortars is 11.25-12.25 cm (reference sample: 13.25 cm). 10% SS substitution reduced the flow-table value by 20 mm (11.25 cm).



**Figure 3.** Flow-table test

Flexural strength ( $f_f$ , MPa) was determined according to TS EN 196-1 (2016) by applying 3-point loading (Figure 4a). The compressive strength ( $f_c$ , MPa) was determined by the test (Figure 4b) performed according to the TS EN 196-1 (2016) on half prisms divided into two parts during the flexural test.



**Figure 4.** Flexural Strength (a) and Compressive Strength (b) Tests

### RESULTS

The values for the run were obtained by averaging the test results of 4 samples (15 runs and 60 samples). The variations of ultrasonic pulse velocity (UPV), water absorption ratio (WAR), flexural ( $f_f$ ), and compressive strength ( $f_c$ ) depending on the SS ratio are given in Figure 5. Test results are shown in Table 4. In general, the increase in the SS ratio decreased the UPV,  $f_f$ , and  $f_c$  of the 28, 60, and 90-day samples with the effect of the increase in the void ratio while increasing WAR. 10% SS substitution

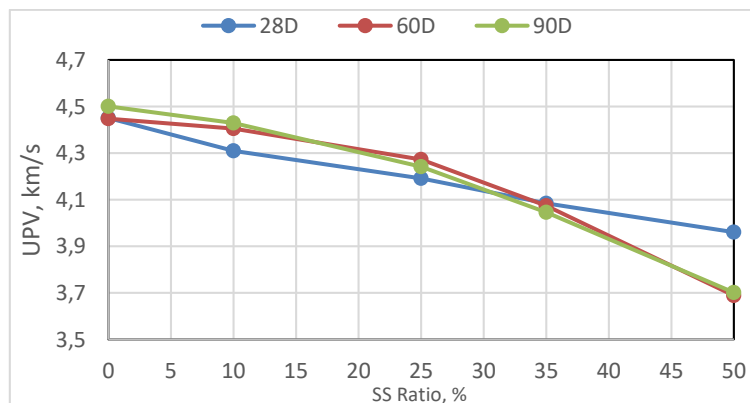
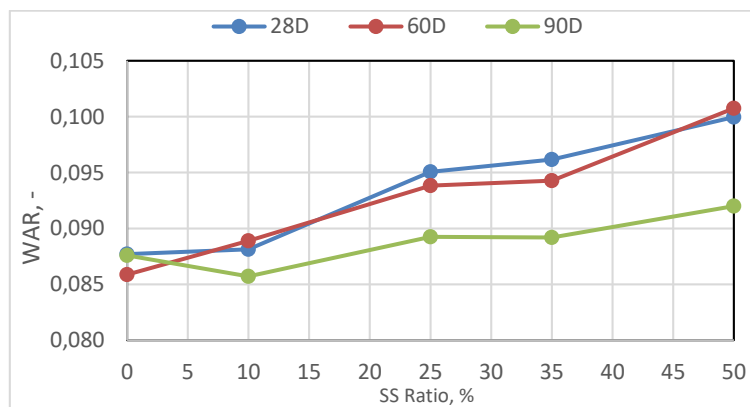


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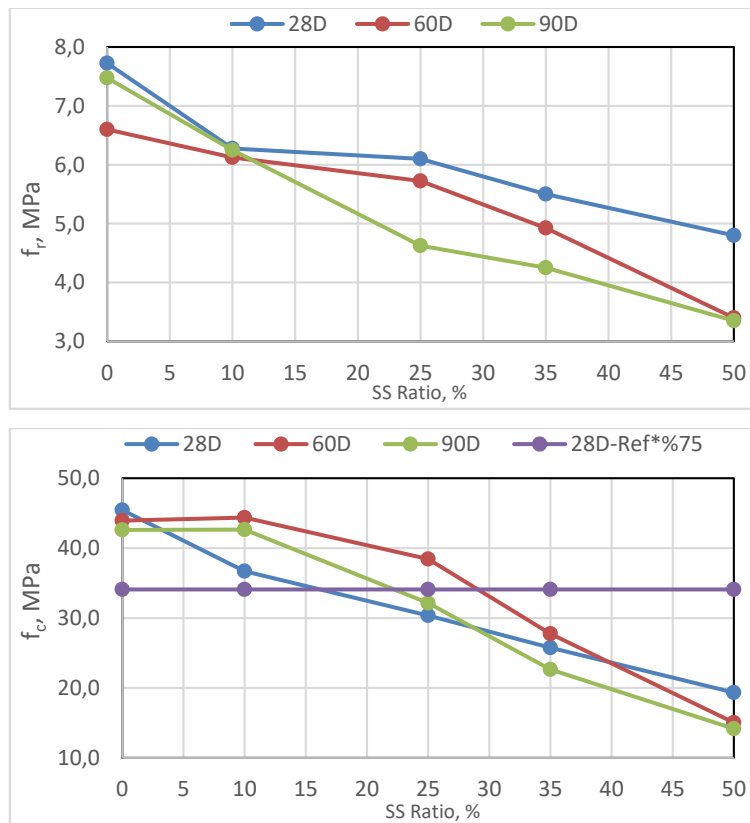
decreased the 90-day WAR and increased the 60-day  $f_c$ . However, these changes did not affect the general trend of variation. More than 25% SS substitution reduced the 60-day  $f_c$  more than up to 25% SS substitution. Up to 35% SS substitution, the 60-day  $f_c$  is higher than the 28 and 90-day  $f_c$ . The highest  $f_c$  was 44.4 MPa and was obtained from a 60-day sample with 10% SS substitution. The general view in the literature states that the optimum SS usage ratio is 10%. It is seen that the result obtained from the study is compatible with the literature.

**Table 4. Test Results**

Run	Codes	SS Ratio	Sample Age	WAR	UPV	$f_r$	$f_c$
-	-	%	day	-	km/s	MPa	MPa
1	R-28	0	28	0.088	4.451	7.725	45.450
2	PC-%10-28	10	28	0.088	4.310	6.275	36.713
3	PC-%25-28	25	28	0.095	4.191	6.100	30.363
4	PC-%35-28	35	28	0.096	4.084	5.500	25.750
5	PC-%50-28	50	28	0.100	3.961	4.800	19.338
6	R-60	0	60	0.086	4.448	6.600	43.938
7	PC-%10-60	10	60	0.089	4.405	6.125	44.363
8	PC-%25-60	25	60	0.094	4.272	5.725	38.450
9	PC-%35-60	35	60	0.094	4.074	4.925	27.750
10	PC-%50-60	50	60	0.101	3.689	3.400	15.050
11	R-90	0	90	0.088	4.501	7.475	42.613
12	PC-%10-90	10	90	0.086	4.429	6.250	42.663
13	PC-%25-90	25	90	0.089	4.241	4.625	32.138
14	PC-%35-90	35	90	0.089	4.046	4.250	22.638
15	PC-%50-90	50	90	0.092	3.702	3.350	14.175



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**Figure 5.** The variations of UPV, WAR,  $f_r$ , and  $f_c$  depending on the SS ratio

The effect levels of the SS ratio and sample age on the responses (UPV, WAR,  $f_r$ ,  $f_c$ ) were obtained by ANOVA. Results are given in Table 5. Significant models were obtained for WAR, UPV,  $f_r$ , and  $f_c$ . While the SS ratio in the selected ranges of variation had a significant effect on all response variables ( $p$ -value $<0.05$ ), the sample age in the selected ranges of variation did not have a significant effect on UPV and  $f_c$  ( $p$ -value $>0.05$ ).

**Table 5.** ANOVA results

Source	WAR		UPV		$f_r$		$f_c$	
	p-value	*Sgnf.	p-value	*Sgnf.	p-value	*Sgnf.	p-value	*Sgnf.
Model	<0.0001	+	<0.0001	+	<0.0001	+	<0.0001	+
A-SS Ratio	<0.0001	+	<0.0001	+	<0.0001	+	<0.0001	+
B-Sample Age	0.0014	+	0.5243	-	0.0069	+	0.7724	-
AB	0.0293	+	0.0075	+				
A <sup>2</sup>			0.0116	+				

\*Sgnf.; Significance, +; Significant, -; Not significant

### DISCUSSION AND CONCLUSIONS

In the study, the effects of the SS ratio and sample age on the physical and mechanical properties of mortars were investigated.

- The increase in the SS ratio decreased the UPV,  $f_r$ , and  $f_c$  of the 28, 60, and 90-day samples with the effect of the increase in the void ratio while increasing WAR.
- More than 25% SS substitution reduced the 60-day  $f_c$  more than up to 25% SS substitution. Up to 35% SS substitution, the 60-day  $f_c$  is higher than the 28 and 90-day  $f_c$ .



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- The highest  $f_c$  was 44.4 MPa and was obtained from a 60-day sample with 10% SS substitution.
- The general view in the literature states that the optimum SS usage ratio is 10%. It is seen that the result obtained from the study is compatible with the literature.
- The reason for the decrease in compressive strength with the increase in the SS ratio is due to the lower CaO and SiO<sub>2</sub> content of SS compared to PC.
- Significant models were obtained for WAR, UPV,  $f_t$ , and  $f_c$ .
- While the SS ratio in the selected ranges of variation had a significant effect on all response variables ( $p$ -value<0.05), the sample age in the selected ranges of variation did not have a significant effect on UPV and  $f_c$  ( $p$ -value>0.05).

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### INVESTIGATION OF PHYSICAL AND MECHANICAL PROPERTIES OF MORTARS CONTAINING WASTE STEEL SLAG WITH REPLACEMENT TO STANDARD SAND

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#### Abstract

Sand is the world's most consumed raw material after water and the second largest resource by volume traded. The increasing demand for building and technological developments in the last 20 years has increased the consumption of sand, and this is harmed the environment. Therefore, studies are carried out on different materials to decrease the consumption of sand. In the study, the physical and mechanical properties of mortars containing steel slag (SS) with replacement to standard sand were investigated. For this purpose, the effect levels of the effect variables (SS ratio and specimen age) on the response variables (water absorption ratio, ultrasonic pulse velocity, flexural strength, and compressive strength) were determined. It is aimed to alleviate the burden on natural resources by using SS. Mortar specimens were produced using PC, SS (0%, 15%, 25%, 35%, 50%, 70%, and 100% by weight of standard sand), CEN standard sand, distilled water, and plasticizer. Specimen ages are selected as 28, 60, and 90-days. In the study, 126 mortar specimens (40×40×160 mm) were produced. The specimens were cured at 20±2° and lime-saturated water. The variation in compressive strength of 28 and 90-day specimens is little up to 70% SS ratio. However, the compressive strength of the specimens of both ages, especially the samples of 28 days, is decreased at a 100% SS ratio. Compared to the specimens with a 0% SS ratio, the compressive strength of the 60-day samples decreased by 4.0 MPa at 25% SS ratio, 7.4 MPa increased at 50% SS ratio, and 1.13 MPa decreased at 100% SS ratio.

**Keywords:** Waste steel slag, water absorption, ultrasonic pulse velocity, flexural strength, compressive strength.

#### INTRODUCTION

Over 7 billion tons of concrete are produced annually worldwide (Topçu, 2021). While the amount of concrete produced in EU countries in 2020 is 253 million m<sup>3</sup>, it is 95 million m<sup>3</sup> in Turkey (ERMCO, 2021). Concrete has many advantages, such as high compressive strength, being resistant to fire and corrosion, requiring less energy for the supply of raw materials, having a rigid structure, easy maintenance, comfortable collection of components, and being cheap (Erdoğan, 2015b).

Sand is natural aggregates obtained from natural resources, has not been subjected to any process that will cause changes in its structures (Erdoğan, 2015a), and is produced through mining applications that harm the environment (UNEP, 2019). Approximately 40-50 billion tons of sand are used worldwide in the construction sector every year. Compared to the situation 20 years ago, it is observed that the use of sand in the construction industry has increased by 300% today. The increasing demand for building construction and technological developments in the past 20 years has brought along the scarcity of sand (UNEP, 2019). Due to these problems, it has been searched alternative materials can be used instead of



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sand to protect the ecosystem and biodiversity, as well as to make necessary improvements in transportation, infrastructure, housing, and living standards. At this point, the use of artificial pozzolans comes to the fore.

Waste materials obtained as a by-product of various metal industries are called slag. Slags have different chemical components and properties depending on the raw materials and production methods of the metal industry from which they are obtained. While slags of metals such as nickel and copper have only pozzolanic properties, slags obtained from iron-steel production have binding properties on their own (Tokyay and Erdoğan, 2009). Pig iron is prepared by pouring the liquid raw steel remaining at the bottom of the furnace into ingot molds as a result of processing the iron ore in the blast furnace. As a result of processing and cooling the pig iron, steel slag (SS) is obtained (Amran et al., 2021).

SS is used as a substitute for fine aggregate (Chunlin et al., 2011; Devi and Gnanavel, 2014; Olonade et al., 2015; Rajan and Suchithra, 2017; Rehman et al., 2018), coarse aggregate (Devi and Gnanavel, 2014; Nageib et al., 2014; Qasrawi, 2014; Subramani and Ravi, 2015), and Portland cement (PC) (Dongxue et al., 1997; Hidayah et al., 2016; Hu, 2017; Li et al., 2009; Pan et al., 2019; Peng and Hwang, 2012; Wang et al., 2013).

Chunlin et al. (2011) determined that the optimum SS usage ratio is 10% instead of fine aggregate. With 10% SS substitution, the compressive strength was increased by about 14 MPa compared to the reference sample. Due to the higher expansion property of SS compared to natural aggregate, shrinkage has decreased. Devi and Gnanavel (2014) and Dineshkumar and Suchithra (2017) determined that the optimum SS usage ratio is 40% instead of fine aggregate. SS substitution showed better resistance to acid attack and made the microstructure more impermeable due to increased hydration (Devi and Gnanavel, 2014). The compressive strength increased by 11.5%, and the flexural strength increased by 4.9%. In addition, the slump and workability value of concrete decreased with the increase in the SS ratio (Rajan and Suchithra, 2017). Olonade et al. (2015) determined that the optimum SS usage ratio is 50% instead of sand. Compared to conventional concrete the density increased by 15.5%, and the compressive strength by 11.5%, with no significant change in flexural strength. Rehman et al. (2018) determined that the optimum SS usage ratio is 80% instead of fine aggregate. Compared to the reference sample, the compressive strength increased by 11%, and flexural strength increased by 20%.

Subramani and Ravi (2015) determined that the optimum SS ratio is 60% instead of coarse aggregate. SS reduced the permeability coefficient by preventing the pores from connecting. Nageib et al. (2014) determined that the optimum SS ratio was 66.6% instead of coarse aggregate. SS reduced the workability of concrete and increased its unit weight due to its rough shape, porous structure, and high specific gravity. It also reduced the permeability coefficient of concrete by 50%, similar to the results of the study by Subramani and Ravi (2015). Qasrawi (2014) determined that the optimum SS ratio is 100% instead of coarse aggregate. Compared to the reference sample, the compressive strength and the modulus of elasticity increased by 20% and 17%, respectively. Thanks to the strong adhesion of the angular structure of SS, the flexural strength of all samples increased significantly.

In the study, the effect of substituting SS for sand on the physical/mechanical properties of mortars was investigated. Models with high estimation accuracy were obtained depending on the effects of SS ratio and sample age on response variables (water absorption ratio, ultrasonic pulse velocity, flexural, and compressive strength). It is aimed to balance the ecosystem, alleviate the burden on natural resources, and reduce the carbon footprint through the efficient use of SS.

### MATERIAL AND METHOD

In this study, the effects of steel slag (SS) ratio and sample age on water absorption ratio (WAR), ultrasonic pulse velocity (UPV), flexural ( $f_f$ ), and compressive strength ( $f_c$ ) were investigated.

#### Material

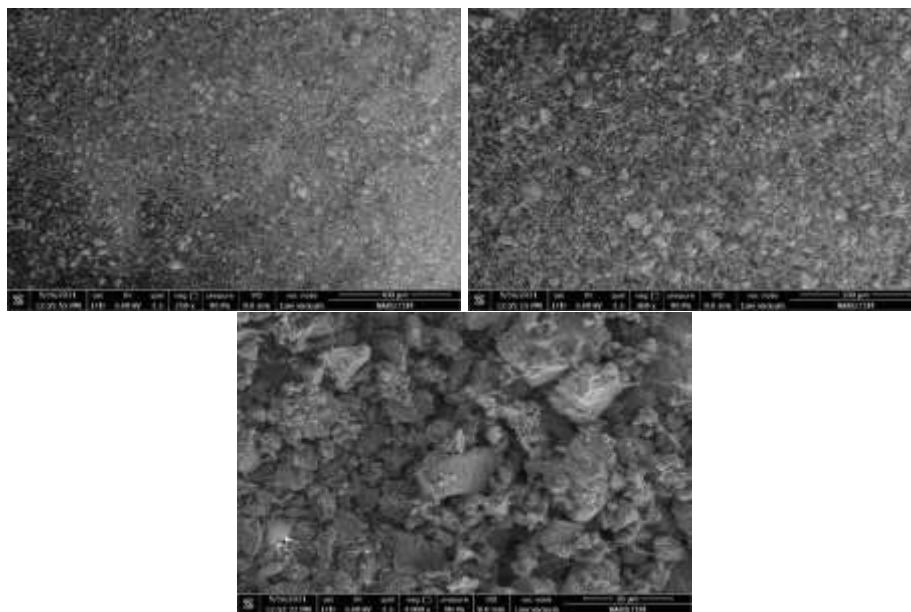
PC (CEM I 42.5 R), SS, CEN standard sand, distilled water, and superplasticizer were used in the production of the mortar samples. The chemical and physical properties of the PC and SEM images are shown in Table 1 and Figure 1, respectively. No porous structure is observed in cement grains with angular and smooth surfaces (Figure 1).



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**Table 1.** The chemical and physical properties of the PC

Chemical properties, %										
SiO <sub>2</sub> -Solute	CaO	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	SO <sub>3</sub>	Cl	Insoluble Residue	NaO/K <sub>2</sub> O	Loss of Ignition	F. CaO – Free Lime
19.88	62.62	5.23	3.60	0.85	3.23	0.03	0.96	0.58/0.74	2.45	1.20
Physical properties										
Specific Gravity, gr/cm <sup>3</sup>	Setting Time, min.		Volume Expansion, mm	Fineness						
	Start	Finish		Specific Surface, cm <sup>2</sup> /gr	Sieve Residue (45µm), %	Sieve Residue (90µm), %				
3.16	119	170	1	3550	3.1	0.2				



**Figure 1.** SEM images of PC

SS was obtained from an iron-steel factory located in the Thrace region and was sieved through 2 mm sieves. The SEM images of SS are shown in Figure 2.





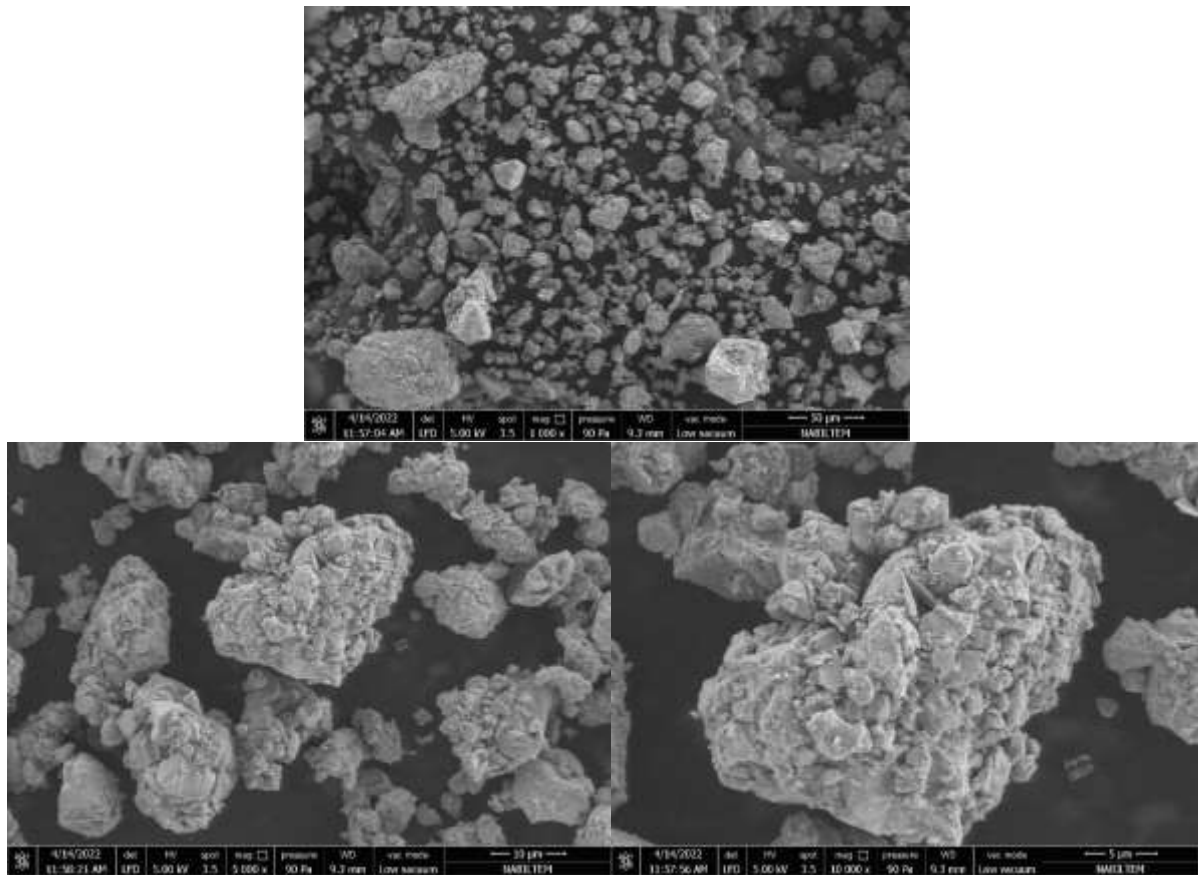


Figure 2. The SEM images of SS

The chemical properties of the SS are shown in Table 2.

Table 2. The chemical properties of the SS

Properties	Method	Results	Standard Values (TS EN 450-1)
SiO <sub>2</sub> (%)	TS EN 196-2	8.63	> 25
Al <sub>2</sub> O <sub>3</sub> (%)		2.46	-
Fe <sub>2</sub> O <sub>3</sub> (%)		62.41	-
R <sub>2</sub> O <sub>3</sub> (Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> )		64.87	-
S+A+F (SiO <sub>2</sub> + Al <sub>2</sub> O <sub>3</sub> + Fe <sub>2</sub> O <sub>3</sub> )		73.50	> 70
CaO (%)		6.24	-
MgO (%)		1.13	≤ 4
Cl <sup>-</sup> (%)		-	≤ 0.1
SO <sub>3</sub> (%)		0.18	≤ 3
Loss of Ignition (%)		0.60	≤ 5
Insoluble Residue (%)		1.49	-
Alkalinity (Na <sub>2</sub> O/K <sub>2</sub> O) (%)		1.29/0.31	-



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### Method

In the study, 126 mortar samples (40×40×160 mm) were produced according to TS EN 196-1 (2016). The samples were cured in water until the test day. SS ratio is 0%, 15%, 25%, 35%, 50%, 70% and 100% by weight of binder. The sample age is 28, 60, and 90 days. The experimental study plan is given in Table 3. Workability, ultrasonic pulse velocity, water absorption ratio, flexural, and compressive strength of the mortar samples were determined.

**Table 3.** The experimental study plan

Codes	Number of Samples	SS Ratio (%)	Sample Ages (day)	PC (g)	Water (g)	Sand (g)	SS (g)	Superplasticizer (g)
R-28	6	0	28	900	450	2700	0	0
S-%15-28	6	15	28	900	450	2295	405	0
S-%25-28	6	25	28	900	450	2025	675	0
S-%35-28	6	35	28	900	450	1755	945	4.5
S-%50-28	6	50	28	900	450	1350	1350	4.5
S-%70-28	6	70	28	900	450	810	1890	9
S-%100-28	6	100	28	900	450	0	2700	9
R-60	6	0	60	900	450	2700	0	0
S-%15-60	6	15	60	900	450	2295	405	0
S-%25-60	6	25	60	900	450	2025	675	0
S-%35-60	6	35	60	900	450	1755	945	4.5
S-%50-60	6	50	60	900	450	1350	1350	4.5
S-%70-60	6	70	60	900	450	810	1890	9
S-%100-60	6	100	60	900	450	0	2700	9
R-90	6	0	90	900	450	2700	0	0
S-%15-90	6	15	90	900	450	2295	405	0
S-%25-90	6	25	90	900	450	2025	675	0
S-%35-90	6	35	90	900	450	1755	945	4.5
S-%50-90	6	50	90	900	450	1350	1350	4.5
S-%70-90	6	70	90	900	450	810	1890	9
S-%100-90	6	100	90	900	450	0	2700	9

An ultrasonic pulse velocity test was carried out by TS EN 12504-4 (2012). The workability of the fresh mortar samples was determined by the flow-table test (Figure 3) performed by the TS EN 1015-3 (2000). The flow-table value of SS substituted mortars is 10.75-13.75 cm (reference sample: 13.25 cm). 15%, 35%, and 70% SS substitution increased the flow-table value by 5 mm (13.75 cm) while 25% SS substitution reduced it by 25 mm (10.75 cm).



**Figure 3.** Flow-table test

Flexural strength ( $f_f$ , MPa) was determined according to TS EN 196-1 (2016) by applying 3-point loading (Figure 4a). The compressive strength ( $f_c$ , MPa) was determined by the test (Figure 4b) performed according to the TS EN 196-1 (2016) on half prisms divided into two parts during the flexural test.



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**Figure 4.** Flexural Strength (a) and Compressive Strength (b) Tests

### RESULTS

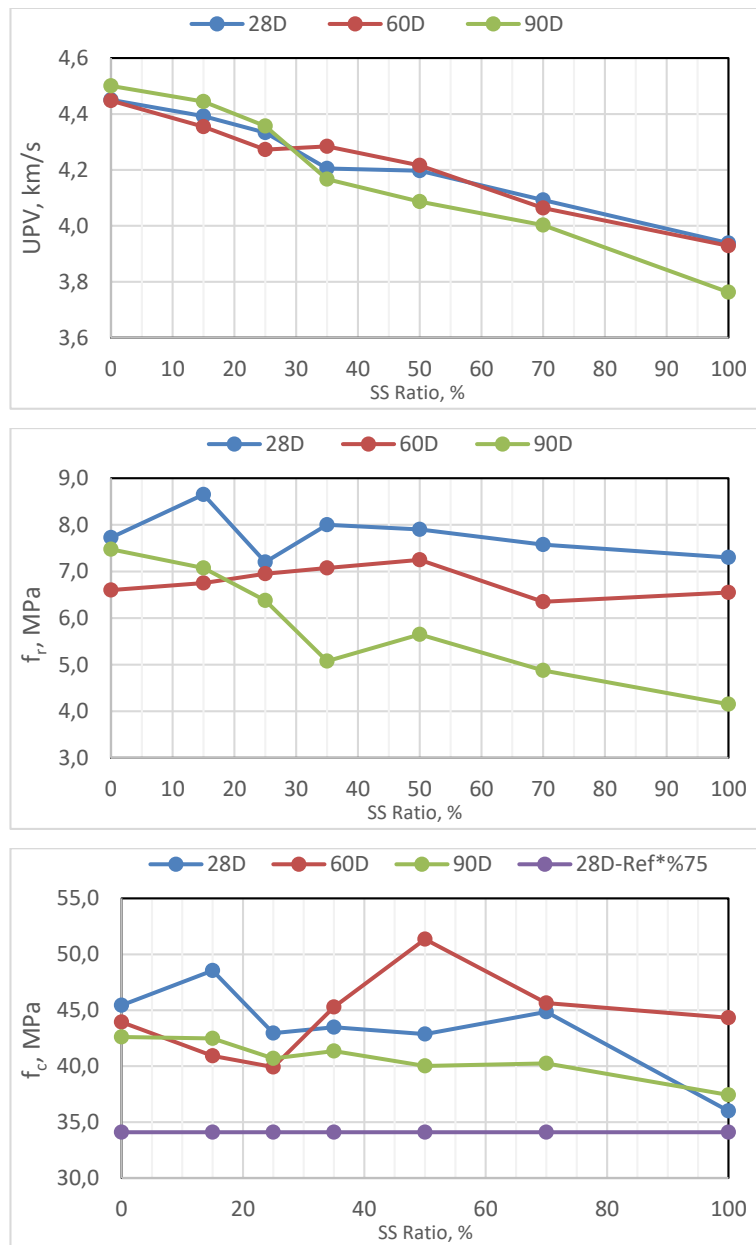
The values for the run were obtained by averaging the test results of 4 samples (21 runs and 84 samples). The variations of ultrasonic pulse velocity (UPV), water absorption ratio (WAR), flexural ( $f_f$ ), and compressive strength ( $f_c$ ) depending on the SS ratio are given in Figure 5. Test results are shown in Table 4. In general, the increase in SS decreased the 28, 60, and 90-days UPV while increasing the WAR. 35% SS substitution increased the 60-day UPV. However, this change was at a too low rate and did not affect the general trend of variation. 0-50% SS substitution increased the flexural strength at 60-days and decreased the flexural strength at 28 and 90-days. 15% and 35% SS replacement slightly increased the flexural strength at 28-days and 50% SS replacement at 90-days. No significant change was observed in the 28-day compressive strength up to 70% SS. However, 15% SS replacement slightly increased the 28-day compressive strength. More than 70% SS substitution reduced the 28-day compressive strength. The increase in SS ratio slightly decreased the 90-day compressive strength. 0-25% and 50-100% SS substitution decreased the 60-day compressive strength while 25-50% SS substitution increased it. The highest compressive strength was obtained from the 60-day sample with 50% SS replacement (53.4 MPa), which is 15% more than the compressive strength of the reference sample. Since the compressive strength obtained as a result of the use of more than 35% SS are higher than the reference sample (0% SS) it can be said that the optimum SS replacement ratio is 100%. In general, 60-day compressive strengths are higher than 90-day compressive strengths. It indicates that SS negatively affects hydration in advanced ages (90-days) or cannot effectively replace sand.

**Table 4.** Test Results

Run	Codes	SS Ratio	Sample Age	WAR	UPV	$f_f$	$f_c$
1	R-28	0	28	0.088	4.451	7.725	45.450
2	S-%15-28	15	28	0.089	4.393	8.650	48.550
3	S-%25-28	25	28	0.093	4.333	7.200	42.950
4	S-%35-28	35	28	0.095	4.205	8.000	43.488
5	S-%50-28	50	28	0.094	4.197	7.900	42.863
6	S-%70-28	70	28	0.100	4.092	7.575	44.850
7	S-%100-28	100	28	0.107	3.939	7.300	36.000
8	R-60	0	60	0.086	4.448	6.600	43.938
9	S-%15-60	15	60	0.086	4.355	6.750	40.925
10	S-%25-60	25	60	0.091	4.273	6.950	39.925
11	S-%35-60	35	60	0.091	4.284	7.075	45.288
12	S-%50-60	50	60	0.094	4.216	7.250	51.350
13	S-%70-60	70	60	0.099	4.064	6.350	45.638
14	S-%100-60	100	60	0.102	3.929	6.550	44.325
15	R-90	0	90	0.088	4.501	7.475	42.613
16	S-%15-90	15	90	0.087	4.445	7.075	42.475
17	S-%25-90	25	90	0.089	4.357	6.375	40.688
18	S-%35-90	35	90	0.104	4.167	5.075	41.350
19	S-%50-90	50	90	0.112	4.087	5.650	40.013
20	S-%70-90	70	90	0.121	4.003	4.875	40.250
21	S-%100-90	100	90	0.133	3.763	4.150	37.425



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**Figure 5.** The variations of UPV, WAR,  $f_r$ , and  $f_c$  depending on the SS ratio

The effect levels of the SS ratio and sample age on the responses (UPV, WAR,  $f_r$ ,  $f_c$ ) were obtained by ANOVA. Results are given in Table 5. While significant models were obtained for WAR, UPV, and  $f_r$  ( $p$ -value $<0.05$ ) no significant model could be obtained for  $f_c$  ( $p$ -value $>0.05$ ). It is seen that the SS ratio and sample age in the selected ranges of variation on  $f_c$  do not have a significant effect ( $p$ -value $>0.05$ ).

**Table 5.** ANOVA results

Source	WAR		UPV		$f_r$		$f_c$	
	p-value	*Sgnf.	p-value	*Sgnf.	p-value	*Sgnf.	p-value	*Sgnf.
Model	<0.0001	+	<0.0001	+	<0.0001	+	0.1768	-
A-SS Ratio	<0.0001	+	<0.0001	+	0.0010	+	0.2039	-
B-Sample Age	<0.0001	+	0.0191	+	<0.0001	+	0.2134	-
AB	0.0004	+	0.0033	+	0.0071	+	0.4899	-
A <sup>2</sup>							0.2506	-
B <sup>2</sup>	0.0014	+					0.1049	-



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\*Sgnf.; Significance, +; Significant, -; Not significant

### DISCUSSION AND CONCLUSIONS

In the study, the effects of the SS ratio and sample age on the physical and mechanical properties of mortars were investigated.

- In general, the increase in SS decreased the UPV while increasing the WAR at the 28, 60, and 90-day specimens.
- 0-50% SS substitution increased the flexural strength at 60-days and decreased the flexural strength at 28 and 90-days.
- The increase in SS ratio slightly decreased the 90-day compressive strength. 0-25% and 50-100% SS substitution decreased the 60-day compressive strength while 25-50% SS substitution increased it.
- The highest compressive strength was obtained from the 60-day specimen with a 50% SS replacement ratio (53.4 MPa), which is 15% more than the compressive strength of the reference sample.
- Since the compressive strength obtained as a result of the use of more than 35% SS are higher than the reference sample (0% SS) it can be said that the optimum SS replacement ratio is 100%.
- In general, 60-day compressive strengths are higher than 90-day compressive strengths. It indicates that SS negatively affects hydration in advanced ages (90-days) or cannot effectively replace sand.
- While significant models were obtained for WAR, UPV, and  $f_f$  ( $p$ -value $<0.05$ ) no significant model could be obtained for  $f_c$  ( $p$ -value $>0.05$ ). It is seen that the SS ratio and sample age in the selected ranges of variation on  $f_c$  do not have a significant effect ( $p$ -value $>0.05$ ).

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### FACTORS AFFECTING TEACHERS' AND STUDENTS' PREFERENCES FOR DISTANCE EDUCATION: A META-THEMATIC ANALYSIS

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#### **Abstract**

Almost all systems have changed in the world together with the current technological and social phenomena. Education has been affected by these changes, as well. Distance education has become more important for the renewed world. Many individuals prefer distance education in different trainings. However, there is a majority who do not prefer distance education. Especially during the covid-19 epidemic, many educators and instructors had the opportunity to experience and evaluate distance education. In this study, we aimed to examine the reasons for preferring/not preferring distance education in national and qualitative studies. Data were reinterpreted with meta-thematic analysis. Meta-thematic analysis includes combining qualitative findings and making them more comprehensive and general by creating themes and codes through a verbal analysis process based on document analysis. In order to reach the research studies conducted during the years of 2017-2021 on distance education, the keywords "distance education, education during covid-19, education during the pandemic period, asynchronous" were searched in the Google Academic database. A total of 12 studies were included in the meta-thematic analysis with content analysis. Codes and themes were created by blending the participant opinions in the research. Four themes are included in the study: the reasons for the students to prefer distance education, the reasons why the students do not prefer distance education, the reasons why teachers prefer distance education, and the reasons why teachers do not prefer distance education. This qualitative research synthesis also sheds lights on suggestions from teachers and students for rendering distance education more efficient.

**Key Words:** distance education, meta-thematic analysis, covid-19, teachers, students

#### **INTRODUCTION**

The speed of technological developments in our age is unbelievable. New software, alternative programs and applications are offered day by day. In technology, yesterday and today are not the same. Accessibility to individuals, equal opportunity, speed, storage space, etc. creates opportunities. Accessing information is now very easy and fast with the internet. When we consider the opportunities offered by technology, it is essential that education is also updated. Education should not show resistance to technology, it should evaluate technology as a tool in education as much as possible. The technologies of our period offer many alternatives in many points such as teaching materials, measurement tools and learning environments. One of these opportunities is distance education. It can offer people the right to education and training under all conditions, as if they were stripped of time and space. There is the opportunity to access the course environment from the workplace, home or any physical environment. Distance education unites the school or learning place with the houses and neighborhoods. It has even



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brought together cities and countries, turning the world into a school and a large classroom where education can be made. Thanks to distance education, lessons can be taken from many instructors that cannot be visited and met. You can meet students from many different lifestyles. On the other hand, a magnificent equality of opportunity has arisen for individuals who cannot go to the education environment due to physical disabilities or who need to spend a lot of effort and resources in order to receive education. Regardless of the place and location, active access opportunities have been opened to all individuals thanks to distance education.

Today's people feel the need to update themselves in the light of new developments. Distance education creates a good environment for today's people who are constantly trying to reach somewhere. Thus, the time, energy, cost and labor that the individual allocates to education are reduced. Naturally, this means that many individuals can receive education through distance education, which they cannot receive under routine conditions. In addition, it has removed the age barrier. Thus, distance education has taken a big step towards lifelong learning. Distance education, which started by mail in 1728, has progressed with technology until today (Ak et al., 2018). Until the 1970s, cassettes containing radio and sound recordings were used from time to time by mail. Technological possibilities have supported and expanded distance education. Distance education, which started with letters, used televisions and computers, and then moved to the internet environment with the rapid introduction of the internet into our lives. However, experts agree that a more effective development from this turning point took place with the use of communication technologies based on computer networks for distance education (Saba, 2001; Turco, 2001; Aydın, 2003). Distance education methods, which progressed individually in the first stages, started to use group activities with the differentiation of the infrastructure. Thus, online courses have increased the possibility of interaction in the courses that have entered the distance education life. Compared to face-to-face education, distance education, which started asynchronously, has turned into synchronous with live lessons. Realizing this situation, some distance education experts have started practices to use methods such as virtual reality for distance education (Aydın, 2003). With the reflection of technological developments on distance education, the limitations of distance education have gradually decreased. Before technology entered our lives so much, distance education mostly covered basic education. It was an opportunity preferred and mostly offered to individuals who had to drop out of school or who had never received basic education, but whose age was past the basic education period. Today, it is much diversified: it is used in higher education, staff training and support, in a wide variety of courses, in individual guidance and coaching. Distance education is now a choice rather than a necessity. Many individuals especially prefer distance education. Despite the developing technology and the opportunities offered, distance education has not been a method that has been overlooked in recent years. Distance education has been seen as an alternative to face-to-face education and still continues to be seen as such. Therefore, it could not develop enough (Basar et al., 2019). However, many institutions and schools that do not use distance education had to take advantage of distance education with the Covid-19 epidemic that we faced in December 2019. All sectors have been affected by this epidemic, while life has been restricted, and schools have been suspended. Since there can be no compensation in education, many countries have preferred to benefit from distance education in this process. Our country is one of these countries. All levels of public and private schools benefited from distance education. Likewise, universities have switched to distance education. In this way, the demand for distance education has increased, and everyone and every institution that has no previous knowledge has made a quick start to distance education. Distance education has contributed to education and education to distance education. According to Can, the Covid-19 pandemic reveals that it is necessary to develop more innovative solutions in order to develop new ways of thinking for the future of education at the global level (Can, 2020). In this context, it is important to adopt and develop distance education. Researches in the literature and applications in the field show that developments related to distance education will increase with an increasing momentum (Aydın, 2003). Educational institutions, social organizations, states; invests in developments such as virtual reality and distance learning. Likewise, companies that provide these opportunities are updating themselves and developing their infrastructure. Since the number and form of demand for these services, which started in the 1990s, are very different from today, they cannot meet the current demands. Companies that offer these services update and strengthen their services by foreseeing the world of tomorrow. All these are carried out in order to get a share from this market by creating more effective, efficient and attractive learning





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opportunities for more individuals (Schrum & Berenfeld, 1997; Aydın, 2003). Even this shows that online learning, distance learning, virtual reality and similar learning will take a large share in education in the coming years.

In any educational process, the teacher, the student, the materials used and the physical equipment determine the operation of the process. Likewise, teacher and participant (student) attitudes are very important for distance education to be healthy. How they evaluate distance education, their views on its efficiency, and their willingness will guide the quality of education. Individuals' desire to use technology and their past learning are important for distance education. In addition, the technological infrastructure, equipment and speed of accessibility affect the efficiency of distance education. In the study conducted by İbicioğlu and Antalyalı (2005) on university students, motivation and the possibility of using computers together with the perception of distance education are of primary importance for the success of distance education, and if these factors are not provided, distance education cannot give successful results in terms of education (Başar et al., 2019). ). In distance education, since the educational material is the educational environment itself, it has a much greater importance than in other forms of learning. Infrastructure and technological equipment directly affect the process. In the world of tomorrow, education must follow technological developments in order to exist in every field. It should not be contented with following only, but should be used effectively in shaping the education. It should facilitate education with new methods, increase efficiency and make it attractive. Likewise, educators should evaluate and actively use developments in order to play an effective role in the upbringing of individuals.

### *Purpose and Significance of the Study*

With the changing of the world, all systems have changed. Education has also been affected by these changes. Distance education has become more important for the renewed world. Many individuals prefer distance education in different trainings. However, there is a majority who do not prefer distance education. Especially during the covid-19 epidemic, many educators and instructors had the opportunity to experience and evaluate distance education. In this study, it is aimed to examine the reasons for preferring/not preferring distance education in national and qualitative studies. Data were reinterpreted with meta-thematic analysis. Meta-thematic analysis includes combining qualitative findings and making them more comprehensive and general by creating themes and codes through a verbal analysis process based on document/document analysis (Batdı, 2019). According to this:

- Students' reasons for preferring or not choosing distance education
- Teachers' reasons for preferring or not choosing
- The answers to the questions of what are the suggestions for effective use of distance education were sought.

In the literature, no meta-thematic study has been found regarding the reasons for preferring or not choosing distance education in our country. Thanks to this study, the distance education process can be re-evaluated and the reasons for not being preferred can be changed. Preferential reasons can be updated and strengthened.

### **Limitations**

Research on distance education has increased in 2020. The reason for this is that with the covid-19 epidemic, there is a mandatory transition to distance education by interrupting or diluting face-to-face education in the world and our country. Since distance education is frequently used in 2020, studies have also intensified in these years. However, since distance education is a necessity during the epidemic process, it has been experienced as an unexpected and unwanted process by students and teachers. It is thought to affect the answers given. Ten qualitative studies used in the analysis are from 2020, and two studies are from 2017 before the epidemic process. The inclusion of studies from 2017 is intended to be relatively more objective. In addition, the distance education process is a technique used not only in schools and universities, but also in various social events, workshops and courses. And individuals want to participate more in these kinds of learning activities with distance education. However, a qualitative research on distance education for these activities could not be found in the relevant search engine.



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### METHOD

In this study, meta-thematic analysis, which is one of the content analysis methods, was used. Meta-thematic analysis can be defined as the re-expression of the data in the researches collected based on document analysis, which were carried out in a qualitative context in the national and/or international arena on a determined research topic, on a common plane, and re-expressing them as themes and codes (Batdi, 2019). It aims to see qualitative data holistically and to make sense of it, and to reach the results of many studies in a short time. Meta-thematic analysis, which includes a verbal/textual analysis process based on document/document analysis, aims to combine the qualitative findings of the studies by creating themes and codes (Özşenler, 2021). In the included studies, the themes and codes were reached by examining the qualitative data. The reasons for preferring and not preferring distance education were investigated with meta-thematic analysis. In order to reach the research studies conducted in 2017-2021 on distance education, the keywords "distance education/training, education within the scope of covid-19, education in the pandemic period, asynchronous" were searched in the Google Academic database and the studies were reached. Qualitative studies on distance education found were examined. Many studies have been reached, especially the studies in recent years. In recent years, since the study subjects related to distance education are parallel to the covid-19 epidemic, they have evaluated a compulsory distance education process. For this reason, two studies from 2017 were added to the meta-thematic analysis. A total of 12 studies were included in the meta-thematic analysis with content analysis.

Codes and themes were created by blending the participant opinions in the research. Four themes are included in the study.

- Reasons for preference of the participants
- Reasons for preference of the participants
- Reasons why educators do not prefer
- Reasons why educators do not prefer
- Suggestions to make distance education effective

In terms of transparency, participant expressions were tried to be directly conveyed, and the codes were expressed in this way. The studies included in the analysis, the articles accessed in the Google academic database were coded with "M", the number and the page number from which the code was taken (Ex: M1- p.906).

### FINDINGS

Five themes were created within the scope of the study. Each theme is presented under a separate heading. As a result of the analysis, the codes of each theme were presented as tables.

#### Theme 1: Findings of the participants regarding the reasons for preferring distance education

Table 1. Findings of the participants regarding the reasons for preferring distance education

Students' Reasons for Preferring Distance Education	
possibility of socialization	enables you to listen more carefully
expressing ideas more clearly	product-oriented evaluation
possibility of electronic writing	having the ability to take regular notes
no extra spending	having the opportunity to listen again
controllability of exams	

As indicated in Table 1, many points where distance education is attractive to students have been identified. A participant (M1-p.234) said, "If I have to speak for myself, I can't normally be very active in this subject in the classroom. How does the teacher react, how do my friends think, I wonder if what I said is true, and I get nervous when everyone looks at me. However, I feel more comfortable in this respect in distance education. I express my ideas in a more clear and understandable way." Again, a student stated that "...in normal formal education, since speaking is in public, stress, excitement and tension are higher, while these factors are less in distance education because no one sees each other in the virtual environment, it is more comfortable". The code 'Ideas can be expressed more clearly' is



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shaped around these expressions. Some students think that it causes better grade-taking than formal education. A participant in the study M1-p.234 said, "I store my lecture notes as a Word document. During the distance education, I am subjecting the notes I took quickly while the teacher was talking, after the lesson, in terms of sentence structure, paragraph head, punctuation marks, and fonts. Considering that I don't do this very often in formal education, I think it's quite useful in that respect." He used his expression. In M4- p.297, the student said, "So it could have provided an advantage. If our exams were held on the internet, we would have had the opportunity to check our exams again." He answered positively to the fact that the exams should be held in an interactive environment. *In the study named M5- p.105 used, the student said, "...Perhaps the most positive aspect of distance education was that we did homework. I carefully prepared reports according to the points requested by the teacher, I did research in some lessons and I enjoyed it very much..." The need for an evaluation other than the existing evaluation system exam with distance education was welcomed by this student. The fact that the lessons and notes are stored and that it is economical are the reasons why distance education is preferred by students. Another point that students like is that the assessment is done with homework, not with an exam. There were even students who thought positively about the difficulty of socialization, which is one of the most negative aspects of distance education. They think that they can socialize with internet-based social networks even from a distance.*

### Theme 2: Findings on the reasons why educators prefer distance education

**Table 2. Findings regarding educators' reasons for preferring distance education**

Instructors' Reasons for Preferring Distance Education	
including elements that support sociality	low workload
rich educational environment	Access to different instructors
motivating to put in more effort	greater participation in online discussions
the ability to adapt easily to new situations	less stress
practical and easy to apply	the possibility of protection from the epidemic
equality and justice in education	individual speed
flexible in terms of time and authority	professional satisfaction
opportunity to spend more time with students	source of prestige

There are many factors for teachers to prefer distance education. The flexible structure of distance education is a preferable factor. However, educators did not deny that it offers equal opportunities. In the study coded M2-p.133, the educator said, "...I think that it makes a great contribution to things like equality and justice in education. What we used to do to the printing press, we are now doing to the computer. We are afraid. What harm can distance education do for students? What kind of side-effect could it have..." Again, in the same coded study, it was expressed as a way of directing computer use correctly. M4- p.294 The statement of the lecturer "The existence of distance education is a privilege and a source of prestige for the university" is that distance education gives prestige. In the same study, the instructors mentioned that the workload of the teacher in the course decreased.

*"In the lecture phase, homework etc. We can say that our workload has decreased at the feedback points". Study M12- p.124 teacher K74 "Distance education helps me a lot in terms of job satisfaction. I even find time to study more questions. I can spend more time with my students who are interested. In addition, students feel very valuable thanks to distance education." Found in his statements. Features such as rich educational environment, equal opportunity, flexibility, time saving are positive features preferred by teachers. However, teachers who said that they did not have to engage in unnecessary dialogues stated that their stress also decreased. Teachers are very warm to distance education and support distance education by thinking that technology should be integrated into education.*



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### Theme 3: Findings of the participants regarding the reasons for not preferring distance education

**Table 3. Students' Reasons for not Preferring Distance Education**

The reasons why students do not prefer distance education	
internet connection problems	only listening skills are active
not regarded as social	lack of suitable environment
device hardware problems	more homework than usual
hard to stay motivated	no note-taking
login problems	not having fun
distractive	not interesting
hard to take notes	hard to ask questions

As can be seen from Table 3, the technical internet problems of distance education have been an important factor in not preferring education by students. We can say that the biggest source of negativity is technical problems. Moreover, in addition to such technical problems as one of the students ((M1-p.233) stated "Our teachers wanted us to participate with a microphone, but again with connection problems, I think no one dared, or the people who generally do not tend to speak may have moved away from speaking well with this training", students who did not want to be very involved in the lesson did not dare to speak. Students also stated that they had difficulties in taking notes and could not catch up with the teacher. In the study coded M1-p.234, there is a statement as "We take notes in a few lessons. It's hard to take notes. Even though we stay behind and mention it in the chat section, confusion occurs until the teacher sees the message". On the other hand, students who are not bored when the lesson is face-to-face stated that distance education is boring. Student A11 in study M5- p.104 used these expressions: "My teachers, who are more fun and cheerful in face-to-face lessons, have become very boring in this system. I mean, I'm sure we could have had this face-to-face lesson very well, it would have been very understandable and enjoyable. But I guess we couldn't establish the bond and interaction we established in the lesson in distance education. The teacher's look, joke or something he would show us on the board had to be done verbally in distance education. There was no interaction with my other friends. Everyone seemed to be in a class alone. I think that has a lot to do with it too." The biggest factor in not preferring distance education is the limitation in sociability. The fact that the lesson is not fun affects sociality, reduces the interest and motivation in the lesson. On the other hand, while the evaluation is with homework is positive for some students, it is accepted as negative for some students. We can say that not being able to actively participate in the lesson has created an important negative situation, as technical problems are the most important problems.

### Theme 4: Findings regarding educators' reasons for not preferring distance education

**Table 4. Findings regarding the participants' reasons for not preferring distance education**

Internet connection problems	Disadvantageous for applied courses
limited interaction-sociality	failure to understand the effort spent
support and feedback problems	environment diversity issues
disadvantaged in younger age groups	activities are limited
not being a role model	Less use of gestures and body language
lack of adequate infrastructure	low job satisfaction
measurement-evaluation problems	can cause health problems
Being accessible is tiring	not knowing student ID
poor academic performance	listeners busy with different things
too much workload	difficult to transfer

23 codes were created for Theme 4. Although some teachers consider distance education important and necessary, they find it insufficient when compared to face-to-face education. A code of 'interaction limited' was formed from the study M2-133 "Distance education is a useful education style, but I think that face-to-face education is one step behind and communication opportunities are limited. Of course, it is nice that they can take lessons from different teachers", and in the study M3-6, "It is very important that the teacher-student relationship is one-to-one in education." In M3-6, the pre-service teacher said, "He may not be able to learn the solution from someone else for a subject he cannot do." In his sentence,



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he stated that the student would not receive the support and feedback he expected from his friend or teacher. Since the plans and materials used in the classroom are not the same as those used in distance education, an extra preparation is required for the distance course. In the study M4- p.300, the instructors expressed this. "As we prepared the note and the video, it increased our workload in terms of lesson preparation and planning." "I try to have good lecture notes. This takes my time and causes the work of preparing lecture notes to strain me. In this respect, I can say that it increased my workload." The 'high workload' code can be thought of as contradicting the 'low workload' code in theme 2. However, the excess of workload does not mean the course, but the preparation process for the course. Another code is 'not knowing the identity of the student', in the study titled M4- p.302, "When I am teaching, there is a student who comes to me with a pseudonym.

*Not knowing his identity may cause us to encounter disturbing situations". "Unable to be a role model" among the codes, in the study M8- p.33, "Unfortunately, there was no situation of being a role model for the students in the classroom, unfortunately, these were very effective in some achievements, but this situation was avoided in this process." It was created with a sentence. In Study M12- p.119, teacher K2 said, "The constant requests of the administration with Whatsapp throughout the day, the 24/7 teaching process was very suffocating. Now I want to switch to the flip phone and get rid of the smartphone." He used his expression. He mentioned that being available 24/7 is very tiring. The code 'to be reachable is tiring' was created with these expressions. The code 'The effort is not understood' is again in the study M12- p.119 of teacher K55: "They send messages that they think we are not working." It was created as an answer. In addition to the basic problems (technical, social interaction, etc.), the length of the educators' preparation process for the lesson, the teachers' inability to be a role model, the fact that they have to constantly communicate with the students and administrators for lesson planning are stated as negativities and are among the reasons why teachers do not prefer distance education. Although there are more notes for distance education compared to face-to-face education, being perceived as not doing anything by parents and administrators has created a great disadvantage for educators.*

### **Theme 5: Suggestions to make distance education effective**

In some studies, participants made suggestions to improve and make distance education effective. It is shown in Table 5. Participants stated that it would be beneficial to receive training on internet and computer malfunctions, which are one of the biggest problems in distance education. 'internet education' code, study M2- p.138 of the participant "...But families should be educated about internet and distance education and families should be informed about internet protection. ... Children and their parents should receive training on how to use the system. Teachers should also receive training in creating designs. ...Infrastructure work is very important." created with expressions. In the same study, "The need for guidance can be met with e-mentoring." With his suggestion, it was stated that there should be a guide and a guide. Among the opinions, in the study (M2- p.139), "... Apart from this, the freedom of the child is also very important. The student should be able to make his own choice here..." It was mentioned that the participant's opinion should be taken by those who prefer distance education, and that the individual should choose distance or formal education with his free choice. Suggestions include gaining prestige by advertising, ensuring that the evaluation process is more controlled and fairer, and that the number of people in the course group is less.

**Table 5. Suggestions of participants and educators to make distance education effective**

Suggestions for making distance education more effective	
e-mentoring is available	should be advertised
internet education	formal education
infrastructure must be created	should not be restricted
Different styles should be tried	Continuation should be mandatory
should be optional	There should be a credit system
Every aspect of distance education should be designed	The number of participants should be small
should be widespread	There should be a fair assessment



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### DISCUSSION AND CONCLUSION

In this study, which was put forward depending on the meta-thematic analysis, the reasons for teachers and students to prefer distance education and not to prefer it were revealed. During the analysis process, the views of the participants were examined and collated and codes were created. From the codes obtained, one of the factors that favored distance education was its independence from time and place, and the ability to participate from anywhere. In distance education, flexibility should be offered to the individual in time, space and learning speed, interaction should be two-way and measurable, learning-teaching activities should be prepared and carried out according to the individual's preference (Demir, 2014). This also provides the opportunity to adapt easily to changes. Since individuals do not have to be in the same place, they are less likely to be negatively affected by each other. It has been an important factor in the spread of infectious diseases as it was during the epidemic period. Distance education, which offers individuals a serious flexibility, also makes socialization possible for some individuals. It is possible to socialize online, with live lessons or with feedback.

While computers have entered our lives with technological developments, distance education has contributed to directing the computer to a good and useful purpose by using it for education. In addition, there is no need for many materials other than computer/phone and internet. Teaching environment, books, etc. The fact that it brings economy in terms of not needing materials is one of the preferable reasons. It may require extra effort to focus on the lesson because each individual has to create the environment himself. If a suitable environment is provided, it can be counted among the preferential reasons as it makes the course more motivated. In terms of teachers, the student's greater effort to be motivated was also considered a positive factor. Being able to listen to the repetition of the missed lesson is one of the biggest advantages of the student. Students who have difficulty in taking notes during the lesson can easily take notes by taking advantage of the repetition opportunity of distance education or by stopping the video lessons. It supports individual pace and facilitates students' learning according to their individual pace. It has been revealed that many courses are evaluated based on homework or performance, since it is not possible to conduct exams in a classical style. This feature was welcomed by some students and teachers, and they had the chance to evaluate process-oriented. For some students, it can be difficult to express an opinion in the classroom environment. The fact that the course is taught in a virtual environment in distance education has enabled them to express their ideas more easily. The fact that the data is stored in a program has alleviated the burden of teachers and is one of the reasons why students prefer it. Students can easily view their exam results and their answers on the system. If electronic notes are taken, this is one of the reasons why distance education makes this process much easier.

One of the most important factors in education is the rich stimulating environment and environments that will allow learning by doing. It is very difficult to present this environment to the student in the classroom. Since there is a computer and internet in distance education, different opportunities can be offered to students, even if they are virtual. Distance education is preferred in terms of a rich educational environment. However, while the number of teachers that the student can reach in his school is limited, this range has expanded with distance education. This brings justice and equality in education. Likewise, not being stuck with the quota limit provides equality. From this point, distance education is preferred. Since teachers and students do not have sufficient infrastructure and equipment, the preparation process for the lesson can be long. If the teacher is new to distance education applications, the course preparation process can be long. But for a teacher who has created his system, the workload has been lightened. Thanks to the increased time, being able to allocate more time to the student is one of the points that makes distance education preferred. In addition to all these, the prestige that distance education has brought to school and education motivates students and teachers.

There are two important factors in not wanting to prefer distance education. The first of these is technologically inadequate infrastructure and difficulties in using it. The second is that sociality is not like face-to-face education. It would be beneficial to establish sufficient infrastructure to provide access to the internet everywhere in Turkey, and thus to provide education opportunities to large masses in suitable places and under appropriate conditions (Can, 2020). Body language, gestures and mimics are important factors in expression in education. Although there are simultaneous lessons in distance



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education, it is stated that although the teacher and the student see each other on the screen, it is not enough for some participants.

Teachers stated that they could convey what they wanted to say very easily and simply face to face, but they had difficulty in conveying even the simplest points in distance education. This situation causes inadequacy in terms of success compared to face-to-face communication (Gökçe, 2008). It will not be possible to compare the energy, motivation and dynamism received and felt face-to-face with distance education. Especially as the age group gets smaller, the disadvantage of distance education in sociality and feeling will increase. However, face-to-face education was preferred because there will be a lack of role models in younger age groups who need role models. In this context, it may be more useful to think of distance education as complementary and supportive. Some of the students who took notes with paper and pencil stated that they had difficulty in taking notes in distance education. Because while the instructor is teaching the lesson, he checks whether the students can grow in the classroom environment. In distance education, on the other hand, the narrator focuses on explaining the subject, and if he is not warned, he proceeds by thinking that he is understood and the necessary notes are taken. Some students created their notes by listening to the recording again. For some students, this means a waste of time. Educator trying to understand student speeds in cooperation with students can help to eliminate this negativity.

Another reason why students did not prefer distance education was that distance education was not fun, always being a listener and not being able to participate actively in the lesson. No system will be as effective as being in the same environment. Distance education has created a difficult process especially for applied courses. However, it will be beneficial to benefit from educational applications that will involve students more in the process and make education more enjoyable. By making use of various applications in computer technology, the course process can be carried out with more active participation. Another reason for not choosing it was exposure to distracting factors in education that is not limited by four walls. The presence of many stimuli in different environments at the same time easily distracts the listener and the narrator. It was stated that teachers included more homework activities in order to attract attention and increase interest in the lesson. The students stated that they were very tired from this situation as well.

Along with the learner-teacher interaction in education, the learner-learner interaction is also extremely important. Some of the students, who hesitated to ask their questions to the teachers, stated that they could not ask them in online classes, but they preferred face-to-face education because they had more opportunities to learn by asking their friends even if they were face to face. In addition, some students and teachers; they stated that the support they normally receive is more and that they cannot get quick feedback on their questions in distance education. The inability to use technology efficiently and technical problems can be effective in experiencing these problems. In such crisis situations, it may be beneficial to raise awareness of families about open and distance education practices by using open and distance education opportunities in order to provide effective guidance to distance learning students (Can, 2020).

For some students and teachers, uncertainties have emerged about how assessment and evaluation will be made. While the students who did not succeed in the classical exams were satisfied with the homework and performance-based evaluation process, the students who were successful in the exams and did not like to prepare homework were not satisfied with the process. Similarly, when the teachers wanted to use the classical measurement tools, they could not choose because of the ease of answering the students by using the electronic environment without knowing it, but they could not perform a healthy measurement process even though they used it. When they use alternative measurement tools, they complain that the evaluation takes too much time. The fact that teachers are in constant dialogue with students, parents and administrators in order to make planning tired the teachers in the education process. For the teachers who are available 24/7, the process has been prolonged and this is the reason why they do not prefer distance education.

For the reasons mentioned above, teachers and students made more effort in this process compared to face-to-face education. However, the fact that distance education is not perceived as education by some administrators, students, parents and the press and that it is reflected in this way has reduced the



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motivation of teachers and students. While distance education gains prestige by some circles, it is seen as non-educational by some circles. This has affected the motivation of the participants in distance education. It is thought that spending too much time with computers, tablets and phones may cause health problems. However, the possibility of security problems in virtual and internet environments worried the participants. There were factors that prevented them from choosing.

As revealed in the meta-thematic study, a factor that is a reason for preference for one individual may be a reason for not preferring for another individual. Differences in practice, equipment, infrastructure, environmental attitudes towards distance education, technical difficulties encountered, and lack of prior knowledge, individual differences and preferences affected whether to prefer distance education. Many of the difficulties we encounter in distance education can be overcome. When the distance education process is structured, it should not be aimed to replace face-to-face education. Distance education should be offered together with face-to-face education, and human psychology should be taken into consideration while presenting it. Among these problems, it is important to balance between internet technology and human psychology (Gökçe, 2008). The problems will be solved when the balance is established. Distance education should be seen as a different education process. There should be volunteering in distance or face-to-face education, and the individual should prefer distance education himself. Education should be enriched with distance education and should offer equal opportunity. Thus, a richer educational environment will be provided. Today, the role of distance education in managing social change is accepted all over the world (Gökçe, 2008). The pros of distance education will be brought to education and since it is not completely turned into distance education, its disadvantages will not harm education. On the contrary, it will strengthen education.

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### ION CHANNEL EXPRESSION AS A CANCER BIOMARKER IN PROSTATE CANCER

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#### ABSTRACT

Prostate cancer (PCa) continues to be one of the main health problems that concern the male members of the society. Diagnosis of PCa is based on histological examination of biopsies. Serum prostate specific antigen (PSA) level and digital rectal examination (DRE) results are needed to decide on biopsy. PSA and DRE have limited sensitivity and specificity. Surgery or radiation therapy are viable options in localized PCa. However, a significant portion of the patients experience disease progression and at this point, hormonal treatment is started. However, most patients relapse within three years of hormonal therapy and castration-resistant prostate cancer (CRPC) develops. Therapeutic options for CRPC patients are still limited. As a result, new biomarkers are needed for both diagnosis and treatment of PCa. Ion channels and transporters are special proteins that pass ions from one side of the cell membrane to the other. Recent studies show that ion channels are expressed in different types of human cancers. There is growing evidence to suggest that ion channels play a critical role in processes such as cell proliferation, apoptosis, migration, epithelial mesenchymal transition and regulation of angiogenesis in PCa. In this study, it is aimed to summarize the ion channels, which have the potential to be a biomarker in the diagnosis and treatment of PCa in the light of current information. Identifying the molecular mechanisms underlying the role of ion channels in PCa will enable us to utilize these membrane proteins as new biomarkers for diagnosis and therapy.

**Keywords:** Prostate cancer, ion channels, biomarker

#### 1. INTRODUCTION

Prostate cancer (PCa) continues to be one of the main health problems that concern male members of society. According to the epidemiological data of 2020, more than 1.4 million new cases of PCa were detected and 375,000 deaths occurred. PCa is the second most common cancer and the fifth leading cause of cancer death (Sung et al., 2021). There is no widely accepted routine screening test for PCa. The diagnosis of the disease is made by histological examination of biopsies. Serum prostate specific antigen (PSA) level and digital rectal examination (DRE) results are needed to decide on biopsy. Although PSA is an important marker used in the diagnosis of PCa, it may also be at high levels in prostate inflammation and benign prostatic hypertrophy (BPH). In addition, PSA can sometimes lead to overdiagnosis and treatment, since it cannot distinguish tumors that are not clinically at risk. On the other hand, DRE is also reported to be an uncomfortable invasive procedure with limited sensitivity and specificity (Chan et al., 2022). Surgery or radiation therapy are appropriate methods in localized PCa. However, in almost 40% of patients, the disease progresses and in this case, the "hormonal therapy" method is chosen for treatment. This approach involves the use of GnRH agonists/antagonists and anti-androgens in combination. However, within about three years, most patients relapse and castration resistance prostate cancer (CRPC) develops. Therapeutic options for CRPC patients are still limited (Fontana et al., 2022). As a result, new biomarkers are needed for both diagnosis and treatment of PCa.

According to the American National Cancer Institute, biomarkers are biological substances that are measured in the evaluation of normal or pathological processes in the blood, body fluids or tissues. In cancer research, biomarkers can be used in diagnosis, prognosis, guiding treatment and monitoring response. The main techniques that utilize biomarkers to obtain diagnostic, prognostic and predictive data about cancer are immunohistochemistry, omic analysis and plasma-based analysis (Lastraioli et al., 2015).

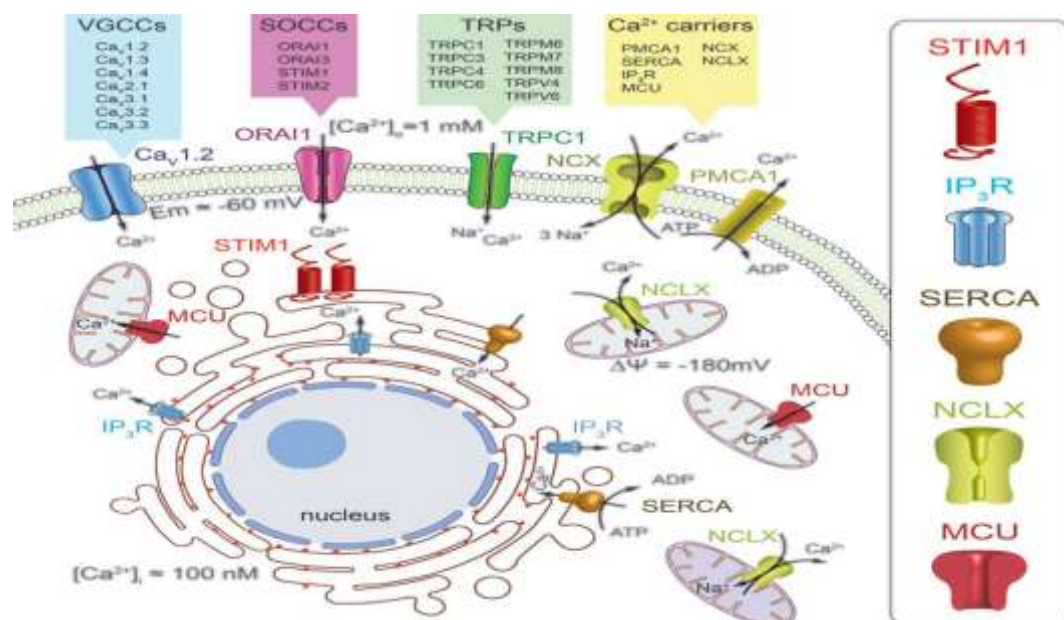


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Ion channels are special proteins that pass ions from one side of the cell membrane to the other. Ion channels have gates that allow them to open and then close in response to a specific stimulus, and these properties form the basis of their functions. Whether the ion channels are open or closed is regulated by different mechanisms such as (i) change in cell membrane potential (voltage-gated channels), (ii) mechanical stretching (mechanically gated channels), and (iii) binding of a ligand to the channel (ligand gated channels) (Terlau ve Stühmer, 1998). Recent studies show that ion channels are expressed in different types of human cancers. In addition, it has been determined that these special membrane proteins play a role in different cellular behaviors of cancer cells such as proliferation, apoptosis, migration and invasion. Different ion channels are overexpressed or lower expressed in human cancers. It is suggested that ion channels will represent new cancer biomarkers in the near future (Lastraioli et al., 2015). In this study, it is aimed to summarize the ion channels, which have the potential to be a biomarker in the diagnosis and treatment of PCa, in the light of current information.

### 2. PCa AND CALCIUM CHANNELS

Calcium ( $\text{Ca}^{2+}$ ) channels are proteins found in the plasma membrane, endoplasmic reticulum (ER) and mitochondrial membranes. These channels provide the passage of calcium ions from the extracellular space and intracellular calcium stores to the cytoplasm in the direction of the electromechanical gradient. There are several types of calcium channels in the plasma membrane: (1) Voltage-gated calcium channels (VGCCs), (2) receptor-operated calcium channels (ROCCs), (3) store-operated calcium channels (SOCCs), (4) transient receptor potential channels (TRPs), (5) acid-sensing ion channels (ASICs) and (6) stretch-activated ion channels (SAICs). (Tajada & Villalobos 2020). Calcium channels involved in the regulation of calcium homeostasis in mammalian cells are shown in Figure 1. Calcium channels provide regulation of intracellular calcium level. It is known that intracellular calcium ions play a role in basic physiological events such as gene expression, cell cycle control, motility, autophagy and apoptosis (Berridge et al., 2000). Through calcium channels, VGCCs provide intracellular calcium influx in excitable cells such as neurons, muscle cells and some endocrine cells. In contrast, the main pathway of calcium influx in non-excitable cells such as cancer is carried out by SOCCs. SOCCs allow intracellular influx of calcium ions as a result of depletion of ER calcium.



**Figure 1: Calcium Channels Involved in the Regulation of Calcium Homeostasis in Mammalian Cells:** Calcium flux from extracellular to cytoplasm is mediated by VGCCs, SOCCs, and TRPs. Calcium is released from the ER and mitochondria to the cytoplasm by inositol triphosphate receptors (IP3R) and mitochondrial  $\text{Na}^+/\text{Ca}^{2+}$  exchanger (NCLX). The sarcoplasmic reticulum  $\text{Ca}^{2+}$ -ATPase (SERCA) and the mitochondrial  $\text{Ca}^{2+}$  uniporter (MCU) are responsible for the transport of free cytoplasmic calcium



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into the organelles. The outflow of calcium from the cytoplasm is regulated by the plasma membrane  $\text{Ca}^{2+}$  ATPase (PMCA1) and the  $\text{Na}^+/\text{Ca}^{2+}$  exchanger (NCX) (Tajada & Villalobos 2020).

VGCCs are channels in excitable cells that regulate intracellular calcium levels depending on the membrane potential. A meta-analysis study conducted with web-based microarray database information showed that Cav1.2, Cav1.3, Cav2.2 and Cav3.1 subtypes from VGCCs were expressed at the mRNA level in clinical PCa tissue samples (Wang et al., 2015). In particular, increased expression of Cav1.3 was found in castration-resistant PCa. Increased Cav1.3 expression has been found to increase treatment resistance in patients receiving androgen deprivation therapy (O'Reilly et al., 2022).

It has been shown that increased expression of Orai3, a member of the SOCC family, is associated with PCa progression (Dubois et al., 2014). It has been determined *in vitro* that when Orai3 expression is increased, Orai1-Orai3 heterodimers are formed and calcium-dependent cell proliferation is promoted. Increasing Orai3 expression *in vitro* resulted in the formation of Orai1-Orai3 heterodimers and increased calcium-dependent cell proliferation. Orai1 homomultimeric channels have also been shown to potentially induce calcium-induced apoptosis (Dubois et al., 2014).

The levels of TRP Canonical 6 (TRPC6), TRP Melastatin 2 (TRPM2), TRPM4, TRPM7, TRPM8 and TRP Vanilloid 6 (TRPV6), which are subtypes of the TRP family, alter in PCa. (Ardura et al., 2020). It has been determined that functional TRPC6 channels are expressed in DU145 and PC-3 PCa cells and when these channels are inhibited, hepatocyte growth factor (HGF)-mediated calcium entry into the cytosol is impaired. TRPC6 inhibition arrested cells in the G2/M phase and suppressed HGF-mediated proliferation (Wang et al., 2010). When TRPM2 was inhibited by the small interfering RNA technique, it was determined that the proliferation of DU145 and PC-3 PCa cells decreased, whereas such an effect did not occur in non-cancerous prostate cells (Zeng et al., 2009). TRPM2 protein and mRNA expression in human prostate tissues has been shown to be associated with higher grade levels. Moreover, silencing of TRPM2 led to the induction of autophagy in PC-3 cells (Tektemur et al., 2019). Decreased TRPM4 level in PC-3 PCa cells suppressed cell proliferation (Sagredo et al., 2018). It has been demonstrated immunohistochemically that TRPM4 protein expression is higher in malignant PCa tissue samples than in benign ones. In addition, TRPM4 protein expression was found to be associated with increased biochemical recurrence after radical prostatectomy (Berg et al., 2016). TRPM7 has been shown to increase proliferation by increasing the intracellular  $\text{Ca}^{+2}/\text{Mg}^{+2}$  ratio in PCa cells (Sun et al., 2003). TRPM8 protein has been reported to be expressed in the plasma membrane and ER of androgen-dependent LNCaP PCa cells. TRPM8 provides calcium flow to the cytosol in these cells and increases cell survival. On the other hand, it was determined that there was a low level of TRPM8 expression in androgen-independent PC-3 cells and this expression was not related to androgen (Zhang & Barrit 2004). Yang et al (2009) determined that when TRPM8 was overexpressed in PC-3 cells by permanent transfection method, the susceptibility of the cells to apoptosis increased and their motility and proliferation decreased. Therefore, they concluded that TRPM8 and its agonists may be important targets in PCa (Yang et al., 2009). TRPM8 is an upregulated channel in PCa, but its expression has been found to be significantly reduced during metastasis in androgen-independent PCa (Gkika et al., 2015). It has also been shown that overexpression of TRPM8 has a negative effect on the proliferation of PC-3 cells and the progression of angiogenesis *in vivo* (Zhu et al., 2011). TRPM8 is the only TRP channel shown to have a protective role in PCa (Gkika et al., 2010). Another TRP channel, TRPV6, has been suggested to be expressed *de novo* by the PCa cell, increasing cell survival by increasing proliferation and conferring apoptosis resistance (Raphael et al., 2014).

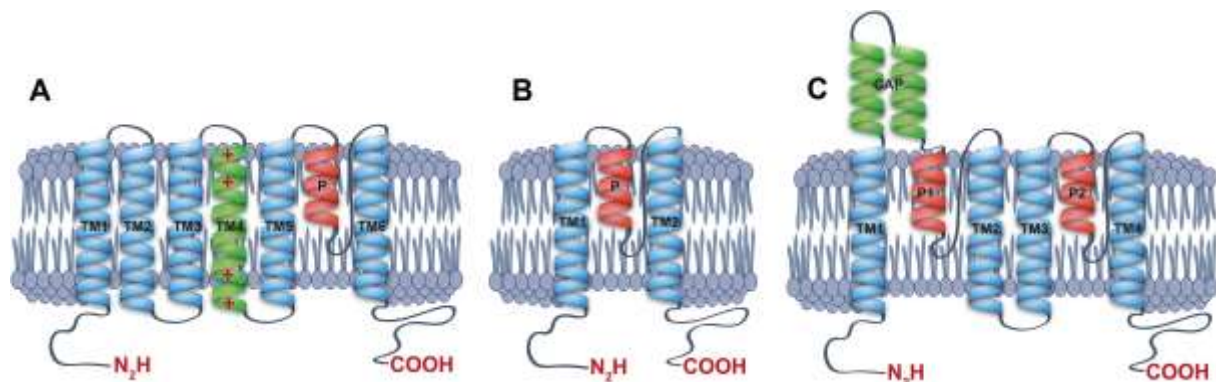
To summarize, the expression of VGCCs, Orai and TRP (except TRPM8) channels, whose functional expression has been detected in PCa, seems to contribute to tumor development and metastatic process. Loss of TRPM8 expression seems to be associated with transition to androgen independence and poor prognosis. Therefore, these channels are promising as a diagnostic and prognostic marker in PCa.

### 3. PCa AND POTASSIUM CHANNELS

Potassium ( $\text{K}^+$ ) channels are membrane proteins that control potassium ion flux and respond to different cellular stimuli. These ion channels are grouped into three main families according to their structures: voltage-gated potassium channel (VGPC), inwardly rectifying  $\text{K}^+$  channel ( $\text{K}_{\text{ir}}$ ) and two-pore  $\text{K}^+$  channels ( $\text{K}_{2\text{P}}$ ) (Figure 2). Changes in the function of potassium channels are thought to be effective in



processes such as cell proliferation, resistance to apoptosis, angiogenesis and migration in cancer (Zuniga et al., 2022).



**Figure 2: Potassium channels.** (A) Voltage-gated potassium channel (VGPC), (B) Inward rectifier potassium channel (Kir) and (C) Two-pore domain potassium channel (K2P) (Zuniga et al., 2022).

VGPCs are the channels that regulate the membrane resting potential and are responsible for returning the membrane potential to its resting state at the termination of the action potential (Li et al., 2006). They play important roles in events such as regulation of intracellular calcium level, stabilization of cell volume, and control of cell division and death in non-excitable cells (Wulf et al., 2009). VGPCs have 12 subfamilies (Kv1-Kv12). Expression of Kv1.3 in the VGPC family has been detected in PCa cell lines (Fraser et al., 2000; Laniado et al., 2001; Fraser et al., 2003). Immunohistochemical and real-time PCR analyzes of biopsy materials taken from PCa patients showed that Kv1.3 expression was found at protein and mRNA level in primary prostate tumors (Abdul ve Hoosein 2002a, 2006; Ohya et al., 2009). *In vitro* studies with VGPC blockers have shown a role for Kv1.3 in PCa cell proliferation (Fraser et al., 2000). Suppression of Kv1.3 has been shown to induce apoptosis in cancers such as melanoma and glioblastoma, but this evidence is not yet available for PCa (Zuniga et al., 2022). Kv2.1 is another VGPC whose expression has been reported in metastatic PCa cells (PC3). Blocking these channels with stromatoxin-1 or siRNA significantly inhibited the migration of malignant PCa cells (Park et al., 2021). Kv10.1 (Eag 1), another member of the VGPC family, has been shown to be expressed at the RNA and protein level in PCa (Hemmerlein et al., 2006). There is evidence that inhibition of Kv10.1 in cancer cells induces apoptosis, suppresses cell proliferation and reduces migration (Zuniga et al., 2022). Another potassium channel that should be mentioned in PCa is calcium-activated potassium channels. These channels are activated by the increase of cytosolic calcium ions and allow potassium ion to migrate according to the electrochemical gradient. KCa1.1 channel expression, a member of calcium-activated potassium channels, has been shown to increase proliferation of PCa cells *in vitro* (Bloch et al., 2007; Gackiere et al., 2013). In addition, it has been shown that KCa1.1 downregulation suppresses both proliferation and metastasis of PCa cells *in vitro* and *in vivo*.

Among the potassium channels, the Kir channel family is encoded by 15 different genes and has seven subfamilies. Knockdown of Kir2.2, a member of this subgroup, has been found to inhibit growth and induce senescence in the PCa cell line (Lee et al., 2010).

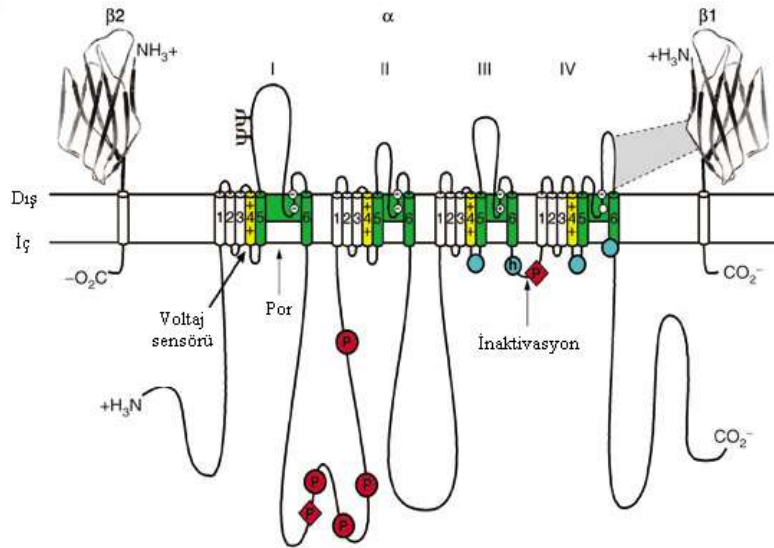
K2P channels are a family of fifteen members, also known as leak channels. K2P channels are structurally open and allow the outward flow of potassium. Activation of K2P channels stabilizes the membrane potential below the firing threshold. Inhibition of these channels increases membrane depolarization and facilitates cell excitability (Zuniga et al., 2022). TREK-1, a member of K2P channels, has been shown to be pro-proliferative in PC-3 PCa cells (Voloshyna et al., 2008). It has been shown that TREK-1 is overexpressed in PCa and is associated with poor prognosis (Zhang et al., 2015). In addition, it was determined that the knockdown of TREK-1 arrests the G1/S phase of the cell cycle and significantly inhibits PCa cell proliferation *in vitro* and *in vivo* (Zhang et al., 2015).

In general, Kv1.3, Kv2.1, Kv10.1, KCa1.1, Kir2.2 and TREK-1 play a role in the proliferation, migration and apoptosis processes of PCa. It is necessary to evaluate these channels as new molecular targets for therapy.



### 4. PCa AND SODIUM CHANNELS

The channel that provides the passage of sodium in the cell membrane and is associated with PCA is the voltage-gated sodium channel (VGSC). VGSC is primarily responsible for the depolarization phase of the action potential in excitable cells. The main function of VGSCs is to allow sodium ions ( $\text{Na}^+$ ) to enter the cell. Today, it is known that VGSCs are not only expressed in excitable cells, but also in non-excitable cells such as endothelium, glia and lymphocytes, and more importantly in cancer cells. There are nine subtypes (Nav1.1-Nav1.9) of VGSCs. The predominant VGSC subtype in PCA has been demonstrated to be Nav 1.7 (Diss et al., 2005).



**Figure 3:** Structure of the voltage-gated sodium channel (Catterall et al., 2010).

*In vitro* studies with VGSC modulators and PCA cells have shown that channel activity has no effect on cell proliferation (Fraser et al., 1999, 2000, Nakajima et al., 2009). The effect of VGSC activity on metastatic cell behavior of PCA cells has been investigated by numerous *in vitro* studies. *In vitro* studies with tetrodotoxin or some other blockers that specifically block VGSCs have shown that channel inhibition suppresses invasion of metastatic PCA cells (Grimes et al., 1995; Laniado et al., 1997; Bennet et al., 200; Chen et al., 2019; Wang et al., 2019). Similarly, VGSC inhibition suppressed the lateral motility of metastatic PCA cells (Fraser et al., 2003; Scorey et al., 2006). VGSC inhibition also inhibited the migration of metastatic PCA cells (Brackenbury & Djamgoz 2006; Ding et al., 2008; Chen et al., 2019). The effect of VGSC inhibition on PCA metastasis has also been investigated *in vivo*. Inhibition of VGSCs has been shown to reduce lung metastasis and increase survival of animals in the Copenhagen Mat-LyLu rat PCA model (Yildirim et al., 2012; Bagan et al., 2019). In addition, in another study, it was determined that inhibition of VGSC reduced primary tumor growth (Davis et al., (2012). VGSC expression was detected in human PCA biopsy specimens by immunohistochemistry and PCR analysis (Abdul & Hoosein 2002; Diss et al., 2005). In PCR analysis, it was determined that the dominant subtype of VGSCs, Nav1.7, was 20 times higher in PCA than in normal prostate. Researchers have identified Nav1.7 as a valid biomarker for PCA based on Receiver Operating characteristic (ROC) analysis (Diss et al., 2005). Also, Suy et al. (2012) found that VGSC expression showed a statistically significant correlation with the pathological stage of PCA and the Gleason score.

In general, studies of *in vitro*, *in vivo* and biopsy specimens reveal that VGSCs, particularly the Nav1.7 subtype, are an important factor in PCA metastasis. VGSCs have the potential to be an ideal biomarker in the diagnosis, staging and treatment of PCA.

### 5. CONCLUSION

Cancer is an important cause of morbidity and mortality all over the world. Integration of molecular knowledge in the field of cancer with traditional clinical knowledge is important for the emergence of new therapeutic approaches. There is increasing evidence that ion channels play a critical role in the



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activities of PCa cells such as proliferation, evading apoptosis, invasion, motility and migration. Therefore, ion channels appear as promising targets for the diagnosis and treatment of PCa. However, it should be emphasized that more research is needed for the transfer of existing knowledge to practical application.

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**SON TEMİZLİK: SOVYET MAHKEMESİ'NDE FEYZULLAH HOCAYEV (1896-1938)**  
FINAL CLEANING: FEYZULLAH HOCAYEV IN THE SOVIET COURT (1896-1938)

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### **Özet**

Bolşevik İhtilali'nin 20. yılında Rus olmayan milletleri sistem içerisinde eritme politikası, tutuklama, işkence ve yargılamalar ile nihayetlendi. Millî kimliklerini korumak isteyen topluluklar “düşman halk” olarak görüldü, Türkistanlı binlerce aydın, “Türkçü, Turancı, halk düşmanı, devrim karşıtı, Japon, İngiliz ya da Alman casusu” olmakla suçlanarak sürgüne gönderildi, hapsedildi ya da kurşuna dizilerek öldürüldü. “Burjuva milliyetçisi”, “millî faşist”, “devrim karşıtı” ve “Sovyet aleyhtarı” olmakla suçlananlar arasında yer alan Özbekistan SSC Başbakanı Feyzullah Hocayev, çok sayıda aydın ve devlet adamı düzmece mahkemelere çıkarıldılar ve düzmece suçlarla yargılanarak idama mahkûm edildiler. Bolşevikler, Feyzullah'a güvensizlik duymalarına rağmen onu uzun süre niçin üst mevkide tuttular? Sonradan ne ile suçladılar? Stalin terörüne ilişkin bilgileri Sovyet kaynaklarından anlamak ve aktarmak tarihî gerçeklerin yansıtılması bakımından objektif bir değerlendirme sayılamayacağı için Stalin teröründen dolayı yurtlarını terk etmek zorunda bırakılmış, bizzat döneme tanık olmuş, bu terörden kaçmayı başarabilmiş ancak teröre yakınlarını kurban vermiş kişilerin anlatılarının dönemin atmosferinin anlaşılmasında daha etkili olacağı düşünüldü. Çalışmada, 2 Mart 1938'de Moskova'da gerçekleştirilen, tarihte “21'ler Mahkemesi” olarak anılan duruşmada Bolşevik liderler ile aynı mahkemede sanıklar arasında yer alan Feyzullah Hocayev'in sorgulanma süreci dönemin orijinal kaynakları üzerinden değerlendirilecektir.

**Anahtar Kelimeler:** Feyzullah Hocayev, Sovyet Mahkemeleri, Son Temizlik, İdam ve cezalar, Bolşevik Devrimi.

### **Abstract**

In the 20th year of the Bolshevik Revolution, the policy of dissolving non-Russian nations within the system ended with arrests, torture and trials. Communities that wanted to protect their national identities were seen as “enemy people”, thousands of intellectuals from Turkistan were exiled, imprisoned or shot dead, accused of being “Turkist, Turanist, public enemy, anti-revolutionary”. Feyzullah Hocayev, who was among those accused of being "bourgeois nationalist", "national fascist", "anti-revolutionary" and "anti-Soviet", were killed. The Bolsheviks, especially in Moscow, never trusted Feyzullah. What did the Bolsheviks accuse Hocayev of? In this area; Since understanding and transferring information about Stalin's terror from Soviet sources cannot be regarded as an objective assessment in terms of reflecting historical facts, the narratives of people who had to leave their homeland due to Stalin's terror, who witnessed the era, lived it, managed to escape from it, but sacrificed their relatives, are much more helpful in understanding the atmosphere of the period. Hocayev, who was among the defendants in the same court with high-level Bolshevik leaders such as Bukharin and Reykov, in the hearing held in Moscow on March 2, 1938, known as the "Trial of the 21s" and also known as "Fake Courts" in history. 's questioning process will be evaluated through the original sources of the period. It will be discussed how Hocayev, who first served as the Prime Minister of the People's Republic of Bukhara and then as the head of government of Uzbekistan, was perceived and interpreted by the emigrants of Turkistan.

**Key Words:** Prime Minister, Soviet Trials, Final Purge, Execution and punishments, Bolshevik Revolution.



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### 1. Feyzullah Hocayev (1896-1938)

1 Temmuz 1896'da Buhara'da doğan Feyzullah Hocayev'in adı, hayattayken bile efsane olmuştur. Halk arasında *Eşencan* veya *Eşen Abi* olarak saygıyla anılmıştır. Buhara'nın "Kasım Şeyh" adlı Hocalar sülalesinden, şehrin deri ticareti yapan büyük tüccarlarından Ubeydullah Hoca Kasımhocayev<sup>1</sup> (? - 1912)'in oğludur. Annesi Reyhan Saidmurad kızı Peşku bölgesindeki Zandane köyünden idi. Doğu takvimine göre, Feyzullah'ın doğum günü *Maymun* yılındaki *Saratan* ayına denk gelmektedir. Bakıldığında, Ali Şîr Nevâyî (1441-1501), Muhammed Hârezmî (780-850), Mirza Abdülkadir Bidil (1642-1720), İmam İsmail Buhârî (810-870), Ebu Ali Sina (980-1037) gibi âlimlerin de *Maymun* yılında doğduğu görülmektedir Bundan dolayı *Maymun* yılı *Saratan* ayında doğanlara özel bir yetenek verildiği düşünülür.<sup>2</sup>

Feyzullah çocukken eski Usul-Cedid Mektebi'nde eğitim almıştır. Sonra Buhara'daki Osman Hoca<sup>3</sup> tarafından açılan Buhara Medresesi<sup>4</sup>nde eğitimini tamamlamıştır. Kuran-ı Kerim'i ezbere biliyordu. Feyzullah'ı on yaşında iken babası Moskova'ya götürmüş, o dönem ilk Rus devriminin (1905) etkileri henüz Moskova sokaklarında etkisini sürdürmekteydi. Moskova'da geçirdiği beş yıl (1907-1912) Feyzullah'ın hayatında büyük iz bırakmıştır. Burada özel öğretmenler tarafından eğitim almıştır. Medrese'de Doğu kültürünü alan Feyzullah, burada Avrupa ve Rusya'nın gelenek ve görenekleriyle tanışma fırsatına sahip olmuştur. Hem Özbekçe hem Tacikçe hem de Rusça konuşarak büyüyen Feyzullah, çağdaşlarına göre kendi fikirlerini Almanca olarak da ifade edebiliyordu.<sup>5</sup> Doğu ile Batı'nın öğretilerine hâkim olan Feyzullah'ın aldığı bu eğitim onun iyi bir devlet lideri olarak gelişmesinde önemli rol oynamıştır.

Feyzullah Hocayev 15-16 yaşından itibaren Mahmud Hoca Behbudi (1875-1919), Abdurauf Fitrat (1886-1938), Sadridin Aynî (1878-1954) ve Cedidçiler hareketinin diğer üyelerinin eserlerini inceleyerek öğrenmiş ve kendisi de onların yanında yer almıştır. Özellikle öğretmeni Fitrat'ın çalışmalarından çok etkilenmiştir. Bu nedenle Feyzullah Hocayev, Behbudi ile Fitrat'ı kendisinin ilk öğretmenleri/üstadı olarak tanımıştır. Feyzullah Hocayev ile Fitrat arasındaki bu iyi ilişki bir ömür boyu sürmüştür.<sup>6</sup>

Feyzullah Hocayev 16 yaşından beri Buhara'daki siyasi olaylarda aktif olarak yer almış ve devrimci Genç Buharalılar Partisi'nin bir üyesi olmuştur. (1913) Genç Buhara Devrimci Partisi Merkez Komitesi

<sup>1</sup> Feyzullah Hucayev'in babası Ubeydullah Hoca Kasım Hoca Oğlu 1912 tarihinde Mekke'ye hac ziyaretine giderken Rusya'nın Odessa kentinde vefat etmiştir. Genç Feyzullah bütün zorlukları yenerek babasının cenazesini Buhara'ya götürmüş ve İslami usullere uygun olarak toprağa vermiştir.

<sup>2</sup> RAJABOV, Kahramon (2011). *Fayzulla Hocayev*, Taşkent: ABU Matbuat- Konsalt. s. 4. Ayrıca bkz. RASHİDOV, Oybek (2021). "Buxoroda Sovet Hokimiyatining O'rantiishi ve Fayzulla Xo'jayev", *Buhara Halk Şuralar Cumhuriyeti 100. Yillığı Uluslararası Sempozyum Yazıları*, İstanbul: Kutlu Yayınevi Akademik Bilim Yayınları; Taşkent: Mumtoz nashriyoti, s. 197-203.

<sup>3</sup> Osman Hoca(yev) (1878-1968): 1920 yılında kurulan Buhara Halk Cumhuriyeti'nde ilk dönem Maliye Bakanlığı'nda bulunmuş, ardından Cumhurbaşkanı olmuştur. Ceditçi aydınlardandır. Babası Polat Hoca'dır. Polat Hoca'nın kardeşi Ubeydullah Hoca'nın oğlu da Feyzullah Hoca'dır. Yani, Osman Hoca ve Feyzullah Hoca baba tarafından yakın akrabadırlar. Bu konuda ayrıntılı bilgi için bkz. Kocaoğlu, Timur. (2001). *Türkistan'da Yenilik Hareketleri ve İhtilaller 1900-1924*, "Yenilik Hareketleri ve İhtilaller Arasında Osman Hoca (Kocaoğlu), Harlem: Türkistan ve Azerbaycan Araştırma Merkezi, s. 16. Feyzullah Hoca Ceditçilik hareketine katılan ve ceditçilerden eğitim alan bir şahsiyet idi. Bu konuda bkz. Davranbek, "Feyzullah Hoca Haqqında (I)", *Milli Türkistan*, S. 116, (Eylül-Ekim 1966), s. 13.

<sup>4</sup> Osman Hoca, Buhara'da, Kırım'daki Gasprinskiy Mektebi tarzında Usul-i Cedit Mektebi açmıştı. Bu konuda ayrıntılı bilgi için bkz. TOGAN, Zeki Velidi (2015). *Hatıralar*, Ankara: Türkiye Diyanet Vakfı Yayınları, s. 309.

<sup>5</sup> Rusça'yı çok iyi konuşuyordu. İki eşinden biri Rus idi. Ticaret amacıyla Almanya'da bulunduğundan Almanca biliyordu. Bkz. Zeki Velidi Togan. *Hatıralar*, s. 310.

<sup>6</sup> RAJABOV, Kahramon (2011). *Fayzulla Hocayev*, Taşkent: ABU Matbuat- Konsalt. s. 28. Ayrıca bkz. RASHİDOV, Oybek (2021). "Buxoroda Sovet Hokimiyatining O'rantiishi ve Fayzulla Xo'jayev", *Buhara Halk Şuralar Cumhuriyeti 100. Yillığı Uluslararası Sempozyum Yazıları*, İstanbul: Kutlu Yayınevi Akademik Bilim Yayınları; Taşkent: Mumtoz nashriyoti, s. 197-203.

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üyesidir aynı zamanda. 1936 yılında babası vefat ettikten sonra (1912) Buhara'daki Cedidçilik hareketinde aktif olarak yer almış ve bir yıl sonra Genç Buhara Partisi'nin lideri konumuna gelmiştir<sup>7</sup>

Ekim Devrimi'nin etkisi altında Buhara'nın işçileri ve çiftçileri kendi bağımsızlıkları için Buhara Emiri'ne karşı mücadele etmeye başladıklarında Cedidçiler üzerinde ikili bir baskı oluşmuştu; son Buhara Emiri Said Alimhan'ın (1881-1944) Cedidçilere yönelik nefretine karşı mücadele ve Rusya'daki Şubat Devrimi, Cedidçiler'i bölmüştü. Gelenekçi fikirdeki Cedidçilere Abdulvahid Burhanov (Munzim. 1874-1934), solcu devrimci Cedidçilere ise Fitrat önderlik etmişlerdi. Genç Buharalılar Partisi (daha sonra Devrimci Genç Buharalılar Partisi) Cedidçilerin sol kanadını oluşturuyordu. Feyzullah Hocayev kısa süre sonra bu partinin Merkez Komitesi Başkanı olarak seçilmiştir.<sup>8</sup>

1917-1920 yılları arası Feyzullah Hocayev'in hayatında önemli olaylar olmuştur. 1917 yılı Rusya'da 8 ay gibi kısa bir sürede iki ayrı devrimin gerçekleştiği yıl olarak tarihe geçmiştir. 1918 ilkbaharında Hocayev, Moskova'ya giderken yolda Beyaz Muhafızlar tarafından yakalanmış, Dutov'un emriyle Orenburg'da 4 ay hapse atılmıştır. Arkadaşlarının yardımıyla hapishaneden kaçmıştır. Onu kaçıranlar arasında Başkırdistan Millî Hareketi'nin önde gelen isimlerinden Ahmed Zeki Velidi Togan (1890-1970) da vardı.

Feyzullah Hocayev, Ekim 1918'den Ocak 1920'ye kadar Moskova'da oturuyordu. Genç Buhara Partisi Merkez Komitesi'nin Moskova Komitesi Başkanı olarak görev yapan Hocayev, burada bulunduğu dönemde V. Lenin, I. Stalin, M. Kalinin, M. Frunze, Ja. Rudzutak, S. Eliava ile iyi ilişkiler kurmuştur. Moskova'da yaşamak Hocayev'i Marksizme, Lenin ve Bolşevik Parti fikirlerine yaklaştırmıştı ve onun dünya görüşünde bir dönüm noktası olmuştur. Taşkent'e geri döndükten sonra Ocak 1920'de kurulan Taşkent'teki Genç Buharalılar Partisi'nin Türkistan bürosunun başkanlık görevini yapmıştır.

Feyzullah Hocayev, Ağustos/Eylül 1920 tarihinde gerçekleşen silahlı isyana aktif katılanlar arasında bulunmuştur.<sup>9</sup> Buhara'da 2 Eylül 1920 tarihinde Buhara Emirliği sistemi kaldırılmış yerine *Buhara Halk Sovyet Cumhuriyeti* (BHSC) kurulmuştur. Aynı tarihlerde Genç Buharalılar<sup>10</sup>, in Buhara Komünist Partisi üyesi olan Feyzullah, Emir ile mücadelede Moskova'dan gelen yardım talebini kabul etmişti. Moskova ile yapılan müttefik sonucu 1920'de Buhara Emiri Mir Said Âlimhan (1881-1944) Buhara'yı terk etmek mecburiyetinde kalmış, Emir, tahttan silah gücü ile indirildikten sonra hükümeti Genç Buharalılar ele geçirmiştir.<sup>11</sup> (29 Ağustos 1920) .

<sup>7</sup> Feyzullah Hoca Münevver Kari Abdürreşithanov (1878-1931) ile birlikte, 1917 Şubat İhtilali'nden sonra kurulan Petrograd'daki Geçici Hükümet'in Taşkent İşçi Asker ve Köylü Vekilleri Sovyeti'nin üyesi idiler. Bkz. PARK, Alexander G. (1957). *Bolshevism in Turkestan 1917-1921*, New York: Columbia University Press, s. 9-11.

<sup>8</sup> RAJABOV, a.g.e., s. 4-5.

<sup>9</sup> Amonoba, Фериуза (2021). “Усмон Хўжа ҳамда Файзулда Хўжаев аждодлари сармоясининг Бухоро амирлиги иқтисадийетида туғган ўрни”, *Buhara Halk Şuralari Cumhuriyeti 100. Yilligi Uluslararası Sempozyum Yazıları*, İstanbul: Kutlu Yayınevi Akademik Bilim Yayınları; Taşkent: Mumtoz nashriyoti, s. 225-230.

<sup>10</sup> 1920'de Buhara Emirliği yıkılınca Genç Buharalılar devleti kurdular. Genç Buharalılar içinde iki grup vardı. Birinci grup; Osman Hoca başkanlığındaki milliyetçi grup. İkinci grup ise; marksizme inanmış bir milliyetçi olan Feyzullah Hoca başkanlığındaki komünist grup.

<sup>11</sup> 2 Ağustos 1920 tarihinde Türkistan Cephesi Birlikleri şiddetli bir savaşın ardından Buhara'yı işgal etmiştir. M. Frunze liderliğindeki Kızıl Ordu'nun toplam sayısı 70.000 idi. Doğu'nun en güçlü ve kadim devletlerinden biri olan Buhara'da, Kızıl Ordu, Emirliği devirmiştir. Buhara barbarlıkla bombalanmıştır, üç buçuk bin yüzyıllık tarihi olan birçok antik anıt yok edilmiş, şehir içi alevler içinde kalmıştır. Buhara halkı bu günleri "küçük kıyamet" olarak adlandırmışlar. Buhara Kızıl Ordu askerleri tarafından acımasızca yağmalanmıştır. Sovyet tarihi kaynakları, Buhara'nın işgali sırasında 500'den fazla Kızıl Ordu askerinin öldürüldüğünü kaydederler, ancak bu kaynaklarda ölü sayısı kasıtlı olarak az gösterilmiştir. Arşiv kaynaklarındaki verilere dayanarak araştırmacıların dediklerine göre, Buhara'dan iki kademede: her kademede 14 vagon altın ve değerli eşyalara el konulmuş ve götürülmüştür. Bu servetin o zamanki toplam değeri 77 milyon altın paraya eşdeğerdi. Bugün bu servet 80 milyar dolar değerindedir. 23 Nisan 1920'de Türkiye Büyük Millet Meclisi açıldıktan sonra Mustafa Kemal Paşa, Rusya'dan yardım talebinde bulunmuştu. Bu amaçla Mayıs 1920'de Rusya'ya heyet göndermişti. Lenin bu talebe sıcak bakmakla beraber, o sırada Buhara Cumhuriyeti'nin ilk Cumhurbaşkanı olarak Moskova'da Kremlin Sarayı'nda

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14 Eylül 1920 tarihinde Buhara Halk Bakanları Konseyi, Devrimci Komite ile Buhara Komünist Partisi'nin genel toplantısında 9 kişiden oluşan Tüm Buhara Devrimci Komitesi (Abdulkadir Muhiddinov başkanlığında) ve hükümetin 11 üyeli bir Halk Bakanları Konseyi, (Başkan Feyzullah Hocayev) kurulmuştur. 23 Eylül 1921'de Buhara'da gerçekleştirilen III. Kurultay'da 44 yaşındaki Osman Hoca Cumhurbaşkanı, 24 yaşındaki Feyzullah Hocayev Buhara Halk Sovyet Cumhuriyeti Komiserler Şurası'nın Başbakanı ve aynı zamanda Dışişleri Bakanı seçildi.<sup>12</sup> Moskova'daki hükümet Buhara hükümetini tanıdı. Böylece, Buhara Cedidçileri reformist fikirlerini yeni hükümette aktif olarak uygulamaya çalışmışlardır.

Genç Buharalılar, Emir'in şahsına ve rejimine karşı ne kadar düşman idi iseler aynı derecede Sovyet rejimine de karşı idiler. Feyzullah ve Genç Buharalılar (Osman Hoca, Nasır Bek gibi) birlikte hareket ediyorlardı. Genç Buharalılar'dan Osman Hoca ve Nasır Bek Sovyet hükümeti etkisi altındaki Buhara hükümetinden ayrıldılar. Ayrılmayanlardan biri Feyzullah Hocayev oldu.

Feyzullah Hocayev kısa bir süre sonra Moskova'dan Buhara'daki askerlerini geri çekmesini istedi. Ancak Moskova, Türkistan'ı sovyetleştirme siyasetinin bir parçası olan millî sınırlar politikasını takip ederek, silah gücü ile Buhara ve Harezmi yeni kurulan Özbekistan Sovyet Sosyalist Cumhuriyeti'ne bağladı. Bundan böyle Feyzullah Hocayev kariyerini Özbekistan'da sürdürdü. Özbekistan SSC.'nin Hükümet Başkanlığı'na getirilen Hocayev, 16 yıl boyunca bu görevde bulundu.<sup>13</sup>

II. Parti Kongresi'ne kadar Türkistan Sovyet basınında “Şark'ta millî bağımsızlık hareketi liderleri arasında “çok iyi bir örnek” olarak gösterilmesine rağmen<sup>14</sup> Bolşevikler, Feyzullah'ın Bolşeviklik derecesini çok iyi bildikleri için ona hiçbir zaman güvenmediler. Peki, bu kadar güvensizlik duymalarına rağmen onu bu kadar uzun süre niçin üst düzey bir mevkide tuttular? Her şeyden önce Feyzullah, eski Genç Buharalılar ve Millî İnkılabçılar'dan Bolşevikler safında olan bir kişi idi. O, Türkistan'da Sovyet hükümeti ve onun siyasetine bir “millî renk” veriyordu. Moskova, bir taraftan Buhara'nın istilası ve sovyetleştirme faaliyetlerinde çok hizmeti olduğunu düşündüğü Feyzullah'a karşı mecburiyet duymuştu. Diğer taraftan da artık kendine sadakatle hizmet edecek kadronun yetiştigiğine kanaat

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kendisi ve Sovyet yetkilileri ile temaslarda bulunmak üzere Feyzullah Hoca ile birlikte gelen Osman Hoca'ya iletmişti. Hiç tereddüt etmeden Türkiye'nin yardım talebini kabul eden Osman Hoca, Türkiye'ye gönderilecek paranın miktarını belirlemek üzere, bir heyet kurulmasını önermişti. Bu heyet Feyzullah Hoca başkanlığında toplanmış, yapılacak yardımın miktarını 100 bin ruble olarak belirlemişti.

<sup>12</sup> Başbakan 24 yaşında ve bakanların yaş ortalaması 29'un altında idi. Tarihte böyle genç bir hükümet rastlanmamaktadır. Bkz. SALLI, M. Kemal (2020), “Kurtuluş Savaşı'nda Kardeş Desteği”, *Türk Dünyası*, S. 398, Şubat, s. 20. Ayrıca bkz. DAVRANBEK. (1966). “Fayzulla Hoca Haqqında (I)”, *Milli Türkistan*, S. 116, Eylül-Ekim s. 15. Ayrıca bkz. KOCAOĞLU, Osman (1962). “Rus Yardımının İçyüzü”, *Yakın Tarihimiz*, S. 10, Mayıs, s. 292-293. Ayrıca bkz. YELOK, Veli Savaş (2014). “Feyzullah Hocayev ve Cedit Hareketi”, *Eskişehir: Türk Dünyası Bilgeler Zirvesi: Gönül Sultanları Buluşması*, s. 425-426.

<sup>13</sup> 1913 yılından itibaren Ceditçi hareketin içinde yer alan Feyzullah, yenilikçi fikirlerin yayılmasının öncülerinden biri oldu. Buhara Cumhuriyeti hükümetinin kuruluşundan ortadan kaldırılmasına kadar olan süreçte ülke yönetiminde bulundu, 1918 yılında Türkistan Özerk SSC.'nin Moskova temsilcisi oldu. 1924'te kurulan Özbekistan SSC'de 12 yıldan fazla üst düzey görevlerde bulundu. Tanınmış devlet adamı Feyzullah Hocayev'in Buhara'da geçirdiği 1920-1924 yılları arasındaki hayatı da önemli olayları içermektedir. Bu dönemde o aynı anda Buhara Sovyet Halk Cumhuriyeti'nin Bakanlar Kurulu Başkanı (1920-1924), BSHC'nin Dışişleri Bakanı (1920-1922), Milli Savunma Bakanı (1921-1924), İç İşleri Bakanı (1922) görevini yapmıştır. BSHC Çalışma ve Savunma Konseyi'nin Yönetim Kurulu Başkanı (1922-1924) gibi sorumlu hükümet görevlerinde aktif rol oynamıştır. Bu nedenle, Feyzullah Hocayev, Doğu Buhara Devrimci Askeri Konseyi (1922-1924) Başkanı ve SSCB Askeri-Deniz İşleri Halk Komiserliği'nin, Özbek Sovyet Sosyalist Cumhuriyeti'nin (1925'ten beri) resmi temsilcisiydi. 1924 yılında Feyzullah Hocayev'e en yüksek askeri ordu komutanı (şimdiki ordu generali) rütbesi verilmiştir. Hocayev, (Kasım 1924-Şubat 1925) Özbek SSC Devrimci Komitesi'nin Geçici İşçi ve Köylü Hükümeti'nin Başkanı olarak görev yapmıştır. 1925-1937 yıllarında ise Özbek Sovyet Sosyalist Cumhuriyeti Halk Komiserleri Konseyi Başkanı ve Sovyet Sosyalist Cumhuriyetler Birliği'nin Merkez Komitesi Başkanlarından biriydi.

<sup>14</sup> [İsimsiz] “Feyzullah Mümin'in Akıbeti”, *Yaş Türkistan*, c. VIII, S. 92-93 (İyul-Avgust 1937), s. 4.



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getirmişti. Ve artık Feyzullah'a gerek kalmadığına inandı. Türkistanlılar ise onu Eylül 1920'de işlediği "suçu" için siyaseten bir daha affetmediler.<sup>15</sup>

Sovyet basınında 1930'lu yılların ikinci yarısından itibaren Feyzullah Hocayev aleyhinde yazılar çıkmaya başlamıştı; 1936 yılında intihar ederek ölen kardeşi İbadullah Hocayev'in, karşı devrimci ve milliyetçi olduğu iddia edilerek, kardeşinin mezarını devletin parasıyla yaptırdığı, ayrıca annesinin mezarındaki mermer taşta Arap harfi ile annesinin ismini, doğum-ölüm tarihlerini yazdırdığı anlatılıyordu. Bu durum, aynı zamanda Feyzullah'ın, hükümetin yeni alfabe kanununa karşı çıkan bir tutum içinde olduğu şeklinde aksettiriliyordu. Yine Nisan 1937'de ölen annesinin cenaze merasiminde "bir komüniste yakışmayan hareketler" yaptığı, bunun yanında Hocayev'in, Mümin Eminoğlu, Ata Hocoğlu, Settar Hocoğlu ve Muhtar Seyid Hanoğlu gibi milliyetçi -karşı devrimci kişileri etrafına toplayıp, onları himaye ettiği ileri sürülüyordu.<sup>16</sup>

Bolşevikler, Feyzullah Hocayev'i öncelikle "18"ler grubuna dâhil olması sebebiyle suçladılar. Milliyetçi karşı devrimcileri evinde toplamak, Sağ-Troçkiciler Grubu'na katılmak, korbaşılara destek vermek, Abdulrauf Fıtrat (1886-1938) - Çolpan (1893-1938) -Abdullah Kadiri (1894-1938) gibi Özbek aydınlarını desteklemek gibi pek çok sebep gösterilerek suçlandı. Feyzullah "On Sekizler Grubu"nun lideriydi (Kasım 1925), "kulaklar"ın bir sınıf olarak ortadan kaldırılması siyasetine karşıydı. Bunun dışında pamuğun her yerde yetiştirilmesi Özbekistan ekonomisinde mono kültüre yol açacağına inanmaktaydı. Ayrıca onun, Yer Islahatı'na karşı çıktığını, gizlice kolektifleştirmeye de karşı olduğunu, millî "ağmaç"lara<sup>17</sup> karşı gerekli mücadeleyi vermediğini öne sürdüler.<sup>18</sup>

10/17 Haziran 1937'de gerçekleştirilen VII. Özbekistan Parti Kurultayı'nda yeni bir İcra Komitesi seçildi. Kurultay sonunda Hocayev, Özbekistan Komünist Partisi Merkez Komite üyeliğine seçilmedi. Özbekistan Yüksek Sovyeti tarafından, ÖKP'nin 26 Haziran 1937 tarihli başvurusu üzerine Halk Komiserler Şûrası Başkanlığı'ndan azledildi (İsimsiz; 1937: 2). Kurultay'da "Feyzullah Hocayev "milliyetçi" faaliyetlerini yürütmüştür" iddiasıyla Özbekistan NKVD<sup>19</sup> başkanı<sup>20</sup>, Hocayev'in Parti'ye, devrime ve ülkeye ihanet ettiğini öne sürerek, onu "halk düşmanı" ilan etti. Kurultay'daki delegelerden hiçbiri tarafından Feyzullah ile ilgili olumlu söz söylenmedi. Hakkında alınan bu karardan son derece rahatsız olan Hocayev, Stalin ile görüşmek üzere ailesi ile birlikte Moskova'ya gitti. Görüşmelerine yardımcı olacağı konusunda Sovyetler Birliği Komünist Partisi Merkez Komitesi Üyesi Kalinin<sup>21</sup>, onu Stalin ile görüştüreceğine söz vermiş olmasına rağmen sözünü tutmadı. Stalin onu kabul etmedi. 9 Temmuz 1937'de Moskova'da NKVD ajanları tarafından Moskova'daki "Natsional" otelinde tutuklanarak, Lefortovo hapishanesine, Sovyet hükümetine karşı "Sovyet karşıtı sağcı Troçkist bloğun" faaliyetlerine katılmış, 1921-1924'te "Millî Birlik" gizli örgütüne önderlik yapmıştır, *basmaçılık* hareketini ve *korbaşuları* desteklemiş ve Fıtrat, Çolpan, Abdullah Kadiri ve diğer Özbek aydınlarına yardım sağlamıştır" suçlamasıyla atıldı.

Uzun bir işkence döneminden sonra, 13 Mart 1938 tarihinde Ekmel İkrarov, N. Buharin, A. Rıkov vs. (17 kişi) ile birlikte Feyzullah Hocayev de SSCB Yüksek Mahkemesi'nin Askerî Kurulu kararıyla kurşuna dizilmeye mahkûm edilmiştir. Mahkeme kararı 15 Mart 1938 tarihinde Moskova yakınlarındaki ölüm cezasını yerine getiren Butovo'da gerçekleşmiştir. Bunun dışında dört kişi uzun süreli hapis cezalarına çarptırılmıştır.

<sup>15</sup> 1920, Buhara'nın sovyetleştirilmesi tarihidir. Emir'e karşı Bolşeviklerin yardım talebini kabul etmişti.

<sup>16</sup> A. (1937). "Sovyet Gazitalarına Göre Türkistan Ahvali: II- Feyzullah Hoca Kovuldu, Urnige Abdullah Kerimoglu Keldi", *Yaş Türkistan*, S. 92-93, İyul-Avgust, s. 40-41.

<sup>17</sup> Ağmaç: Dönek.

<sup>18</sup> [İsimsiz] (1937). "Feyzullah Mümin'in Akıbeti," *Yaş Türkistan*, S. 92-93, İyul-Avgust, s. 3-4. Bu konuda ayrıca bkz. KILINÇKAYA, Derviş M.; OMARBEKOV, Talas; EGAMBERDİYEV, Mirzahan, Sovyetler Birliği Döneminde Yıldırma Politikasının Bir Unsuru Olarak "Türkçülük" Suçlaması, CTAD, Yıl 15, Sayı 30 (Güz 2019), s. 1-27.

<sup>19</sup> NKVD: İç İşleri Halk Komiserliği (Narodny Komissariat Vnutrennih Del) НКВД Народный комиссариат внутренних дел, Narodny komissariat vnutrennih.

<sup>20</sup> Söz konusu dönemde NKVD Başkanı Lavrentiy Pavles dze Beria (Лаврентий Павлович Берия- 1899-1953) idi.

<sup>21</sup> Mihail İvanoviç Kalinin (-Михаил Калинин-1875-1946): 1926 yılından itibaren Sovyetler Birliği Komünist Partisi Politbüro üyesi. 1919-1946 yılları arasında Yüksek Sovyet Prezidyumu Başkanı olan Bolşevik devrimci.



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Hocayev'in yerine Abdullah Kerimoğlu getirilmiştir.<sup>22</sup> Bu terör döneminde gerek parti üyeleri gerekse hükümet başkanları sık sık değiştirilmiştir. Cumhuriyetin birçok gazetelerinde ve parti meclislerinde Kerimi'ye sadık "Stalinci komünist" ve "halk düşmanlarına karşı koyan nişandar ve inkılapçı" diyerek övgüler yağdırdılar. (Kerimi Sovyet hükümeti tarafından Basmacılık Hareketi'ne karşı olduğu için takdir edilmiş, "kızıl bayrak nişanı" ile mükafatlandırılmıştı.) İki hafta sonra Abdullahcan Kerimi "halk düşmanı" diye suçlanarak hapse atıldı. Onun yerine Törebekoğlu atandı. Bu kişi Hocend demiryolu işçilerinden olup, sadık komünist, inkılapçı ve "Stalinci komünist" diyerek göklere yükseltildi. Törebekoğlu'nun hükümet başkanlığı ömrü de iki haftadan fazla sürmedi ve "halk düşmanı" suçlaması altında NKVD tarafından hapse atıldı. Onun yerine Sultan Segizbay atandı. Segizbay, Ekmel İkrarov (1899-1938) ve Feyzullah Hocayev dönemlerinde Moskova'da, parti merkez dairesinde çalışıyordu. O da önce göklere çıkarıldı; Ekmel İkrarov ve Feyzullah Hocayev'lere karşı olmada sonuna kadar Stalin yolunda sadık gerçek komünist diye övüldü. Segizbay'ın bu övülme devri ve hükümet başkanlığı ömrü de altı ayı geçmedi. O da "halk düşmanı" suçlaması altında ortadan kaldırıldı. Bu gibi olaylar Türkistan Cumhuriyetleri'nin hepsinde görüldü.<sup>23</sup>

Muhaceretteki Türkistanlılar, Moskova'daki duruşmaları yakından takip ederek, çıkarmış oldukları yayın organları aracılığıyla dünya kamuoyunun dikkatini çekmeyi başarıyorlardı. Muhaceret basınında Feyzullah Hocayev'e yönelik çeşitli suçlamalar da yer almıştır. Buhara Ceditçileri'ne mensup yoldaşları ile birlikte Buhara'ya Rus kızıl ordusunu getirttiği ve kızıl ordunun Buhara'ya yaptığı baskını gizli tuttuğu iddia edilmiştir. Aynı zamanda Rus Bolşeviklerine Buhara'yı istila ettirip Sovyetleştirme ve onu dışarıya karşı "millî bağımsızlık inkılabına yardım" şeklinde göstermelerine destek vermekle suçlanmıştır.<sup>24</sup> *Yaş Türkistan*<sup>25</sup> editörü ve yazarı Mustafa Çokayoğlu (1891-1941), Feyzullah Hocayev'in suçsuz Türkistanlıların öldürülmesine yardımcı olduğunu öne sürmüştür. Moskova'daki "patronlarına" yaranmak için işçi ve kolhozcuları "milliyetçi-düşman unsur" diyerek suçladığını onların öldürülmeleri veya hapsedilmeleri hakkında kararlar çıkarttığını<sup>26</sup>, haksız yere kanı dökülen Türkistanlıların kanına girenlerin yardımcısı olduğunu, "kanlı Moskova cellatları"na onlarca Türkistanlıyı öldürttüğünü yazmıştır.

Moskova gazetelerinde Feyzullah Hocayev'in görevine son verilmesi hususunda bir kelime bile haber yapılmamıştı.<sup>27</sup> Nihayetinde, Moskovalı yöneticilerin sert tepkisi ve kendi vatandaşlarının antipatisi

<sup>22</sup> 27. 6. 1937 tarihli *Kızıl Özbekistan*'da Abdullah Kerimoğlu hakkında şu malumat verilmiştir: *Abdullah Kerimoğlu 1896 yılında Hokand'da doğdu. İlkokulu Özbek okulunda okudu. Sonra 3 yıl Ruslar ve mahallî halk için açılan okulda okudu. İhtilalin başlarında Özbek ilkokulunda öğretmenlik yaptı. 1920 yılında Fergana'ya gitti. 1920/21'de Fergana Vilayeti Parti Komitesi Propaganda Bölümü Müdürü ve Sorumlu Sekreteri Yardımcısı oldu. 1921/23 yıllarında Basmacılar'a karşı mücadelede etkin rol oynadı. Daha sonra Çegen Fergana Vilayeti bölümüne başkan olan ve Hokand etrafındaki İslamkul liderliğindeki Basmacılar grubu ile Mergilan reyonunda Şir Muhammed Bek, Andican reyonunda Ahmed Palon ile Kazakbay liderliğinde olan Basmacılar'a karşı mücadeleye yakından katıldı. 1924'te Türkistan Şura Cumhuriyeti Eğitim Halk Komiseri Yardımcısı olarak çalıştı. 1925/26'da Moskova'da Sverdlof adlı üniversitede okudu. Ardından, Özbekistan Merkezi Parti Teşkilatı üyesi olarak çalışan Abdullah Kerimoğlu 1929'dan itibaren Özbekistan Halk Komiserleri Sovyeti Başkan Yardımcısı oldu. Basmacılar'a karşı mücadelede gösterdiği hizmet için Moskova ona kızıl bayrak nişanı verdi. 1937 yılında ise Abdullah Kerimoğlu, Feyzullah Hoca'nın yerine getirildi. Uzunca süre ÇEKA'da çalışıp, güven kazanan Abdullah Kerimoğlu bu yeni makamında, Moskova'ya daha da büyük hizmetler edecektir.*

<sup>23</sup> Bulag Başı, "Henüz Teslim Bolmağan Mâmlakat X", *Milli Türkistan*, S. 85-86 (Ağustos-Eylül 1953), s. 13.

<sup>24</sup> Sabık Buhara Emiri ve onun rejimine karşı her ne kadar nefret ile bakılsa da ona karşı dış bir güç ile ittifak kurmak da kesinlikle doğru bulunmuyordu. [İsimsiz] "Feyzullah Mümin'in Akıbeti", s. s. 2-3.

<sup>25</sup> Mustafa Çokay editörlüğünde Fransa'da 1929-1939 yılları arasında, Çağatay Türkçesi ve Arap harfleri ile çıkarılan dergi. *Yaş Türkistan* dergisi ile ilgili ayrıntılı bilgi için bkz. Tülay Köseoğlu, *Sovyetler'in Türkistan'ı Dönüştürme Politikasına Muhalefet: Yaş Türkistan Dergisi (1929-1939)*, TTK Yayınları, Ankara 2020.

<sup>26</sup> 1929 yılında Türkistan'da "terör mesulleri" ilan edilen Türkistanlıların listesi *Yaş Türkistan* dergisinde verilmektedir. Bkz. İsimsiz, "Türkistan'da Kanlı Terrör", *Yaş Türkistan*, c. V, Dekabr 1934, S. 61, s. 2-5. Ayrıca bkz. "Türkistan Haberleri: Türkistan'da Kanlı Terrör Devam İtmektedir", *Yaş Türkistan*, c. VI, Ganvar 1935, S. 62, s. 36-38.

<sup>27</sup> Feyzullah Hocayev ile ilgili olarak 20 Ocak 1932'de *Pravda Vostoka*'da yer alan bir haberde: "Türkistan'da şimdiye kadar gerçek Leninci olarak bilinen kişilerin gerçekte "Troçkicilik", "Sultanalıcılık", "Çokaycılık" ve "Kasımcılık" yaptıkları anlaşıldı. Türkistan gazetelerinin yazdığına göre Parti ana çizgisini bozanlar arasında ilk sırada Sovyetler Birliği Merkez İcra Komitesi Reisleri'nden biri ve Özbekistan Hükümeti'nin değişmez başkanı



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altında Feyzullah Hocayev siyasi sahneden silindi. Feyzullah Hocayev'in hemen ardından Türkistan cumhuriyetleri başkanlarından Tacikistan Cumhurbaşkanı Şirinşah Timur ile Tacikistan Merkez İcra Komitesi Kâtibi İmamoğlu, Tacikistan Adliye Komiseri Şirinoğlu “karşı devrimci, halk düşmanı ve Japon-Alman casusu” olarak suçlandılar. Kazakistan Cumhurbaşkanı Kulumbatoğlu Uzakbay, son yapılan Parti Kurultayı tarafından İcra Komitesine seçilmedi. Son yapılan Parti Kurultayı zamanında Kulumbatoğlu Uzakbay ve birçok partili “Alaş-Ordacı” ve dışarıdaki Türkistan milliyetçileri ile “bağlantılı” denilerek suçlandılar. Aynı şekilde Türkistan'ın Özbekistan, Kırgızistan ve Türkmenistan kısımlarında Parti ve Hükümet başkanlarından birçok kişi de aynı şekilde suçlanarak hapse atıldılar.<sup>28</sup>

Ülkesindeki geri kalmışlığı ortadan kaldırmak amacıyla iktisadi, sosyal ve siyasi çalışmalarını Moskova'nın talimatları doğrultusunda görevine son verilene kadar sürdürmek zorunda kalan Hocayev devlet adamı, tarihçi, ekonomist ve milliyetçi bir lider olarak birçok kitap ve makale yazmıştır.<sup>29</sup> 1926 yılında *Buhara İnkılabı Tarihine Dair* adlı Türkçe ve Rusça yazdığı kitabında, genel olarak Türkistan'da, özellikle de Buhara'da milli şuurun gelişimi konusunda Ceditçilerin ilerici ve yenilikçi rollerini izah ediyordu. Söz konusu kitabında Ceditçiliği, Rus Bolşevizmi ile ilişkilendiren Hocayev, Ceditçilik ile Bolşevizm arasında manevi bağ kurmuştu.<sup>30</sup> Bu durumu muhacerette bulunan Türkistanlı aydınlardan Mustafa Çokay (1891-1941) “sabık Ceditçi Feyzullah Hoca, bugün eski Rus emperyalizminin memuru, “komprador”<sup>31</sup> burjuva”nın vekili olarak oturmaktadır. Bunu Feyzullah Hoca'nın kendisi de itiraf etmektedir” şeklinde yorumlamıştır.<sup>32</sup>

Hocayev ve onun gibi aydınların “suçu”, kendi halkını sevmeleri ve onların menfaati için çalışmaktı. Kendi halkını sevmek; halkının bağımsız yaşamasını temin etmek için mücadele etmeyi mecbur kılar. Rus Bolşevik emperyalizmine göre, Rus olmayan halklardaki kendi halkını sevmek, bolşevizme ihanet etmek demektir. O nedenle tüm halk severler Bolşeviklerin terörüne kurban edildiler.

### 1. 1. Feyzullah Hocayev'in NKVD Kayıtlarına Göre Mahkeme İfadeleri

2 Mart 1938 tarihli mahkemede, Özbekistan SSC sabık Başbakanı sıfatıyla yargılanan Feyzullah Hocayev'in sorgusu 4 Mart 1938 tarihinde gerçekleştirilmiştir. Mahkeme başkanı, Andrey Ya Vişinski idi. Hocayev'in sorgulama metni 5 Mart 1938 tarihli *İzvestiya* gazetesinde yayınlanmıştır.<sup>33</sup> Moskova gazetelerine göre Hocayev'in “suç”u; “halk düşmanı, Pantürkist, Panislamist ve burjuva ajanı” olmaktı.<sup>34</sup>

*Feyzullah Hoca'dır* yazılmıştı. Ayrıca bkz. Canay, “Lastik Goğırçaklar”, *Yaş Türkistan*, c. II, S. 28, Mart 1932, s. 14.

<sup>28</sup> ÇOKAYOĞLU, Mustafa (1932). “Lastik Goğırçaklar”, *Yaş Türkistan*, S. 28, Mart, s. 14.

<sup>29</sup> Komünist Parti tarafından takibe alınan kitabı, *Buhara Halk Sovyet Cumhuriyeti*, 1924. *Genç Buharalılar Hakkında*, 1926. *Buhara Devriminin Tarihine Ait Materyaller*, 1926. *Ceditler*, 1926. *Basmacılar*, 1930. *Buhara'daki Devrim ve Orta Asya'nın Millî Sınırlandırılması*, 1932.

<sup>30</sup> Canay mahlası, Mustafa Çokayoğlu'na aittir. Bu konuda ayrıntılı bilgi için bkz. Tülay Köseoğlu, *Sovyetleri'in Türkistan'ı Dönüştürme Politikasına Muhalefet: Yaş Türkistan Dergisi (1929-1939)*, Türk Tarih Kurumu Yayınları, Ankara 2020, s. 103. Canay; özel mülkiyeti ve kişi hürriyetini tanımak gibi tüm hususiyet ve sıfatlara sahip olan milli, ilerici bir hareket olduğunu, Bolşevizmin ise; bu niteliklerin hepsini reddettiğini, Bolşeviklere göre Ceditçilerin, Rus emperyalizminin memurlarından başka bir şey ifade etmediklerini öne sürmektedir. Bkz. Canay, “Lastik Goğırçaklar [Kuklalar]”, *Yaş Türkistan*, c. II, S. 28, Mart 1932, s. 15.

<sup>31</sup> Komprador: Burjuva deneni, Hindistan gibi sömürge ve Çin gibi yarı sömürge ülkelerde emperyalist sermayedarlar ile yerli halk arasında dalallık [aracı] vazifesini yürüten yerli unsurlara verilen addır. Bkz. Canay, “Lastik Goğırçaklar”, s. 15.

<sup>32</sup> Mustafa Çokayoğlu, a.g.m., s. 15.

<sup>33</sup> Moskova'da 1936-1938 yılları arasında yapılan yargılamalarda Bolşevik Partisi'nin eski önderlerinin Batılı devletlerin ajanları oldukları, kendi itirafları şeklinde halka duyuruldu. Bkz. [İsimsiz] (1938). “Feyzullah Hoca'nın Son Sözi”, *Yaş Türkistan*, S. 101, April, s. 40-42.

<sup>34</sup> BENNIGSEN, A. QUELQUEJOY, Lemerciler C. (1981). Quelquejoy, *Step'te Ezan Sesleri Sovyet Rejimi Altındaki İslam'ın 400 Yılı*, çev. Nezhil Uzel, İstanbul: Selçuk Yayınları, s. 17-21.

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“21’ler Mahkemesi”<sup>35</sup>ndeki sorgulamaların hangi şartlar altında gerçekleştirildiğini tahmin etmek de zor olmasa gerek. Yazılı olarak hazır bu sahte itiraflar tutanağı Sovyet savcılık memurları tarafından önceden hazırlanmıştı. Sanıkların hepsi bu tutanağı imzalamaya zorlandılar. İmzalamazlarsa onların ailelerine kadar çok sayıda kişi öldürülecekti. Nasıl olsa öleceğini bilen sanıklar hiç olmazsa kendi ailelerini kurtarmak için tutanakta ne yazıldıysa onu imzaladılar. Dönem göz önüne alındığında Stalin Rusyası’nda aksini düşünmek mümkün görünmemektedir. Mahkeme sonunda Feyzullah Hocayev dâhil 18 kişi kurşuna dizilerek öldürüldüler.<sup>36</sup>

SSCB Başsavcısı A. Vişinskiy, Feyzullah Hocayev’i “bağımsız bir Özbekistan Cumhuriyeti” kurmaya çalışmakla suçlamasına başlamıştır. Mart 1938 tarihindeki Vişinskiy’nin Moskova şehrinde gerçekleşen mahkemede iddianamesine göre; Feyzullah Hocayev “Millî Egemenlik” ve “Millî Birlik” örgütlerini organize edip, onların yardımı ile isyancı müfrezeler kurup, korbaşılar aracılığıyla kendi hedeflerini gerçekleştirecekti.

Feyzullah Hocayev, zengin bir ailenin oğlu idi.<sup>37</sup> Sosyal durumları gereği devlet kurumları ile bağlantıları vardı.<sup>38</sup> 1917’de Buhara Liberaller Partisi üyeliğinden ayrılarak, Genç Buharalılar üyesi olan Hocayev, NKVD memurlarının hazırladığı tutanakta yazıldığı gibi mahkemede, Sovyet aleyhtarlığının 1920 yılından itibaren başladığını belirtmiştir ki bu tarih, Buhara’nın sovyetleştirilmeye başladığı tarihtir. Bu tarihte, yeni kurulan Buhara Halk Cumhuriyeti’nin başbakanlığına getirilen Hocayev, mahkemede devrime, işçiye, çiftçiye, devlete ve partiye karşı suçlarının 1920 yılında Buhara Halk Cumhuriyeti’nin başına getirildiği aman başladığını, aynı yıl içinde millî bir burjuva teşkilatı olarak adlandırılan Millî İttihad<sup>39</sup>’a üye olduğunu ifade etmek zorunda bırakılmıştır.<sup>40</sup>

Mahkemede kendisine “Sovyetler Birliği’ni neden zayıflatmak gerekiyordu?” sorusuna cevaben, önce Buhara devleti dönemi üzerinde kısaca bilgi vermek istediğini belirterek, ardından Sovyet kurumlarından, Bolşevikler’i uzaklaştırarak, kendilerine yakın olan kişileri yerleştirdiklerini, gerekli kadroyu, burjuva tabakası gençliğinden yetiştirmeye başladıklarını, bu kişileri Sovyet okullarında

<sup>35</sup> Feyzullah Hocayev ve Ekmel İkrarov’un yanı sıra 19 kişi daha sanıklar için ayrılmış bölümde oturuyordu. 2 Mart 1938’de Moskova’da başlayan mahkemede, 21 kişi yargılanmıştır. Bu mahkemenin yapılacağı haberine, mahkeme tarihinden tam 1 yıl önce *Yaş Türkistan* (1929-1939) dergisinde yayımlanan bir makalede rastlıyoruz. Bkz. [M.Ç.] “Yeni Troçkiciler Mahkemesi”, *Yaş Türkistan*, c. VIII, Şubat 1937, S. 87, s. 30-34.

<sup>36</sup> [İsimsiz] (1938). “Feyzullah Hoca ile Ekmel İkrarov’ın Akıbeti”, *Yaş Türkistan*, S. 101, April, s. 2-3.

<sup>37</sup> Feyzullah Hocayev’in şeceresi için bkz. EK-1.

<sup>38</sup> Feyzullah Hocayev’in babası tahsilli biri idi. Karakul ile ticaret eden, şehrin ileri gelen zenginleri arasında idi. Bkz. [İsimsiz] “21’ler Mahkemesi: Feyzullah Hoca’nın Soruşturması”, *Yaş Türkistan*, c. IX, April 1938, S. 101, s. 19.

<sup>39</sup> Münevver Kari önderliğinde kurulan teşkilat. Mahkemede: “*Vişinski: Siz Feyzullah Hocayev ve Ekmel İkrarov’un Sovyetler’e karşı gizli örgütleri vardı ve siz de bu örgütlerden haberdardınız. Bu iki örgütü birleştirmek için teşebbüsleriniz oldu mu? Diye sorduğunda, Buharin’in bu soruya cevabı şöyle oldu: Ekmel İkrarov’un Millî İttihat ve Feyzullah Hocayev’in Millî İstiklal adında gizli örgütleri vardı. Bu iki genç birbirine güvenmediği için iki ayrı örgüt kurdu. Ben kendileriyle konuşup onları birleştirmeyi başardım*” diyerek, Millî İttihat ve Millî İstiklal adlı iki farklı örgütün Özbekistan’da hiçbir zaman kurulmadığını öne sürmektedir. Hokand Millî Muhtariyeti, Kızıl Ordu ile Taşnaksutyun Tümenleri tarafından ortadan kaldırılıncaya kadar Orta Asya’da Sovyetler’e karşı mücadele eden sadece “Millî İttihat” örgütünün olduğunu, millî hükümetin yıkılışı ve Hokand katliamının ardından bu örgütün adının “Millî İstiklal” olarak değiştirildiğini yazmaktadır. Bu iddiasını da Mustafa Çokay’ın “Türkistan Millî Muhtariyeti, Sovyet ordusu tarafından bizzat yok edildi. Böylece muhtariyet amacı da yok oldu. Şimdi bizim bir tek hedefimiz vardır, Millî İstiklal; yani tam bağımsızlık” ifadesiyle desteklemektedir. Ancak gerek Feyzullah Hocayev’in gerekse Ekmel İkrarov’un sorgulama esnasında verdiği cevaplardan iki ayrı örgüte mensup oldukları net bir biçimde anlaşılmaktadır. Hatta Feyzullah Hocayev ifadesinde 1925-1928 yılları arasında Ekmel İkrarov ile birlikte çalışmaya karar verdiklerinde onun Millî İstiklal adlı bir örgütün üyesi olduğunu öğrendiğini belirtmektedir. Bkz. [İsimsiz], “21’ler Mahkemesi: Feyzullah Hoca’nın Soruşturması”, *Yaş Türkistan*, c. IX, April 1938, S. 101, s. 7-9. Aynı konunun devamında Ekmel İkrarov ise bu iki örgütü, 1933 yılında Buharin ve Antipov’un girişimiyle birleştirdiklerini belirtmektedir. Bu konuda bkz. [İsimsiz], “21’ler Mahkemesi: Feyzullah Hoca’nın Soruşturması”, *Yaş Türkistan*, c. IX, April 1938, S. 101, s. 8.

<sup>40</sup> Hocayev, Millî İttihat adlı teşkilatın, Buhara Halk Cumhuriyeti’ni, İngiltere ile Sovyet Rusya arasında, burjuva milliyetçi bir devlet haline getirmeyi hedefleyen bir ittifak olduğunu açıklıyor. [İsimsiz] (1938). “21’ler Mahkemesi Feyzullah Hoca’nın Soruşturması”, *Yaş Türkistan*, S. 101, April, s. 3-4. Ayrıca bkz. DAVRANBEK. (1966). “Fayzulla Hoca Haqqında (I)”, *Millî Türkistan*, S. 116, Eylül-Ekim s. 17.

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okutmadıklarını, Almanya-Türkiye gibi ülkelere gönderdiklerini söylemek mecburiyetinde kalmıştır. Aynı zamanda silahlı kuvvet hazırlama çalışmalarına da ağırlık verdiklerini, Ordu'da güçleri olmadığından, milis güçleri oluşturmaya çalıştıklarını, o dönemde Buhara Dairesi'ne sirayet etmeye başlayan Basmacılık Hareketi'nden de istifade etmeye çalıştıklarını, yeni Basmacı kadrolar yetiştirmeye çalıştıklarını ifadeye zorlanmıştır.<sup>41</sup>

Feyzullah Hocayev, 1924/1925 yıllarında Orta Asya'da Sovyet cumhuriyetlerinde milli sınırlar meselesi çıktığında, bu meseleye karşı olduğunu, ancak bu düşüncesini gizli tutarak bu konunun taraftarı olarak görüldüğünü ve sonunda yeni kurulan Özbekistan SSC'nin Hükûmet Başkanı olduğunu söylemek mecburiyetinde kalmıştır. Aynı yıl, Özbekistan Parti Teşkilatı'nda "18'ler" adlı grubu kuranın kendisi olduğunu beyana zorlanan Feyzullah, Özbekistan'da Yer Islahatı yapılmaya başladığı dönemde gelir düzeyi yüksek olan kesimin bu durumdan hoşlanmadığını ayrıca Özbekistan işçilerinin bir kısmının da bu ıslahattan rahatsız olduğunu ve bu durumdan istifade ederek, Özbek milliyetçilerini bir araya getirmeye çalıştığını da beyan etmeyi kabul etmek zorunda bırakılmıştır.<sup>42</sup> Özbekistan'da Parti liderliğini ele geçirmek istediklerini, bu amaçla 1918-1920 yıllarına kadar Pantürkist bir teşkilat olan Türkistan Burjuva Milliyetçileri Teşkilatı üyesi olarak Ekmel İkrarov'u düşündüklerini<sup>43</sup>; Parti kurultayında yenildikten sonra da gizli kalmaya karar verdiklerini ifade ederek, Parti'ye, kendilerinin yanlış yolda olduklarını ve bundan sonra Parti çizgisini yürütmeye razı olduklarını beyan ettiklerini "itiraf" etmiştir.<sup>44</sup>

Hocayev sorgusunda, Ekmel İkrarov ile olan yakınlıklarının 1925-1928 yılları arasında başladığını, bu sırada İkrarov'un Merkez Komitesi'nde, kendisinin de Komiserler Şûrası'nda çalışmakta olduğunu; çalışma esnasında Ekmel'in *Millî İstiklal*<sup>45</sup> adlı bir teşkilatın üyesi olduğunu bildiğini, Ekmel ile birlikte Sovyet aleyhtarı faaliyetlerin öncüleri olduklarını "itiraf" etmiştir.<sup>46</sup> Hocayev, aynı ifadesinin devamında okulları, üniversiteleri ve basını ellerinde tutabilmek için Eğitim Komiserliği'ni, Plan teşkilatlarını, Ziraat Komiserliği'ni ve diğer teşkilatları kendi milliyetçi kadroların eline geçirmeye çalıştıklarını beyan etmek zorunda bırakılmıştır.<sup>47</sup>

1928 yılında uygulamaya konulan I. Beş Yıllık Plan (1927-1932) döneminde milliyetçilerin, Orta Asya milliyetçi teşkilatlarında Sovyetler Birliği'nin diğer kısımları ile bağlantısı olmayan bir hocalık (ekonomik işletme) siyaseti yaratma doktrinleri olduğunu belirten Feyzullah, I. Beş Yıllık Plan'ı, milliyetçi teşkilatlar tarafından müstakil bir hocalık doktrini yaratacak şekilde düzenlediklerini ifadeye zorlanmış, amaçlarının, mümkün olduğu kadar az pamuk elde etmek olduğunu söylemeye mecbur kalmıştır.<sup>48</sup>

<sup>41</sup> İsim[siz] (1938). "21'ler Mahkemesi Feyzullah Hoca'nın Soruluşu", *Yaş Türkistan*, S. 101, April, s. 3-22.

<sup>42</sup> DAVRANBEK. (1966). "Fayzulla Hoca Haqqında (I)", *Milli Türkistan*, S. 116, Eylül-Ekim s. 18.

<sup>43</sup> Turar Riskulov (1894-1938)'un yönettiği bir teşkilat. Feyzullah Hoca, Ekmel İkrarov ile hiçbir zaman doğrudan doğruya temas geçmediklerini, 1925-1928 yıllarında aralarındaki yakınlığın iş zemininde gerçekleştiğini ifade eder. Bkz. [İsim[siz]], "21'ler Mahkemesi: Feyzullah Hoca'nın Soruluşu", *Yaş Türkistan*, c. IX, April 1938, S. 101, s. 6. Ayrıca bkz. Davranbek, "Feyzullah Hoca Haqqında (I)", s. 18.

<sup>44</sup> İsim[siz] (1938). "21'ler Mahkemesi Feyzullah Hoca'nın Soruluşu", s. 6.

<sup>45</sup> Turar Riskulov'un başında bulunduğu bir teşkilat.

<sup>46</sup> Aynı mahkemede sorgulanan Ekmel İkrarov'a da söz konusu teşkilatın üyesi olduğu, Feyzullah'ın da başka bir teşkilatın (*Millî İttihad*) üyesi olduğunu bildiği "itiraf" ettirilmiştir. Bkz. [İsim[siz]], "21'ler Mahkemesi: Feyzullah Hoca'nın Soruluşu", s. 8.

<sup>47</sup> [İsim[siz]] (1938). "21'ler Mahkemesi Feyzullah Hoca'nın Soruluşu", *Yaş Türkistan*, S. 101, April, s. 7-10. Ayrıca bkz. DAVRANBEK. (1966). "Fayzulla Hoca Haqqında (I)", *Milli Türkistan*, S. 116, Eylül-Ekim s. 11.

<sup>48</sup> Davranbek, "Fayzulla Hoca Haqqında (II) 21'ler Muhakemesi", *Milli Türkistan*, S. 119, Mart-Mayıs, s. 12.

Birinci Beş yıllık Planın ilk yılında Türkistan'da pamuk üretiminde, planda belirtilenden 90 bin ton az pamuk elde edilmişti. Bu nedenle onlarca Türkistanlı öldürülmüştü. Pamuk planının uygulanamamasında Türkistan çiftçisinin hiçbir suçu olmadığını düşünen Feyzullah Hoca, Moskova'daki Sovyet Kongresi'nde yaptığı konuşmasında, pamuk üretiminin pamuk planında belirtilenden daha az olmasının sebebinin, sabotaj veya Sovyet düşmanı-milliyetçiler propagandası olmadığını, asıl sebebin, doğal şartlardan kaynaklandığını; bahar yağmurlarının uzun



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1929 yılı sonu 1930 yılının başlarında İkrarov'un yakın arkadaşlarından İlmî Tetkikat Başkanı Ramiz ve Maarif Komiserliği'nde Kültür Başkanı olan Batu isimli kişiler, millî teşkilatlara katıldıkları gerekçesiyle tutuklanmışlardı.<sup>49</sup> Bu kişilerin tutuklanması üzerine İkrarov'un kendisine, bu işin zarar vereceğinden korktuğunu söylemiştir.

Feyzullah Hocayev mahkemede "Sağcı"lar ile olan bağlantısının 1930 yılından itibaren Reykov aracılığı ile başladığını, aynı yıllarda Moskova'ya geldiğinde farklı konular üzerinde konuşmak üzere İttifak Komiserler Şurası Dairesi'nde Reykov ile birlikte çeşitli mevzularda konuştuklarını, görüşme sonunda Reykov ile birlikte Sovyet aleyhtarı faaliyetler hususunda bir çalışma yöntemi belirlediklerini, Reykov tarafından kendisine, birlikte çalıştıkları takdirde "Sağcıların Özbekistan Cumhuriyeti'nin bağımsızlığını tanıyacaklarını vaat edildiğini belirtmiştir. Mahkeme başkanı kendisine: "Bunun anlamı, Özbekistan'ın Sovyetler Birliği'nden ayrılarak, başka bir sermayedar devlete tabi olması mı?" sorusuna ise Hocayev: "evet" demek zorunda kalmıştır.<sup>50</sup>

"Sağcı"larla olan bağlantılarının başladığı bu ilk dönem için güya Reykov ile birlikte belirledikleri çalışma yöntemine göre ilk olarak; köy işletmelerine zarar verilecek, ikinci olarak; bütün muhalif güçler toplanacak ve Parti liderliği, hükümet aleyhtarlığı gibi faaliyetler, provokasyon yöntemi ile Sovyet aleyhtarı faaliyetlerin artırılması sağlanacaktır.<sup>51</sup>

Buharin<sup>52</sup> 1933 yılında Özbekistan'a gelmişti. Bu esnada Ekmel ile olan görüşmeleri sonucunda, Buharin'in, Ekmel'e, Türkistanlı milliyetçi teşkilatların yerine getirmesi gereken birtakım talimatlar verdiğinden haberdar olduğunu, 1934 yılında Özbekistan'a gelen Antipov ile ise bizzat görüştüğünü, Antipov ile yaptığı görüşmede, Antipov'un; kutuplaşmayı arttırmak gerektiği, halkın huzursuzluğunu arttırarak isyan faaliyetlerini de arttırmak gerektiği, hatta Özbekistan'da bir-iki terör grubu da kurmak gerektiği, son olarak Orta Asya'nın geleceği konusunda en çok ilgili devlet olan İngiltere ile doğrudan doğruya bağlantı kurmak gerektiği hususunda kendisine talimatlar verdiğini beyan etmeye zorlanmıştır.

1936 yılında yeniden Taşkent'e gelen Buharin'in, verilen talimatların istedikleri gibi yerine getirilmediği, isyancı gruplar düzenleyemedikleri, terör grupları oluşturamadıkları ve İngiltere ile bağlantı kuramamalarından dolayı duyduğu memnuniyetsizliği dile getirdiğini, kendilerine daha etkin bir biçimde çalışmayı teklif ettiğini belirten Feyzullah'a, mahkemede sorgusunda, Buharin'in, Almanya ile anlaşma içinde olduğunu, Japonya ile de anlaşma hazırlığı içinde bulunduğu "itiraf" ettirilmiş, bu iddiasına gerekçe olarak ise Buharin'in, Orta Asya cumhuriyetlerine yakın en güçlü devletin İngiltere olduğunu, bu nedenle İngiltere ile anlaşmak gerektiğini söylediği ifade ettirilmiştir. Ancak Hocayev'in bu ifadesi mahkeme başkanı tarafından Buharin'e sorulduğunda: "Feyzullah Hoca'ya faşist devlet [Almanya] ile anlaşmamız var, sizler İngiltere ile yanaşın demedim" diyerek Hocayev'in bu iddiasını inkâr etmiştir.

Mahkemede Feyzullah Hocayev, kendisine yöneltilen "hangi ülkeye daha yakınsınız?" sorusuna: "Afganistan. Çünkü orada İngiltere temsilciliği var" şeklinde yanıtlayarak, Buharin'in kendilerine:

sürmesi yüzünden pamuk toplama işine geç başlanması ve sonbahar soğuklarının 20-25 gün önceden gelmesi olduğunu söylemişti. Bkz. Çokayoğlu, "Türkistan'dağı Son Terör Mesulleri", *Yaş Türkistan*, c. VI, Mart 1935, S. 64, s. 10-11.

<sup>49</sup> [İsimsiz] (1938). "21'ler Mahkemesi Feyzullah Hoca'nın Soruları", s. 13. Ayrıca bkz. Davranbek, (1967). "Fayzulla Hoca Haqqında (II) 21'ler Muhakemesi", *Milli Türkistan*, S. 119, Mart-Mayıs, s. 11-17.

<sup>50</sup> Davranbek, "Fayzulla Hoca Haqqında (II) 21'ler Muhakemesi", s. 12.

<sup>51</sup> [İsimsiz] (1938). "21'ler Mahkemesi Feyzullah Hoca'nın Soruları", s. 11. Ayrıca bkz. (1967). "Fayzulla Hoca Haqqında (II) 21'ler Muhakemesi", s. 12.

<sup>52</sup> Buharin, "Bütün eski Bolşevikler gibi Buharin de komünistti ve proletarya diktatörlüğünün sadık bir hizmetkârı gibi görünüyordu. Bu nedenle yıllardır "kendine saygı ve ikiyezlülük arasında giderek daralan neredeyse yok olan" bir alanda gidip gelmekteydi. Bkz. KADRİ, Sadakat (2005). *The Trial, A History, from Socrates to O. J. Simpson*, New York: Random House. S. 194.



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“Bizim (“Sağcı”lar) hükümeti ele geçirmemiz, sizlerin de bağımsızlığa kavuşabilmenizde kapitalist devletlerin yardımını alabilmemiz için İngiltere’nin himayesini tanımak gerek. Bir tarafta Sovyetler Birliği diğer yanda İngiltere olduğunda, 5 milyon nüfusa sahip Özbekistan, ekonomik nedenlerden dolayı müstakil olamaz. İkisinden birine dayanmak gerek” söylediğini ifade etmiştir.<sup>53</sup>

Buharin ile olan görüşmelerini anlatmaya devam etmesi istenen Hocayev, Buharin’in 1936 yılında Taşkent’e geldiği zaman kendisine: “Almanya ile Japonya arasında Sovyetler Birliği’ne karşı mücadele anlaşması kurulması ihtimali var, bu nedenle devrim karşıtı faaliyetlerin arttırılması gerek” dediğini, İkrarov’un da bu dönemde Taşkent’te bulunmadığı için Buharin’e, İkrarov ve kendi adına, söylediklerini yapacaklarına dair söz verdiğini, akabinde tarım, sanayi ve imar gibi alanlarda yapmış oldukları “ziyançılık”ları, Özbekistan’da isyancı grupları nasıl oluşturduklarını da “itiraf” etmiştir. Terör meselesinde Ekmel İkrarov ile birlikte ortak adaylarının, Fergana Basmacıları’nın lideri olan Şir Muhammed Bek<sup>54</sup> olduğunu belirten Hocayev’in, İngiltere ile bağlantı kurma konusunda Basmacı liderlerinden nasıl faydalandıkları anlatılmıştır. Hocayev, İngiltere ile bağlantı kurmanın zor olduğunu; bu bağlantıyı kuracak kişileri Tacikistan’daki Korbaşılar<sup>55</sup> aracılığı ile bulduğunu ifade ederek, Korbaşı’nın her ne kadar Basmacı lideri de olsa İngiltere bağlantısı olmama ihtimalinin bulunmadığını, çünkü Basmacılık’ın İngilizler’in desteği ile kurulan bir teşkilat olduğunu, ifade etmiştir. Son olarak Hocayev’e, terör grupları içerisinde bizzat yer aldığı, sadece Buhara-Özbekistan halkına değil, tüm Sovyetler Birliği’ne ihanet ettiği “itiraf” ettirilmiştir. Son sözü *İzvestiya* gazetesinin 13 Mart 1938 tarihli sayısında yayınlanmıştır: Gazete’de; tüm suçlamaları kabul ettiği belirtilen Feyzullah’ın, tuzağa düştüğünü öne sürdüğü: “Son saatimde afv edilmemi söylemesem yalancı olurum. Yaşamak istiyorum. Benim ne derece dibe battığımı ve suçumun ağırlığını anladım. O nedenle yaşamak istiyorum. Çünkü ben ömrüm olursa suçlarımı temizledim” dediği haberi yer almıştır.<sup>56</sup>

Vişinski’nin talebi, *Pravda*’nın dava hakkındaki başyazısında yankı buldu: “Bu casusların, provokatörlerin, bozguncu ve yıkıcıların acımadan yok edilmesiyle Sovyet ülkesi Stalinist yolda daha da hızlı ilerleyecek, sosyalist kültür daha da zengin bir şekilde gelişecek, Sovyet halkının yaşamı daha da mutlu olacak”. Bu sözlere uygun bir şekilde 13 Mart saat 16.30’da 6 saatlik bir müzakereden sonra Ulrih mahkemeyi tekrar toplayarak mahkûmiyet kararlarını okumuştur. Karara göre: Hocayev dâhil 18 kişi “kurşuna dizilecek”ti.<sup>57</sup> Sovyet hükümeti 15 Mart 1938’de, cezaların infaz edildiğini duyurmuştur.<sup>58</sup>

Feyzullah Hocayev mahkeme başkanı Vişinski tarafından “... Feyzullah Hocayev 1920 yılında Buhara Halk Cumhuriyeti’nin Hükümet Başkanı olduğu devirden başlayarak Sovyet hâkimiyetine karşı mücadele etti. O, Millî İttihad adlı gizli millî teşkilatın başında durdu. Genç Buharalılar hareketine liderlik etmek ile Türkistan’da büyük bir devlet kurmayı ve onu Rusya’dan ayırmak istedi. Millî kadrolar yetiştirmek için Almanya’ya öğrenciler gönderdi. 1924-1925 yıllarında Feyzullah Hoca Türkistan’ın millî sınırlarının belirlenmesine karşı çıktı. Şimdiye kadar kışlak hocalığını kolektifleştirmeye, 5 yıllık planlara, Özbekistan’ı pamuk mono kültürüne dönüştürmeye karşı çıktı. O, Basmacılık Hareketi’nin başında olan Enver Paşa ile üç kere buluştu...” iddiasıyla suçlanmıştır.<sup>59</sup>

<sup>53</sup> İsim[siz] (1938). "21’ler Mahkemesi Feyzullah Hoca’nın Soruşturması”, s. 12-14.

<sup>54</sup> Emin Yarimoğlu, *Korbaşı: Şir Muhammed Bek- Türkistan Milli Hareketi Liderlerinden*, Bozkurt Yayınları, İstanbul 2019. Ayrıca bkz. [İsim[siz], “21’ler Mahkemesi: Feyzullah Hoca’nın Soruşturması”, *Yaş Türkistan*, c. IX, April 1938, S. 101, s. 19. Fergana Basmacıları’nın lideri olan Şir Muhammed Bek, 7 yıl boyunca Bolşeviklerle mücadele ettikten sonra Afganistan’a iltica etmiştir. Bu konuda bkz. Başkarma, "Basmacılık", *Yeni Türkistan*, c. I, Mart 1928, S. 8, s. 10-11.

<sup>55</sup> Korbaşı: Türkistan’da Bolşeviklere karşı savaşan Basmacı liderlerine verilen isim.

<sup>56</sup> İsim[siz] (1938). "21’ler Mahkemesi Feyzullah Hoca’nın Soruşturması”, s. 12-14.

İsim[siz] (1938). "21’ler Mahkemesi Feyzullah Hoca’nın Soruşturması”, s. 18-19.

<sup>57</sup> Sanıklardan sadece üçü kurşuna dizilmekten kurtulabildi; Pletnyov 15 yıl, Rakovski 20 yıl ve Besanov 25 yıl hapis cezasına çarptırıldı.

<sup>58</sup> KATKOV, George (1969). *The Trial of Bukharin*, Batsford, New York, s. 183.

<sup>59</sup> Davranbek, (1967). “Fayzulla Hoca Haqqında (II) 21’ler Muhakemesi”, *Milli Türkistan*, S. 119, Mart-Mayıs, s. 16.



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Sovyet rejiminin cezalandırma politikasından Feyzullah Hocayev'in ailesi de nasibini almıştır. Hocayev'in tutuklanmasının ardından aile üyeleri (16 kişi) Sovyet rejimi tarafından cezalandırılmıştır. Annesi Reyhan Saidmurad kızı, eşi Melike Muhamedcan, kızı Hasiyet Hocayeva (1903-1957), kızı Vilayat Hocayeva (1921-1987) Eylül-Ekim 1937 tarihinde tutuklanmışlardır. Kız kardeşi Rabiya Hocayeva (1895-1962), yengesi Amina Hocayeva ve yeğenleri, ayrıca evlatlık oğlu ve kızı da tutuklanarak sürgüne gönderilmişler ve bazıları hapse atılmıştır. Feyzullah'ın kardeşi İbadullah Hocayev bu baskıya dayanamayıp 1936'da kendisini vurarak ölmüştür. Böylece totaliter Sovyet rejimi kendi acımasız bu politikasını Feyzullah Hocayev ve ailesi aracılığıyla bir kez daha göstermiştir.

Kader bu ki oğlunun doğduğu yıl kurşuna dizilerek öldürülen Feyzullah Hocayev'in ölümünün ardından tam 27 yıl sonra 6 Mart 1965'te SSCB Yüksek Yargıtay Askerî Ekibi tarafından suçsuz olduğu kabul edilerek itibarı iade edilmiştir.<sup>60</sup> 28 Şubat 1967'de Özbek hükümeti, Hocayev'in anısını korumak ve yaşatmak kararı vermiştir. Bugün Özbekistan'da birçok cadde, okul ve mahalleye Feyzullah Hocayev'in adı verilmiştir. Buhara şehrinde ona ait bir heykel ve bir ev müzesi vardır.

O bir devlet başkanı, tarihçi ve ekonomist, bilim adamı, gazeteci olarak Özbekçe ve Rusça dillerinde zengin bir bilimsel miras bırakmıştır. Onun 1925-1937 yılları arasında yayımlanmış olan 16 kitabı ile 200'den fazla makalesi bulunmaktadır. Örneğin *Buhara Devriminin Tarihine İlişkin Materialler* (1926), *Buhara Devrimi Tarihi ve Orta Asya Cumhuriyetleri Üzerine* (1932), *Özbekistan Gelişme Yolunda* (1936) eserleri ile Rusça olarak yayımlanmış "BHSC'ndeki Ekonomik Durum" (1924). "Genç Buharalılar Üzerine" (1926), "Ceditçiler" (1926), "Basmaçılık" (1930) makalelerinde XX. yüzyılın ilk çeyreğindeki Özbekistan Tarihi'nin önemli sorunlarını ele almıştır.

### Sonuç

Feyzullah Hocayev, önde gelen bir devlet başkanı, güçlü bir politikacı ve yetenekli bir diplomat olarak aktif bir dış politika yürütmüştür. Sovyet Rusya'nın yanı sıra İran, Türkiye, Afganistan, Çin, Azerbaycan, Çin Halk Cumhuriyeti, Almanya ve Japonya ile diplomatik ilişkiler kurmuş, özellikle iç ve dış politikanın bağımsız yürütülmesine, ekonomik reformlara odaklanarak ülkede demokratik özgürlükler için çalışmıştır.

Feyzullah Hocayev devrimci süreçlere bir komünist olarak katılmamıştır. Önce Ceditçiler hareketinde, daha sonra Genç Buhara Partisi'nde aktif olarak yer almıştır. Bu nedenle devrime Buhara'nın o zamanki objektif koşulları temelinde yaklaşmıştır. Ne yazık ki, Feyzullah Hocayev'in bu tür millî uzlaşma ve barışa yönelik birlik çağrıları, devrimci mücadelelerin korkunç fırtınaları altında kalmıştır. Bağımsız bir Özbekistan Cumhuriyeti kurma arzusu da yerine getirilememiştir. Daha sonra kendisi de bu totaliter rejimin kurbanlarından biri olmuştur. O, 42 yıllık hayatının 17 yılını Buhara Cumhuriyeti ile Özbekistan SSC'ye başkanlık ederek geçirmiştir. Özbekistan Cumhuriyeti kurulduğunda, ilk başbakan olan Hocayev, hizmet ettiği ideolojiden dolayı ölüm cezasına mahkûm edilmiştir.

Feyzullah Hocayev'in büyük hedefleri vardı. Buhara halkını Emirliğin zulmünden kurtaran 1920 tarihindeki devrime öncülük ederken, Buhara "devriminin" Turan halkına mutluluk, özgürlük ve hatta bağımsızlık getireceğini düşünüyordu. Buhara'daki cumhurbaşkanlığı döneminde çok zor durumlarda çalışmış, çeşitli hatalara ve eksikliğe rağmen bağımsız bir politika yürütmeye çabalamıştır.

1936-1939 yılları Sovyet hâkimiyetinin en "ürkütücü" yıllarıdır. Bu yıllarda Sovyetler Birliği'nde eceliyle ölen çok az insan vardır denilebilir. Stalin, komünist bir imparatorluk kurma uğruna Sovyet coğrafyasını kan gölüne çevirdi. Aynı yıllarda Türk toplulukları arasında 1 milyona yakın şair, edebiyatçı, yazar, gazeteci, Türkolog, din adamı, aydın ve halktan insan, mahkemelerde suçlanarak

<sup>60</sup> Хасанов, Мажид (1990). *Файзулла Хўжаев*, Taşkent. (Macid Hasanov, *Fayzulla Hucayev*), s. 76-79. Sovyet basını 1925-1937 yılları arası Özbekistan SSR Halk Komiserler Şurası Başkanlığı yapan Feyzullah Hocayev ile ilgili olarak *Izvestiya*'da 25.5.1966, *Pravda Vostoka*'da 26.5.1966, *Sovyet Özbekistanı*'nda 26.5.1966, *Sovyet Tacikistanı*'nda 31.5.1966 tarihli sayılarında makaleler neşretti. Bu gazetelerde yazılan makaleler içerik olarak birbirlerine benziyorlardı. 1938 yılında Sovyet mahkemesi ve basını tarafından "hain, devrim karşıtı, halk düşmanı" ilan edilmiş iken aradan 28 yıl geçtikten sonra aynı *Sovyet basını* tarafından "halk çocuğu, halkın sadık görevlisi" şeklinde yazılarak aklanıyordu. Feyzullah Hocayev öldüğü yıl oğlu dünyaya gelmiştir. Bkz. Davranbek, "Feyzullah Hoca Haqqında (I)", s. 13.



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ölüme mahkûm edildiler. Öldürülen şair, yazar ve düşünürlerin eserleri yasaklandığı gibi onları okuyanlar da aynı şekilde cezalandırıldılar.

1937-1938 yıllarında özel bir karakter kazanan “baskı” ve “büyük temizlik” uygulamaları milyonlarca Türkistanlının hayatına mal oldu. 2 Mart 1938 tarihli “21’ler Mahkemesi” ise Sovyet Rusya’daki durumu tam anlamıyla ortaya çıkarmıştır. Özellikle birlik cumhuriyetlerin Sovyetler Birliği’nden ayrılma çabalarının mahkemenin gizli gerçek amacı olduğu, bu durumun ise Sovyetler Birliği’nin zaafını, çürüklüğünü gösteren bir mesele olduğu görülmüştür. Ayrıca, Moskova Bolşevikleri tarafından uygulanan Bolşevik hâkimiyet siyasetinin Rus olmayan halklarda uyanan nefret ve düşmanlık hissinin şiddeti de mahkeme esnasında “suçlular”ın ifadelerinden bütün açıklığı ile gözler önüne serilmiştir.

Hocayev’in yargılandığı “21’ler Mahkemesi”nde sanıkların önemli kısmı yalnız kendileri için değil, yakınları ve akrabaları içinde korkmakta idiler. Eşi, kızı veya oğlu GPU<sup>61</sup>’nin elinde iken mahkeme huzurunda verdikleri ifadeler, “itiraf” değil, “iftira” niteliğindeydi. Feyzullah Hocayev “hain” değildi. Birçok Türkistanlı gibi kendi halkına hizmet edebilme ümidi ile Moskova hükümeti hizmetine girmişti. Ancak o, bilerek veya bilmeden Türkistan halkının haklarını hiçe sayan Bolşeviklerin hizmetindeydi ve sonunda, kendisi de onların eline düşerek kurban edildi.

Moskova mahkemelerinde ortaya delil çıkarılamamıştır. Tüm iddialar, “suçlu”lara zorla imzalatılan “itiraf tutanakları”na dayalıdır. Bu itirafların hangi usullerle elde edildiği de malumdur. Cezalandırılan aydınların büyük bir bölümünün davaları Stalin’in ölümünden 15-20 yıl sonra suçsuz bulunarak itibarları iade edildi. Kruşçev ile başlayan bu dönem daha sonraki devlet başkanları döneminde de devam etti ve son olarak Gorbaçov yönetiminde glasnost ve prestroyka uygulamaları ile devletin yönetim anlayışı ve felsefesi bir kez daha gözden geçirildi; yürümeyen bu baskıcı, kapalı, merkezizetçi, sosyalist yapı dönüştürüldü.

Feyzullah Hocayev’in itibarı iade edilmiş olsa da Özbekistan’da en çok tartışılan siyasi aktörlerden olmuştur. Bir zamanlar kimileri onu ülkesini Bolşeviklere satmış hain olarak görmüşse de artık o, Türkistan’ın bağımsızlığı ve modernleşmesi için mücadele vermiş idealist bir kahraman olarak tarihteki yerini almıştır.

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<sup>61</sup> Sovyet İstihbarat Teşkilatı. (Gosudarstvennoe Politicheskoe Upravlenie) ГПУ Государственное политическое управление, Gosudarstvennoe politicheskoe upravlenie



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### EK-1

#### FEYZULLAH HOCAYEV'İN ŞECERESİ <sup>62</sup>

##### Kerimatullah Hoca

(XVIII. yüzyılın 2. yarısı XIX. yüzyılın ilk yarısı)

##### Kasım Hoca (XIX. yüzyıl)

##### Polat Hoca (XIX. yüzyıl)

1. Gaffar Hoca

2. Latif Hoca

3. Hatice

4. Ubeydullah Hoca (1858 Buhara, 1912 Odesa)

4. 1. İbadullah Hoca

4. 2. Rabiya

4. 3. Saide

4. 4. Paşayi Kuhi derahti

4. 5. Muharremhan

4. 6. Feyzullah Hoca

<sup>62</sup> Rajabov, a.g.e. s. 23-26.



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4. 6. 1. Saadet (Çocukluğunda vefat etti.)
4. 6. 2. Sadullah (Çocukluğunda vefat etti.)
4. 6. 3. Hasiyet (Moskova'da doğdu. 1903-1957)
4. 6. 4. Vilayet (1921-1987)
4. 6. 4. 1. Rudolf (Asad) Viktoroviç Barhet (Kazakistan'da doğdu. Taşkent'te yaşıyor.)
4. 6. 4. 2. Aziz Nololayoviç Hocayev (1948'de Kırgızistan'da doğdu. Moskova'da yaşıyor.)
4. 6. 4. 2. Konstantin Nikolayeviç Hocayeva (1950'de Kırgızistan'da doğdu. Taşkent'te yaşıyor.)

### EXTENDED ABSTRACT

When, under the influence of the October Revolution, the workers and farmers of Bukhara started to fight against the Emir of Bukhara for their independence, there was a dual pressure on the Jadids; The struggle against the hatred of the Jadidists of the last Emir of Bukhara Said Alimhan (1881-1944) and the February Revolution in Russia had divided the Jadidists. The traditionalist Jadidists were led by Abdulvahid Burhanov (Munzim. 1874-1934), and the leftist revolutionary Jadidists were led by Fitrat. The Young Bukhara Party (later the Revolutionary Young Bukhara Party) formed the left wing of the Jadidists. Feyzullah Hocayev was soon elected as the Chairman of the Central Committee of this party.

There were important events in Feyzullah Hocayev's life between 1917-1920. 1917 went down in history as the year when two separate revolutions took place in a short period of 8 months in Russia. In the spring of 1918, Khojayevev was caught by the White Guards on the way to Moscow and was imprisoned in Orenburg for 4 months on Dutov's orders. He escaped from prison with the help of his friends.

Feyzullah Hocayev lived in Moscow from October 1918 to January 1920. Hocayev, who served as the Chairman of the Moscow Committee of the Central Committee of the Young Bukhara Party, worked with V. Lenin, I. Stalin, M. Kalinin, M. Frunze, Ja. Rudzutak established good relations with S. Eliava. Living in Moscow brought Khojayevev closer to Marxism, the ideas of Lenin and the Bolshevik Party and was a turning point in his worldview. After returning to Tashkent, he served as the head of the Turkestan office of the Young Bukhara Party in Tashkent, which was founded in January 1920.

Feyzullah Hocayev was among the active participants in the armed uprising that took place in August/September 1920. On September 2, 1920, the Bukhara Emirate system was abolished in Bukhara, and the Bukhara People's Soviet Republic (BHSC) was established. Feyzullah, who was a member of the Bukhara Communist Party of the Young Bukharans at the same time, accepted the request for help from Moscow in the fight against the Emir. As a result of the alliance with Moscow, in 1920 the Emir of Bukhara Mir Said Âlimhan (1881-1944) had to leave Bukhara, after the Emir was dethroned by armed force, the Young Bukharans took over the government.

In the 20th year of the Bolshevik Revolution, the policy of dissolving non-Russian nations within the system ended with arrests, torture and trials. Communities that wanted to protect their national identities were seen as "enemy people", thousands of intellectuals from Turkistan were exiled, imprisoned or shot dead, accused of being "Turkist, Turanist, public enemy, anti-revolutionary". Feyzullah Hocayev, who was among those accused of being "bourgeois nationalist", "national fascist", "anti-revolutionary" and "anti-Soviet", were killed. The Bolsheviks, especially in Moscow, never trusted Feyzullah. What did the Bolsheviks accuse Hocayev of? In this area; Since understanding and transferring information about Stalin's terror from Soviet sources cannot be regarded as an objective assessment in terms of reflecting historical facts, the narratives of people who had to leave their homeland due to Stalin's terror, who witnessed the era, lived it, managed to escape from it, but sacrificed their relatives, are much more helpful in understanding the atmosphere of the period. Hocayev, who was among the defendants in the same court with high-level Bolshevik leaders such as Bukharin and Reykov, in the hearing held in Moscow on March 2, 1938, known as the "Trial of the 21s" and also known as "Fake Courts" in history. 's questioning process will be evaluated through the original sources of the period. It will be discussed how Hocayev, who first served as the Prime Minister of the People's Republic of Bukhara and then as the head of government of Uzbekistan, was perceived and interpreted by the emigrants of Turkistan.



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In the “Court of the 21s”, where Hocayev was tried, a significant part of the defendants was afraid not only for themselves, but also for their relatives and relatives. The statements they made before the court while his wife, daughter or son were in the hands of the GPU were in the nature of "slander", not "confession". Feyzullah Hocayev was not a "traitor". Like many Turkistanis, he entered the service of the Moscow government with the hope of serving his own people. However, he was in the service of the Bolsheviks, who knowingly or unknowingly disregarded the rights of the people of Turkestan, and in the end, he himself fell into their hands and was sacrificed.

It should not be difficult to guess under what conditions the interrogations in the "Court of the 21st" were carried out. This written record of false confessions was prepared in advance by Soviet prosecutors. All of the defendants were forced to sign this report. If they did not sign, many people, including their families, would be killed. The defendants, who knew that they would die anyway, at least signed whatever was written in the minutes to save their own families. Considering the period, it does not seem possible to think otherwise in Stalin's Russia. At the end of the trial, 18 people, including Feyzullah Hocayev, were shot and killed.

The “crime” of Hocayev and intellectuals like him was to love their own people and to work for their benefit. To love his own people; It compels the struggle to ensure the independent life of its people. For Russian Bolshevik imperialism, to love one's own people among non-Russian peoples was to betray Bolshevism. That is why all the people's lovers were sacrificed to the terror of the Bolsheviks.

No evidence could be found in the Moscow courts. All allegations are based on "confession records" forced to sign by "criminals". The methods by which these confessions were obtained are also known. The trials of most of the punished intellectuals were found not guilty 15-20 years after Stalin's death and their dignity was restored. This period, which started with Khrushchev, continued in the period of the next heads of state, and finally, the administration of the state and philosophy were reviewed with the glasnost and prestroika practices under Gorbachev; This oppressive, closed, centralist, socialist structure that did not work was transformed.

Although Feyzullah Hocayev was rehabilitated, he became one of the most controversial political actors in Uzbekistan. As a head of state, historian and economist, scientist, journalist, he left a rich scientific legacy in the Uzbek and Russian languages. He has 16 books and more than 200 articles published between 1925 and 1937. For example, Materials on the History of the Bukhara Revolution (1926), On the History of the Bukhara Revolution and the Central Asian Republics (1932), On the Road to Development of Uzbekistan (1936), and “The Economic Situation in the BHSC” (1924) were published in Russian. XX. It dealt with the important problems of the History of Uzbekistan in the first quarter of the 19th century. Although some once saw him as a traitor who sold his country to the Bolsheviks, now he took his place in history as an idealist hero who fought for the independence and modernization of Turkestan.



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### EXPLORING AFRICAN CULTURAL NATIONALISM AND THE EMERGENCE OF CHRISTIANITY

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#### Abstract

Literary works aiming at demeaning Africa and its image inspire African cultural nationalism carried by African scholars around the continent. Putting into practice their stated goal, Europeans invade Africa; holding in mind a God-given duty to civilise the ‘barbarians’ of a ‘lost’ continent. In the process of colonising, Europeans use Christianity as means; but some ‘European-fashioned’ African elites discover a way to help Africans get their independence. Thus, through cultural nationalist movements, African writers and elites succeed in restoring the cultural image of Africa. Unfortunately, the cultural nationalist movements do not prevent Christianity from emerging within African communities. Then, how do African traditional practices, religions and beliefs not survive in the encounter with Christianity? The purpose of this paper is to analyse cultural nationalism in *Things fall apart* and *The river between* and to point out the factors which propel the emergence of Christianity. Based on New Historicism and Post-Colonial theories, the work concludes that in confusing situations, some Africans decide to reject traditional practices in order to adopt Christianity. Their acceptance is due to some motivations such as some practices in traditions and customs, the unanswerable questionings revealing the ‘dark’ sides of African traditions and customs, and the ‘comfortable’ hands proposed by missionaries.

**Keywords:** Cultural nationalism, Christianity, Colonisation, New Historicism, Post-colonial theory.

#### Introduction

Joseph Conrad’s *Heart of Darkness* describes Africa as a ‘savage’ continent inhabited by uncivilised people. This novel has given more understanding on Europeans own-invented duty to colonise Africa. Actually, through colonisation, Europeans apply a direct and an overall dominion on African countries. The phenomenon allows Europeans to exercise political, economic, social and cultural dominion on Africans. By the way, it inspires literary cultural movement in Africa that can be linked to the publication of *Things Fall Apart* by Chinua Achebe and *The River Between* by Ngugi wa Thiong’o, just to mention the two, to express national feelings and to restore the image of the continent. This struggle by African scholars is seen as cultural nationalism. Cultural nationalism succeeds in helping Africans to get a cultural independence. But it does not actually stop Christianity to settle and get deeply rooted in African communities. Christianity emerges and becomes the religion which has the most converts in Africa. At the same time, some African communities with an enthusiastic zeal brand their traditional practices and beliefs as barbaric, primitive, unprogressive and unrevealed. Then, how do African traditional practices, religions and beliefs not survive in the encounter with Christianity? What are the factors which propel the emergence of Christianity?

This study aims at analysing the emergence of Christianity in African communities despite the cultural nationalist movements. The work goes through two branches. The first is about the presentation of the African cultural nationalism in the novels under study. The second explores the factors which contribute to the emergence of Christianity. This research work is wholly qualitative in approach and basically relies on secondary sources of data such as books, journal articles and internet publications considered relevant to help in reaching the goal of this paper. New Historicism and Post-Colonial theories are employed in analysing the data.



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### Literature review and Theoretical framework

Although culture is universally acknowledged as a concept, its definition varies. Serving his definition of culture, Nicholas Creary sees it as an “overall of beliefs, actions, rituals and symbols that people in a community share and pass on through generations” (2005, p.370). For Edward B. Tylor, culture is “that complex whole which includes knowledge, belief, arts, morals, laws, customs, and any other capabilities and habits acquired by man as a member of society” (1871, p.1). It is how people of a given community think, act, and the way they live.

An analysis of the writings of Boyd Shafer shows that he tries to bring a simple meaning which encompasses the different manifestations of nationalism. He defines it as “a sentiment which unifies a group of people who have a real or imagined common historical experience and a common aspiration to live together as a separate and distinct people in the future” (1955, pp.60-61).

For Shafer, cultural nationalism is concerned with “cultural indices” such as “cultural symbols, ideas, beliefs and other artefacts and motifs shared by the group” and it is thus “the protest movement which has arisen as a result of the unique cultural history of the people of Africa (1955, pp.60-61). Making a connection to this context, Shafer (1955) observes that cultural nationalism is the “expression of a consciousness from individuals or communities as a result of their disenchantment towards colonisation and its effects” (pp.60-61). In addition, Basil Davidson defines cultural nationalism as “a struggle for social liberation (i.e., social equality within a given society) of Black people” (1992, pp.162-97). Nicholas (2018) says that as a national movement, cultural nationalism aims at exposing the cultural heritage of Africans in order to show that it has a history before the invasion of colonisers, on the one hand. On the other hand, it is to demonstrate “African equality with Whites in the face of countervailing ideas of White supremacy that were prevalent” (p.3).

Christianity is generally defined as a religious belief focused on the preaching of Jesus Christ. According to the New Testament, it started among the Jewish people and then spread to all around the world. Theissens (1997) describes Christianity mainly based on some principles. First of all, human beings have to put his faith in the Almighty One God, who creates human beings and the universe (p.113). Secondly, human beings commit sins and then need salvation (p.231). Thirdly, the salvation that human beings need is found in Jesus Christ who died on the cross as the substitution of sacrifice for human beings (p.303). Fourthly, God settles the church which represents the gathering of Christian believers and commands them to preach the Gospel and to make all nations Jesus’ followers (p.473). According to Schnabel, the responsibility of every Christian is to preach and spread the Gospel to every human being (1967, p.451). It is to obey and to carry the mission of bringing the gospel all around the world that evangelism continues during the colonisation. Khapoya qualifies this mission as “civilizing mission” (2012, pp.106-07). Thus, Christianity becomes a strong means of civilising Africa communities for colonisation (Guth, 1981, p.549). This research paper analyses the encounter between the spread of Christianity and cultural nationalism in *Things Fall Apart* and *The River Between* using New Historicism and Post-Colonial Criticism as literary theories.

Stephen Greenblatt, an American critic says “the work of art is the product of a negotiation between a creator or class or creators, equipped with complex, communally shared repertoire of conventions, and the institutions and practices of society” (1989, p.12). Under the New Historicist Criticism, the literary production should always be linked to a context including cultural circumstances. This means that the literary work takes its elements from history. Barry it clear by defining New Historicism as “a combined interest in ‘the textuality of history, the historicity of text’” (2009, p.166). These definitions of the New Historicism are worth considering in the study of African nationalism. In the case of this study, it leads the research in digging the pre-colonial era in order to discover the existence of African cultural nationalism.

Post-Colonial theory is relevant as soon as it puts the textual phenomenon into social, historical and cultural perspective. According to the work of Ashcroft, Griffiths and Tiffin entitled *Key Concepts* (2000, p.204-215), the notion of postcolonial reading needs not to be restricted to interrogating a specific body of works (e.g. documents dealing with European history of an area) nor to rereading and rewriting individual texts. Post-colonial theory is a framework of literary criticism that provides critics with



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emancipating sets of conceptual tools and it engages the research project into the track of an active decolonisation.

### **Analysis of cultural nationalism in *Things fall apart* and *The river between***

The cultural nationalism extols in African communities is a tool for African writers to show the cultural and traditional African values which constitute national identities. In demonstrating the existing cultural values, writers focus on the manifestations of certain traditions and customs which portray coherent organised African communities.

Achebe writes about stories and traditions of a particular African society, which are passed down orally for generations, with the aim of re-establishing the national cultural heritage. He presents Africans' perception of life by translating African proverbs into English since they do not have their equivalents in English language such as "looking at a king's mouth, one would think he never sucked at his mother's breast" (Achebe, 2008, p.21) to mean a man's rising from poverty to prosperity with his hard work and achievements. Achebe provides another proverb related to the same content as "if a child washed his hands he could eat with kings." (p.7) He appropriates English to present some practices of the colonial subjects such as "The children were warned not to whistle at night for fear of evil spirits. Dangerous animals became even more sinister and uncanny in the dark. A snake was never called by its name at night, because it would hear" (p.8) or he uses English to present the table etiquette of a supposedly uncivilised African society such as "People should not talk when they are eating or pepper may go down the wrong way" (p.36).

The members of the Igbo clan share palm wine and kola nuts with their guests or friends in every situation, even to ease a possible tension before a dispute. They pay due respect to the *ndichie* (the elders) of the clan and consult them before undertaking anything. On this score, a popular saying in the Igbo community stipulates: "A man who pays respect to the great paves the way for his own greatness" (Achebe, 2008, p.40).

He does not only present Igbo customs and traditions such as palm-wine and kola nut sharing or consulting the elders before starting an unreasoned fight that would disturb the public peace, he also portrays beliefs including throwing new born twins or leaving sick people who are in the threshold of death in an isolated forest due to the belief that sickness is an abomination to the Earth. Achebe portrays Igbo society with its realities including the sacrifice of young children for averting a war and the oppression of women who are under constant threat of being beaten by their husbands. He dedicates a whole chapter to a story about a woman, who is beaten to death by her husband and saved by her brothers, and he takes refuge in her father's clan to point out the patriarchal nature of Igbo culture.

Achebe deals with ceremonies gathering people to solve some problems in public in which the clan's ancestral spirits, known as "egwugwu", walk among people, yet they are basically the members of Igbo clan wearing masks as it is understood from the passage:

Okonkwo's wives, and perhaps other women as well, might have noticed that the second egwugwu had the springy walk of Okonkwo. And they might also have noticed that Okonkwo was not among the titled men and elders who sat behind the row of egwugwu. But if they thought these things they kept them within themselves. The egwugwu with the springy walk was one of the dead fathers of the clan. He looked terrible with the smoked raffia "body, a huge wooden face painted white except for the round hollow eyes and the charred teeth that were as big as a man's fingers. On his head were two powerful horns (Achebe, 2008, p.20).

It is suggested that although people in the communities know the one who wears mask and impersonate one of the ancestral spirit of the clan, they keep it to themselves because of holding in high esteem in their religious traditions and rituals. By means of this example, Achebe points out that these colonial subjects are not primitive and uncivilised as opposed to what is portrayed by Europeans.

Achebe further tells the story related to a medicine man finding Ezinma's "iyi-uwa", which is a special kind of stone buried into the ground that forms a link between evil child and "the spirit world" (Achebe, 2008, p.64-65). If the "iyi-uwa" is found and destroyed, it is believed that the child will not die. When the medicine man asks for the place where Ezinma supposedly buried her "iyi-uwa", Ezinma reveals that she does not know what it means. After the medicine man answers as "You know what it is. You



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buried it in the ground somewhere so that you can die and return again to torment your mother” (Achebe, 2008, p.64-65) Ezinma gives intricate directions to a place where she does not even know. Achebe represents the Igbo society and their beliefs so as to make sure that African people are not inhuman or uncivilised, they are just different from Western people.

He exposes more traditional values as the narrator explains:

The drums beat and the flutes sang and the spectators held their breath. Amalinze was a wily craftsman, but Okonkwo was as slippery as a fish in water. Every nerve and every muscle stood out on their arms, on their backs and their thighs, and one almost heard them stretching to breaking point. In the end Okonkwo threw the cat (Achebe, 2008, p.03).

This is an exposition of one of the values that the traditional African communities generate. The values cover many aspects of the African communities’ life.

Wrestling in this era of Africa is a means of socialisation. When night falls, the drums begin to sound, announcing an event. This, according to the narrator, has two purposes. On the one hand, as the above-mentioned passage states, it is an occasion when the participants come either to acquire fame through victories or shame through failures. This is the case of Okonkwo whose victory over Amalinze the cat has given him great fame as the narrator says: “and during this time Okonkwo’s fame had grown like a bush-fire in the harmattan” (Achebe, 2008, p.3). On the other hand, children, women and men come out to contemplate the brave youths and men of the communities. In the case stated in the novel, this activity symbolises a feast whereby people take great joy taking part in as the narrator expresses in the following passage:

The whole village turned out on the *ilo*, men, women and children. They stood round in a huge circle leaving the centre of the playground free. The elders and grandees of the village sat on their own stools brought there by their young sons or slaves [...]. The wrestlers were now almost still in each other’s grip. The muscles on their arms and their thighs and on their backs stood out and twitched. It looked like an equal match. The two judges were already moving forward to separate them when Ikezue, now desperate, went down quickly on one knee in an attempt to fling his man backwards over his head. It was a sad miscalculation. Quick as the lightning of Amadiora, Okafo raised his right leg and swung it over his rival’s head. The crowd burst into a thunderous roar. Okafo was swept off his feet by his supporters and carried home shoulder-high. They sang his praise and the young women clapped their hands (Achebe, 2008, pp.37-40).

Wrestling is a traditional activity wholly part of the national identity of Igbo people. It is not only a cultural heritage passed to the ancestors of the nine villages but it is also a step to go through for the villagers who desire titles in the communities. In the novel, one can understand that wrestling events are practiced even before the arrival of the missionaries within the communities. And this comes to strengthen the argumentation which stipulates that the precolonial era in Africa is not empty of cultural manifestations.

Going further in the analysis of *Things fall apart*, Achebe reveals that the community is rich in terms of religion. There were gods to whom the population made sacrifices and addressed prayers. “We make sacrifices to the little gods, but when they fail and there is no one else to turn to we go to Chukwu [...]. Our fathers knew that Chukwu was the Overlord and that is why many of them gave their children the name Chukwuka ‘Chukwu is Supreme’” (Achebe, pp.143-4). Apart from the gods common to the whole community, each inhabitant had his own personal god: “Okonkwo was given a plot of ground on which to build his compound, and two or three pieces of land on which to farm during the coming season. With the help of his mother’s kinsmen he built himself an obi and three huts for his wives. He then installed his personal god” (Achebe, 2008, p.103). One could say that the activities of colonisers through their invasion and imperial inclusion in Igbo communities’ affairs with no respect of the Human Rights whose they praise to be the guards is an evidence that Igbo people are far more civilised. Furthermore, the members of the Igbo clan are mostly fair in their judgments as it is stated. The clan is understanding and tolerant to other cultures. The elders of the clan speak to Mr. Brown as follows: “You can stay with us if you like our ways. You can worship your own god. It is good that a man should worship the gods and spirits of his fathers.” (Achebe, 2008, p.40), and this shows how lenient the clan members are.





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The social activities of the Igbo clan bring to the cultural unity and harmony among the clan members as well. Igbo people have festivals such as “The Feast of the New Yams” (p.39) which is held every year for “giving thanks to Ani, the earth goddess and the source of all fertility” (p.39), in which they come together and eat the new yams of the season with their relatives. They organise wrestling contests with judges who are in the power of changing the customs on some occasions and have great ceremonies and dances in their “ilo”, a green playground. For weddings, all women and children help the bride’s mother cooks for the whole village. They respect the nature around them addressing the trees or fishes as sacred unlike European nations’ deforestation to build factories in which they manufacture products by using African resources.

Women of Igbo clan also contribute to the peaceful living of the community that they belong even though they are exposed to the oppression of their male dominant society every day. The multiple wives of the same man get along well with each other since they have a system in which they act in a proper order. When Okonkwo’s neighbour asks for his wives to drink wine, he questions the whereabouts of his first wife because the others cannot drink wine before she does. Besides, the women help each other for the daily chores and support each other for their responsibilities to their husbands. When one of Okonkwo’s wives Ojiugo forgets to cook afternoon meal for her husband because she goes to plait her hair, Nwoye’s mother lies to Okonkwo saying that Ojiugo feeds her children beforehand. The women of Igbo clan are understanding and kind in their actions in that when Ikemefuna, the young boy brought from the neighbouring clan starts living with Okonkwo’s family, his wives treat him affectionately as if he were one of their own children. And even though Ekwefi, one of Okonkwo’s wives loses eight of her children one after the other, she never feels any jealousy for the birth of the Okonkwo’s other children with his other wives.

Ngugi presents cultural nationalism in three steps in *The river between*. The first step of cultural nationalism is stated right at the novel’s entrance:

The two ridges lay side by side. One was Kameno, the other was Makuyu. Between them was a valley. It was called the valley of life. Behind Kameno and Makuyu were many more valleys and ridges, lying without any discernible plan. They were like many sleeping lions which never woke. They just slept, the big deep sleep of their Creator.

A river flowed through the valley of life. If there had been no bush and no forest trees covering the slopes, you could have seen the river when you stood on top of either Kameno or Makuyu. Now you had to come down. Even then you could not see the whole extent of the river as it gracefully, and without any apparent haste, wound its way down the valley, like a snake. The river was called Honia, which meant cure, or bring-back-to-life. Honia river never dried: it seemed to possess a strong will to live, scorning droughts and weather changes. And it went on in the same way, never hurrying, never hesitating. People saw this and were happy.

Honia was the soul of Kameno and Makuyu. It joined them. And men, cattle, wild beasts and trees, were all united by this life-stream.

When you stood in the valley, the two ridges ceased to be sleeping lions united by their common source of life. They became antagonists. You could tell this, not by anything tangible but by the way they faced each other, like two rivals ready to come to blows in a life and death struggle for the leadership of this isolated region (Ngugi, 1975, p.1).

The novel portrays Honia River as a symbolic medium through which all the different social units could be unified to form nationhood before the advent of the British dominion. The name of Honia river, which means “cure, or bring-back-to-life,” (Ngugi, 1975, p.1) has a cultural implication and gives Kameno and Makuyu a cultural identity recognised by people outside the region. Based on this, *The river between* can be considered as a nationalist novel in which Ngugi attempts to tell the Kenyans to quit a dormant level of understanding that he describes as “sleeping lions” (Ngugi, 1975, p.1) so as to reach another level of national consciousness because the pre-colonial cultural and traditional identities are under menace of a new civilisation through Christianity.

The second step of cultural nationalism in *The river between* is symbolised by the practice of circumcision among the Gikuyu people. In *Facing Mount Kenya*, Kenyatta describes circumcision as “a



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deciding factor in giving a boy or a girl the status of manhood or womanhood in the Gikuyu community” (1962, p.133). He continues: “No proper Gikuyu would dream of marrying a girl who is not circumcised, and vice versa. It is taboo for a Gikuyu man or woman to have sexual relations with someone who does not undergo this operation” (1962, p.132). Furthermore, those ‘detrified’ Gikuyu who did wish to settle down with an uncircumcised partner would not enjoy the blessing of their family and would face exclusion from the homestead, disinheritance and, therefore, landlessness. Kenyatta continues:

It is important to note that the moral code of the tribe is bound up with this custom and that it symbolises the unification of the whole tribal organisation [...]. The *irua* (ceremony) marks the commencement of participation in various governing groups in the tribal administration, because the real age-groups begin from the day of the physical operation. The history and legends of the people are explained and remembered according to the names given to various age-groups at the time of the initiation ceremony (1962, p.134).

More importantly, the parents of the initiates become members of the governing council of elders (*kiama*) subsequent to the initiation of their first child. The ceremony is thus central to the social organisation and the organisation of power within the Gikuyu community. Unsurprisingly, in *The river between*, Ngugi emphasises the social importance of circumcision when his character points out that “Circumcision was the central rite in the Gikuyu way of life. Who had ever heard of a girl that was not circumcised? Who would ever pay cows and goats for such a girl?” (Ngugi, 1975, pp.37-8) He continues:

Circumcision was an important ritual to the tribe. It kept people together, bound the tribe. It was at the core of the social structure, and something that gave meaning to a man’s life. End the custom and the spiritual basis of the tribe’s cohesion and integration would be no more. The cry was up. Gikuyu Karinga. Keep the tribe pure, Tutikwenda Irigu. It was a soul’s cry, a soul’s wish (Ngugi, 1975, p.68).

The novel exposes circumcision not only as a cornerstone upon which the Gikuyu patriarchy is founded but also as the soul of the community. This means that the practice of circumcision is the Gikuyu’s cultural identity transferred to them by their ancestors. It becomes a cultural precolonial nationalist practice since it is a value through which the community is recognised. A further reading of the following passage shows how Gikuyu people are spiritually connected to their ancestors through circumcision. “The knife produced a thin sharp pain as it cut through the flesh. The surgeon had done his work. Blood trickled freely on to the ground, sinking into the soil. Henceforth a religious bond linked Waiyaki to the earth, as if this blood was an offering. Around him women were shouting and praising him” (Ngugi, 1975, p.45). These historical and cultural realities tie African communities together before the invasion of the colonisers. They give the community a national identity. It is what Ngugi and Achebe call cultural nationalism. It existed till colonisation which landed with Christianity.

### **Factors which contribute to the emergence of Christianity in *Things fall apart* and *The river between*:**

#### **Casualties caused by some traditional practices**

Considered as a national identity before colonisation, the practice of circumcision challenges nationalist manifestations in Africa. The character who fully embraces Christianity as a new faith and new way of life is Joshua, the first convert residing on the two ridges. In the novel, Ngugi shows that the advent of colonialism in guise of Christianity has a strong impact on the native because it annihilates their traditional ways of life and thinking. He says “The white man cannot speak the language of the hills. And knows not the ways of the land. But the white man had come to Siriana, and Joshua and Kabonyi had been converted. They had abandoned the ways of the ridges and followed the new faith” (Ngugi, 1975, pp.7-8). This is a good example of how Christianity undermines the indigenous culture and abolishes circumcision with obviously the lead of the European missionaries. The rite of circumcision is denounced by the converts as a heathen custom: “Every man of God knew that this was a pagan rite against which, time and time again, the white missionaries had warned Joshua” (Ngugi, 1975, p.25).

Opposing the practice of circumcision, missionaries preach this: “The thief comes only to steal and kill and destroy; I have come that they may have life, and have it to the full” (NIV & KJV English & French Bible, 2011, John 10:10) and “For the wages of sin is death, but the gift of God is eternal life in Christ



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Jesus our Lord” (NIV & KJV English & French Bible, 2011, Romans 6:23), in order to portray circumcision as a satanic practice. That is the reason why when Muthoni tells her sister Nyambura that she wants to be circumcised, Nyambura answers: “Yes. Tell me. Why do you want this? You know this is the devil’s work. You know how he tempts people. You and I are Christians. Were we not baptized long ago? Are you not now saved from sin?” (Ngugi, 1975, p.25-26). The missionaries are able to win some converts from the Gikuyu community by teaching them how bad and deadly their traditions are:

A shout and cry mixing with suppressed groans of pain! Women were shouting and singing their bravery. All was over.

‘They are all out now?’

‘Yes. We are happy...’

‘And the girls?’ The elder from Gathanjo asked.

‘All...all...’

‘Yes?’ the elder queried. He saw that Chege was hesitant.

‘There is a girl ...she is not well.’

‘Who is she?’

‘Muthoni.’

‘Oh, Joshua’s daughter? We heard about her. Strange case for a girl...’

‘It is strange,’ agreed Chege. A little silence felt between them...

‘Yes...it is strange,’ repeated Chege. ‘All the other girls have left, their wounds nearly dry scars.’

‘And she? Left in the...’

‘A father’s curse.’

‘May be.’ [...]. But life was not kind to her. Muthoni was now dead (Ngugi, 1975, pp.46-52).

Unfortunately, circumcision causes the death of Muthoni. And her death is a way for her Christian father to demonstrate that practicing circumcision means disobedience to the words of God. And when one does not follow God’s words by committing sins as Muthoni does, the sinner can be punished by God: “But Joshua was determined to triumph, to talk with a brisk step, his eyes on the cross. Muthoni had been an outcast. Anything cursed here on the earth would also be cursed in heaven. Let that be a warning to those who rebelled against their parents and the laws of God” (Ngugi, 1975, p.54).

By taking advantage of the death caused by the practice of circumcision, missionaries present the ‘bad’ side of the ritual ceremony:

Far away in Siriana, it was a sigh with a different meaning. The death of Muthoni for ever confirmed the barbarity of Gikuyu customs...

They were entrenched in their blind customs. Children became ill. People believed that they were bewitched. A man died. His body was abandoned without burial. And then this circumcision – it was barbarous (Ngugi, 1965, pp.55-6).

Thus, the strength of Christianity grows and creates a “split between Makuyu and Kamen” (Ngugi, 1975, p.59); within the traditional communities. And frightened by the ‘evil’ side of their own tradition that they discover thanks to the missionaries, some Africans leave traditional beliefs to get refuge in Christianity.

### **Insecurity under African traditions and customs**

In *Things fall apart*, there is a question related to customs whereby dead bodies are abandoned without burial ceremony because of crimes against the gods, is also mentioned by Obierika. The narrator says:

Then they came to the tree from which Okonkwo’s body was dangling, and they stopped dead.



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‘Perhaps your men can help us bring him down and bury him,’ said Obierika. ‘We have sent for strangers from another village to do it for us, but they may be a long time coming.’

The District Commissioner changed instantaneously. The resolute administrator in him gave way to the student of primitive customs.

‘Why can’t you take him down yourselves?’ he asked.

‘It is against our custom,’ said one of the men. ‘It is an abomination for a man to take his own life. It is an offence against the Earth, and a man who commits it will not be buried by his clansmen. His body is evil, and only strangers may touch it. That is why we ask your people to bring him down, because you are strangers’ (Achebe, 2008, p.165).

The death of Okonkwo is a dishonourable one although he is one of the honourable men of Umuofia. According to Obierika, Okonkwo is “one of the greatest men in Umuofia” (Achebe, 2008, p.165). Unfortunately, regarding Igbo tradition, he goes under a dishonourable burial ceremony because of the rule of a custom. How can a custom be so severe towards a member of its community who struggles and gives his life for its esteem? It is certainly the question Obierika asks himself in the passage below:

Obierika was a man who thought about things. When the will of the goddess had been done, he sat down in his *obi* and mourned his friend’s calamity. Why should a man suffer so grievously for an offence he had committed inadvertently? But although he thought for a long time he found no answer. He was merely led into greater complexities. He remembered his wife’s twin children, whom he had thrown away. What crime had they committed? The Earth had decreed that they were an offence on the land and must be destroyed. And if the clan did not exact punishment for an offence against the great goddess, her wrath was loosed on all the land and not just on the offender. As the elders said, if one finger brought oil it soiled the others (Achebe, 2008, p.100).

There is a deep worry hidden in Obierika’s questioning. The spirit behind the customs and traditions is supposed to set a good living atmosphere in a community under which the members of the community can feel themselves in security and protected. But when the manifestations of the customs and traditions uncover that there is no immunity for whomever in the community, there is then a place for questioning. One can argue that there are rules related to customs and traditions so that when they are broken through crimes or other means, the convicted persons go under punishment according to the decision of the gods or ancestors. Thus, this justifies the killing of Ikemefuna: At the end they decided, as everybody knew they would, that the girl should go to Ogbuefi Udo to replace his murdered wife. As for the boy, he belonged to the clan as a whole, and there was no hurry to decide his fate. Okonkwo was, therefore, asked on behalf of the clan to look after him in the interim (Achebe, 2008, pp.10-11). When the clan decides to sacrifice the boy in order to appease the earth goddess, Ogbuefi Ezeudu goes to Okonkwo and warns him as follows:

‘The boy calls you father. Do not bear a hand in his death.’

Okonkwo was surprised, and was about to say something when the old man continued:

‘Yes, Umuofia has decided to kill him. The Oracle of the Hills and the Caves has pronounced it. They will take him outside Umuofia as is the custom, and kill him there. I want you to have nothing to do with it. He calls you father’ (Achebe, 2008, pp. 45-46).

Ezeugo, the wife of Ogbuefi Udo from Umuofia is killed by a man from Mbaino. There is a killing in this case and in order to appease the Earth, the boy must be killed according to the decision of the Oracle of the Hills. Although the killing of Ikemefuna is the aftermath of the crime a member of his community commits, it shows an ‘evil’ side of the custom. And the discovery of that ‘evil’ side motivates some people to move from traditional practices to Christianity. Some villagers are excited to go along with the white men’s idea because for them it is the only way to escape their own customs’ and traditions’ practices. The example of Okonkwo’s son Nwoye who is among the first converted to Christianity can be displayed here:

The missionaries had come to Umuofia. They had built their church there, won a handful of converts and were already sending evangelists to the surrounding towns and villages...what moved Obierika to



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visit Okonkwo was the sudden appearance of the latter's son, Nwoye, among the missionaries in Umuofia.

'What are you doing here?' Obierika has asked when after many difficulties the missionaries had allowed him to speak to the boy.

'I am one of them,' replied Nwoye (Achebe, 2008, p.115).

Nwoye's decision of joining Christianity comes after the sacrifice of Ikemefuna who was almost a brother to him. Nwoye is totally against the decision of the Oracle of the Hills to kill his 'brother'. Hence, he protests against this act by joining the church and choosing to attend the missionary school. Like Nwoye, many Africans leave their customs and traditions once they discover their evil sides to join white men's religion. And they decide to do it in order to answer "a vague and persistent question that haunted" (Achebe, 2008, p.118) their lives as it is the case for Nwoye. He is haunted by the "question of the twins crying in the bush and the question of Ikemefuna who was killed" (p.118).

As for Obierika, the question that nags him is about his twins. The narrator says: "He remembered his wife's twin children, whom he had thrown away. What crime had they committed?" (Achebe, 2008, p.117). The question is the result of a long moment of thinking about the sorrow that women of the communities endure for the sake of customs and traditions. Women suffer because they give birth to twins and cannot keep them because according to their traditions, it is an abomination. The missionaries in Umuofia focus on this aspect of the tradition to teach as follow: "All the gods you have named are not gods at all. They are gods of deceit who tell you to kill your fellows and destroy innocent children. There is only one true God and He has the earth, the sky, you and me and all of us" (Achebe, 2008, p.117).

The gospel finally wins some of the hearts at the meeting and even a pregnant woman who on more than one occasion watches her children being thrown in the sacred forest because they were twins according to the tradition. The narrator brings more understanding in this passage:

That week they won a handful more converts. And for the first time they had won a woman. Her name was Nneka, the wife of Amadi, who was a prosperous farmer. She was very heavy with child.

Nneka had had four previous pregnancies and childbirth. But each time she had borne twins, and they had been immediately thrown away. Her husband and his family were already becoming highly critical of such a woman and were unduly perturbed when they found she had fled to join the Christians. It was a good riddance (Achebe, 2008, p.121).

Nneka is now being taught by the missionaries that it is uncommon and it is a work of the devil because she deserves to keep her twins alive. Certainly, the missionary gospel shares with the community some verses of the bible. For example, Exodus chapter 20 verse 13: 'You shall not murder' (NIV & KJV English & French Bible, 2011). She converts to Christianity to protect the lives of her unborn children and in order to avoid suffering. The questions of Obierika are worth asking. In fact, the questions are not only the sighs of the bitterness of some people of the traditional community but are also a warning for the traditional Igbo community about the fact that modernity comes to their midst and can attract many of them. But it does not last long to see people whose wounds are bleeding to run out in order to look for cure.

### **The offshoots of Africans traditional communities**

Along with Nwoye and the pregnant mother, many outcasts of Igbo community become passionate followers of Christianity:

And the little church was at that moment too deeply absorbed in its own troubles to annoy the clan. It all began over the question of admitting outcasts.

These outcasts, or *osu*, seeing that the new religion welcomed twins and such abominations, thought that it was possible that they would also be received. And so one Sunday two of them went into the church. There was an immediate stir; but so great was the work the new religion had done among the converts that they did not immediately leave the church when the outcasts came in. Those who found



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themselves nearest to them merely moved to another seat. The whole church raised a protest and were about to drive these people out, when Mr Kiaga stopped them and began to explain.

‘Before God,’ he said, ‘there is no slave or free. We are all children of God and we must receive these our brothers’ (Achebe, 2008, p.125).

The traditional community loses another category of persons. The *osu* are considered as slaves among people of the Igbo community. They are unable to marry or assemble with the free-born. They are forbidden from cutting their dirty, snarled hair, and are not allowed any of the four titles of the clan. Seen as offshoots in their own community, the *osu* have no ways to express their dissatisfaction, their misery and the discrimination they endure. Thus, the arrival of the missionaries is an alleviation. The missionaries start preaching their gospel which tells them this: “Come to me, all you are weary and burdened, and I will give you rest” (NIV & KJV English & French Bible, 2011, Metthiew 11:28). Based on this perspective, the missionaries embrace the *osu* with open arms in the Christian community. After the Christians accept them, they shave off their hairs and become adherents of the new faith.

### Conclusion

This research paper has dealt with African cultural nationalism and the emergence of Christianity within African communities portrayed in *Things fall apart* by Chinua Achebe and *The river between* by Ngugi wa Thiong’o. In the analyses, it has been demonstrated that when Europeans arrive in Africa, they initiate a number of changes including the introduction of Christianity. The tension about whether changes should be held over traditions and customs is very much involved in personal questionings. For instance, in *Things fall apart*, Okonkwo resists in internalising the new orders. To some extent, Okonkwo’s resistance to changes is due to his fear of losing social status due to the fact that the traditional order has hierarchical organisations. So it is clear that his sense of self-worth depends on the traditional existing standards.

Colonisers work with the goals of forming large colonial groups in which they can attempt to educate and shape the ‘savage’ villagers. This goes through the building of churches and school wholly connected. And the breaking point is the conversion of ‘less important’ and ‘important’ people to Christianity. The number of converts increase, and Africans begin to question their own identities. Christianity usurps the openness and insightfulness of Africans and divides traditional communities in terms of opinion. Thus, in the confusing situations, some Africans decide to reject traditional practices in order to adopt Christianity. Their acceptance is due to some motivations such as some practices in traditions and customs, the unanswerable questionings revealing the ‘dark’ sides of the African traditions and customs on the one hand, and the ‘comfortable’ hands proposed by missionaries on the other hand.

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### ÜNİVERSİTE ÖĞRENCİLERİNİN YAŞLILARA KARŞI TUTUMLARININ DEĞERLENDİRİLMESİ

#### EVALUATION OF UNIVERSITY STUDENTS' ATTITUDES TO ELDER PEOPLE

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#### ÖZET

Yaşlılık; yaşları aşan kişiler için kullanılan fiziksel, ruhsal, zihinsel yeteneklerin kaybı ve psikik işlevlerin zayıflaması olarak tanımlanmaktadır. İnsanların gelişimi dört aşamadan oluşmaktadır. Bu aşamalar; fiziksel, duygusal, sosyal ve zihinsel olarak sıralanmaktadır. Bu dönemlerin tamamlandığı bölüm ise yaşlılık olarak görülmektedir. Hayat bir pasta olarak görülürken yaşlılık ise bu pastanın son dilimi olarak karşımıza çıkmaktadır. Dünyada geçmişte çocuk sayısı yaşlı insan sayısından fazlayken günümüzde demografik bir dönüm noktasının eşiğine ulaşmıştır. Dünyada doğurganlık oranının düşmesi, insanların yaşam süresinin uzaması nedeni ile dünya nüfusunun giderek arttığı belirlenmiştir. Dünya Sağlık Örgütü (DSÖ) Raporu'na göre dünyada 2050 yılında dünyada 60 yaş üzeri insan sayısının 2 milyarı, 80 yaş üzeri nüfusun ise 400 milyonu bulacağı düşünülmektedir. Türkiye'de yaşlı nüfus oranı incelendiğinde 2023 yılında bu oranın %10,2; 2030 yılında %12,9; 2040 yılında %16,3; 2060 yılında %22,6 ve 2080 yılında ise bu oranın %25,6 olacağı düşünülmektedir. Toplum içerisinde yaşlı tanımlı incelendiğinde yaşlıların tecrübe ve bilgelik gibi yaşlılığının olumlu yönlerinin göz ardı edildiği bunun yanında yürüme güçlüğü olan, muhtaç, değişime kapalı, yalnız, mutsuz ve sosyal ilişkileri zayıflamış bireyler olarak tanımlanmaktadır. Toplum içerisinde yaşlıların yaşam kalitesinin artırılması ve sağlığının geliştirilmesi sonucunda yaşlı nüfusa bağlı olarak toplumsal yükün azaltılabildiği belirlenmiştir. Bu şekilde yaşlılara karşı olumsuz tutumların azaltılabileceği görülmektedir. Dünya Sağlık Örgütü tarafından yaşlılara yönelik olarak yapılan analiz sonucunda yaşlılara yönelik olarak olumsuz veya ayrımcı tutumların yaygın olduğu belirlenmiştir. Yaşlılık dönemi içerisinde yaşlı bireylerin zihinsel ve fiziksel sağlıklarının olumsuz yönde etkilendiği görülmektedir. Yaşlı insanlara sunulmuş olan hizmetler incelendiğinde sadece sağlık alanı değil toplumun tüm kesimini de ilgilendirdiği ortaya çıkmıştır. Üniversite öğrencilerinin yaşlılara karşı tutumları incelendiğinde bunun yaşlılarla olan iletişimden yaşlılara yönelik ihmal ve istismara kadar yaşlı bakımına ilişkin birçok alanı etkileyen değişken olarak görülmektedir. Toplum içerisinde insanların yaşamlarının bir bölümünde yaşlı anne ve babalarının bakımını üstlenme ihtimalinin yüksek olduğu belirlenmiştir.

**Anahtar Kelimeler:** Yaşlılık, Tutum, Üniversite Öğrencileri





### ABSTRACT

Old age is defined as the loss of mental, mental and psychic abilities and the weakening of mental functions used in old age. Human development consists of four stages. These stages are physical, emotional, social and spiritual. The part where these periods are completed is considered old age. Life is like a cake, but old age is the last piece of this cake. The number of children in the world, once greater than the number of older people, is now approaching the limits of the demographic transition. It is estimated that the world population is gradually increasing due to declining birth rates and increasing life expectancy. According to a World Health Organization (WHO) report, by 2050 there will be 2 billion people aged 60 and over and 400 million people aged 80 and over. If you look at the share of the elderly population in Turkey, then in 2023 this share will be 10.2%. 12.9% in 2030. 16.3% in 2040. This share is expected to reach 22.6% in 2060 and 25.6% in 2080. , poor, closed to change, lonely, unhappy, with weakened social ties. It became clear that reducing the social burden on the elderly population is possible as a result of improving the quality of life and improving the health of older people in society. It turns out that in this way it is possible to reduce the negative attitude towards the elderly. An analysis of older people by the World Health Organization found that negative or discriminatory attitudes towards older people are common. The mental and physical health of older people deteriorates with age. When we look at services for the elderly, we understand that they are connected not only with the health sector, but with society as a whole. The study of the level of attitudes towards the elderly among college students is considered a variable that affects many areas related to the care of the elderly, from communication with the elderly to abuse. It is believed that people in society are more likely to care for their aging parents at some point in their lives.

**Keywords:** Aging, Attitude, University Students

### 1.YAŞLILIĞIN TANIMI

1998 yılında Dünya Sağlık Örgütü (DSÖ)'nün yapmış olduğu Sağlık Raporu'nda yaşlılık; bireylerin başkalarına bağıllığı ve özürüllüklerinin artması olarak adlandırılmaktadır (Kutsal, 2007; Heflin ve Cohen, 2016). Yaşlılık; istisnasız her canlıda görülen, fonksiyonlarda azalma ile gerçekleşen, evrensel ve devamlı bir süreç olarak tanımlanmaktadır. Yaşlılığın birçok yönden kronolojik sıralaması yapılmaktadır. Bu sınıflama; biyolojik, psikolojik ve sosyal yaşlanma olarak görülmektedir (Kalınkara, 2016).

Bireylerin sosyal ve fiziksel olarak çalışma performanslarının düşmesi, iş verimliliğinde azalma olması ve sağlık açısından da bağımlı hale geldiği bir yaşam dönemi içerisine girmesi, yaşlılık olarak nitelenmektedir. Kronolojik olarak yaşlılık ise 65 yaş üzeri olarak tanımlanmaktadır (Kutsal, 2007). Gerontolojistlerin yapmış olduğu sınıflandırmaya göre yaşlılık dönemleri şu şekilde belirtilmektedir.

-65-74 yaş arası dönem: Genç yaşlılık,

-75-84 yaş arası dönem: Yaşlılık,

-85 yaş üzeri dönem: İleri yaşlılık (World Health Organization, 2015).

Yaşlılık kavramı bireylerin fiziki görünümü ve kronolojik yaşı ile değerlendirilmesi olarak görülmektedir. Bu nedenle yaşlılığın bilişsel ve sosyal tarafı bulunmaktadır. Yaşlı bireylerin yaşam alanı incelendiğinde bir kısmı sosyal olarak aktif yaşam sürerken bir kısmı da içe dönük şekilde yaşamaktadır. Yaşlılık değerlendirmesi yapılırken kronolojik yaşın yanında fonksiyonel, biyolojik ve sosyal durumunda dikkate alınması gerekmektedir. Bireylerin fiziki yapısı ile sosyal ilişkilerinin bir arada değerlendirildiği kavram fonksiyonel yaş olarak adlandırılmaktadır. Bunun yanında bireylerin kendini hissettiği ve görmüş olduğu yaş da algılanan yaş olarak belirlenmiştir. Türkiye ve dünyada birçok sanatçı, yönetici ve yazarın 65 yaşından sonra birçok önemli eser vererek başarılar sergilediği görülmektedir (Arioğul, 2006).



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### 2.DÜNYADA YAŞLILARIN DURUMU

Dünya nüfusunun gün geçtikçe yaşlandığı belirlenmiştir. Bu yaşlanmadan dolayı hükümetler için özellikle yaşlılara yönelik yeni politikalar, kamu hizmetleri, istihdam, yaşama alanı ve sağlık hizmetleri her zaman olduğundan daha çok önem taşımaktadır (United Nations, 2015).

Dünya Sağlık Örgütü (DSÖ)'ne göre dünya nüfusunun yaklaşık olarak 650 milyonunu yaşlılar oluşturmaktadır. Bu sayının 2050 yılına kadar iki milyar olacağı düşünülmektedir. Dünyada 60 yaşındaki bireylerin toplam nüfusa oranının 2015 yılında %12'ken 2050 yılında bu rakamın %22'ye çıkması beklenmektedir. 2017 yılında dünyada bulunan yaşlı nüfus toplam nüfusun 1/8'ken 2030 yılında bu oranın 1/6 ve 2050 yılında ise bu oranın 1/5 olacağı düşünülmektedir (World Health Organization, 2015).

### 3. TÜRKİYE'DEKİ YAŞLILARIN DURUMU

Türkiye'de 2019 yılı TÜİK verilerine göre beklenen yaşam süresinin ortalama 78,6 olduğu, erkeklerde bu sürenin 75,9; kadınlarda ise bu sürenin 81,3 yıl olduğu görülmektedir. Kadınlar genel olarak erkeklerden daha uzun süre yaşamaktadır ve erkeklere göre doğuştan beklenen yaşam süresi farkının 5,4 yıl olduğu belirlenmiştir (TÜİK, 2019).

2018 yılı TÜİK verilerine göre 65 yaş ve daha yukarı yaştaki nüfusun 2014 yılında %8 olduğu bu rakamın 2018 yılında %8,8'e yükseldiği belirlenmiştir. Bu dönem yaşlı nüfusunun %55,9'u kadın, %44,1'inin ise erkek olduğu görülmüştür. Yapılan nüfus projeksiyonlarına göre Türkiye'deki yaşlı nüfusunun 2023 yılında %10,2; 2030 yılında bu rakamın %12,9; 2040 yılında %16,3; 2060 yılında bu rakamın %22,6 ve 2080 yılında ise bu rakamın %25,6 olacağı düşünülmektedir (TÜİK, 2018).

### 4.YAŞLANMA SÜRECİ

Yaşlanma bireylerin yaşamları boyunca mikroskobik düzeyde gözle görülebilir şekilde gerçekleşmektedir. Bireylerde yaşa bağlı olarak fizyolojik kayıpların yaşanması beklense de bu kayıpların hızının bireyden bireye, bireylerin geçmiş içerisindeki yaşam tarzına bağlı olarak büyük bir değişiklik gösterdiği belirlenmiştir. Yaşlanma sürecinin multifaktöriyel olduğu belirlenmiştir. Burada görülen en önemli mekanizma serbest radikallerde oluşan oksidatif hasar ve buna bağlı olarak oluşmuş olan DNA hasarı ile mitokondriyal yaşlanma ve enerji üretiminde azalmanın gerçekleşmesidir. Yaşlanma karakteristik özellikleri incelendiğinde bunlar aşağıdaki şekilde sıralanmaktadır. Bunlar;

- Bireylerin organ sistemleri bünyesindeki kapasitelerin azalması durumu,
- Bireylerde homeostazın bozulması durumu,
- Bireylerin çevresel faktörlere uyum sağlamasında yaşanan zorluk,
- Bireylerin strese cevap verme kapasitesinde görülen azalma olarak görülmektedir.

Bireylerde yaşla birlikte meydana gelen bu değişimlerle birlikte bireylerin dış etkenler ve hastalıklara karşı korunmasız bir duruma geldikleri belirlenmiştir (Kutsal, 2012). Bireylerin bazılarında 50'li yaşlarda bu belirtiler görülürken bazı bireylerde bu yaşın 85-90 yaşına çıktığı görülmektedir. 85-90 yaşına kadar bazı bireyler fiziksel ve zihinsel sağlıklarını korumaktadırlar. Buna örnek olarak Mimar Sinan verilebilir. Mimar Sinan 86 yaşında ustalık eseri olan Selimiye Camii'ni inşa ettiği belirlenmiştir (Duben, 2018).

Sağlıklı bir yaşlanma bireylerin vücutlarında yaşanan fiziksel değişimlerin yanında cinsiyete bağlı olan özellikler, bireylerin gençken yaşadıkları sağlık sorunları ve içinde yaşanılan toplumun kültürel yapısının bileşimi olarak meydana gelmektedir (Kutsal, 2007). Dünya Sağlık Örgütü (DSÖ)'ne göre sağlıklı yaşlanma; yaşlılıkta bireylerin refahlarını sağlayan fonksiyonel yeteneklerin geliştirilerek, sürdürülme süreci olarak adlandırılmaktadır. Bireylerin temel ihtiyaçlarını karşılaması, öğrenmesi, kendi kendine kararlar almasının sağlanması, hareketli bir yaşama sahip olması, ilişkilerin kurulup sürdürülmesi ve yaşanılan topluma katkı sağlanması fonksiyonel yetenek olarak tanımlanmaktadır (World Health Organization, 2019). Bireylerin doğumda olduğu gibi yaşamlarının son dönemleri içerisinde de eğer gerekli önlemleri almazlarsa başkalarına bağımlı olabildikleri belirlenmiştir. Bu sebeple bireylerin sağlıklı yaşlanabilme amacı; bağıllığın mümkün olduğunca azaltılması veya ötelenmesi, bağımsız şekilde geçirilmiş olan yaşam süresinin uzatılması olarak görülmektedir (Sağlık



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Bakanlığı, 2015). Buradaki ana hedef geriatrik popülasyonun içerisinde yaşam kalitesinin korunmasıdır (Kutsal, 2012). Yaşlanma sürecinin sınıflandırması aşağıdaki alt başlıklar içerisinde incelenmektedir. Bunlar;

-Kronolojik Yaşlanma: 65 yaş üzerindeki kişiler kronolojik yaşlanmaya göre yaşlı olarak kabul edilmektedir. Bu yaşlanma türü takvim yaşlanması olarak adlandırılmaktadır (Arioğul, 2006; World Health Organization, 2019).

-Biyolojik Yaşlanma: Bireylerin vücut yaşı olarak tanımlanmaktadır. Bu yaşlanmada organ fonksiyonlarında azalma, hücre ölümü ve doku yıkımı görülmektedir. Bu nedenle biyolojik yaşlanmada bireylerin vücutlarının işlev ve yapısında değişim yaşanmaktadır. Bireyler yaşlandıkça görme ve işitme duyularında kayıp, hareketlerinde azalma, kırışıklıklarda artma, saçlarda beyazlama, güç kaybı ve eklem romatizmaları karşımıza çıkmaktadır. Bireylerin buldukları sosyal ortam, yaşadıkları çevre, beslenme, önceki sağlık durumlarına göre biyolojik kayıplarının da birbirinden farklı olduğu görülmektedir (Kalınkara, 2016).

-Psikolojik Yaşlanma: Bu dönem içerisinde bireyler öğrenme, algılama, hafıza fonksiyonlarında yitimin gerçekleşmesi, geçmişe özlem duyulması, geleceğe karşı güvensizlik duyulması gibi olaylar gerçekleşmektedir. Bunun yanında bireyin yaşlanması ile deneyimlerinde artış, iyi değerlendirme yapması ve bunun yanında zengin bir konuşma diline sahip olduğu görülmektedir. Ribot Kanunu; psikiyatride bireyin belleğinin geriye doğru yıkılması olarak tanımlanmaktadır. Buna göre; yaşlılarda daha önce öğrenilen bilgiler sağlam kalırken yeni öğrenilen bilgilerin çok hızlı bir şekilde unutulduğu belirlenmiştir. Bu nedenle yaşlandıkça bireyler yeniliklerden çekinmekte ve yeni kuşakla arasındaki mesafe ise hızlı bir şekilde artmaktadır (Kalınkara, 2016; Duben, 2018).

-Sosyal ve Toplumsal Yaşlanma: Çalışma yaşamı ve toplumsal hayat içerisinde yaşlanan bireylerin yeteneklerinde azalma görülmesi ve bunun yanında toplumsal statü ve rollerde yaşanan değişim sosyal ve toplumsal yaşlanma olarak tanımlanmaktadır.

Toplum içerisinde bireylerin yaşlı bireylere karşı tutumları, yaşlıların toplum içerisindeki saygınlığı ve yerinin kültürlere göre değişim yaşadığı belirlenmiştir. Bu dönem içerisinde bireylerde fiziksel olarak aktivitede kayıp, toplum içerisindeki rollerin değişmesi veya kaybı, bireylerin toplumdan uzaklaşarak kendi iç dünyasına çekilmesine sebep olmaktadır. Fiziksel yaşlanma ile bireylerin günlük yaşamlarında gerilemenin yaşanması, bireyin toplum içerisindeki rollerini yerine getirememesinden dolayı çevresindeki insanlardan yaşlı olduğuna ilişkin geri dönüşler almaları toplumsal yaşlılık olarak tanımlanmaktadır (Kalınkara, 2016).

### 5. YAŞLI BİREYLERİN TOPLUM İÇERİSİNDEKİ YERİ, YAŞLI AYRIMCILIĞI YAPILMASI VE ÜNİVERSİTE ÖĞRENCİLERİNİN YAŞLILAR HAKKINDAKİ TUTUMLARI

Bireylerin ruhsal ve fiziksel sağlıklarının korunmasında sosyal iletişim ve desteğin önemli olduğu görülmektedir. Bu nedenle yaşlı bireyler diğer bireylere göre daha fazla sosyal, fiziksel ve psikolojik yaşam alanına sahiptir. Bazı yaşlıların gücünden düşmesi sebebiyle yaşamlarını yataklarında geçirdikleri görülmektedir. Türk kültürü içerisinde yaşlı bireylerin bakımının, aileleri ve yakın çevresi tarafından yapıldığı bilinmektedir. Geçmişte aileler geniş aile şeklinde yaşamaktaydı ve bu dönem içerisinde yaşlıların ailelerinin yanında yaşadıkları ve bu kişilere aile içerisinde yetki verilerek, yaşlıların sorumluluk almaları sağlanmıştır. Günümüzde ise çoğunlukla çekirdek ailelere rastlanılmaktadır. Çekirdek aileler içerisinde yaşlılar bu rol ve yeri alamamakta bunun yanında yalnızlıkla karşı karşıya kalarak yabancılaşmaktadır (Kalınkara, 2016).

Kuşaklar arası aktarılan yaşlılarla ilgili birçok ön kabulün bulunduğu belirlenmiştir. Örnek vermek gerekirse yaşlıların üretici değil tüketici oldukları düşünülmektedir fakat yaşlıların da gençler gibi üretim yapabildiği görülmektedir. Bunun yanında yaşlıların gençlerle anlaşamayacakları bu nedenle kendi yaşlıları ile bir arada bulunabilecekleri belirtilmektedir. Fakat yaşlıların gençlere aktarabileceği birçok deneyim ve bilgi bulunmaktadır. Bu şekilde yaşlılar gençlere fayda sağlamaktadır. Toplum içerisinde yaşlılıkla ilgili yanlış değer yargısı kavramlarına örnekler; yaşlıların hoşgörüsüz oldukları, bireylerin yaşlanınca sağlıklı olamayacakları ve yaşlıların monoton ve durağan olması olarak belirlenmiştir (Öz, 2002).



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Amerika Ulusal Yaşlılık Enstitüsü Başkanı Butler, ilke kez 1969 yılında yaşlı ayrımcılığı kavramını kullanarak literatüre kazandırmıştır. Yaşlı ayrımcılığı özellikle gençlerin yaşlı bireylere yönelik ırk ve cinsiyet ayrımcılığı gibi eylemleri olarak tanımlanmaktadır. Yaşlı ayrımcılığı tanımını Palmore genişleterek ileriki yaşlarda bireylere yönelik ön yargıyı ifade eden davranış ve tutumlar olarak belirlemiştir. Bireylerdeki bu önyargı sonucunda yaşlanma; kaçınılması gereken bir durum ya da hastalıkla bağdaştırılan patolojik bir durum olarak tanımlanmaktadır (Palmore, 1999).

Yaşlı ayrımcılığı iki başlık altında incelenerek yorumlanmaktadır. Bunlar;

- Bireylere yaşları sebebiyle olumsuz şekilde ön yargılı davranılması,
- Bireylerin yaşları sebebiyle kişilere fırsat tanınmaması olarak belirlenmiştir.

Literatür incelendiğinde üniversite öğrencilerinin genel olarak yaşlıya yönelik olumlu tutum göstedikleri saptanmıştır. Öğrencilerin sosyo-demografik değişkenleri yaşlılara yönelik tutumlarında etkili olabileceği belirlenmiştir (Ceylan ve Öksüz 2015; Can ve ark. 2020).

Cinsiyetin yaşlılara yönelik tutum üzerindeki etkisi incelendiğinde birçok çalışmada yaşlılığa yönelik tutum açısından farklılık olduğu belirlenmiştir (Altun ve ark. 2020). Erkek öğrencilerin kız öğrencilere oranla daha olumlu tutum gösterdiklerini belirten (Şahin ve Erdem, 2017; Hweidi vd., 2006; Ceylan ve Öksüz, 2015) çalışmaların aksine Diego ve arkadaşları (2008) kız öğrencilerin erkek öğrencilere oranla yaşlılara yönelik daha olumlu tutum gösterdiğini belirtmiştir.

Üniversite öğrencilerine ait cinsiyet, yaş, öğrenim görülen bölüm, öğrencilerin yaşlı ayrımcılığına ilişkin tutumları üzerinde etkili olduğu belirlenmiştir (Altun ve ark. 2020; Köse ve arkadaşları 2015). Yaşlılara yönelik olumlu bakışa sahip öğrencilerin okuduğu bölümler, genellikle yaşlı ile meslek hayatında sıklıkla karşılaşacak olan tıp, hemşirelik ve sosyal hizmet bölümü gibi bölümlerdir (Diego ve arkadaşları, 2008). Yapılan bir başka çalışmada öğrencilerin yaşadıkları yer, baba eğitim düzeyi, yaşlı ile aynı evde yaşama durumu, aile kurduktan sonra ebeveynleri ile yaşamayı isteme durumu ile yaşlıya yönelik tutumun değişmediği belirlenmiştir (Vefikuluçay 2008).

Toplum içerisinde bireylerin geçmişte, şu an ve gelecekte yapacağı katkılar ve değerlere önem verilerek yaşlanmaya karşı tutumun geliştirilmesi sağlanmalıdır. Bu dönem içerisinde yaşlılardan uzak durulmaması, onların toplum içerisinde saygın bir yerde bulunmalarının sağlanması, yaşlı ve genç popülasyonun birlikte çalışarak iş birliği yapmaları, güçlü ve üretken toplumlar oluşturulması açısından büyük önem taşımaktadır (Barn ve Cooper, 2017).

### SONUÇ

Üniversite öğrencilerine göre yaşlılar bakıma ihtiyacı olan kişiler olarak görülmektedir. Toplum içerisindeki farklı durumlar yaşlı bakımının ortaya çıkabileceğini göstermektedir. Ebeveynleri ile yaşamak istemeyen çocuklar ebeveynlerinin bakıma ihtiyaçları olduğunda bir kurumun bakımı ya da akrabalarından başkasının bakımını tercih edecekleri görülmektedir. Diğer akrabaların bakımı veya kurum bakımı da yaşlı birey ile aile içi ilişkiler açısından birçok sorun oluşturmaktadır. Yaşlı bakımının büyük bir oranla ülkemizde aile bireyleri tarafından yapıldığı görülmektedir. Üniversite öğrencilerinin yaşlılara bakış açısının genel olarak olumlu olduğu belirlenmiştir. Öğrencilerin ebeveynleriyle birlikte yaşamak istememeleri gelecek yıllar içerisinde kendi ebeveynlerinin bakımında kurumsal veya evde bakım hizmetlerine daha çok ihtiyaç duyulacağını göstergesi olarak görülmektedir.

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### PSYCHOLOGICAL INTERVENTIONS IN UNWANTED PREGNANCIES

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#### Abstract

Pregnancy can be an undesirable or at the wrong time experience in some cases. With the increased stress and anxiety in unwanted pregnancy situations, the quality of life of the woman may also be adversely affected. Globally, there are approximately 210 million pregnancies each year, approximately 40% of which are unwanted or unplanned pregnancies, of which only 38% have reached term. Unwanted pregnancies that threaten reproductive health cause voluntary abortions and this is an important problem in women's health and is one of the leading causes of death in women in the reproductive period. While sexual violence, low socio-economic status, inadequacy of family planning services or misuse of contraceptive method are found to cause unwanted pregnancies, it is stated that these pregnancies affect women's mental health. Unwanted pregnancies not only affect prenatal care routines during pregnancy, but also cause negative psychological changes such as fear, depression and anxiety in women, and affect maternal and child health. Since the pregnancy period, which is the transition phase to new roles and responsibilities, is a period of psychological changes, it can make it difficult to adapt to pregnancy in cases where pregnancy is not desired. There are various approaches such as mindfulness training, counseling, yoga, and positive psychology counseling to improve the quality of life of women with unwanted pregnancies. There are interventions to improve the happiness and well-being, psychological well-being, stress, anxiety, and depression levels of women with unwanted pregnancies. It is important to intervene early when the negative emotional states experienced by the woman during pregnancy may continue in the postpartum period and may affect mother-infant attachment. In order to prevent unwanted pregnancies, which is one of the health problems of women in childbearing period, necessary information and awareness trainings about family planning and contraceptive methods should be organized for couples.

**Keywords:** Unwanted Pregnancy, Woman, Psychological Intervention

#### Introduction

Although pregnancy is an event that affects the life of couples, it can sometimes be an unwanted or experience that occurs at the wrong time (Ameyaw, 2018; Sayehmiri et al., 2019; Shahry et al., 2016). Increased stress in unwanted pregnancies, risky behaviors, delayed antenatal care, and lack of seeking social support negatively affect women's quality of life (Ameyaw, 2018).

Globally, there are approximately 210 million pregnancies each year (WHO, 2012). Approximately 40% of pregnancies are unwanted or unplanned pregnancies, and only 38% of them have reached term (Sedgh et al., 2014). It has been reported that nearly half of all pregnancies worldwide are unplanned and 61% of these pregnancies result in curettage (Beearak et al., 2020). In another study, it was determined that 38% of pregnancies globally were unwanted pregnancies (Ikemari et al., 2013).



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The prevalence of unintended pregnancies in North African and Middle Eastern countries is estimated to vary between 15% and 58%, while it is 58% in Yemen, 38% in Palestine, and 23% in Egypt (Mohamed et al., 2019). According to TNSA 2018 data in our country, it was determined that 15% of the deliveries were not wanted, 11% were desired later, 2% of the first pregnancies and 42% of the four or more pregnancies were unplanned pregnancies (TNSA, 2018).

### **Unwanted Pregnancies and Family Planning**

Unwanted pregnancies are a problem that threatens reproductive health but are expressed as an unmet need in family planning (Öztürk and Okçay 2003). At the same time, unwanted pregnancies cause voluntary abortions, which is an important problem in women's health and is among the leading causes of death in women in the reproductive period (Şenoğlu et al., 2019; WHO, 2018). Unwanted pregnancies are related to reasons such as women's sociodemographic characteristics, economic status, being young, short birth intervals, and intimate partner violence (Kost and Lindberg, 2015). Previous in the study, reasons such as economic distress, baby pressure in the male gender, and misuse of the contraceptive product were determined in the occurrence of pregnancies of women who had unwanted pregnancies (Böttcher et al., 2019).

There are various study results in the literature between intimate partner violence and contraceptive use. In a systematic review and meta-analysis study conducted in the USA, close partner violence and contraceptive method use were found to be lower (Maxwell et al., 2015), while in another study it was found to be higher (Salazar et al., 2012). Kuhlmann et al. (2019) found that women who experienced intimate partner violence were more likely to use contraceptive products and report unwanted pregnancies.

Couples should be informed about family planning and contraceptive methods in order to prevent unwanted pregnancies, which are major health problems in medical, social, and social terms (Budak et al., 2015). Family planning aims to provide assistance and consultancy services to prevent unwanted pregnancies and consequently prevent maternal and infant deaths, and to have children whenever they want and as many children as they want (Gavas and İnal, 2019). In this context, it is very important for couples to have access to family planning methods whenever they want (Şenoğlu et al., 2019).

### **Mental Changes in Women in Unwanted Pregnancies**

Unwanted pregnancies are one of the most common reasons affecting the mental health of women in their reproductive years, and this can cause depression during pregnancy and postpartum period (Dibaba et al., 2013). Sexual violence, low socio-economic status, inadequate family planning services, or misuse of the contraceptive method cause unwanted pregnancies (Hayatbakhsh et al., 2011).

Unwanted pregnancies have negative effects on maternal and child health (Koyun et al., 2011; Durukan et al., 2011). It not only affects prenatal care routines during pregnancy but also causes negative mental changes such as fear, depression, and anxiety in women (Hayatbakhsh et al., 2011). At the same time, when the decision to terminate the pregnancy is taken, it causes the woman to experience feelings of guilt, regret, or loss (Koyun et al., 2011). In the study of Herd et al. (2016), it was determined that women with unwanted pregnancies were negatively affected mentally, and they could have higher depressive symptoms and more severe postpartum depression in the postpartum period. It is stated that since the possibility of encountering socio-psycho-stressors in unwanted pregnancy situations will increase, the support of the woman and the partner to each other may decrease, causing depression and low life satisfaction (Shahry et al., 2016; Dibaba et al., 2013). At the same time, it was found that women with unwanted pregnancies have more harmful behavioral habits and delay prenatal care (Orr et al., 2008), and are more affected by negative mental changes such as depression, anxiety, and suicide attempts (Vigod et al., 2010; Khajehpour. et al., 2013; Orr et al., 2008). When the literature was examined, it was found that it was associated with unintended pregnancies and maternal perinatal mental health (Abajobir et al., 2016; Ikamari et al., 2013; Yanikkerem et al., 2013). In a study conducted in Iran, it was found that unintended pregnancies can also cause physical problems, socio-economic, nutritional and family problems (Akbarzadeh et al., 2016). In addition, it has been determined that women are blamed by their partners for not using a safe contraceptive method and their relationships with their partners are weak (Akbarzadeh et al., 2016).



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The bond between mother and baby, which starts during pregnancy and continues in the postpartum period, is very important for the baby to continue his life physically, mentally and emotionally (Akarsu et al., 2017). Unwanted pregnancy is expressed as one of the most important factors affecting mother-infant attachment (Hassan and Hassan, 2017). Attachment behaviors provide the development of healthy lifestyle behaviors such as timely prenatal care and follow-up, nutrition, sleep, and exercise, together with the participation of the mother in actions that show the mother's emotional bonds to the fetus (Jangjoo et al., 2021). Mother-infant attachment is adversely affected in women who experience unwanted pregnancy (Elkin, 2015; Şahin and Bayri Bingöl, 2021).

### **Interventions for Unwanted Pregnancies**

Pregnancy, which is the transition phase to new roles and responsibilities, can make it difficult to adapt to pregnancy in cases where pregnancy is not desired (McCrorry and McNally, 2013; Abajobir et al., 2016). It has been determined that the emotional response of the woman to pregnancy and the level of happiness are effective in maintaining the pregnancy and adopting healthy lifestyle behaviors (Hagstrom and Wu, 2016; Barton et al., 2017).

Studies have reported that women with unwanted pregnancies have a lower quality of life than women with a desired pregnancy (Ali, 2016; Jamali et al., 2018; Gariepy et al., 2017). There are various approaches such as mindfulness training, counseling, yoga, and positive psychology counseling to improve the quality of life of pregnant women (Mostafaei et al., 2020; Li et al., 2016; Rakhshani, et al., 2010).

Positive psychological interventions focus on increasing the well-being, happiness, and positive emotions and cognition of individuals, and with the skills they develop, they support the individual to cope with negative events, negative moods, and environmental triggers that they may encounter in daily life (Uysal et al., 2021). In a study conducted to determine the effect of positive psychology-based interventions on happiness in women with an unwanted pregnancy, it was found that happiness levels increased significantly, and life satisfaction, self-esteem, and subjective well-being improved significantly (Rastad et al., 2021). Ekrami et al. (2019) determined that counseling given to women with unplanned pregnancies significantly decreased their depression and anxiety levels.

Unwanted pregnancies affect mother-infant attachment and this may cause psychologically negative consequences for both mother and baby (Shreffler et al., 2021). It is stated that women's adoption of the role of motherhood during pregnancy is effective in the formation of the bond between mother and baby in the postpartum period (Akarsu et al., 2017). In a study in which the mother-baby attachment-based education program evaluated anxiety and depression in women with unwanted pregnancies, no significant difference was found between the intervention and control groups in both variables (Mahmoudi et al., 2021). Jangjoo et al. (2021), on the other hand, in the intervention group with the awareness training program for mother-infant attachment in women with unwanted pregnancies, the attachment scores were found to be significantly higher than in the control group. In a randomized controlled study in which maternal attachment training was given, considering that the happiness and well-being levels of women with unplanned pregnancies were affected, the happiness level of the intervention group was found to be significantly higher than the control group at the end of the training (Hasanzadeh et al., 2020).

It is stated that awareness is to be able to look at the world with all five sense organs, and the Awareness-Based Stress Reduction Program is to teach the way to achieve this (Körükcü and Kukulcu, 2015). It is thought that mindfulness interventions focus on what is going on around individuals and their inner world in an unprejudiced and accepting way, contributing to psychological well-being (Arslan, 2018). It is also seen in various studies that awareness-based interventions are used in the perinatal period (Veringa et al., 2016; Pan et al., 2019; Avalos et al., 2020). In women with unwanted pregnancies, on the other hand, with the mindfulness-based stress reduction intervention for stress, anxiety and depression, a significant decrease in stress, anxiety, and depression was observed in the intervention group compared to the control group (Nejad et al., 2021).

The positive effects of Jacobson's progressive muscle relaxation exercises were observed in different sample groups such as anxiety, stress, pain, hypertension, and cardiovascular diseases (Togan et al., 2022; Zendehdel et al., 2022; Ozhanlı and Akyuz, 2022; Loh et al., 2022). It is stated that progressive





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muscle relaxation exercises are one of the psychotherapeutic methods for coping with stress, anxiety and depression (Jorm et al., 2008; Nasiri et al., 2018). Relaxation exercises that provide voluntary contraction and relaxation of the muscles are one of the cognitive behavioral treatment methods (McCallie et al., 2006). Since the mental health of women is negatively affected in undesired pregnancy situations, it is thought that progressive relaxation exercises may have an effect on changing mood and mental health (Surkan et al., 2018; Mokabrian et al., 2021). It has been determined that progressive muscle relaxation exercises based on the imagery in women with unwanted pregnancies can significantly improve women's mental health and mother-infant attachment (Mokabrian et al., 2021).

### Conclusion

Pregnancy affects the mental state along with physiological and hormonal changes. In cases where pregnancy is not desired, women experience depression, anxiety, stress and their quality of life is affected. It is important to intervene early, as the negative emotional states experienced by the woman during pregnancy may continue in the postpartum period, may affect mother-infant attachment and affect the mental state of the newborn. In order to prevent unwanted pregnancies, which is one of the health problems of women in childbearing period, necessary information and awareness trainings about family planning and contraceptive methods should be organized for couples. By organizing pregnancy preparation and pregnancy adaptation programs for all women in childbearing period, a protective effect can be achieved in the long-term mental health of both the mother and her baby.

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### SEYAHAT HİZMETİ REKABET GÜCÜ ANALİZİ: SEÇİLMİŞ ÜLKELER VE TÜRKİYE KIYASLAMASI

TRAVEL SERVICE COMPETITIVENESS ANALYSIS: SELECTED COUNTRIES AND TURKEY  
COMPARISON

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#### Özet

Turizm; doğru politikalarla pazarlanabilmesi halinde ülkelerin ekonomilerini olumlu etkileyebilecek, ödemeler dengesi üzerinde önemli etkileri bulunan görünmeyen ihracat kalemidir. Dış ticaret açıklarını azaltabilmek adına ihracat geliri sağlama kapasitesi güçlü olan önemli bir bileşendir. Bu kapsamda ekonomik önemi göz önüne alındığında, turizmin uluslararası rekabet gücünün değerlendirilmesi büyük önem taşımaktadır.

Bu bağlamda çalışmanın amacı, seyahat ve turizm sektörünün rekabet gücünü Türkiye ve seçilmiş ülkeler bazında analiz etmektir. Bu amaç doğrultusunda, 1984-2019 döneminde seyahat ve turizm sektörüne ait veriler seyahat hizmetleri kapsamında Türkiye Cumhuriyet Merkez Bankası ve Dünya Bankası veri tabanlarından elde edilmiştir. Dünya Turizm Örgütü'ne göre 2019 yılında seyahat ve turizm geliri en yüksek beş ülke (Amerika Birleşik Devletleri, İspanya, Fransa, Tayland, Birleşik Krallık) ve Türkiye'nin turizm sektöründeki rekabet gücü Açıklanmış Karşılaştırmalı Üstünlükler Endeksi (RCA), seyahat ve turizm gelirleri en yüksek beş ülke karşısındaki rekabet gücü ise Karşılaştırmalı İhracat Performans Endeksi (CEP) yardımıyla analiz edilmiştir. RCA endeksi ortalamasına göre, İspanya, Tayland ve Türkiye rekabet gücü ve karşılaştırmalı üstünlüğe sahiptir. CEP endeksi ortalamasına göre, Türkiye'nin Tayland ve İspanya haricinde diğer ülkeler karşısında rekabet üstünlüğüne sahip olduğu sonucuna ulaşılmıştır.

**Anahtar Kelimeler:** Turizm Sektörü, Seyahat Hizmeti, Rekabet Gücü, RCA, CEP.

#### Abstract

Tourism is an invisible export item that can positively affect the economies of countries if it is marketed with the right policies and has significant effects on the balance of payments. It is an important component with a strong capacity to provide export income in order to reduce foreign trade deficits. Considering its economic contributions, it is important to evaluate the competitiveness of tourism.

In this context, the aim of the study is to analyze the competitiveness of the travel and tourism sector on the basis of Turkey and selected countries. For this purpose, data on the travel and tourism sector in the 1984-2019 period were obtained from the Central Bank of the Republic of Turkey and the World Bank databases within the scope of travel services. According to the World Tourism Organization, the five countries with the highest travel and tourism revenues in 2019 (United States, Spain, France, Thailand, United Kingdom) and Turkey's competitiveness in the tourism sector Revealed Comparative Advantage Index (RCA), travel and tourism revenues competitiveness against the five highest countries was analyzed with the help of the Comparative Export Performance Index (CEP). According to the RCA index average, Spain, Thailand and Turkey have competitiveness and comparative advantage. According to the average of the CEP index, it was concluded that Turkey have a competitive advantage over other countries except Thailand and Spain.

**Keywords:** Tourism Sector, Travel Service, Competitiveness, RCA, CEP.



### Giriş

Yüksek girdi maliyetlerine ve ithal girdi kullanımına gerek duymadan düşük maliyetlerle yüksek katma değerli hizmetler sunabilme özelliği seyahat ve turizm sektörünü ülke ekonomileri için çekici kılmaktadır. Öte yandan ticaret ve turizm arasındaki nedensellik ilişkisinde öncelikle ev sahibi ülkenin sektöre yatırım yapma girişimleri ithal malzeme talebini arttıracak; ev sahibi ülkenin yaptığı yatırımlar ev sahibi ülkenin diğer ülkelerde bilinirliğine olumlu katkılar sağlayarak dış ticaretin gelişimini arttırmaya yardımcı olacaktır. Bu bağlamda turistlerin beraberinde getireceği döviz gelirleri sebebiyle ev sahibi ülkenin ihracat gelirleri artacaktır. Öte yandan, turistlerin seyahat etme kararı verirken, döviz kurlarına bakarak karar verdikleri düşünülmektedir. Reel döviz kurunun düşmesi, yerli mal ve hizmetleri, yabancı mal ve hizmetlere göre pahalılaştırarak ithalatı artırır, yükselmesi ise tersine yerli mal ve hizmetleri yabancı mal ve hizmetlere göre ucuzlatarak ihracatı teşvik eder. Bu açıdan bakıldığında ihracat gibi turizm sektörü de doğrudan reel döviz kuru ile ilişkilendirilebilir. Reel döviz kuru düşerse turizm talebi (döviz geliri) azalır, reel döviz kuru yükselirse turizm talebi (döviz geliri) artar denebilir. İnsanların başka yerler görme merakından ve boş zamanlarını değerlendirme arzularından doğan turizm, girdileri doğal, kültürel ve tarihi nitelikli olması sebebiyle diğer hizmet sektörlerine kıyasla dışa bağımlılığı görece az olan, ödemeler dengesi üzerinde önemli etkileri bulunan görünmeyen ihracat kalemidir. Bir ülkede turizm faaliyetleri gelişme gösterdiği müddetçe ülkenin döviz girdisi artacak, bu durum ülkenin dış ticaret dengesini ve dolayısıyla ödemeler bilançosunu olumlu etkileyecektir. Özellikle döviz gelirlerinin döviz giderlerini karşılamakta zorlandığı gelişmekte olan ülkeler için seyahat ve turizm sektörü, döviz darboğazının aşılması ve cari işlemler açığının azaltılması noktasında son derece önem verilen bir sektör olmuştur.

Dünya hizmet ihracatının %30'unu toplam mal ve hizmet ihracatının %7'sini oluşturan turizm, Dünya Turizm Örgütü'ne göre 150'den fazla ülkede döviz kazandıran ilk beş sektör arasında yer alırken, 60 ülkede de bir numaralı döviz geliri kaynağıdır (UNWTO,2020). Bu kapsamda ekonomik önemi göz önüne alındığında, seyahat ve turizm sektörünün uluslararası rekabet gücünü değerlendirmek büyük önem taşımaktadır. Bu bağlamda çalışmanın amacı, Türkiye ve seçilmiş ülkeler için seyahat ve turizmde rekabet gücünü seyahat hizmetleri çerçevesinde analiz etmektir. Bu amaç doğrultusunda Dünya Turizm Örgütü'ne göre 2019 yılında seyahat ve turizm geliri en yüksek beş ülke (Amerika Birleşik Devletleri, İspanya, Fransa, Tayland, Birleşik Krallık) ve Türkiye'nin seyahat ve turizm sektöründeki rekabet gücü Açıklanmış Karşılaştırmalı Üstünlükler Endeksi (RCA), seyahat ve turizm gelirleri en yüksek beş ülke karşısındaki rekabet gücü ise Karşılaştırmalı İhracat Performans Endeksi (CEP) yardımıyla analiz edilmiştir.

Rekabet gücü hakkında bir değerlendirme yapabilmek için öncelikle rekabet gücü kavramının neyi ifade ettiğini ortaya koymak gerekmektedir. Bu bağlamda, çalışmanın birinci bölümünde rekabet gücü kavramı ve rekabet gücü endeksleri hakkında genel bilgiler verilmesinin ardından, ikinci bölümde RCA ve CEP endeksleri konusunda gerek dünya gerekse Türkiye literatüründe yer alan araştırma örneklerine yer verilmektedir. Çalışmanın üçüncü bölümü 1984-2019 dönemi verileri ışığında elde edilen bulguları ve analiz sonuçlarını kapsamaktadır. Bulgulardan hareketle Türkiye turizm sektöründe rekabet gücünün iyileştirilmesine ilişkin politika önerileri ile çalışma sonlandırılmaktadır.

### 1. Rekabetçilik Kavramı ve Rekabet Gücü

İnsanoğlunun istekleri sınırsızdır. Ancak sorun şu ki, ilkel çağlardan teknoloji çağına kadar uzanan günümüzde doğanın kaynakları hızla tükenmektedir. Dolayısıyla asıl mesele insanların sınırsız isteklerinin, her geçen gün hızla tükenmeye devam eden sınırlı kaynaklarla nasıl karşılanabileceğidir. İktisat biliminin temeli istekler ile kaynaklar arasındaki dengenin kurulmasını sağlayarak, bireylerin refah seviyelerini artırabilmektir. Refah, mevcut koşullar altında hayat kalitesinin iyileştirilmesi ve hayat kalitesindeki iyileşmenin sürdürülebilirliğinin sağlanması biçiminde yorumlanacak olursa, rekabet gücü ile refah seviyesinin birbiriyle ilintili kavramlar olduğunu söylemek yanlış olmayacaktır. Bu bağlamda bir ülkede rekabet gücüne sahip olmanın ana amacı, ülkedeki yaşam standartlarını iyileştirmek ve ülke vatandaşlarının refah artışını sağlamaktır.

Serbest piyasa koşulları altında, ulusal sınırların önemsenmediği bir ortamda ülke ekonomilerinin giderek birbirleriyle entegre olması şeklinde tanımlanabilecek olan küreselleşme, rekabet gücü kavramının ön plana çıkmasında etkindir. Üretim faktörlerinin serbest dolaşımına, müşteri



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memnuniyetine, teknolojik ilerlemelere, ölçek ekonomilerinin avantajlarından yararlanabilmeye imkan tanıyan küreselleşme süreci; üretici ve tüketici arasındaki coğrafi sınırların kaldırılmasının önünü açmıştır. Dünya ekonomisinde bir dönüm noktası olan küreselleşme süreci sonrasında firmalar; uluslararası rekabette başarılı olmak, dünya ekonomisinde mevcudiyetini korumak ve söz sahibi olabilmek adına iktisadi faaliyetlerinde rekabet gücünü sürdürülebilmeye yönelik politikalar geliştirmeyi tercih etmişlerdir. Rekabet gücünü tercihlerinin merkezine koymayan firmalar ise zaman içerisinde dünya piyasasında rekabet edebilme gücünü kaybetme tehlikesiyle karşı karşıya kalabilir.

Rekabet gücünün son derece ön planda olduğu coğrafi sınırların ortadan kalktığı, tüketici tercihlerinin her geçen gün daha çeşitli ve daha karmaşık olduğu, geleneksel üretim yöntemlerinin yerini yüksek teknolojiye üretim yöntemlerine bıraktığı bir dünya ekonomisinde rekabet gücünün doğru olarak tanımlanabilmesi doğru rekabet politikalarının geliştirilebilmesi açısından oldukça önemlidir. Ancak sorun şu ki; rekabet statik değil, dinamik bir olgudur. Zamana duyarlı, değişime ve dönüşüme açıktır. Rekabetin bu özellikleri de genel-geçer kabul görmüş tek bir tanım yapılabilmesini zorlaştırmaktadır. Literatürde rekabetçilik konusunda pek çok tanımlama yapılmaktadır. Örneğin Krugman'a göre (1994), bir ülkenin yaşam standartlarını artırmasının yolu verimliliğini artırabilmesine bağlı olduğundan, eğer rekabetçiliğin bir tanımı yapılacaksa bu, üretkenliğin bir başka yolu biçiminde ifade edilmektir. Rekabet gücünü kapsamlı bir şekilde ele alan ve ulusların belirli endüstrilerde neden rekabet avantajı elde ettiğini ve rekabet avantajının ulusal ekonomiler üzerindeki etkilerini araştıran Porter (1990:76) rekabetçiliği ulusal verimlilik ile ilişkilendirmektedir. Bu bağlamda; "Verimlilik, bir birim emek veya sermaye tarafından üretilen çıktının değeridir. Verimlilik, bir ulusun uzun vadeli yaşam standardının başlıca belirleyicisidir. Bir ulusun yaşam standardı, zaman içinde üretkenliği artırabilmesine bağlıdır. Dolayısıyla bir ulus, yaşam standardını iyileştirmek amacıyla daha üretken olduğu endüstrilerde ve sektörlerde uzmanlaşmak daha az üretken olduğu endüstrilerde ve sektörlerde ithalat yapmak suretiyle rekabet gücü elde edebilmektedir. Hiçbir ulus her şeyde rekabetçi olamaz. İdeal olan, ülkenin sınırlı kaynaklarını verimli kullanımlara dağıtmaktır". vurgusu yapmaktadır. Destinasyon rekabetçiliği üzerine çalışmaları bulunan Dwyer ve Kim (2003), rekabetçiliğin hem mikro hem de makro olarak tanımlandığını belirtmiştir. Makro anlamda rekabetçiliği ulusal düzeyde mikro anlamda rekabetçiliği ise firma düzeyinde tanımlamaktadır. Bu bağlamda makro anlamda rekabetçiliği; serbest piyasa koşulları altında bir ülkenin mal ve hizmet üretmesi, aynı zamanda toplumun reel gelirini koruması ve iyileştirmesi olarak tanımlamaktadır (Dwyer ve Kim, 2003). Firmaya özgü davranışların ve bunların sürdürülebilirliğinin rekabet gücünü belirlediğini belirten Dwyer ve Kim mikro anlamda rekabetçiliği, sektörün çekiciliğini ve firmanın alıcılar ve tedarikçiler karşısındaki gücünü artırma potansiyeli olarak tanımlamaktadır (Dwyer ve Kim, 2003). Dünya Ekonomik Forumu (WEF) tarafından hazırlanan "Küresel Rekabet Edebilirlik Endeksi 2014-2015: Üretken İşler Yaratmak ve Kapsayıcı Büyümeyi Desteklemek için Güçlü Bir İyileşmeyi Hızlandırma (The Global Competitiveness Index 2014-2015: Accelerating a Robust Recovery to Create Productive Jobs and Support Inclusive Growth)" adlı raporda rekabetçilik "bir ülkenin üretkenlik düzeyini belirleyen kurumlar, politikalar ve faktörler bütünü" biçiminde tanımlanmaktadır (WEF, 2014). Ekonomik İş Birliği ve Kalkınma Örgütü (OECD) tarafından hazırlanan "Yeni Bakışaçıları Altında Rekabetçilik (Competitiveness under New Perspectives)" adlı raporda rekabetçiliği, "bir ülkenin (bölge, konum) vatandaşları için GSYİH'nın ötesindeki hedefleri gerçekleştirme yeteneği" biçiminde tanımlamaktadır (OECD,2013).

Yukarıdaki açıklamalar rekabetçilik konusunda literatürde yeknesak bir tanımın olmadığını göstermektedir. Buna ek olarak, yapılan tanımlamalarda verimlilik, üretkenlik, ulusallık, firma, sektör, ülke, serbest piyasa koşulları, yaşam standardı gibi terimlere yer verildiği görülmektedir. Bu terimlerin rekabetçiliğin farklı boyutlarına işaret ettiği yorumu yapılabilir. Bu tanımlamalardan hareketle rekabet gücü; serbest piyasa koşulları altında firmaların, sektörlerin ve/veya ülkelerin rakiplerine kıyasla daha düşük maliyetle ve daha verimli üretim yaparak uluslararası piyasalarda hakim olabilmek ve ülke vatandaşlarının refah seviyesini yükseltebilme gücü olarak ifade edilebilir. Bir sektörde rekabetçi konuma sahip olabilmek amacıyla geliştirilecek politikalarından doğru sonuçlar elde edebilmek adına rekabetçiliğin farklı boyutlarını dikkate almak gerektiği unutulmamalıdır.

### 2. Rekabet Gücü Konusuna İlişkin Tartışmalar

İktisat literatüründe sektörün rekabet gücüne ilişkin bilinen ilk tartışmaların Adam Smith'in mutlak üstünlük teorisi ile başladığı söylenebilir. Her ülke; Smith'e göre, mutlak üstünlüğe sahip olduğu,





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Ricardo'ya göre karşılaştırmalı üstünlüğe sahip olduğu ürünleri üretmeye ve ihraç etmeye odaklanmalıdır. Dolayısıyla rekabetçilik konusunda fikir birliği sağlanan tek bir tanımlama olmadığı gibi rekabet gücü konusunda fikir birliği sağlanan tek bir teori ve rekabet gücünün ölçülmesinde de tek bir yöntem bulunmamaktadır. Firma, sektör ve ülke düzeyinde rekabet gücünü ölçen pek çok yöntem bulunmaktadır.

Sektör düzeyinde rekabet gücünü ölçen endekslerden en çok tercih edilen yöntem Bela Balassa'nın (1965) "*Trade Liberalisation and Revealed Comparative Advantage*" adlı çalışmasında yer alan ve "Balassa Endeksi" olarak da bilinen Açıklanmış Karşılaştırmalı Üstünlükler Endeksi (Revealed Comparative Advantage Index-RCA)'dir. RCA endeksi bir ülkenin belirli sektördeki rekabet gücünü ölçmektedir. Donges ve arkadaşları tarafından 1982 yılında kaleme alınan "*The Second Enlargement of The European Community : Adjustment Requirements and Challenges for Policy Reform*" adlı çalışmada yer alan Karşılaştırmalı İhracat Performans Endeksi (Comperative Export Performance Index-CEP), rekabet gücünün ölçülmesinde tercih edilen bir diğer yöntemdir. CEP endeksi bir ülkenin belirli bir sektördeki rekabet gücünün ülkeler arasında karşılaştırmalı analizine imkan vermektedir. Bu bağlamda literatürde RCA ve/veya CEP endeksi kullanılarak sektörlerin rekabet gücüne ilişkin değerlendirmelere yer veren birçok çalışma olduğu bilinmektedir. Aşağıda RCA ve/veya CEP endeksi kullanılarak gerçekleştirilen rekabet gücü analizlerinden bazılarına ait gözlemler yer almaktadır:

Yeats (1985) RCA indeksinin özelliklerinin ayrıntılı bir analizini içeren çalışmasında, bu temel özellikleri incelemek için 47 gelişmiş ve gelişmekte olan ülkedeki 129 endüstri için 1976-1978 dönemine ait tahmini veriler ile hesaplanan RCA endeksi değerlerini kullanmıştır. Sonuçlar, geleneksel bir şekilde kullanıldığında endeksin bir ülkenin açıklanmış karşılaştırmalı üstünlüğünü ölçme noktasında güvenilir olmadığı, hükümet politikası veya uluslararası firmaların rekabet gücü üzerindeki etkisi gibi hususları da dikkate alan yeni bir yaklaşımla RCA analizi yapılması yönündedir.

Webster ve arkadaşları (2007) uluslararası turizmin nicel bir ticaret analizini yapmak ve uluslararası ticaretin temel teorik yönlerini ölçmeye yönelik tekniklerin uluslararası turizme ne ölçüde uyarlanabildiğini test etmek amacıyla gerçekleştirdiği çalışmasında, RCA ve IIT endekslerini kullanmayı tercih etmiştir. 49 ülkeden oluşan bir örneklem için 2000-2003 dönemi yıllık verileri kullanılmıştır. Sonuçlar; uluslararası ticaretin hem teorisini hem de ampirik tekniklerini kullanmanın, uluslararası turizmi ilerletmede katkı sağladığı yönündedir. Çalışmadaki bir diğer sonuç; analize konu ülkelerden bazılarının uluslararası turizmin hem "ihracatçısı" hem de "ithalatçısı" olarak uzmanlaştığı, bu tür uzmanlaşma modellerinin belirleyicilerinin, uluslararası ticaret teorisi tarafından tanımlananlarla benzer nitelikte olduğudur.

Toith ve arkadaşları (2010) çalışmasında, NRCA endeksini kullanarak 146 ülkenin seyahat hizmetleri ihracatında hangi ülkelerin karşılaştırmalı üstünlüğe sahip olduğunu belirlemektedir. 2005 yılı verilerini kullanarak gerçekleştirdiği analize göre; ABD, İspanya, Türkiye ve Fransa rekabet gücü "çok güçlü" kategorisine giren ülkelerdir. İtalya, Avustralya ve İsviçre gibi gelişmiş ekonomiler; Mısır, Güney Afrika ve Tayland gibi gelişmekte olan ekonomiler; Kıbrıs, Bahamalar ve Makao Özel İdari Bölgesi gibi ada ülkeleri "güçlü" bir karşılaştırmalı avantaj ortaya koyan ülkelerdir.

Granabetter (2016) çalışmasında, RCA endeksini kullanarak Avusturya'nın doğusundaki Burgenland Eyaleti ihracatının rekabet gücünü analiz etmiştir. Çalışmada Statistik Avusturya ve Avusturya Ekonomi Odası tarafından derlenen 99 ürün grubu ve 197 ülke için 2010-2014 yılı verileri kullanılmıştır. Tarım ürünleri, kamış, tahıllar, yağlı tohumlar, saman gibi ürünlerde rekabet gücü elde ettiği belirtilmiştir. Gıda sektörü, endüstriyel üretim (otomobil ve ilaç) ve mücevherat sektörlerinin rekabetçilik konusunda gelecek vaad ettiği vurgusu yapılırken, tekstil, cam ve cam eşya, pamuk, seramik ve değirmen ürünleri gibi ürün gruplarında ise rekabet gücünün düşük olduğu belirtilmiştir. Öte yandan çalışmada dikkat çeken bir başka husus; Burgenland Eyaleti'nin şaraplarının dünyaca ünlü olduğu, ancak eyaletin şarap endüstrisinde rekabet avantajına sahip olmadığı vurgusudur.

Kuşat (2019) çalışmasında, RCA ve CEP endeksini kullanarak Türkiye ve 2016 yılı itibarıyla turizm gelirleri en yüksek 5 ülkenin (Amerika, İspanya, Tayland, Çin, Fransa) turizm sektöründeki rekabet gücünü analiz etmiştir. 2012-2016 dönemi verilerini kullanarak gerçekleştirdiği analizde turizm faaliyetleri ana başlığı altında yer alan turizmin alt faaliyet dallarından bazıları da analize dahil edilmiştir. Çalışma sonuçlarına göre, Amerika, İspanya, Tayland, Fransa ve Türkiye dünya turizm



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sektöründe rekabet avantajına sahip ülkelerdir. Bunun yanı sıra Türkiye'nin yalnızca Tayland karşısındaki ihracat performansının düşük olduğu da çalışmada yer verilen bir diğer sonuçtur. Sağlık turizminde rekabet avantajı elde eden Türkiye'nin iş amaçlı turistik faaliyetlerde 2013 ve 2014 yılları dışında rekabet avantajı elde edemediği de çalışma da vurgulanmaktadır.

Jeiang ve Lin (2020) çalışmasında, IMS endeksi, RCA endeksi ve TC endeksini kullanarak Çin'in hizmet ticaretinin uluslararası rekabet gücünü analiz etmektedir. 1990-2016 dönemini kapsayan bu çalışmada sonuçlar; Çin'in hizmet ticaretinde uluslararası rekabet gücünün genel anlamda zayıf olduğu ancak söz konusu rekabet gücünün son 20 yılda artış gösterdiği yönündedir. Uluslararası rekabet gücü, inşaat ve iletişimde daha yüksek seviyelerde iken finans, sigorta ve patentler ve telif hakları gibi sermaye ve teknoloji yoğun endüstrilerde rekabet avantajı sağlayamadığı, kaynak yoğun turizmin uluslararası rekabet gücünün ise, 2010 yılından bu yana rekabet avantajından rekabet dezavantajına dönüştüğü belirtilmektedir.

Hizmet sektörünün rekabet gücü analizine odaklanan çalışmaların sınırlı sayıda olduğu, hizmet sektörü odaklı çalışmalarda ise veri setinin kısıtlı olduğu görülmektedir. 35 yıllık bir veri seti ile seyahat ve turizm sektörünün rekabet gücünü araştıran bu çalışmanın literatürdeki diğer örneklerinden ayrışabileceği düşünülmektedir.

### 3. Veri Seti ve Yöntem

Çalışmanın amacı, seyahat ve turizm sektörünün rekabet gücünü Türkiye ve seçilmiş ülkeler bazında analiz etmektir. Bu, amaç doğrultusunda, 1984-2019 döneminde seyahat ve turizm sektörüne ait veriler Türkiye Cumhuriyet Merkez Bankası ve Dünya Bankası veri tabanlarından elde edilmiştir. Bu noktada seyahat ve turizm gelirlerinin hesaplama yöntemine ilişkin önemli bir hususa vurgu yapmak gerekmektedir. Türkiye Cumhuriyet Merkez Bankası Ödemeler Bilançosu 6. El Kitabı'nda yer alan turizm geliri verilerinin seyahat hizmetleri, uluslararası taşımacılık hizmetleri ve GSM dolaşım harcamaları bileşenlerinin toplamından oluştuğu bilinmektedir (TCMB,2022). Ancak ülkelerin "GSM dolaşım harcamaları" bileşenine ait yeterince veri elde edilememesi nedeniyle çalışmada 1984-2019 döneminde seyahat ve turizm sektörüne ait veriler yalnızca seyahat hizmetleri kapsamındadır.

Dünya Turizm Örgütü'ne göre (UNWTO,2022) 2019 yılında turizm geliri en yüksek beş ülke (Amerika Birleşik Devletleri, İspanya, Fransa, Tayland, Birleşik Krallık) ve Türkiye'nin seyahat ve turizm sektöründeki rekabet gücü Açıklanmış Karşılaştırmalı Üstünlükler Endeksi (RCA), turizm gelirleri en yüksek beş ülke karşısındaki rekabet gücü ise Karşılaştırmalı İhracat Performans Endeksi (CEP) yardımıyla analiz edilmiştir. Seyahat ve turizm gelirinde en yüksek payı alan beş ülke ile Türkiye'nin 2019 yılı itibarıyla elde ettiği sektör gelirleri Tablo 1'de yer almaktadır.

Tablo 1. 2019 yılında seyahat ve turizm gelirleri en yüksek 5 ülke ve Türkiye

Seyahat ve Turizm Gelirleri		
Sıralama	Ülke	Turizm gelirleri (milyar\$)
1	Birleşik Devletler	193,3
2	İspanya	79,7
3	Fransa	63,8
4	Tayland	59,8
5	Birleşik Krallık	52,7
<b>14</b>	<b>Türkiye</b>	<b>29,8</b>

Kaynak: UNWTO (2022), <https://www.unwto.org/tourism-data/country-profile-inbound-tourism> sayfasından erişilmiştir (14.08.2022.).

Tablo 1 turizm gelirleri açısından incelendiğinde 2019 yılında dünya ekonomisinde seyahat ve turizm gelirleri en yüksek 5 ülkenin sektörden elde ettiği toplam gelir, dünya genelinde 2019 yılında sektörden elde edilen toplam 1.483,4 milyar dolar gelirin %31'ine karşılık gelmektedir. Öte yandan 2019 yılında 193,3 milyar dolar gelir ile Birleşik Devletler seyahat ve turizm gelirleri sıralamasında ilk sırada yer almaktadır. Dünya Turizm Örgütü 2019 yılı verilerine göre 14. sırada yer alan Türkiye'nin sektörden



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elde ettiği gelir; 5 ülkenin sektörden elde ettiği toplam 449,3 milyar dolar gelirin % 6,63'ü, dünya genelinde elde edilen toplam gelirin ise yalnızca %2'si kadardır.

Balassa'nın 1965 yılında geliştirdiği Açıklanmış Karşılaştırmalı Üstünlükler Endeksi, bir ülkedeki hangi sektörlerde rekabet avantajı veya dezavantajı olduğunu belirlemek amacıyla gerçekleştirilen hesaplamalarda yaygın olarak kullanılan bir yöntemdir. Çalışmada da tercih edilen RCA endeksi katsayıları aşağıdaki formül yoluyla hesaplanmaktadır (Balassa, 1989):

$$RCA_{ij} = \frac{X_{ij}}{\sum X_j} \bigg/ \frac{X_{wi}}{\sum X_w}$$

Denklemden yer alan  $RCA_{ij}$ ; j ülkesinin i endüstrisindeki açıklanmış karşılaştırmalı üstünlükler endeksini temsil ederken,  $X_{ij}$ ; j ülkesinin i malı ihracatı,  $X_j$ ; j ülkesinin toplam ihracatı,  $X_{wi}$ ; i malı dünya ihracatı,  $X_w$ ; toplam dünya ihracatı olarak ifade edilmektedir. RCA yaklaşımı; bir ülkenin belirli bir mal ihracatındaki payı, o malın dünya ihracatındaki payından daha büyükse, o ülkenin o malın ihracatında açıklanmış karşılaştırmalı üstünlüğe sahip olduğunu savunmaktadır (Hamilton ve Svensson, 1984). Dolayısıyla bir ülkenin belirli bir malın ihracatında rekabet gücüne sahip olması için  $RCA_{ij} > 1$  olmalıdır. Rekabet avantajına sahiptir.  $RCA_{ij} < 1$  ise bir ülke belirli bir malın ihracatında rekabet avantajına sahip değil demektir.

Donges ve arkadaşlarının 1982 yılında geliştirdiği Karşılaştırmalı İhracat Performans Endeksi, bir ülkedeki belirli bir malın rakip ülke karşısındaki rekabet gücünü ölçmeye ve ülkelerin belirli mal gruplarındaki rekabet gücünü karşılaştırmaya olanak tanımaktadır. Çalışmada da tercih edilen bir diğer endeks olan CEP endeksi katsayıları aşağıdaki formül yoluyla hesaplanmaktadır (Donges vd., 1982):

$$CEP_{ij} = \frac{X_{ij}}{X_{ir}} \bigg/ \frac{\sum X_j}{\sum X_w}$$

Denklemden yer alan  $CEP_{ij}$ ; j ülkesinin i endüstrisindeki karşılaştırmalı ihracat performans endeksini temsil ederken,  $X_{ij}$ ; j ülkesinin i malı ihracatı,  $X_{ir}$ ; j ülkesinin rakibi olan ülkenin i malı ihracatı,  $X_j$ ; j ülkesinin toplam ihracatı,  $X_r$ ; r ülkesinin toplam ihracatı olarak ifade edilmektedir. Bir ülkenin belirli bir mal ihracatında rakiplerine karşı rekabet üstünlüğü elde ettiği, yorumunu yapabilmek için  $CEP_{ij} > 1$  olmalıdır. Başka bir deyişle ülkenin belirli bir mal için ihracat performansı yüksektir.  $CEP_{ij} < 1$  ise bir ülke belirli bir malın ihracatında rakiplerine karşı rekabet üstünlüğüne sahip değil demektir. Başka bir deyişle ülkenin belirli bir mal için ihracat performansı düşüktür.

Endeks değerleri hizmet sektörüne uygun olacak şekilde yeniden düzenlenmiştir. Bu bağlamda endekslerde Türkiye, seçilmiş ülkeler (Amerika Birleşik Devletleri, İspanya, Fransa, Tayland, Birleşik Krallık) ve dünya için i malı yerine seyahat hizmetleri ihracat gelirleri; toplam ihracat gelirleri yerine toplam hizmet ihracat gelirleri kullanılmıştır.

#### 4. Bulgular

Hizmet türüne göre hizmet ithalatı ve hizmet ihracatına ilişkin veriler derlenirken Ekonomik İşbirliği ve Kalkınma Örgütü (Organisation for Economic Co-operation and Development-OECD) tarafından hazırlanan Genişletilmiş Ödemeler Dengesi Hizmetleri Sınıflandırması (Extended Balance of Payments Services Classification –EBOPS) esas alınmaktadır. Bu kapsamda seyahat ve turizm sektörüne ilişkin RCA ve CEP endeks katsayılarının 1984-2019 dönemi ortalama değerlerine ait bulgular Tablo 2'de, yer almaktadır.

Tablo 2. 1984-2019 dönemi için RCA ve CEP endeksi ortalama değerleri

Türkiye	Fransa		İspanya		Birleşik Krallık		Birleşik Devletler		Tayland	
RCA	RCA	CEP	RCA	CEP	RCA	CEP	RCA	CEP	RCA	CEP
1,74	0,95	1,80	2,08	0,83	0,62	3,05	0,99	1,79	2,16	0,81



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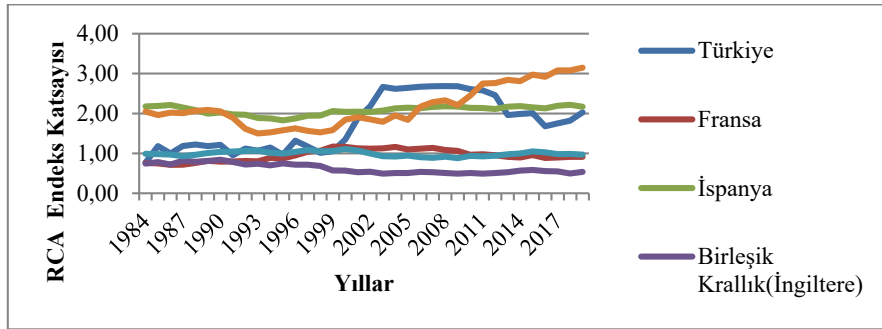
Kaynak: TCMB ve Dünya Bankası veri tabanlarından elde edilen veriler derlenerek hesaplanmıştır.

Tablo 2’de yer alan RCA endeksi sonuçlarına göre;  $RCA > 1$  olduğu için Tayland, İspanya ve Türkiye seyahat hizmetlerinde rekabet avantajına sahiptir. RCA değeri 1’den ne kadar büyükse ülkenin sektördeki rekabet avantajının da o oranda arttığı düşünüldüğünde; örneklem içerisinde seyahat ve turizm sektöründe rekabet avantajına sahip olan İspanya ve Tayland’a kıyasla Türkiye, sektörde rekabet avantajı en düşük olan ülkedir. Öte yandan Birleşik Devletler ve Fransa 2019 yılı seyahat ve turizm gelirleri sıralamasında ilk iki sırada yer almaktadır. Ancak Birleşik Krallık gibi Fransa ve Birleşik Devletler açısından da  $RCA < 1$  olduğu için bu üç ülkenin sektörde rekabet avantajı söz konusu değildir. Dünya Bankası 2019 yılı verilerine göre Birleşik Devletlerin hizmet ihracatı payı toplam dünya ihracatının yalnızca %34’ünü karşılamaktadır. (databank.worldbank.org). Başka bir deyişle Birleşik Devletler uluslararası ticarete hizmet ihracatından ziyade mal ihracatı ile ön plana çıkmaktadır. Dolayısıyla Birleşik Devletler’in seyahat ve turizm sektöründe rekabet avantajı sağlayamaması beklenmedik bir sonuç olmamıştır.

Tablo 2’de yer alan CEP endeksi sonuçlarına göre;  $CEP > 1$  olduğu için Türkiye 2019 yılı itibariyle seyahat ve turizm gelirleri en yüksek 5 ülke arasından Tayland ve İspanya haricindeki diğer ülkeler karşısında rekabet avantajına sahiptir. Başka bir deyişle, Türkiye’nin İspanya ve Tayland karşısındaki ihracat performansı yüksek değildir.

Seyahat ve turizm sektörü için 1984-2019 dönemine ait RCA ve CEP endeks katsayılarının yıllar itibariyle seyrine ilişkin bulgular sırasıyla Şekil 1’de ve Şekil 2’de yer almaktadır.

Şekil 1’de görüldüğü üzere Türkiye yalnızca 1984, 1991 ve 1995 yıllarında rekabet avantajına sahip değildir ( $RCA < 1$ ). 2002-2012 yılları arasındaki on yıllık dönem ile 2015 ve 2019 yıllarında Türkiye’nin sektördeki rekabet avantajı daha yüksektir. Fransa sektörde rekabet avantajı elde edememiş olmasına rağmen, 1997-2009 döneminde sektörde rekabet avantajına sahip ülke konumundadır ( $RCA > 1$ ). İspanya’nın 1991-1998 yılları arasındaki 7 yıllık dönemi rekabet avantajında düşüşler yaşadığı bir dönemdir. Çalışma kapsamındaki 35 yıllık dönemde sektörde Birleşik Krallık’ın hiçbir zaman rekabet avantajı sağlayamamış olması dikkat çekici bir husustur. Seyahat ve turizm sektöründe rekabet avantajı en yüksek ülke olma özelliğini taşıyan Tayland, 1985 yılı ile 1991-2005 dönemi için sektördeki rekabet avantajında düşüşler yaşamıştır. Birleşik Devletler (ABD) 1989-2002 yılları arasında ve 2014, 2015, 2016 yıllarında sektörde rekabet avantajı elde etmiştir.



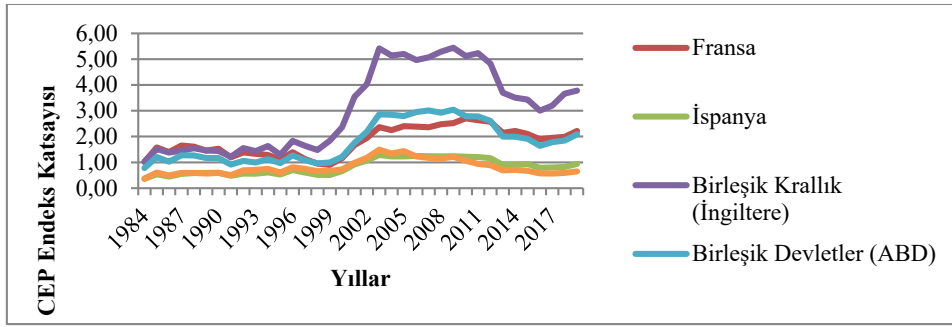
Şekil 1. 1984-2019 Dönemi için RCA Endeksi

Kaynak: TCMB ve Dünya Bankası veri tabanlarından elde edilen veriler derlenerek hesaplanmıştır.

Şekil 2’de görüldüğü üzere Türkiye ile Birleşik Krallık arasında hesaplanan CEP endeks değerinin 5’in üzerinde olduğu yıllar dikkat çekmekte olup, Türkiye’nin sektörde en yüksek ihracat performans üstünlüğünü Birleşik Krallık karşısında elde ettiğini söylemek yanlış olmayacaktır. Birleşik Krallık’ın ardından Türkiye’nin sırasıyla Fransa ve Birleşik Devletler karşısındaki sektörel ihracat performansı yüksektir.



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Şekil2. 1984-2019 dönemi için Türkiye'nin Seçilmiş Ülkeler Karşısındaki CEP Endeksi

Kaynak: TCMB ve Dünya Bankası veri tabanlarından elde edilen veriler derlenerek hesaplanmıştır.

### Sonuç

İnsanların başka yerler görme merakından ve boş zamanlarını değerlendirme arzularından doğan turizm, girdileri doğal, kültürel ve tarihi nitelikli olması sebebiyle diğer hizmet sektörlerine kıyasla dışa bağımlılığı görece az olan bir sektördür. Dünya Turizm Örgütü'ne göre birçok gelişmekte olan ekonomi için en büyük ihracat kategorisi olarak nitelendirilen seyahat ve turizm, 49 az gelişmiş ülkeden 23'ünde döviz kazandıran ilk üç sektör arasındadır (UNWTO, 2020). Emek yoğun hizmet sektörlerinden biri olan seyahat ve turizm sektörü yalnızca döviz darboğazının aşılmasına ve milli gelire katkı sağlamasıyla değil, istihdama katkı sağlamasıyla da dikkat çekmektedir. WTTC(2021)'nin raporuna göre seyahat ve turizm sektörü 2019 yılında dünya ekonomisine 334 milyon istihdam imkanı sağlamıştır.

Tarih boyunca farklı medeniyetlere ev sahipliği yapmış, doğu ile batı kültürleri arasında köprü niteliğinde bir ülke olma özelliğini taşıyan Türkiye turizm kaynakları yönünden oldukça zengin ve köklüdür. Bu bağlamda seyahat ve turizm sektörü Dünya ekonomisi için olduğu kadar Türkiye ekonomisi açısından da son derece önemli bir sektördür. Dünya Turizm Örgütü verilerine göre 2019 yılı itibariyle sektörün toplam hizmet ihracatı içerisindeki payı (% 65) taşımacılık hizmetlerinden sonra (%71,1) ikinci sıradadır. Veriler incelendiğinde, sektörün 2019 yılı itibariyle 1,6 milyon kişiye istihdam imkanı sunduğu da gözlemlenmektedir.

Ekonomik önemi göz önüne alındığında, turizmin uluslararası rekabet gücünün değerlendirilmesi büyük önem taşımaktadır. Rekabet gücü analizi konusunda literatürdeki çalışmaların genellikle mal sektörüne odaklandığı dikkat çekmektedir. Hizmet sektörü odaklı çalışmaların ise veri setinin yeterince geniş olmadığı anlaşılmıştır. 1984-2019 dönemini kapsayan 35 yıl gibi geniş bir veri setinin kullanıldığı bu çalışmanın, seyahat ve turizm sektörünün rekabet gücü analizine dair literatürdeki diğer çalışmalardan ayrıştığı düşünülmektedir. Dünya Turizm Örgütü verileri çerçevesinde derlenen ve 2019 yılı itibariyle seyahat ve turizm gelirleri en yüksek beş ülke ile Türkiye'nin karşılaştırmalı rekabet gücü analizini kapsayan bu çalışma sonucuna göre, Türkiye turizm sektöründe rekabet avantajına sahiptir. Ancak Türkiye'nin rekabet avantajı (RCA=1,74) Tayland'a (RCA=2,16) ve İspanya'ya (RCA=2,08) göre daha düşüktür. Öte yandan 2019 yılı itibariyle seyahat ve turizm gelirleri en yüksek beş ülke karşısında Türkiye'nin sektördeki rekabet gücünün de analiz edildiği çalışmada hesaplanan CEP endeksi sonuçları RCA endeksi sonuçları ile benzeşmektedir. Bu bağlamda seyahat ve turizm sektöründe Türkiye, Tayland ve İspanya karşısında rekabet avantajı sağlayamamıştır. Rekabetin öneminin her geçen gün arttığı küreselleşen dünya ekonomisinde, ülkelerin sahip olduğu turistik ürünler ülkelerin sektördeki rekabet gücünü etkileyen bir faktördür. Turistik ürünler açısından düşünüldüğünde; Türkiye gibi gelişmekte olan ülke grubunda yer alan Tayland sağlık turizminde ön plana çıkmaktadır. Akdeniz çanağında yer alan İspanya ise gerek ulaşım kolaylığı gerek güvenilir bir ülke olması gerekse iklim koşullarının benzerliği gibi nedenlerle insanların tatil turizmi tercihlerinde Türkiye'den daha öncelikli bir ülke konumundadır.

Ekonomik, toplumsal ve çevresel olmak üzere üç boyuttan oluşan ve en yalın haliyle gelecek kuşağın kaynaklarını tüketmeksizin şimdiki kuşakların ihtiyaçlarını karşılayabilme biçiminde özetlenebilen sürdürülebilirlik, devletin politika hedeflerinde dikkate aldığı yegane amaçlardandır. Bu bağlamda seyahat ve turizm politikalarında öncelikli hedefin sürdürülebilirlik olması, ve merkezinde sürdürülebilirliğin yer aldığı bu politikalarda, inovasyonun, kalitenin ve marka değer algısının ön planda



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tutulması, insanların taleplerine göre turistik ürün çeşitliliğine önem verilmesi ülkeye uluslararası rekabette başarılı olma, küreselleşen dünya ekonomisinde mevcudiyetini koruma ve söz sahibi olma imkanı sağlayabilecektir.

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### ISLAMIC FINANCE IN ALBANIA

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#### **Abstract**

The study is aimed at assessing the opportunities that exist in the Albanian market for Islamic Finance. Islamic banking products have been growing significantly in the last decade. They are being applied not only by countries with Muslim-majority populations but also by non-Muslim countries. Shariah compliant products are another investment alternative to conventional financial products. Some countries in Europe like Malta Luxemburg etc., are turning into financial hubs for Islamic finance. Albania has a Muslim-majority population and has lagged behind in exploiting the potentials offered by Islamic finance. Couple of financial and non-financial institutions are already operating in the country but their presence is very negligible. Strategically important public investments, so necessary for the country, could be realized by using funds from Islamic Development Banks. However, much needs to be done to improve legislation and sensitize the business, authorities and general public in Albania in order to lay the ground for Islamic investment opportunities.

**Key Words:** Islamic Finance, Interest-free financial products, Musharakah, Mudarabah, Takaful insurance.

#### **Introduction**

Islamic Finance offers financial products which are based on profit sharing and are against usury (riba) and interest rates in general as well as other prohibitions in Islam such as alcohol and gambling. According to Investopedia, Islamic finance refers to how businesses and individuals raise capital in accordance with Sharia, or Islamic law. It also refers to the types of investments that are permissible under this form of law. Islamic finance can be seen as a unique form of socially responsible investment. Sharia law also states investors must not invest in companies that engage in forbidden activities, limiting the scope of public equities an Islamic investor can hold. (Investopedia, 2022). Islam considers lending with interest payments as an exploitative practice that favours the lender at the expense of the borrower and according to Sharia law, interest is usury (riba) is strictly prohibited (Corporate Finance Institute, 2022).

The Islamic finance industry has been on a growth path in the last decades. Despite the pandemic, Islamic products based on Islamic finance have seen significant growth in recent years and trends are very optimistic. According to Ashraf Madani, vice president, Moody's, Islamic financing expanded at an average compound rate of 10.5 per cent in 2020 and 2021, while conventional loan growth expanded at 3.4 per cent during the same period. Islamic finance industry set for continued growth in 2022 despite challenges, (The National News, 2022).

Islamic finance is increasingly being used not only by Muslim-majority countries but also by countries like Great Britain, Luxembourg, Malta, etc. Luxembourg's expertise in the cross-border distribution of investment products and services is at the disposal of Islamic asset managers. In fact, a number of major banks, legal and audit firms, fund administration companies and other service providers in Luxembourg have active and well-trained, Islamic finance teams (Luxembourg for Finance, 2022).

Albania, which has a Muslim-majority population, has great potential to benefit from the use of Islamic products as well as from investments that may come from Islamic countries, especially from the Gulf area.





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The paper is organized as follows. Section I shows the methodology used. Section II analyses the main Products of Islamic Finance. The Islamic finance market in Europe is analysed in Section III. Section IV identifies the potential opportunities that exists in Albania for Islamic Finance. Last section summarizes the main conclusions of the paper.

### 1. The Methodology

The primary data for this study are derived mainly from interviews with bankers and financial managers in the business field as well as the review of the local and international literature and legislation related to the Islamic Finance. Being part of the banking system in Albania, I had the chance to take a closer look at the opportunity offered by Islamic Finance to the Albanian economy.

Relevant contemporary literature on Islamic Finance has been used to conduct this study. The study used a wide range of secondary sources in the form of academic literature, as well as reports of important verious international institutions related to the issue. A special help were the reports of the Albanian Association of Banks, Bank of Albania, United Bank of Albania and Islamic Development Bank. Usefull data have also been extracted from different "online" articles and publications related to Islamic Finance.

### 2. The main Products of Islamic Banking

Major Islamic products are finding widespread use in the financial world. Musharagh and mudarabah which are based on profit sharing methodology are the main pillar of Islamic banking. According to Institute of Islamic Banking and Insurance IIBI, Musharakah refers to a financing technique adopted by Islamic banks. It is an agreement under which the Islamic bank provides funds which are mingled with the funds of the business enterprise and others. All providers of capital are entitled to participate in the management but not necessarily required to do so. The profit is distributed among the partners in predetermined ratios, while the loss is borne by each partner in proportion to his contribution (IIBI 2022). Mudarabah refers to a form of business contract in which one party brings capital and the other personal effort. The proportionate share in profit is determined by mutual agreement. But the loss, if any, is borne only by the owner of the capital, in which case the entrepreneur gets nothing for his labour. The financier is known as ‘rabal-maal’ and the entrepreneur as ‘mudarib’. As a financing technique adopted by Islamic banks, it is a contract in which all the capital is provided by the Islamic bank while the business is managed by the other party. The profit is shared in pre-agreed ratios, and loss, if any, unless caused by negligence or violation of terms of the contract by the ‘mudarib’ is borne by the Islamic bank. The bank passes on this loss to the depositors (IIBI ,2022).

Murabaha (Cost-Plus Financing) is a sale on profit. Technically a contract of sale in which the seller declares his cost and profit. This has been adopted as a mode of financing by a number of Islamic banks. As a financing technique, it involves a request by the client to the bank to purchase a certain item for him. The bank does that for a definite profit over the cost which is settled in advance. Some people have questioned the legality of this financing technique because of its similarity to riba or interest (IIBI, 2022). Murabaha is widely used in the Islamic banking system all over the world and a similar variant of the contract is also used by the United Bank of Albania in Albania.

Other important islamic product is Islamic Insurance (Takaful). It is a term used for takaful that is a form of insurance based on principles of mutuality and co-operation, encompassing the elements of shared responsibility, joint indemnity, common interest and solidarity. All participants (policyholders) agree to guarantee each other and, instead of paying premiums, they make contributions to a mutual fund, or pool. The pool of collected contributions creates the Takaful fund. The amount of contribution that each participant makes is based on the type of cover they require, and on their personal circumstances. As in conventional insurance, the policy (Takaful Contract) specifies the nature of the risk and period of cover. It is different from conventional insurance, which involves the elements of excessive (maysir) as the consequences of the presence of excessive uncertainty that rely on future outcomes (IIBI, 2022). Uncertainty and gambling are prohibited in Islam, so these elements must be removed from the Islamic Insurance contract.

Increasingly, global financial markets are using Islamic Bond – Sukuk. A Sukuk is an Islamic financial certificate, similar to a bond in Western finance, that complies with Islamic religious law, Sharia. Since the traditional Western interest-paying bond structure is not permissible, the issuer of a sukuk essentially



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sells an investor group a certificate, and then uses the proceeds to purchase an asset that the investor group has direct partial ownership interest in. The issuer must also make a contractual promise to buy back the bond at a future date at par value. Sukuk involves asset ownership while bonds are debt obligations (Invetopedia, 2022).

Islamic finance offers a wide range of other products and by-products, however the main financial products mentioned above are a good foundation for the development of this market in countries like Albania.

### 3. The growth of Islamic Financial Market in Europe

The Islamic financial market has seen significant growth in recent decades and provides a good window for financial institutions and governments to finance their projects. Given the challenges posed by COVID 19 and the war in Ukraine, this possibility is exploited by private and public subjects.

The global Islamic finance is worth USD 2.2 billion and is expected to grow USD 3.2 by year 2027, (Market Data Forecast,2022). Mohamed Damak, the head of S&P Islamic finance, sees opportunities in the alignment of certain Islamic financial products and environmental, social, and governance factors and recent strides in digitalisation. They expect to see a higher volume of green and sustainability sukuk (from a low base) as issuers look to broaden the investor base and include funds aligned with sustainability themes. Moreover, digital sukuk could generate significant investor interest in the future once the necessary prerequisites are implemented. S&P believe the market will expand about 10 per cent in 2022-2023 after 10.2 per cent growth in total assets in 2022-2023, (The Fintech Times, 2022).

Turkey has seen an increase a steady increase in Islamic banking. According to fitch rating, the share of Islamic banks in Turkey rose to 7.8%, 6.9% and 10.5% of end-2021 banking sector assets, loans (financing) and deposits, respectively. Segment FX-adjusted financing grew by 29.7% in 2021 versus 8.4% for conventional banks (Fitch Ratings, 2022).

As for Turkey, it is understandable, however it's interesting that countries that do not have a Muslim majority population in Europe are doing well in Islamic Finance. Malta is one special case. Due to its proximity to the Muslims in Europe and North Africa and its reputation as a highly developed financial centre, Malta is in an ideal position to make the most out of this opportunity and become a European centre of Islamic finance. The Malta Financial Services Authority (MFSA) has in fact issued a consultation process to analyse the changes that are required in Maltese legislation in order to facilitate the licensing of Islamic Financial Institutions (David Zahra & Associates, 2022). The Malta Financial Services Authority has been closely monitoring developments in this field. In this respect, there are a number of opportunities for the setting up of Malta based Islamic Institutions as either full-fledged Banking Institutions in terms of the Banking Act or Financial Institutions. There are also a number of opportunities for the setting up of Sharia compliant funds in Malta, (MFSA 2008). The government of Malta has established a national body to help drive the development of Islamic finance with further plans for legislation to facilitate the sector as the country aims to attract business from Middle East firms. Malta, the smallest European Union nation, is trying to position itself as a hub for Islamic finance firms (Bernardo Vizcaino, Reuters 2018).

Luxembourg is positioning itself as an Islamic finance hub. Luxembourg is globally known for the domiciliation of investment funds and the structuring of cross-border acquisitions. However, Luxembourg also positioned itself early to be an actor in Islamic finance, capable of attracting numerous investors from the Middle East. In this respect, Luxembourg has become the third largest Islamic fund centre in the world after Saudi Arabia and Malaysia and the largest Islamic fund domicile centre in a non-Muslim country, ranked by the number of Islamic funds established in Luxembourg. According to the Association of the Luxembourg Fund Industry (ALFI), as at December 2021, Shariah-compliant funds had net assets of EUR 6,825.9 million (Ashurst, 2022).

England also has a good share of the pie. United Kingdom has 20 financial institutions, including five fully shariah-compliant banks, offering Islamic finance products (Milbank 2021). A significant development in the UK Islamic finance space is the announcement by the Bank of England with regard to the development of an alternative liquidity facility. This facility will provide the opportunity for UK



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Islamic banks to make investments in Shariah-compliant high-quality, liquid assets and thus enable the banks to hold reserves and assets in a Shariah-compliant manner (Keystone Law, 2021)

From the above, we can see that Islamic finance has found an important and growing market in the European continent. The future is quite promising for Islamic banking products and several financial centres compete to maximize benefits from Islamic financial activity.

### 4. The potential opportunities that exist in Albania for Islamic Finance

Albania has a predominantly Muslim population. The Albanian Muslim population makes up about 57% of the total population in the country according to figures of the Albanian Institute of Statistics (INSTAT) with regard to resident population by religious affiliation (INSTAT, 2011). The presence of Islamic finance is relatively small compared to the potential it can offer. In Albania there is a commercial bank - United Bank of Albania (UBA) and a non-financial institution - Albanian Leasing, which offer Islamic banking products.

The majority shareholders of United Bank of Albania are Eurosig Sh.A., and the Islamic Development Bank (IsDB). The Islamic Development Bank, a multilateral development finance institution that is focused on Islamic finance located in Saudi Arabia owned by 57 shareholding states members of Organization of Islamic Cooperation (UBA, 2022). According to quarterly report January-March 2022 of The Albanian Association of Banks (AAB), UBA constitute for merely 0.7 % of total assets of banking sector in Albania (AAB, 2022).

Albania Leasing is a non-bank financial institution, licensed by the Bank of Albania, to perform the activity of Financial Leasing. The majority shareholder of Albania leasing is the Islamic Corporation for the Development of the Private Sector (ICD). ICD is a multilateral development financial institution and is part of the Islamic Development Bank Group. It was established in November 1999 to support the economic development of its member countries through the provision of finance for private sector projects, promoting competition and entrepreneurship, providing advisory services to the governments and encouraging cross border investments. ICD has an authorized capital of \$2 billion of which \$1 billion is available for subscription. Currently, the shareholders of ICD are the IsDB (45%), 52 Member countries (46%) and five public financial institutions (9%), (Albania Leasing, 2022). Thus, the presence of financial and non-financial institutions related to Islamic finance is negligible in Albania, far from potential opportunities.

Another important aspect is the IsDB's investment in the infrastructure sector of the member countries of the Islamic Conference. It is known that public expenditure in roads and other infrastructure projects occupy a significant part of the state budget. IsDB has invested in several important projects in the Albanian infrastructure. As of 2012 the IsDB had provided US\$ 433 million for various development projects in the Albania, (IsDB 2012). Since Albania's membership in 1993, IsDB's approvals for the country have been mostly in the transportation sector followed by agriculture and water, sanitation, and urban services. Through completed infrastructure projects and microfinance interventions, IsDB has created thousands of jobs in Albania. More specifically, the Bank's financing assisted the country to reach the following socio-economic results: In the Transport sector, 31 kilometres of expressways and national or regional highways and 344 kilometres of rural roads were constructed/rehabilitated (IsDB, 2022). However, even in this aspect, Albania lags behind and did not seize the full opportunity. Countries like Indonesia have benefited in a much more efficient way. Islamic financing has only been implemented in infrastructure projects in Indonesia in the last decade with the use of instruments such as murabaha, musharaka and istisna integrated into financing such infrastructure projects. However, murabaha is the most common form of transaction used to develop infrastructure assets. In the context of Indonesian infrastructure projects, Islamic banks play the most important role in financing infrastructure projects through the use of the sharia scheme (Rarasati, Trigunaryah, Too, Lamari, Bahwal 2019).

Consequently, Albania is far behind compared to other countries such as Malta on the way to becoming a financial centre for Islamic finance. According to the interviewees, one reason is the lack of information about Islamic financial products. This fact is observed not only in Albania, but also in vanguard countries of Islamic banking, such as the UK. Charles Haresnape, CEO of Gatehouse Bank, a British Islamic finance challenger bank with assets of around \$1.2 billion, said, "The problem is that



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most people don't really understand Islamic finance; even Muslims don't understand it." Islamic finance gains ground in UK despite confusion about offerings (ZAWYA 2019).

The interviewees also pointed out the absence of complete legislation that would enable the full operation of Islamic financial products according to Sharia norms. Other European countries such as Luxembourg, UK, Malta and Turkey have made the appropriate adjustments in the legal and regulatory framework. The Bank of Albania, acting as supervisory authority, has not drafted laws and regulations that could enable the implementation of sharia compliant products such as Musharakah and Mudarabah, which are of a profit-sharing nature. Murabahah financing is also not handled in the regulatory framework of the Bank of Albania. Applying Murabahah financing according to the standard i.e., the bank purchases a certain item for the client for a definite profit over the cost which is settled in advance, results in double taxation in Albania and eventually increases the cost of the transaction. The Financial Supervisory Authority (AMF), which supervise the insurance, reinsurance and intermediation companies, does not provide for the regulation of takaful insurance according to Sharia norms. Eventually the investors who are interested in interest-free takaful finance are deprived of the service.

### Conclusions and implications

Islamic finance has developed strongly in recent decades and is performing well after the global pandemic. Muslims and non-Muslims alike are participating in Islamic products designed according to Sharia principles. Some European countries such as the UK, Luxembourg and Malta have benefited from capital flow of Islamic finance. Albania so far has a small presence of banking and non-financial institutions offering Islamic banking products. The country has benefited from the investments of the IsDB to public infrastructure projects, although much more could have been done comparing to other countries where Islamic banks play the most important role. Albania, having a predominantly Muslim population, has a fertile ground for developing Islamic finance. However, it has not managed to capitalize on the opportunity offered by Islamic financial products. Considering the negative effects of the pandemic and the war in Ukraine, the opening of a new investment window is welcomed for developing economies like Albania.

The main reasons that Islamic finance is not developed in Albania is the lack of information on how it operates and on the importance of this financing for businesses, the local authorities and the general public. The lack of legislation that would favour the application of relevant financial products is another crucial issue to be tackled. In this context, some concrete steps are necessary for the promotion of Islamic finance in the country. State institutions must establish a national body to help drive the development of Islamic finance. The most important is the drafting and approval of legislation on the operation of Islamic financial products such as Musharakah, Mudarabah, Murabahah, Islamic Sukuk and Takaful Insurance. Bank of Albania, in cooperation with Ministry of Finance and Tax Directorate must prepare necessary Sharia laws and bylaws to facilitate profit sharing products such as Musharakah and Murabahah. Intervention in the legislation is also necessary in the case of Murabahah to avoid double taxation. Financial Supervisory Authority (AMF) should intervene in the Law No. 52/2014 "On the Activity of Insurance and Reinsurance". State authorities in charge of public expenditure on infrastructure should analyse the importance of IsDB's capital investments. The Tirana Stock Exchange should lay the foundations for issuing interest-free sukuk bonds. Local universities in cooperation with the Bank of Albania and other state institutions should organize scientific conferences to sensitize the benefits of Islamic finance for the business class and employment.

Albania offers great opportunities for the use of interest-free financial products and can become a financial hub for Islamic finance. The country can mobilize unused funds from that part of the population that is sensitive to the use of the interest rate. Islamic funds can be drawn from Islamic countries, especially the Gulf countries, which would give a new impulse to the financial life in the country. Eventually, Islamic finance can be of great contribution to the Albanian economic growth in the coming years.



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### INVESTIGATION OF IRON OXIDE-ZINCOXIDE-COLLOIDAL SILICA HYBRID PIGMENT EFFECT ON STYRENE ACRYLIC COATINGS

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#### **Abstract**

Pigment agglomeration significantly reduces pigment efficiency and properties, resulting in a lower-quality product at a higher cost. In addition, the appearance of agglomerates on the film surface reduces surface smoothness and leads to lower gloss. Improving the surface chemistry of pigments can be of great benefit. It is a general expectation that pigments used for coloring purposes disperse easily in a dispersive medium and do not lose their color over time because of UV radiation. The most used common inorganic UV absorbers are semiconductor oxides such as ZnO and TiO<sub>2</sub> (Ibrahim et al. 2013). In this study, iron oxide-zinc oxide-colloidal silica hybrid pigment was produced and its effects on styrene acrylic dispersion coatings were investigated. The surface of the iron oxide pigment was treated with amino silane (A) and interacted with colloidal silica (CS) and epoxy silane-treated zinc oxide (ZnE). Amine-epoxy functional reaction in obtained hybrid iron oxide-zinc oxide-colloidal silica pigments was confirmed by FTIR and XPS analysis. In addition, oil absorption and zeta potential values of hybrid iron oxide-zinc oxide pigments were determined. These hybrid pigments were later used in styrene acrylic emulsion dispersion coatings. Color values were determined by CIELAB. With a UV-VIS spectrophotometer, the amount of light transmitted, reflected, and absorbed in UV and visible regions was determined according to wavelength. Color changes were determined in  $\Delta E$  by testing under UV-A and UV-C light sources. It was observed that the oil absorption value of the hybrid pigments increased compared to the untreated pigment. As the amount of zinc oxide, which is a white pigment, increases in paint formulations, L values, which express the whiteness of colors, increase.

**Keywords:** Hybrid Pigment, Iron oxide, Zinc oxide, Coating, UV

#### **INTRODUCTION**

Iron oxide is usually produced in red, black, yellow, brown, and orange colors (Pfaff 2021; Whiteley 1983). Thanks to its wide range of colors, iron oxide is widely used in coating applications. In addition to pigments, polymer latex is another major component of water-based coatings (Taylor 2002). During film formation, latex particles combine to form a polymer film covering the surface. The pigment particles provide the coating to be colored with affecting appearance properties such as opacity and gloss. The production, storage, and dispersion of pigments have been exciting research topics owing to their surface properties and small size (Tiarks et al. 2002). Pigment agglomeration mostly decreases the efficiency and dyeing properties of the pigment and causes a reduction in the quality of high-cost material. In addition, the presence of agglomerates on the film surface inhibits the smoothness of the surface and leads to lower gloss (Nguyen et al. 2008). Improving the surface chemistry of pigments can be of great benefit for getting high-quality material (Lim et al. 2010). Colloidal and nano silica materials coated with natural pigments have led to striking achievements, offering excellent chemical stability and versatile functional properties (Nam et al. 2016). In the study, surface-treated synthetic iron oxide pigments were prepared by treatment of the particles with different quantities of hydrolysate 3-aminopropyl silane (A), colloidal silica (CS), and epoxy silane treated zinc oxide (ZnE) in concentrated suspensions in water. FTIR, XPS, zeta potential, SEM-EDS analyzes were performed for the characterizations of treated pigments and the measurement of their oil absorption capacity. After that, the effect of treated iron oxide pigments on coating properties was investigated with styrene-acrylic



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(SA) emulsion coating. The pigment stability in coatings was measured by oscillation rheometer, and the effect of treated pigments on the colors of the coatings was determined with CIELAB by taking color measurements.

### MATERIALS AND METHODS

Bayferro 110 M synthetic  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> iron oxide red pigment was provided by Lanxess Company, Cologne/Germany. Zinc oxide nanoparticles were obtained from Molchem Chemical Technologies, London/ UK. Dynasylan Hydrosil 1151 was supplied by Evonik Degussa GmbH (Rheinfelden, Germany). Hydrolysate 3-aminopropyl silane was obtained from Evonik Dynasylan GLYMO which is (3-Glycidyloxypropyl) trimethoxysilane was supplied by the Evonik Degussa GmbH (Rheinfelden, Germany). Levasil CC301 was used as an aqueous dispersion of colloidal silica. Colloidal silica obtained from Nouryon (Amsterdam/ Netherlands). For use in coating formulations, Dyo Styrene-Acrylic Binder (50% solid) was obtained from DYO Boya Fabrikaları Inc., Used Other material is pH regulator (25 wt.% aqueous ammonia).

In this study, silane treatment of the iron oxide pigment and the reaction of nano zinc oxide with 3-Glycidyloxypropyltrimethoxy silane were carried out separately. First, the pH of the aqueous mixture of iron oxide pigment was brought to the level of 10-11 using sodium hydroxide, then a certain amount of "Hydrolysate 3-aminopropyl silane" was added and mixed at 1000 rpm for 1 hour. Iron oxide pigment with amino silane were kept in an oven at 80 C<sup>0</sup> for 12 hours after mixing. At the end of 12 hours, the mixture was centrifuged at 3200 rpm for 10 minutes and the iron oxide pigment was precipitated. The precipitated iron oxide pigment was washed 6 times with water and centrifuged to ensure the separation of unreacted silane. Then the silanated iron oxide pigments were dried in an oven. Studies were also carried out for the epoxy silane treated with zinc oxide (ZnO) in 50 nm dimensions. First, the pH of the aqueous mixture of zinc oxide is brought to the level of 5-6 using Hydrochloric acid (HCl), and the alcohol groups of (3-Glycidyloxypropyl) trimethoxy silane, which is used in one-to-one weight ratios, are hydrolyzed and for 1 hour. It was mixed at 1000 rpm. Then, the pH is brought to pH 10-11 by using sodium hydroxide (NaOH) and hydrolyzed epoxy silane is stirred at 1000 rpm for 1 hour for condensation on zinc oxide. Then, the mixture of Zinc oxide- (3-Glycidyloxypropyl) trimethoxy silane was kept in an oven at 80 C<sup>0</sup> for 12 hours. Treatment ratios of iron oxide pigment with amino silane are given in Table 1. Total of 17 iron oxide pigments, including 12 silanized iron oxide, zinc, colloidal silica hybrid pigments and 4 amino silane treated iron oxide, colloidal silica hybrid pigments and 1 untreated iron oxide pigment were used for analysis. Table 2 describes the styrene-acrylic coating formulation. Unfilled water-based styrene-acrylic coating formulations were created with 17 iron oxide pigments which are a usage rate of by 3 wt.%. To better show the effect of the iron oxide pigment to the paint formulation, no filler was fed. Seventeen iron oxide pigments given in Table 3 were used in this coating formulation. "St" at the beginning of the codes refers to the styrene acrylic coating in which iron oxide pigment is used. Iron oxide pigments were added to coating formulations at 3% by weight of the mixture.

**Table 1.** Silane treatment formulations of iron oxide pigments

Sample	Fe <sub>2</sub> O <sub>3</sub> (wt.%)	Water (wt.%)	Aminosilane (wt.%)
Fe	100	-	-
Fe:0.125A	33.33	62.51	4.16
1:0.0625A	33.33	64.67	2
1:0.03A	33.33	65.67	1
1:0.015A	33.33	66.17	0.5





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**Table 2.** Styrene-Acrylic emulsion coating formulations

Ingredient	% by wt
Styrene-Acrylic Binder(50% solid)	25
Water	69
Cosolvent	1
Rheology agent	1
Ph regulator (Aqueous 25% Ammonia)	0,5
Antifoam	0,5
Hybrid Pigment	3

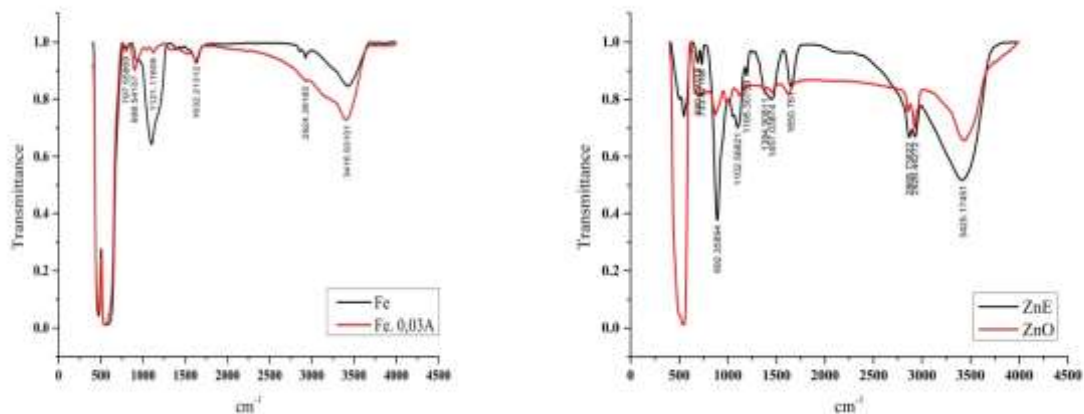
**Table 3.** Styrene-Acrylic emulsion coating and iron oxide pigments list

Samples
St Fe. 0,015A. 0,5CS (0,05 ZnE)
St Fe. 0,015A. 0,5CS (0,1 ZnE)
St Fe. 0,015. 0,5CS (0,15 ZnE)
St Fe. 0,03A. 0,5CS (0,05 ZnE)
St Fe. 0,03A. 0,5CS (0,1 ZnE)
St Fe. 0,03A. 0,5CS (0,15 ZnE)
St Fe. 0,0625A. 0,5CS (0,05 ZnE)
St Fe. 0,0625A. 0,5CS (0,1 ZnE)
St Fe. 0,0625A. 0,5CS (0,15 ZnE)
St Fe. 0,125A.0,5CS (0,05 ZnE)
St Fe. 0,125A. 0,5CS (0,1 ZnE)
St Fe. 0,125A. 0,5CS(0,15 ZnE)
St Fe. 0,015A. 0,5CS
St Fe. 0,03A. 0,5CS
St Fe. 0,0625A. 0,5CS
St Fe. 0,125A 0,5CS
St Fe

### RESULTS

FTIR results are given in Figure 1. According to the results in FTIR, the synthetic iron oxide ( $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>) used in the pigment Strong bands between 1100 cm<sup>-1</sup> peak 1300-1150 cm<sup>-1</sup> –COOH or S=O sulfones extension suggest the presence of hydroxyl and carboxyl functional groups. In comparison with the XPS analysis, C1s carbon and S2p Sulfur signals were obtained on the synthetic iron oxide pigment surface. The 1100 cm<sup>-1</sup> peak appearing on the pigment surface is thought to be because the surface is treated with an acid and sulfonation process with a carboxylic acid functional group to distribute the synthetic pigment better. It was observed that this peak decreased due to covering or washing after silane treatment. Absorption bands at 1100 cm<sup>-1</sup> as the amount of silane treatment increased. This increase is thought to be due to the signaling of 1100 cm<sup>-1</sup> Si–O originating from silane. The absorption bands at 800 and 1100 cm<sup>-1</sup> correspond to the swing vibration, symmetrical stretching vibration and asymmetric stretching vibration of the Si–O–Si bond, respectively, according to silica peaks reported in the literature(Yan et al. 2014). The appearance of this peak proves that silane treatment has taken place and that colloidal silica is attached to the surface. As a result of epoxy silane treatment of zinc oxide, both the characteristic 1250, 900, 856 cm<sup>-1</sup> peaks belonging to the epoxy ring and 1100 cm<sup>-1</sup> Si–O were detected in the ZnE sample. A peak of 3350 cm<sup>-1</sup>, characteristic of “O – H” groups. From the 1640 cm<sup>-1</sup> FTIR results; as the amount of amino silane used increases, the 900 cm<sup>-1</sup> peak signal originating from the epoxy ring decreases. A band originating from –NH<sub>2</sub> groups are observed around it.



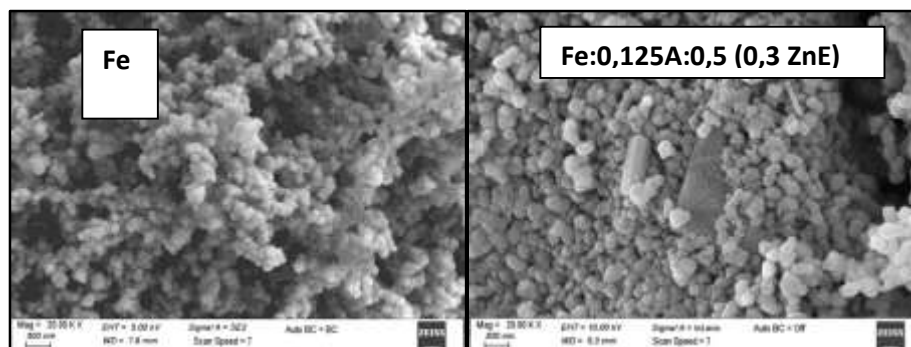


**Figure 1.** FTIR results of silane treated iron oxide pigments Fe and Fe:0.03A and ZnO and ZnE

Silane treated of iron oxide pigments was investigated by X-ray photoelectron spectroscopy (XPS). General scanning of XPS spectra of untreated and treated iron oxide pigments is shown in Table 4. Iron is the main element detected in the overview. In addition to these elements, Si 2p and N 1s were also detected on the surface of treated iron oxide. This indicates that amino silane was successfully grafted on to iron oxide surface. After the modification, there was an increase in the intensity of the C and O peaks. The observation of N1s in the spectrum of modified iron oxide is due to the presence of NH<sub>2</sub> groups of silane coupling agent on the surface of the particles (Chen et al. 2008; Grosvenor et al. 2004; Serre et al. 1996). In addition, depending on the silane treatment decreases were determined in the amount of O1s belonging to oxygen atom to which the hydroxyl groups are attached, on both the iron oxide pigment surface and the zinc oxide surface, as well as the Zn2p1 of the zinc atom and Fe2p3 of the iron atom. Depending on the silane treatment an increase in C1s of the carbon atom and Si2p of the silicon atom on the surface of the metal oxides were detected.

**Table 4.** XPS Analysis results of silane treated iron oxide pigment (Fe) and zinc oxide (ZnO)

Atomic %							
	O1s	Zn2p1	Si2p	C1s	Fe2p3	S2p	N1s
Fe	65,2	-	-	18,8	14,4	1,5	-
Fe:0,015A	57,2	-	2,7	24,7	15,4	-	-
Fe:0,03A	58,2	-	3,4	21	14,5	0,6	2,3
Fe:0,0625A	62	-	4,2	15,8	14,4	-	3,5
Fe:0,125A	58,4	-	4,4	20	12,9	-	4,3
ZnO <sub>2</sub>	45,1	36,7	-	18,2	-	-	-
ZnE	30,6	4,1	4,7	56,8	-	-	-



**Figure 2.** Fe and Fe:0,125A:0,5 (0,3 ZnE)SEM/EDS Image 300 nm



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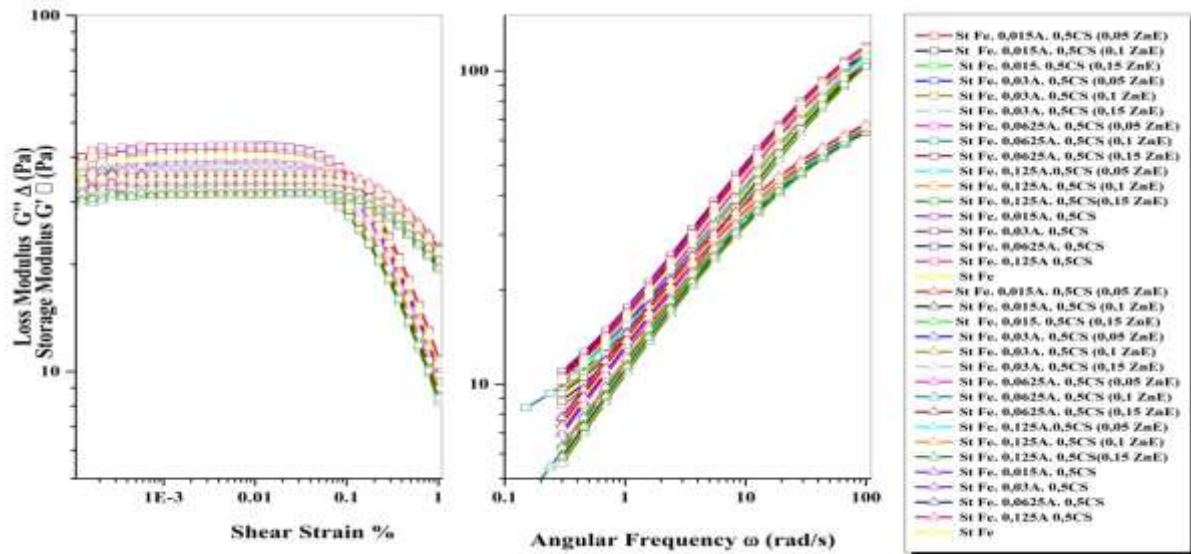
SEM photographs show the morphological structure of ironoxide pigment and small round metal crystals. The structure of nano-zincoxide used is in the form of a thin long rope and can be seen in the SEM photographs in Figure 2. Epoxy silanated nano-zinc oxides are embedded in iron oxide pigments. Oil absorption values are given in Table 5. The oil absorption increases as well as it causes a decrease in the gloss of coatings. The obtained oil absorption values can also be associated with the decrease in gloss. No amine was detected on the surface as a result of XPS analysis Fe:0,015:0,5CS (0.05 ZnE) hybrid pigment oil absorption was close to the oil absorption of untreated ironoxide pigment (Fe).

**Table 5.** Oil absorption values of iron oxide pigments

<b>Samples</b>	<b>Oil Absorption(%)</b>	<b>Samples</b>	<b>Oil Absorption(%)</b>
Fe. 0,015A. 0,5CS (0,05 ZnE)	20,60%	Fe. 0,015A. 0,5CS	23,10%
Fe. 0,015A. 0,5CS (0,1 ZnE)	23,70%	Fe. 0,03A. 0,5CS	23,10%
Fe. 0,015. 0,5CS (0,15 ZnE)	20,60%	Fe. 0,0625A. 0,5CS	23,70%
Fe. 0,03A. 0,5CS (0,05 ZnE)	24,20%	Fe. 0,125A. 0,5CS	22,50%
Fe. 0,03A. 0,5CS (0,1 ZnE)	22,50%	Fe	19,00%
Fe. 0,03A. 0,5CS (0,15 ZnE)	22,50%		
Fe. 0,0625A. 0,5CS (0,05 ZnE)	22,50%		
Fe. 0,0625A. 0,5CS (0,1 ZnE)	24,20%		
Fe. 0,0625A. 0,5CS (0,15 ZnE)	21,90%		
Fe. 0,125A.0,5CS (0,05 ZnE)	23,10%		
Fe. 0,125A. 0,5CS (0,1 ZnE)	21,90%		
Fe. 0,125A. 0,5CS(0,15 ZnE)	23,10%		

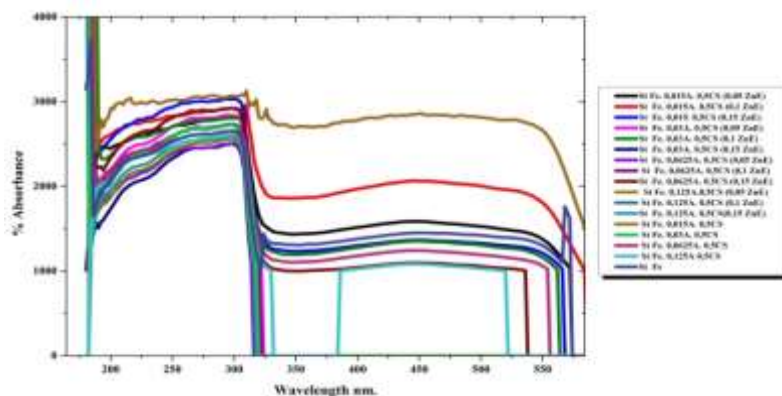
The Amplitude Sweep test provides information on the behavior of the coating in storage and application (Figure 3.). The use of colloidal silica in the pigments increased the yield point, negatively affecting the spread of the coating. The storage modulus increases in pigments using colloidal silica. In other words, it is easier for the pigment to be suspended in the coating. The storage modulus of hybrid pigments using only amino silane and colloidal silica is higher than other pigments. Also, the largest loss modules were observed in these pigments. The Frequency Sweep test provides information about the stability behavior that may occur over time during the storage of the coating (Figure 4). As the Angular Frequency gets smaller, it gives information about the long-term storage behavior. According to the Frequency Sweep test results, no pigment remains suspended in long-term storage. According to the results of the analysis, the long-term storage results of the pigments using only colloidal silica and amino silane are better than the pigments using zinc oxide.





**Figure 3.** The Amplitude Sweep and The Frequency Sweep test results in oscillation rheometer of styrene acrylic coating formulations

UV-VIS spectrophotometer absorbance graph of 200-500 nanometer wavelengths is given in Figure 5. Using zinc oxide St Fe:0,015A:0,5CS pigment absorbs UV-C (100-280 nm), UV-B (280-315 nm) and UV-A (315-400 nm) at the highest rate. Except for the pigments with poor opacity and gloss values, the UV absorption of all the remaining pigments decreased. This increases the UV resistance of the coating.



**Figure 5.** UV-VIS spectrophotometer absorbance results of styrene acrylic coatings

### CONCLUSION

Successfully amino silane-treated iron oxide pigment was detected as a result of FTIR aid and XPS analysis. Besides the result of FTIR ad XPS analysis, it was shown that zinc oxide was treated with epoxy silane. Likewise, as a result of the characterization performed with FTIR, it was determined that the functional nano zincoxide used reacted with the amino groups of the amino silane treated iron oxide pigment. When the oil absorption values were examined, it was observed that the oil absorption of the hybrid pigments increased. In general, the amount of UV absorption of iron oxide pigments using zinc oxide has decreased, especially in the UV-A region. The use of colloidal silica in the pigments increased the yield point, negatively affecting the spread of the coating. The storage modulus increases in pigments using colloidal silica

### ACKNOWLEDGEMENTS

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### MÜZİK VE DUYGU: BESTECİ VE DİNLEYİCİ ARASINDAKİ İFADE VE ALGI FARKLILIKLARI

#### MUSIC AND EMOTIONS: THE DIFFERENCES IN EXPRESSION AND PERCEPTION BETWEEN THE COMPOSER AND THE LISTENER

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#### Özet

Bu çalışmada amaç yıllardır tartışma konusu olan bestecinin kendi duygularını veya aklından geçirip de bestesiyle anlatmaya çalıştığı bir temayı bestesine yansıttığı zaman dinleyicinin aynı duyguları algılayıp algılamadığını sorgulamaktır. Müzik teorisyenleri besteci ile bestesi arasındaki ilişkiyi dışavurumcular, formalistler veya *program müziği*, *absolut müzik* çerçevesinde tartışmışlardır.

*Program müziği* temelinde besteci tarafından saptanan, belirtilen müzik dışı fikirlere ve imajlara dayanır. Bu tür besteler dinleyicisine program notlarındaki bilgilerle amacını anlatmaya çalışır. Program müziği, müzik seslerini kullanarak kendileri müzik dışı olan nesnelere veya olayları yansıtmaya çalışır. Bu çalışma, program müziği olarak bestelenmiş klasik batı müziğinden seçilmiş bazı eserlerin Türk katılımcılar tarafından nasıl algılandığını iki araştırma sorusuyla saptamaya çalışmıştır.

İlk soru katılımcılara program müziği çerçevesinde bestelenen seçilmiş eserlerden ne algıladıkları; İkinci soru ise dinleyici algıları ile besteci duygularının veya eğilimlerinin örtüşüp örtüşmediğini sorgulamaktadır. Bu araştırma araştırmaya gönüllü olarak katılan 160 Anadolu Üniversitesi, Eğitim Fakültesi ve Mühendislik Fakültesi öğrencileri yürütülmüştür. Çalışmada uzman görüşü alınarak kullanılan *program müziği* parçalarının seçimi rastgele yapılmış dinletilen müzik parçalarının uzunlukları güvenilirlik açısından eşit tutulmuştur. Bu çalışmada, katılımcılardan kendi istedikleri sıfat veya benzetmeleri, bir başka deyişle kendi öz bildirimlerini serbest bir şekilde yazmaları istenmiştir.

Katılımcılardan elde edilen verilerin tümü değerlendirilmiş ve *Sürekli Karşılaştırma Yöntemi* çerçevesinde kodlanmış ve fikir ünitelerine ayrılmıştır. Fikir ünitelerine ayrılan verilerin değerlendirilmesinde ise sayısal analiz kullanılmış ve yüzde hesapları yapılarak araştırmacıların yanıtları değerlendirilmiştir.

Alan yazınında besteci ve dinleyici duygularını içeren sayısız araştırma bulunmaktadır. Bir müzik parçasının dinleyicide uyandırdığı duyguları sorgulayan ve bu duyguların program müziği kapsamında beste yapan besteci duyguları ile örtüşüp örtüşmediğini sorgulayan araştırmalara ülkemizde rastlanmamaktadır.

Alan yazınında var olan araştırmaların pek çoğu klasik batı müziği kültürüne daha yakın veya yatkın olan dinleyicilerle yapılmıştır. Bu müzik türünde sınırlı deneyi olan katılımcılarla yapılan bu çalışmanın alan yazınına gerek ülkemizde gerekse uluslararası boyutta katkı sağlayacağı inancı güdülmektedir. Ayrıca kullanılan yöntemler Türkiye'deki farklı müzik türlerinin incelenmesinde kullanılabilecek teknikler sunmaktadır.

**Anahtar kelimeler:** Program Müziği, Dinleyici Algıları, Music ve Duygu

#### Abstract

The purpose of this present study is to look into the much-debated area of music called Program Music versus Absolute music. Program Music can be explained in terms of a composer using and or reflecting a non-musical topic in his composition such as the sound of wind or sounds made by an animal.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

This research approaches the question of the differences or the relationship between the composers' feelings and listeners' perceptions with two research questions. The first research question covers how and what the listeners perceive while listening to five different Program Music compositions. The compositions used in the study have clear names designated to them by their composers in Western Classical Music. The second research question tries to find out the similarities and differences between the composers' emotions and listeners' perceptions. The research is conducted by using a questionnaire with 160 voluntary university students studying in two vastly different areas of academia. The data is evaluated using the constant comparison method, enabling a data-driven result, in the evaluation process.

The study offers new insights into the existing research as well as the perceptions of Turkish participants who are not very familiar with Western Classical Music. Research previously conducted on this topic mostly had participants who had Western Classical Music backgrounds. Furthermore, the methodology and the approaches used in research and design are able to offer new venues to researchers and encourage them to conduct similar studies in Classical Turkish Music and/or Turkish Folk Music as well as offering insights into the Turkish context.

**Key terminology:** Program Music, Listener Perceptions, Music and Emotion

### GİRİŞ

Müzik, duyular, algı üçgeni üzerine yapılmış pek çok araştırma bulunmaktadır. Bilimsel olarak müziğin uyandırdığı duyguları araştıran çalışmalar araştırıldığında 1967-2007 senelerinde 1033 makalenin yayınlanmış olduğu saptanmıştır (Juslin and Västfjäll, 2008). Bu makalelerin çoğu neden müzik dinleyicisinde güçlü duyular uyandırır sorusuna yanıt aramaktadır. Yapılan araştırmalar dinleyici, besteci, icracı öğelerini kapsamakta ve farklı birleşenler üzerinde durmaktadır. Bazı araştırmalar hangi duygular sorusuna yanıt ararken belirlenmiş duygu listeleri oluşturmaya çalışmışlardır. Bazı araştırmalar dinleyici duyularının fizyolojik etkilerini de gözlemlemiştir.

Bu çalışmada amaç, yıllardır tartışma konusu olan bestecinin kendi duygularını veya aklından geçirip de bestesiyle anlatmaya çalıştığı bir temayı bestesine yansıttığı zaman, dinleyicinin aynı duyguları algılayıp algılamadığını sorgulamaktır.

Müzik teorisyenleri, besteci ile bestesi arasındaki ilişkiyi dışavurumcular, formalistler veya program müziği, absolut müzik çerçevesinde tartışmışlardır. Program müziği terimi çoklukla bir edebi veya görsel kaynağa bağlamsal gönderme yapan çalgısal müziği tanımlamak için kullanılan bir terimdir. Müzik felsefesi içerisinde bir felsefi akım olmaktan çok, bir yaklaşım bir stil olarak karşımıza çıkar. Program müziği, temelinde besteci tarafından saptanan, belirtilen müzik dışı fikirlere ve imajlara dayanır. Bu tür besteler dinleyicisine farklı düzeylerde ve derecelerde imajlar sunabilir. Program müziği, müzik seslerini kullanarak, kendileri müzik dışı olan nesnelere veya olayları yansıtmaya çalışır.

Günümüzde absolut müzik ve bu anlayış üzerine yürütülen tartışmalar 1854'de Avusturyalı müzik eleştirmeni Eduard Hanslick'in yazmış olduğu, "Müzikte Güzel Üzerine" isimli kitabının gölgesinde sürmektedir. Hanslick'in müzik estetiği ve felsefesi üzerine yazdıkları o kadar etkili olmuştur ki bugün çağdaş müzik görüşlerinin karşılaştırıldığı bir mihenk taşı haline gelmiştir. Hanslick, program müziği görüşüne tamamen ters düşer. Hanslick "Müzikte Güzel Üzerine" isimli kitabının ilk bölümünde, müziğin otonom varlığından söz ederek "Güzel kendisi güzel olduğu için kalıcıdır, duyguları dürttülediği için değil. Bir başka deyişle güzel gözlemciye haz duygusu uyandırmak için var olsa bile varlığı ondan bağımsızdır" (Hanslick, 1975: 19) şeklinde düşüncelerini ifade etmiştir.

Bu çalışma, program müziği olarak bestelenmiş batı sanat müziğinden seçilmiş bazı eserlerin Türk katılımcılar tarafından nasıl algılandığını, iki soru ile saptamaya çalışmaktadır. İlk soru, katılımcıların program müziği çerçevesinde bestelenen seçilmiş eserlerden ne algıladıkları; ikinci soru ise, dinleyici algıları ile besteci duygularının veya eğilimlerinin örtüşüp örtüşmediğini sorgulamaktadır. Bu araştırma, batı sanat müziği deneyimleri sınırlı olan Türk katılımcılardan elde edilen verilerle, alan yazınında yer alan benzer araştırmaların sonuçlarını karşılaştırması açısından önem taşımaktadır.



### 19. YÜZYILDA MÜZİK ESTETİĞİ: PROGRAM MÜZİK VE ABSOLUT MÜZİK ANLAYIŞI

Ondokuzuncu yüzyıl “Romantiklerin Savaşı” adı da verilen iki farklı müzik estetiği anlayışına sahne olmuştur. Adına program müziği dediğimiz olguyu, Vivaldi’nin ‘*Dört Mevsim*’, Beethoven’ın ‘*Pastoral Senfonisi*’ gibi ilk eserlerde doğa resimleri olarak görmekteyiz. Berlioz 19. yüzyıl romantik düşüncesine, program müziği ‘*Symphonie Fantastique*’ isimli eseri ile yeni bir boyut kazandırmıştır. Wagner’in müziksel dramları, Liszt’in senfonik şiirleri, Strauss, Sibelius ve diğerlerinin 21. yüzyılda besteledikleri film müziklerine uzanan bir yaklaşımın adıdır program müziği. Bu müzik estetiğinin karşısında duran görüş ise müziğin kendi değerleri içerisinde kalması gerektiğini savunan görüştür.

Program müziği yağmur, rüzgâr, fırtına veya hayvan sesleri gibi doğa seslerinin yanı sıra insan yaşamında var olan alet, makine silah gibi sesleri de çalgıların tonal renklerinden faydalanarak simüle etmeye çalışır. Program müziği imajlar yaratmak, resim çizmek veya olayları yansıtmak amacını güder. Buna karşın absolut müzik koşulsuz olarak sadece müzik olarak bestelenmiş, hiçbir şeyi simgelemek veya göstermek amacıyla olmayan müzik türüdür. Beste kurallarına uyularak tamamen müziğin kendi içinde geçerli olan yasa ve müziksel ilişkilere bağlı olarak yaratılmış müzik türlerine verilen isimdir. Bu tür müzikte resimsel bir anlatı, bir öykü yaratma veya yaşamın müzik ötesi kavramlarına ve duyularına bir gönderme yoktur. Absolut müzik genelde yalnızca bestelendikleri formu belirleyen isimlerle anılırlar; senfoni, sonat, tokata veya füg gibi. Absolut müzik söz konusu olduğunda, orkestra çalgıları kendi müzikalite sınırları içerisinde görev yaparlar ve kendi sınırlarını aşmazlar (Lilley, 1911: 608-615).

### ÜÇÜNCÜ BOYUT: DİNLEYİCİ

Müziğin ne olduğu ne anlama geldiği antik çağlardan bugüne tartışıldursun müzik ve besteci arasındaki ilişki müzik yalnız besteci ile beste arasında bir ikilem değildir. Hatta müziği bir ucunda besteci bir ucunda beste olan bir doğrusal sistemde tartışmak da doğru olmayabilir. Müziği bir köşesinde beste, bir köşesinde besteci ve bir köşesinde dinleyicisi olan bir üçgen yapıda görmek daha doğru bir yaklaşım olacaktır.

Bu durumda müziği tartışırken, dinleyicisini de tartışmak gerekir. Müzikte duygu ve dinleyici algıları üzerine araştırmaların bazıları müziğin tempo, mod, perde, armoni ve ritim gibi fiziki özellikleri üzerinde durmuşlardır (Havner, 1936; Juslin ve Lindström, 2010). Bu araştırmalarda Majör mod mutlu, neşeli, zarif ve oynak buna karşın Minör mod hüzünlü, hayalci ve duygusal duyguları; katı ritimlerin canlı ve ağırbaşlı, akıcı ritimlerin ise neşeli, zarif, hayalci ve müşfik duyguları öte yandan karmaşık ve uyumsuz armonilerin heyecan, rahatsızlık, canlılık ve biraz da hüzün duygularını canlandırırken basit armonilerin mutlu, zarif, dingin ve lirik duygular uyandırdığı belirlenmiştir. Dinleyici duyguları üzerine yapılan araştırmalarda ise dinleyicinin müziğe verdiği anlamın bilişsel, duyumsal veya sosyal olabileceği araştırılıp tartışılmıştır (Kallinen ve Ravaja, 2006; Mohn, Argstatter, Wilker: 2010). Bazı araştırmalar da ise dinleyicinin müziğe gösterdiği *boğazda yumru hissi, tüylerin diken diken olması, gözden yaş gelmesi* gibi fizyolojik tepkiler üzerine yoğunlaşmıştır (Yasuda: 2009). Program müzik ve absolut müzik türünde yapılan bestelerin dinleyenlerde nasıl duygular uyandırdığı üzerinde de araştırmalar bulunmaktadır (Yingling, 1962; Zalanowski, 1986; Olson ve Smith (2000)).

### ARAŞTIRMA SORULARI VE ARAŞTIRMANIN DESENLEMESİ

Bu araştırmada iki temel sorunun yanıtı aranmaktadır.

1. Program müziği sisteminde bestelenen batı sanat müziği parçalarını dinleyiciler nasıl algılıyor?
2. Dinleyici algıları ile bestecinin dinleyicisinde uyandırmaya çalıştığı duygular ne kadar örtüşmektedir?

Araştırmanın katılımcıları Anadolu Üniversitesi Eğitim Fakültesi ve Mühendislik Fakültesi 3. ve 4. sınıf öğrencilerinden oluşmuştur. Toplam 160 öğrenci (80 kız, 80 erkek) iki bölümden oluşan bir sormacayı doldurmuşlardır. Sormacanın birinci bölümünde katılımcılarla ilgili demografik bilgiler istenmiştir. İkinci bölümünde ise dinledikleri müzik ile ilgili iki soruya yanıt vermişlerdir. Bilim etiği kuralları gereği, tüm katılımcılardan bu araştırmaya gönüllü olarak katıldıklarını belirten imzalı beyanları istenmiştir.

Veri toplama amacıyla katılımcılardan müzik parçalarını dinledikten sonra algıladıkları duygularını kendi istedikleri sıfat veya benzetmeler, bir başka deyişle kendi öz bildirimlerini serbest bir şekilde





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yazmaları ve şu iki soruya 1. Bu müzik parçası size ne ifade etti? 2. Bu müzik parçasını dinlerken aklınızdan neler geçti? yanıt vermeleri istenmiştir.

Katılımcılardan elde edilen verilerin tümü değerlendirilmiş ve *Sürekli Karşılaştırmalı Metodu* çerçevesinde kodlanmış ve fikir ünitelerine ayrılmıştır. Fikir ünitelerine ayrılan verilerin değerlendirilmesinde ise sayısal analiz kullanılmış ve yüzde hesapları yapılarak araştırmacıların yanıtları değerlendirilmiştir.

Katılımcıları uzman müzikologların da görüşleri alınarak program müzik çerçevesinde bestelenmiş beş müzik eseri kısa bölümler halinde katılımcılara dinletilmiştir. Bu araştırmada kullanılan müzikler: *Parça 1: Saint Saens: Carnival of Animals, Fil* ; *Parça 2: Saint Saens: Carnival of Animals (Eşek)*; *Parça 3: Tchaikovsky, 1812 Uvertürü*; *Parça 4: Smentana, Die Moldau*; *Parça 5: Rimsky Korsakov, Arıların Dansı* olarak saptanmıştır.

### ARAŞTIRMANIN BULGULARI

Katılımcılardan elde edilen bulgular fikir üniteleri çerçevesinde değerlendirilmiş ve açıklamaları her parça temelinde tartışılmıştır.

#### **Saint Saens- Hayvanlar Karnavalı, Fil: Katılımcı Yanıtlarının Genel Değerlendirmesi**

*Saint Saens, Hayvanlar Karnavalı: Fil* bestesine katılımcılar tarafından verilen yanıtları kendilerine yöneltilmiş sorular çerçevesinde değerlendirecek olursak, birinci soru için verilen yanıtlar arasında beğeni ve olumlu düşünce uyandıran duyguların fazlalığı dikkati çekmektedir. *Şirin, kulağa hoş geldi* gibi sıfatlara sıklıkla rastlanmaktadır. Ayrıca, parçayı *ritmik, enerjik* bulan katılımcılar da bulunmaktadır. Ancak, bu pozitif bakış açısına katılmayan ve parçayı *sıkıcı, iğrenç, hüzün* gibi olumsuz sıfatlarla niteleyen katılımcıların bulunduğunu da belirtmek gerekir.

İkinci soru için verilen yanıtlar da ise *konser, orkestra, müzikal* ve bir diğer müzik grubu kategorisi olan *balo-dans* kategorilerinin öne çıktığı görülmüştür. Genel olarak değerlendirilecek olunursa, dinleyici algıları ile bestecinin anlatımı arasında birebir örtüşme olmadığı gözlemlenmiştir.

#### **Saint Saens- Hayvanlar Karnavalı: Eşek veya Uzun Kulaklı Şahsiyetler- Katılımcı Yanıtlarının Genel Değerlendirmesi**

*Hayvanlar Karnavalı*'nda en kısa bölüm olan *Eşek* veya *Uzun Kulaklı Şahsiyetler* iki keman için yazılmış bir parçadır. Kemanlar bir tiz, bir pes, bir güçlü, bir zayıf ses çıkartarak eşek anırmasının 'aaa iiiii' seslerini yansıtmaya çalışırlar. Kemanların çıkarttıkları tiz sesler ve ani ses yükselişleri, katılımcılarda olumsuz duygular uyandırmıştır. *Korku hissi, gizemli şatolar, kulakları tırmalayan sesler* bu olumsuzluk duygularını belirleyen benzetmeler arasında sayılabilir. Bu parçaya katılımcıların gösterdiği tepkiler, birinci ve ikinci sorular için birbirine oldukça paraleldir. *Hayvanlar Karnavalı*'nın ikinci parçası *Eşek* de katılımcılarda hayvan izlenimi bırakmaktan uzak kalmıştır. Besteci duyguları veya bestecinin eseri ile anlatmaya çalıştığı duygular ile dinleyici algıları arasında bir örtüşme olmadığı saptanmıştır.

#### **Tchaikovsky- 1812 Uvertürü- Katılımcı Yanıtlarının Genel Değerlendirmesi**

Tchaikovsky, 1812 Uvertürü sakın bir havada başlıyor, yaylılar sakın ve sessiz bir biçimde ağıtsal bir duayı seslendiriyorlar "Tanrı Bizi Korusun". Melodi yavaş, nerede ise can sıkacak kadar yavaş. Daha sonra sinirli ve senkoplu yaylılar hızlanmaya başlar. Sanki ordular savaşa hazırlanıyor gibidir. Tahta nefesliler, kemanlar, trombonlar ve tubalar giderek yavaşlar. Eserin merkez teması olan Fransız milli marşı "Marseillaise" ile bir Rus halk şarkısının nağmeleri üst üste birbirlerine girerek çalınmaya başlanır. Koda "Marseillaise" bazlı, tüm nefesli ve perküsyon çalgılarının katılımı ile güçlü bir kreşendo ile başlar ve bu noktada top atışları melodiye karışır. Yaylılar için yazılmış uzun bir kadanstan sonra savaşın dönüm noktasına gelinmiştir. Bando, kilise çanları ve tüm orkestra "Tanrı Bizi Korusun" isimli Rus folklor nağmelerini çalarak gururlu bir zaferin haberini verirler. Tanrı Rusya'yı kurtarmıştır. Romanov hanedanının marşı sayılabilecek *Tanrı Çarı Korusun*'un nağmeleri ile birlikte karilyonların simule ettiği kilise çanları ve büyük bir kutlamanın ezgileri bando ve orkestra tarafında seslendirilir (<http://www.bhso.org.uk>, 2012).



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1812 Uvertürünü dinledikten sonra katılımcılara yöneltilen ikinci sorunun yanıtları özellikle tören, şölen ve ritüel fikir ünitesine yoğunlaşmış bulunmaktadır. Eserin sonunda açık bir şekilde duyulan kilise çanları, bando ve orkestranın birlikte seslendirdikleri güçlü, hareketli ve hızlı melodi katılımcılarda *askerler, kral kraliçe yürüyüşü, kutlama, festival, olimpiyatlar, tören, bando, havai fişekler, yılbaşı çanları, kilise çanları, milli bayramlar, düğün, zafer, marş, kurtuluş* gibi tanımlar ve çağrışımlar uyandırmıştır. Bu tepkilerin tümü eserin ruhuna uymaktadır. Kutlama veya tören öğelerini eseri dinlerken tanımlayan katılımcılar, *ibadet* tanımı ile kilise çanlarını özdeşleştirmiş olmalıdır. Eserde kullanılan ancak, tüm melodi olarak hiçbir zaman ortaya konmayan milli marşlar, “Marseillaise” ve “Tanrı Çarı Korusun” ezgilerinin katılımcılarda *İstiklal Marşını* çağrıştırmış olması heyecan verici bir bulgudur. Türk dinleyicilerin bu parça ile ilgili bilgi sahibi olmadıkları ve onlara dinleti öncesi herhangi bir bilgi verilmediği düşünülecek olunursa, bu eser besteci ile dinleyicisinin aynı platformda bulunduğu bir beste olarak nitelendirilebilir.

### Smetana: Moldau - Katılımcı Yanıtlarının Genel Değerlendirmesi

Smetana eserinde Vltava Nehrini anlatıyor. Girişte flütler sanki bir nehrin uzakta oluşan hafif kıpırdamalarını yansıtırcaasına nehrin doğduğu kaynaktan yavaşça süzülüşünü anlatırken, kısa bir süre sonra klarnetler, arp ve yaylılar (*pizzicato*) ana melodiye katılıyorlar. Yaylıların nehir temasını tekrarıyla artık Vltava Nehri ülke topraklarından akmaya başlıyor. Ana melodi farklı formlarda devamlı tekrar edilirken nehrin geçtiği topraklarda olan bitenler de melodiye yansıyor. Bir av sahnesi, bir düğün ve kıyıda mehtapta dans eden periler ve uzakta görülen eski evler, şatolar. Melodi, nehrin bir çağlayana dönüşmesini anlatırken giderek büyüyen, yücelen gücünü de anlatmaya çalışıyor. Döne döne gelen Vltava genişleyerek Prag kentine ulaşır ve tüm muhteşemliği ufukta kaybolur (<http://flaglerlive.com>, 2012).

Araştırmada katılımcılar yukarıda ayrıntıları verilen programdan yoksun olarak besteyi dinlemişlerdir. Yine de *olumlu rahatlatıcı/duygular* altında yer alan katılımcı tanımları *dinginlik, sevinç, huzur* gibi iç huzuru; *aile, düzen hissi, çocukluk hissi* gibi çevre ve toplum ile ilgili sıfatları kullanmaktadır. Ayrıca *kararsızlık, beklenti, şaşkınlık, hüznün ve arayış* gibi bireyin iç kavgalarını yansıtan sıfatlar da katılımcılarca tanımlanan duygular arasındadır. Smetana bu eserinde, nehir kenarında dans eden perileri ve bir köy düğününü notalarına yansıtmıştır. Bu bağlamda katılımcıların özellikle ikinci soruya verdikleri yanıtlarında *dans edenler, bale izliyormuş gibi, bale* gibi çağrışımlarını belirtmeleri dinledikleri müzikten aynı algıyı alabildiklerinin bir göstergesi olarak kabul edilmektedir. Eser bir nehirle ilgili olduğuna göre, doğa temalarının da katılımcılarda tepki yaratması beklenebilir, nitekim katılımcılar *doğada yürümek, su kenarı, deniz kokusu* gibi tanımlar yaparak, doğa ile ilgili algılarını anlatmışlardır. Kendisine özgü ritim ve temposu, bu eserde yavaş ve hüzünlü (minor mod) katılımcılarca olumsuz olarak nitelendirilmiş ve *sıkıldım, uykum geldi* gibi tepkiler göstermelerine neden olmuştur. Besteci duyguları ile katılımcı algıları arasında kısmen bir örtüşme olduğunu söylemek yanlış olmayacaktır.

### Rimsky Korsakov: Arıların Dansı: Katılımcı Yanıtlarının Genel Değerlendirmesi

Keman için yazılmış ve keman virtüözlüğünü sınavan bir beste olan bu eser, katılımcılarda hızı ve o hızın yaydığı enerji ile *ritim ve enerji* duygusunun uyarılmasına neden olmuştur. Hız ve fazla enerjiden kaynaklanan, bireyi yoran ve ona günlük yaşamını hatırlatan temposu ile olumsuz ve rahatsız eden duygular da uyandırmıştır. Katılımcıların *yoruldum, kendimi yavaş hissettim* gibi ifadeler kullanmaları bunun bir göstergesidir. Bu tepkilere zıt düşen ve eserin hızına gönderme yaptığı düşünülen *deli müzisyen* tanımı da ilgi çekicidir. Katılımcı bu eserle ilgili bilgi sahibi olmasa bile, parçanın icrasındaki zorluğu algılamış görünmektedir. Katılımcılar arasında çizgi filmlere atif yapanların sayısı oldukça fazladır. Parçayı özellikle Tom ve Jerry ile bağdaştıran katılımcı için çizgi filmleri izlediği çocukluk günlerini çağrıştırması ilginç bir algı olarak değerlendirilebilir.

Bu beste ile ilgili olarak bestecinin arının uçuşundaki hızı anlatma amacını güttüğü kabul edilecek olunursa, katılımcıların araştırmanın ikinci sorusuna verdikleri yanıtlardan *hız, acelecilik* gibi yaşam temposu belirten duyguları algıladıkları gözlemlenmiştir. Ancak, besteci bu hız ve tempoyu bir arı ile özdeşleştirmiş bulunmaktadır. Bu açıdan değerlendirildiğinde, besteci ifadeleri ile dinleyici algılarının tam olarak örtüşmediğini belirtmek yanlış olmaz.



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### BULGULARIN ALAN YAZINI ÇERÇEVESİNDE TARTIŞILMASI VE SONUÇ

Araştırma bulguları ile alan yazınından elde edilen bilgiler karşılaştırıldığında, bazı durumlarda program müziği bestelerinin anlattığı duyguların katılımcılarınkilerle hiç örtüşmediği, bazı durumlarda ise kısmen örtüştüğü gözlemlenmiştir. Genel bir değerlendirme yapılacak olunursa Saint Saens *Hayvanlar Karnavalı Fil* ve *Eşek* isimli parçalarda katılımcılar, dinledikleri müziğin anlatmaya çalıştığı veya uyandırmaya çalıştığı duyguyu veya bestecinin ifade etmeye çalıştığı olguyu kesinlikle anlamamış olup, bu müzik parçalarını herhangi bir hayvan figürü ile ilişkilendirmekte bile zorluk çekmişlerdir. Bu müzik parçalarında katılımcıların eserin müzik ve formundan etkilenmiş olma olasılığı bulunmaktadır. Bu bağlamda *S Fil ve Eşek* ve *Arıların Dansı* parçaları ritim ve tempo olarak katılımcı görüşlerini etkilemiş olabilir. Havner'e göre akıcı ritimler neşeli, karmaşık, uyumsuz ritimler ise heyecan, rahatsızlık yaratabilmektedir (1936: 246-268). Araştırmanın bu bulgulara ulaşması, Havner'in bulguları ile örtüşmektedir.

Hunter, Schellenberg, Schimmack (2010) yaptıkları araştırmada müziğin temposunun ve dinleyicilerin müzikten aldıkları akustik ipuçlarının (hızlı, yavaş; yüksek ses, alçak ses) onların algılarını etkilediğini ortaya koymuştur. Müziğin sağladığı akustik ipuçlarının dinleyici üzerinde oluşturabileceği etkiler açısından bakıldığında, araştırma kapsamında *1812 Üvertürü'ne* katılımcıların göstermiş oldukları tepkiler, adı geçen araştırmanın bulguları ile örtüşmektedir.

Müzikte dinleyici algısı müzik dinleme alışkanlığı, kişilik, dünya görüşü, yaşam deneyimi, kişisel zevkler ve müzik tercihleri, sosyal konumları gibi, bireysel özelliklerle sınırlı kalabildiği gibi perde, tını, ses yüksekliği, melodi gibi müziğin kendi doğasından gelen yüzeysel ve alt yapılardan da etkilenebilir (Kallinen ve Ravaja, 2006). Araştırma kapsamında katılımcıların film veya çizgi film kategorisine yaptıkları göndermeler Kallinen ve Ravaja'yı doğrular niteliktedir. Ülkemizde batı sanat müziği çok yaygın olarak dinlenen bir müzik türü değildir. Çoğu kez çizgi filmlerde kullanıldıkları için, katılımcıların bu eşleşmeyi algılaması doğaldır.

Program müziği yaklaşımı açısından incelendiğinde katılımcıların dinledikleri parçalara gösterdikleri tepkiler, *1812 Üvertürü* ile *Moldau* için besteci niyetinin ve amacının anlaşılması açısından daha başarılı parçalar olarak nitelendirilebilir. Öte yandan *Hayvanlar Karnavalı Fil* ve *Eşek* ile *Arıların Dansı* bestecilerin belirli bir temayı müziklerinde simüle etmeye çalışmalarına rağmen katılımcılarca algılanamamıştır. Bu durumda bu üç parçayı program müziği açısından başarısız mı kabul etmeliyiz? Hoppers (1946: 44-47) tek tür program müziği olmadığını aslında tüm müzik türlerinin absolut müzik ile program müziği arasında derecelendirilebileceğini savunmaktadır.

Bireylerin müziğe gösterdikleri tepki ve müzik algıları tartışılırken, bu algıların entelektüel, bilişsel, duymusal veya bedensel olmaları da söz konusudur. Müziğin nerede, bir başka deyişle hangi ortamda dinlendiği, ne zaman dinlendiği hatta günün saati bile önem kazanmaktadır. Juslin ve Sloboda (2001) müzik dinleyicisinin üç farklı şekilde müzikten etkilenebileceğini belirtmektedirler. a) Müziği dinlediği andaki duyguları, dinleyicinin hangi müzik türünü dinleyeceğini etkiler, b) Müzik, kendisi de duygu ifade edebilir; c) Müzik, dinleyicisinde duygular uyandırabilir.

Müzik ve duygu üzerine yapılan pek çok araştırma bulunmaktadır. Bu araştırmaların bir kısmı katılımcılarına belirli sıfatlar vererek onlardan yalnızca bu duygular üzerine odaklanmalarını istemektedir (Mohn, Argstatter, & Wilker, 2010). Bu yöntemin yararı, katılımcıların yalnızca belirli duygulara odaklanmalarını sağlamak, dezavantajı ise katılımcı duygularına ve algılarına bir anlamda ambargo koymaktır. Bu araştırmaya bu açıdan bakıldığında katılımcıların serbest bırakılmıştır. Ancak, fikir ünitesi olarak değerlendirilen bazı kategorilerde fazla sayıda dönütün olmaması ve fikir ünitelerinin sayısının fazlalığı, araştırmanın desenlemesinden kaynaklanmaktadır.

Bu araştırma, müzik ve dinleyici duyguları üzerine yapılan alan araştırmaları desenlemeleri paralelinde geliştirilmiş olup, elde edilen bulgular, alanda yapılmış olan farklı araştırmalar tarafından da desteklenmektedir. Alan yazınında rastlanan araştırmaların çoğu batı sanat müziği gelenekleri olan ve bu müzik türüne daha yatkın olan dinleyici grupları ile yürütülmüş bulunmaktadır. Oysa bu araştırma katılımcıların batı sanat müziği gelenekleri ve deneyimleri sınırlı olan Türk dinleyicilerdir. Bu katılımcı grubundan elde edilen bulguların, alan yazını ile örtüşüyor olması, bu alana ülkemizden yapılmış bir katkı olarak görülebilir. Sonuç olarak, müzik ve duygu arasındaki ilişkiyi tartışırken, bu ilişkinin farklı faktörlere bağlı olması ve bireysel farklılıkların her zaman araştırmacının karşısına çıkma olasılığı



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nedeniyle araştırma sonuçlarının genellemesi veya en doğrudur diye işaretlemesi bilimsellikten uzak bir görüş olacaktır.

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### POWER, THE ORIGINS OF AGGRESSION AND WAR IN SOCIETY. ECONOMIC AND PSYCHOSOCIAL EFFECTS

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#### **Abstract**

The paper aims to present a brief sociological perspective of the channelling of aggression in society and the causes that lead to conflicts, respectively wars. When sociologists try to explain war, they do not propose to base it on the psychological factors of the human side, but look for social causes – the factors in society that encourage aggression by turning it into a struggle between nations. Aggression and even murder is a form of manifestation that characterizes all human groups, while war does not have this characteristic. War is an option that groups can choose to deal with disagreements, but not all nations choose it. The researchers claim that there are three essential conditions for war, among them: the cultural tradition of certain countries or groups for war, a specific anxiety situation, and an incidental external factor that warms the initial conflict and escalates it to the point where people fight. Symbolic interactionists analyse the meaning behind war. A good example of this is the way the West and the Soviets perceived each other as a deadly enemy, leading to an escalation of a nuclear arms race and a deadly battle. Nuclear weapons under international conventions are not intended to be used, they only symbolize a country's ability to destroy an enemy. Officials identify this function of war as an extension of political boundaries, social integration, military security, social change, an ideology of revenge or credibility. Mention may also be made of image protection or intrinsic resources. According to conflict theorists, three causes of war can be identified: conflict of interest, capital surplus, or military supremacy. Modern armaments require exorbitant sums, but the main cost of war is dehumanization. One of the worst threats facing humanity is biological and chemical warfare. Today's nations are particularly vulnerable to this form of terrorism. Regarding the perception of war at the level of the collective mind and the constitutive institutions are negative and not adapted to this state of abnormality (example the current situation with Ukraine). Even when the imminence of war is overwhelming, its reality took the crowd by surprise.

In conclusion, the war and its aftermath will mean a certain abandonment of the process of globalization.

**Keywords:** Dehumanization, war, aggression, collective mind, arms race, economic effects.

#### **INTRODUCTION**

It can be mentioned we are familiar with the concept of war, being constantly bombarded with information from the media (radio - TV programs) that always announces conflicts, wars in countries we do not even know exist or in nearby countries.

Pitirim Sorokin (1937) pointed out that war is common to almost all countries, some knowing a higher frequency of these forms of manifestation, others lower. Thus, some countries have a lower record in terms of the number of wars, such as Germany, for example, others a higher number, such as Spain, and about Russia, his native country, Pitirim Sorokin mentioned that he lived only a quarter of peaceful century in the last 1000 years. From the time of William the Conqueror in 1066, England has been at war for 56 years out of every 100. Although we are not "at war" with any nation, but our military interventions have been vividly demonstrated in recent years in Grenada, Panama, Iraq, Somalia, Haiti."



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Some researchers of conflicting phenomena, including the physicist and mathematician Richardson (1960), considered that a common criterion for assessing a war could be the mortality factor, because "deaths are the same" he said. For example, the two world wars (World War I and World War II) killed up to 31 million people, while the Vietnam War cost 38,000 Americans and hundreds of thousands of Vietnamese. For 9 years the Soviet Union waged war in Afghanistan with about 1 million dead Afghans and over 20,000 lives of Soviet soldiers (Armitage, 1989). Iran and Iraq have been waging an eight-year war at a cost of 400,000 lives. A side effect of industrialization and digitalization and automation is the increased capacity to cause destruction and death. Thus in World War I less than 3 out of 100,000 people were affected by bombs while in World War II, as a result of technical progress 300 out of 100,000 people were affected by bombs (Hart, 1957). As far as nuclear weapons are concerned, they have devastating effects.

In this regard, the 1962 Committee of Scientists presented the devastating effects of a nuclear bomb blast to warn humankind about the consequences of a war.

"As the bomb explodes, the sky fills with a bluish-white glow. A person standing 60 miles away would see a fireball 30 times brighter than the midday sun and as hot as the center of the sun. The fireball expands rapidly to 4 and half miles wide. As it expands, it begins to rise, burning a larger and larger area. If the bomb exploded in the air, the heat would ignite the clothes of a person 31 miles away. If it exploded on the ground, the distances would be 13 and 19 miles, respectively, and would create a hole 240 feet deep and half a mile in diameter.

The matter absorbed in the fireball after the explosion condenses the earth from 5 to 10 miles up in the upper layers. It then spreads to form a mushroom-shaped radioactive cloud. The material in this cloud soon begins to fall in the form of precipitation. Meanwhile, traveling faster than the sound, an intense shock wave spreads from the center of the explosion, crushing almost everything in its path until it gradually loses its strength. Then comes a windfall of over a thousand miles per hour, which diminishes as it moves outward, and a vacuum develops behind it. When the surrounding air comes in a hurry, it attenuates the fires triggered by the thermal radiation and the initial explosion. Soon these many fires will unite, producing a storm of fires covering an area of many kilometres, destroying everything and burning structures and living things.

People even miles away from the blast will be severely burned. Many will suffer from severe pain for a few hours or even days before giving up. Others will be trapped by radiation and die after days and weeks of dehydration and vomiting. Some will survive but will be blinded, maimed, or disfigured" (1962 Committee of Scientists - after Henslin, 1996).

### THE PROBLEM OF AGGRESSION AND THE SOCIOLOGICAL PERSPECTIVE

For decades, the Soviets and Westerners were caught in the arms race facing each other. The Cold War prolonged hostilities between these nations, followed by a thaw, which led to the stockpile of nuclear weapons remaining from the arms race threatening human existence.

The threats we face because of the war are the imminence of a new conflict, which has always been part of the human scene. This is evident today in the war in Ukraine.

Researchers have questioned whether primitive or modern groups have always fought each other. Because war is so common in all societies, some anthropologists suggest that it is based on a human instinct for aggression. Lorentz (1966) mentioned the existence of a negative energy that fuels aggression and accumulates inside us just like "steam from a closed container".

This "increased arousal" creates pressure and requires release. Consequently, both the individual and the group are looking for ways to release this energy. Lorentz (1966) pointed out that this instinct was initially helpful to humanity by selecting the most suitable individuals for survival and by forcing them to spread to the surface of the earth, to protect themselves from the innate aggression of the other. Today this instinct is more of a threat than an adaptation, as Lorentz (1966) mentions it is a "hereditary evil of modern society."

To demonstrate this instinct, some researchers, including Napoleon Chagnon (1988), started from the men of the Yanomamō tribe a wild area in northern Venezuela that often fights with the neighbouring



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village by attacking each other. Fights often start with issues related to sex, infidelity, seduction, refusal to offer a girl promised in marriage. The men challenge each other to a fight that can fuel quarrels between villages or trigger revenge on the relatives of the killed man, which requires more retaliation. An argument can last for years and keeps the aggression alive because others are killed.

The question that arises is why these men are fighting. The answer that emerges from the research is that the man who killed at least one person has twice and a half more wives and more children, which makes him a very successful warrior. Thus he becomes highly respected, this being the sign of a true man. The reputation gained by violence gives a yanomamö man a high social status. This prestige makes it attractive for marriage, which is arranged, by a group of men from the tribe.

The problem that arises and that we are tempted to ask is how these yanomamö men differ from today's individuals in modern societies. Although war heroes are not rewarded with extra wives, they are given prestigious medals, Senate seats, and occasionally presidential seats. Chagnon (1988) even mentioned that candidates' military experiences become a major issue in U.S. political races. It is worth noting that individuals today are not very different from those of the Yanomamö tribes but only more indirect in their way of rewarding.

However, there are also societies that channel aggression to find an answer to the conflict, to the war. Significant in the way they manifest themselves is the rules that groups set out to deal with hostilities that inevitably arise as people live together.

One form of manifestation was that of the Yanomamö groups fighting among themselves. Other groups such as the Eskimos in East Greenland are loosening the conflict by engaging hostile individuals in a long duel of songs. Successful singing uses traditional patterns of composition to delight the audience with enthusiastic applause. The most applauded individual is the winner. One of the advantages of this duel through song and long singing is that it gives the public time to reach a consensus on who is right or who should plead guilty in the dispute that took place. The loser retreats and is ridiculed by the public (Fromm, 1973).

Other groups channel aggression into ritual violence, such as spear throwing in Tiwi or North Australia (Fromm, 1973). When a dispute occurs between an accuser and a defendant, the accuser throws the spear according to the ritual from a precise distance, while the defendant equates the throw. The audience can applaud the speed, the strength of the accuser as he throws the spear, or they can applaud the skill with which the defendant is equivalent. After a while, unanimity is reached and approval for one skill or another becomes overwhelming. When the defendant realizes that he is found guilty by the community, he is presumed to be unable to avoid a spear and to leave himself in a fleshy part of his body. The accuser tacitly stops throwing the spear when he becomes aware that public opinion is against him (Fromm, 1973).

Based on this research, it was found that while aggression, hostilities and even murder characterize all human groups, war does not. War is considered simply an option for groups. Mention is made of the North American Indian Mission, the Arunta of Australia, the Andaman Islands of the South Pacific and the Eskimos of the Arctic, which have standard ways of dealing with aggression and quarrels but do not have organized battles to pit one tribe against another.

### **THEORIES UNDERLYING CONFLICT AND WAR**

From theoretical perspective, certain favourable factors can be explained, causes, motivations that underlie or can influence the outbreak of war. Thus, in terms of symbolic interaction, one can mention the symbolic basis of the nuclear arms race. Through functionalism, it is possible to determine the reasons why nations go to war and establish conflicting interests and desires to expand territories that are the causes of war.

#### **Symbolic interactionism. The role of perception in the arms race.**

Symbolic interactionism emphasizes how perceptions are significant in escalating conflict. Perceptions are used of how the leaders of nations evaluate their own strengths in relation to the countries they consider enemies and what are the chances of winning or losing a war.



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Mention may be made in this regard of the United States and the former Soviet Union, which have regularly clashed over what kind of weapons to produce and how much of the country's revenue to allocate for this purpose. One superpower assumes that the other could produce a certain weapon and in this situation a countermeasure would be a step that obliges it, even forces it to build a certain type of weapon. For example, U.S. suspicions that the Soviets could increase their supply of nuclear warheads forced them to do exactly the same thing (Kurth, 1974). According to symbolic interactionism, symbols are essential to human behaviour. Based on perceptions of what the Soviets might plan, the Americans decided to build intercontinental missiles (ICBMs). These decisions became a signal to the Soviets that it would be good for them to build ICBMs as well. These assumptions push behaviour towards a symbol-based nuclear weapons race, interpretations as possible ways of action. It can be seen from these examples that symbols come to life and in their game can have power over human behaviour.

Another example in which symbolic interaction underlies war in conditions where two nations fear and hate each other would be the blow dealt by the first of the nations that could destroy the other's ability to retaliate. In this regard, Kurth (1974) noted that during the Cold War, air force commanders declared that they preferred what they called a "first blow" doctrine, if that meant they would win the war. In conclusion, both the Soviet Union and the United States have continually signalled to each other that they are developing new weapons, so the arms race has not stopped and the "first blow" is nonsense. It can be pointed out, and this frightens us that the well-being of us and of the whole world depends on the correct perception of these signals (Henslin, 1996).

### **Functionalism - the functions of war**

One of the main functions of war is to expand the territory and expand the political power of a group. In this sense, Park (1941) sociologist, researched the literature and concluded that war is functional by bringing into existence states and nations, which are the result of expanding the political boundaries of one group by subjugating other groups. An example of this is Hitler, who invaded nation after nation in Europe between 1939 and 1940, and Japan threatened the South Pacific.

A second function of the war, according to some researchers, was social integration. This is explained by the creation of an agreement within the borders, of a peace that offers the conflicting inner groups a common enemy (Coser, 1956, Timasheff, 1965). After the groups succeed, they return to the unfinished business and try to establish the old accounts. An example would be Afghanistan, in which Afghan groups cooperated to repel the Soviets, and then continued the religious clan's struggle for power.

A third function mentioned by Simmel (1904) is that of social change, in the sense that war stimulates the development of science and technology. Today, the threat of war and war situations stimulate the development of aerodynamic projects, the use of nuclear energy and the winners benefit from this change induced by war. The defeat of Japan in World War II led to the rapid industrialization of this country, which saw the superiority of Western technology. This changed their standard of living in a favourable way but disrupted their traditional ways of life.

A fourth function of war is economic gain, which has traditionally included access to commercial markets, sales markets, raw materials, outlets and investment opportunities (Pruitt and Snyder 1969). Sociologist Mills (1958) noted "preparation for war requires large expenditures that benefits leading corporations." This implies an industrialization that includes an increase in the number of employees.

The fifth function of war is ideological, the domination of a political or religious system or the suppression of an opposing system. Mention may be made in this case of the Crusades undertaken by European Christians between the 11th and 14th centuries to reconquering the Holy Land from Islam, which are classic examples of ideological wars.

A sixth function is to avenge or punish another nation, to give it a "lesson" or revenge for an injury or insult (Pruitt and Snyder, 1969). An example of this is the Arab war in Iraq.

A seventh function is that of military security. That is, the nation does not want the territory, but attacks because an enemy strategically exploits that territory. This is the case in 1981 when Israel bombed the Iraqi nuclear facility (Henslin, 1996).





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An eighth function of war is to increase the credibility of a nation's threats or guarantees. The need for a nation to be taken seriously in war conditions, that is, it supports what it says (Henslin, 1996).

A ninth function is to protect the image as is the case with the Pakistani army that attacked India (Sagan, 1994). India had threatened Pakistan-claimed territory, and the Pakistani army feared it would lose its image if it did not intervene.

A tenth function of war is the preventive protection of resources. The Gulf War can be considered an example in this case of resource protection.

It may be pointed out that no war has a single function. The Pakistani attack, for example, also involved expanding the territory and ideology and military security. If the war continues, the functions may change. The Crusades, which began in 1095, were dominated by ideological purposes. Pope Urban II urged Christians to go to this holy war and promised them full penance (forgiveness of sins), but the Crusades also worked to obtain treasures and territory expansion (Bridgwater, 1953). During the nine crusades, with except for the tenth one, for 200 years all the functions of the war were visible. War is traditionally functional for the victors because they can gain natural resources, land and slaves of war.

Rome, for example, expanded its empire by subjugating one people after another, exploiting their resources, imposing taxes, confiscating wealth, gold and silver, treasures of art, and subjugating groups they had enslaved by compels them the hardest work. Some of the Greek intellectuals were enslaved, being forced to become personal guardians, educators for children from rich and politically strong families.

### **War malfunctions**

War also involves dysfunctions, especially for those who experience defeat, as was the case with Rome later. A malfunction in the event of a defeat is economical. Victorious countries that later suffer defeat become dependent on the subjugated groups they exploit, leading to economic prosperity to begin with, followed by a decline, a situation experienced by Britain through the loss of colonies. The war has several dysfunctions today in that the weapons that nations have can destroy the earth.

### **Conflict theory and the causes of war**

Conflict theorists present three causes of conflict, the struggle for existence being a central force in human drama.

The first cause of the conflict can be considered the fight for resources, and IbnKhal from Tunis specified that in the case of groups with limited resources this is a natural conflict, the war being the first form of manifestation of this confrontation. Each group tries to expand the power of its own group, and war is an attempt to increase the wealth and power of those who control society (Angell, 1965).

The second cause of the conflict focuses on imperialism, on geographical expansion. Hobson (1939) noted that the wars of the capitalist nations result from the surplus of capital. To gain land, markets, to invest capital, leaders persuade decision-makers to take over other countries and lands.

The third interpretation of war would be pressure from the military, the government, the "military machine," whose strong and prestigious positions still depend on war (Schumpeter, 1919). In order to consolidate their authority and prestige, these elites are building a military machine that is supported by a political organization. A version of conflict theory is a combination of surplus capital and the military machine, uniting industrial interests with military ones, as emphasized by sociologists Reynolds and Lundgren (1976). The dominance of this military machine in modern society, combined with the constant preparations for war, makes "war no longer an interruption of peace in our time, but a restless interlude between wars." It can be said, "Peace has become a dangerous balance of mutual terror and fear" (Mills, 1958).

The main findings of Wright (1942), a well-known professor of international law, can be seen in Figure 1.



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**Figure 1.** Wright's perceptions and conclusions regarding the war

### RELIGIOUS WARS IN EUROPE

Religion has contributed, as stated, to the generation of conflicts that have taken place in the border areas of Christianity on the edge of Europe, introducing the concept of "crusade". In this sense, a series of models were imposed that would be practiced in the sixteenth and seventeenth centuries when Christianity and Islam confronted Catholics and Protestants causing the "division of Western Christianity."

The Crusades to the Holy Land and the joint occupation by Western Europe of parts of the Levant (1096-1291) were originally undertaken to defend Eastern Christians (Greek Orthodox) from Turkish oppression and to liberate the holy places of Christianity from Muslim occupation, which will turn into wars of European expansion. The fall of the last European fortress on the Asian continent in 1291 marked the end of an era but also of the Crusades.

The fall of the city of Tripoli under the siege of the Muslim Mamluks, a battle that took place in 1282, was an important event during the Crusades, as it marked the capture of one of the few important regions left in the possession of the Crusaders.

The participation of Christians in the 15th century Reconquista of the Iberian Peninsula in 1492 was a culmination of Christian participation, but it allowed parts of the Peninsula to remain in Moorish rule. The defeat of the Emirate of Granada by the armies of Ferdinand II and Isabella I, the common sovereigns of Aragon and Castile, as well as Leon, led to the formation of the modern Spanish state ([semneletimpului.ro/religie/libertate-religioasa/razboaiel-religioase-and-religious-freedom-a-controversial-history.html](http://semneletimpului.ro/religie/libertate-religioasa/razboaiel-religioase-and-religious-freedom-a-controversial-history.html)).

In 1511 Ferdinand II of Aragon launched a crusade in the Straits of Gibraltar in Africa, which attracted the support of the English and French armies.

In the second half of the 14th century, an almost permanent crusade took place in the countries bordering the eastern Baltic region led by the Order of the Teutonic Knights against the pagan inhabitants of



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Prussia, Lithuania and Livonia. The Teutonic Order gained more and more territory, becoming more and more like a secular state. They became increasingly involved in conflicts with neighbouring kingdoms, some of them Christian, and thus fought as "crusaders" against Catholic Poles and Orthodox Russians. The loss of the Battle of Tannenberg in 1410, against the Polish-Lithuanian Union, made the Teutonic Order no longer play a major role in that area, and the Baltic Crusade era came to an end. The widespread conversion of Lithuanians to Christianity, a fact that has been perpetuated for generations to come, has, in a sense, led the crusade and order to achieve the goals of converting many pagans to Christianity. But perhaps the conversions would have been easier to accomplish, some experts point out, through missionary activity, not through wars of conquest that served primarily to enrich and increase the power of the Teutonic Order (Urban, 2003).

In the 15th century, the German emperor Sigismund led four "crusades" in Bohemia and Silesia, but he was regularly defeated by the Hussites, whose armies combined technological innovation with the use of firearms with extraordinary religious fervour. Eventually German Catholic forces used their numerical superiority to achieve some military successes, the Hussites split into factions and in 1436 negotiated peace. Some freedoms were extended and the diversity of religious practice in the Bohemian population was limited, which a century later favoured Protestantism and restored the authority of the emperor and the papacy. These wars were fought by the Hussites on the defensive, initially they did not try to impose their religious views on the Catholics of Bohemia and Silesia or take Huss's message out of the country, but they worshiped their faith and fought against persecution. Their leading theologian Peter Chelcicky"preached nonviolence. Chelcicky spoke out against those who had remorse for eating pork on Friday, but who easily shed the blood of Christians. According to him, the first pacifist era of the church was also its golden age: the Christian law as a law of love forbade crime, the implicit conclusion being that the followers of this law were certainly obliged to obey the statute and give to Caesar what was Caesar's, but to refuse military service"(Contamine, 1986). But this tendency, as Contamine (1986) states, "was in contradiction with the defence of the homeland against foreign invaders." The wars thus acquired an ethnic and secular character, in addition to the religious one.

The siege of Acre in 1291, led to the loss of this city by the Muslims, which was taken by the Crusaders. It is considered one of the most important battles of that time, the capture of the city marking the end of new crusades in the Levant.

In the 14th century, the Ottoman Turks advanced into Europe, after the Battle of Kosovo in 1389, the Ottomans expanded into southeaster Europe, gradually conquering regions ruled by Greek Orthodox pirates, but being defeated by the Hungarian, Roman Catholic kingdom. However, Western Europe was not seriously threatened by the Turks until the 1520s and while calls for help in campaigns against the Ottomans stimulated a significant response in the West in the late 14th century, but they only attracted a limited response during the 125 years after the disastrous outcome of the Nicopolis Crusade in September 1396. The Nicopolis Crusade on the Danube was a decisive blow and marked the end of the last era of the Crusades.

The Varna Crusade of 1444 outside the walls of Nicopolis, organized by the Poles and Hungarians, joined by few Czech, German and Italian troops, despite calls from Pope Eugene IV, the crusade ended in a more disastrous defeat than the one at Nicopolis. Several Italian troops and ships went to help the Greek Orthodox defenders of Constantinople during the final siege of Sultan Mehmed II in 1453. A weak response was also received by Pope Callistus III's efforts to gather troops to lift the siege of Belgrade by Sultan Mehmed II despite the papal declaration that the defeat of the city would endanger the entire Christian world. Due to the leadership of John of Hunedoara and the religious zeal of the defenders, the siege ended with a Christian victory announced "by the sound of church bells throughout Christendom". But this was not due to Western aid.

The lack of enthusiasm in Western Europe in the 15th century was attributed to the shock of the defeat at Nicopolis.

In the ensuing period, Orthodox Christians in South-Eastern Europe faced reprisals, sometimes persecution by the Ottomans, which led to numerous conversions to Islam. Although the Christian Orthodox communities survived, they became attached to Muslims and rooted in centuries of suspicion



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and hatred of those who were conquerors and oppressors and of Roman Catholics (perceived to have abandoned their Christian brothers.

The separate identities of Croats, Bosnians and Serbs in the Balkans are largely defined not by language but by religion. Historically and culturally, Bosnians are Islamic, Croatian Catholics and Serbs Orthodox. The wars between these three ethno-religious groups in the 1990s were the last manifestations of the wars that began in the 1370s.

Today, Western society generally accepts that freedom of faith, of religious expression, is an innate human right, but this conception appears only after centuries of religious intolerance, persecution and centuries of interreligious hatred so strong that it has frequently spawned religious wars.

### **COSTS AND EFFECTS OF WAR**

It is often rumoured that wars are costly. Image presentations of new models of high-performance military helicopters or air-to-air missiles that are designed to attack all targets, even the smallest, show us the technical progress in the development of these weapons of war. Some countries, such as France, hold the top spot in the sale of helicopters, missiles and warplanes abroad.

#### **The cost of war expressed in money**

Some statistics, tables show how much some states have spent and how many tax dollars are extracted from the population to support the national defence bill. These amounts include veterans' benefit expenses as well as armaments and war expenses each year.

The concept of a billion in any currency is so different in our daily lives that it is more than we can imagine. In order to get an idea of what a billion dollars means, for example, says Shaffer, (1986) we should imagine a million dollars in the form of stacked banknotes that would cover the distance from New York to Philadelphia and a billion dollars would orbit the earth four times around the equator. This disturbs the imagination more than the many zeros that sometimes make it difficult to read. Thus, in the case of the United States, the dollar bills from the defence budget, put together, would circle the earth at the equator more than 1000 times.

Another way to see the extent of military spending is to compare what else we could buy with this money, thus:

- you can buy an aircraft carrier or build 12,000 high schools;
- a naval arms factory or twenty-six hospitals with 160 beds can;
- 10 jet bombers or school lunches provided for 10 million children for a year;
- a type of bomber can be developed or the annual salaries of 250,000 teachers.

Malaria, which threatens 100 million people with just half a day of current military spending, could be eradicated (Silva, 1980). In other words, all the money spent on military purposes is alternative purchases that are lost to humanity. To prepare for war, the United States military employs 2 million soldiers and nearly one million civilians. To these are added the reserves and the National Guard and everything reaches 4 million soldiers.

The incredible sums that the nations of the world spend on war are over \$ 1000 billion (\$ 1 trillion) each year to arm themselves. This represents more than 4% of the world's gross national product - about \$ 200 for every man, woman and child in the world (put together, these amounts would stretch around the earth 4,000 times). Developing nations account for 23 percent of these military expenditures. These nations are so poor that they cannot adequately feed and educate their own people.

#### **The costs of war in the form of the deceased**

War is costly not only in terms of funds but also in lost lives. Until Napoleon introduced the notion of "total war", conflicts were smaller and resulted in fewer casualties. In the United States Civil War, 620,000 more people died than in the nation's other conflicts until the Vietnam War (Gartner, 1988).

A recent change in the war is that today's weapons are so destructive that they make the very existence of human life on earth difficult. Deaths in the First World War recorded a high number of deaths of 8.6



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million and in the Second World War there were almost double the death toll of 15.2 million (Finsterbush and Greisman, 1975). A total of 471 wars were fought since the year 1700, resulting in 101,550,000 deaths (Gartner, 1988).

### **The cost of war in terms of quality of life**

In addition to the high costs and lost human lives, the war also affects the quality of life of a people. Human behaviour is changing, with people becoming paranoid, full of fears and worries. The costs of war can affect morality and contribute to the dehumanization of the individual. Exposure to brutality, murder, death, the perception of individuals especially enemies as objects can affect human behaviour causing dehumanization. Thus, those who are considered objects rather than humans do not deserve the treatment given to humans, which generates cruelty. Bernard, Ottenberg, and Redl (1971) mention the following features of dehumanization:

- Emotional distancing from others by ceasing to identify with other individuals who are no longer perceived as having the same human qualities as themselves.
- Emphasis is placed on the regulations that need to be made, even considering that some atrocities are necessary to achieve a goal. Individual subjected to brutality, cruelty no longer raise questions. Anyone who does these things or behaves in such a way may at some point say, "I don't like what I'm doing, but this is necessary" or "We must all die one day."
- Inability to withstand pressure, responsibility of the group to which he belongs. Fears of losing one's security, freedom of employment, prestige and respect of the group, or questioning one's loyalty, personal integrity, may take precedence over mortality.
- A diminished sense of individual responsibility. The individual perceives himself as a small piece in a large gear, in which the choice of situation is not involved; individual simply performs the tasks ordered by others. The bosses are responsible, they know the secret information that justifies these acts and they are in a privileged position to judge what is good and what is bad. In these situations, as consciousness becomes numb, even acts of torture are dissociated from the "normal self." The individual is doing its job without any responsibility to question the orders. The responsibility is limited to: carrying out the task, torture and killing which are perceived as "dirty work, an unpleasant task that for some reason must be done." This is part of a larger scheme, and "decision makers are responsible, not me a simple soldier."

### **Influence on morality. Symbolism of the struggle between good and evil**

Dehumanization is based on the constant struggle between the principle of good and evil, in this formula evil is always the enemy, mentioned Shibutani (1970). In order to overcome evil, moral standards must be suspended. In conditions of war, brutality, betrayal, murders are perceived as acts of bravery that would otherwise be condemned. In order to participate in such acts, soldiers must neutralize their morality and adapt emotionally. The dehumanization allowed German soldiers to take part in the atrocities in the concentration camps of World War II.

The Japanese also operated in concentration camps where they tortured prisoners and performed medical experiments. The race they detested was that of whites (Davis, 1994).

In the Vietnam War, Germans, Japanese, and Americans stood out for their dehumanizing actions. The shooting in a group of huts and on mothers fleeing with their children that was justified by thought-provoking schemes such as "saving people from barbaric communism" or "retaliation is justified for friends who have been killed and injured."

When dehumanization fails even though such self-protection techniques are effective, a paralyzing guilt can occur. The question arises: why do we kill these people? They are not soldiers, why do we kill them? There is a loss of motivation to perform your task. Maintaining the definitions that the enemy is less human helps to justify the cruelty but returned home from the war, these definitions tend to fall apart and the soldiers wake up thinking about what they did in the war and try an accommodation but the others fail to see that. In this sense, Smith (1980) mentions the case of a California soldier who wrote before shooting himself in the head: "I can't sleep anymore. When I was in Vietnam, I came across a



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North Vietnamese soldier, a man with a woman, and a 3-year-old girl. We had to shoot them. I can't get the girl's face out of my head. I hope God will forgive me. I hope that the people of this country who have earned millions of dollars from the men, women and children who died in this war will be able to sleep. I can't and I haven't won a penny (Smith, 1980).

### CONCLUSIONS

The European continent has gone through many wars. European countries have begun to cooperate in a number of policy areas, including energy, in order to eliminate the possibility of future wars and to establish lasting peace on the continent. The European Union was created having primarily this purpose. At present, the scope of European cooperation covers a wide range of policy areas, from humanitarian aid, trade, environment and agriculture, in a political context of peace that has been going on for over seven decades. Wars cause inevitable destruction and loss that is measured not only by loss of life or property but also by the loss of loved ones, family and friends, which are irreplaceable. An equally heavy loss is the loss of a sense of security and confidence in "others". What is destroyed in just a few seconds can take decades to rebuild.

Wars also have long-term repercussions on the environment. Depending on the extent of the damage caused by the war and the type of arsenal used, toxic chemicals in water, soil and air can persist for decades, affecting human health, habitats and species. In addition to pollution, debris, waste and the destruction of ecosystems, the wars and the reconstruction process that follows require a very high consumption of resources, exerting additional pressures and demands on energy consumption and construction materials.

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### GAGAUZ YAZININDA TEŞBİH SANATININ SEMANTİK YÖRÜNGEDE ANALİZİ ANALYSIS OF THE ART OF SIMILE IN GAGAUZ LITERATURE IN SEMANTIC ORBIT

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#### **Abstract**

The pronunciation of extreme dreams and intuitions that appear in the grammatical spectrum describes the phenomenon of creativity, which is the latent material in the deep structure of language. This extraordinary phenomenon makes specific creations visible in the descriptive universe by providing an endless period of use from limited conceptual elements. Thus, unconventional images and unusual associations integrated with aesthetic discourse strengthen the semantic perspective and initiate the linguistic movement process.

In the study, it has been tried to determine what kind of associative motifs and prosodic themes the aspect of the creative signs are located on, and in which structural unit the artist's aesthetic concept range is concentrated. This process played an active role in making emotional findings meaningful on the level of literary arts. In the study, the functional projection of the rhetoric element in the context of the text is discussed. The scanned poetic texts about Gagauz literature were evaluated within the scope of data source and document analysis method was taken as basis. The data, which was interpreted with the power of interpretation, reflected the theoretical dimension of the research.

Simile, which is an interesting artistic perspective in Gagauz literature, offers the possibilities of creating a creative and active discourse in the language and enriching the semantic capacity of the language. This rhetorical value, which appears within the means of speech and meaning, aims to increase the expressiveness of the language and to add enthusiasm, harmony and excitement to the expression. Among the concepts located at the focal points of linguistic graphics, the comparison of the weak with the strong explains the art of simile. Although the four elements (resembling, likened, simile aspect, simile preposition) that react in the process step of the art of simile are employed, it is seen that it is not necessary to have all of these elements during the process. The strengthening of the meaning in the simile process is related to the decrease of these elements. Therefore, the fact that the phenomena that replace each other provide metaphorical expression based on the similarity factor performs the content analysis of the art of simile. This imaginary structure, which is the original transmission of artistic creation, states that Gagauz literature dominates an authentic and aesthetic depth.

**Key words:** Gagauz literature, art of simile, aesthetics, semantics, analysis.

#### **Özet**

Gramatikal spektrumda beliren ekstrem düş ve sezgilerin sesletim işlemi, dilin derin yapısındaki gizil materyal olan yaratıcılık olgusunu betimlemektedir. Bu sıra dışı olgu, sınırlı düzeydeki kavramsal öğelerden sonsuz kullanım periyodu sağlayarak özgül yaratıları tasvirî evrende görünür kılmaktadır. Böylece estetik söylemle bütünleşen alışılmamış imgeler ve olağan dışı bağdaştırmalar semantik görünmeyi güçlendirip dilsel devrim sürecini başlatmaktadır.

Çalışmada yaratıcı göstergelerin görünüm açısının ne tür çağrışımsal motifler ve bürünsel izlekler üzerinde konumlandığı, sanatçının estetik yönlü kavram yelpazesinin hangi yapı biriminde yoğunlaştığı tespit edilmeye çalışılmıştır. Bu işlem süreci, hissel bulguların edebi sanatlar düzleminde anlam kazanmasında etkin rol oynamıştır. Çalışmada sözbilim unsurunun metin bağlamındaki işlevsel izdüşümü ele alınmıştır. Gagauz yazınına dair taranan şiirsel metinler veri kaynağı kapsamında





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değerlendirilmiş, doküman analizi yöntemi esas alınmıştır. Yorum gücüyle anlamlandırılan veriler, araştırmannın kuramsal boyutunu yansıtmıştır.

Gagauz edebiyatında ilgi çekici bir sanatsal perspektif olan teşbih, dilde yaratıcı ve aktif bir söylem oluşturmanın, dilin anlam sığasını zenginleştirmenin olanaklarını sunmaktadır. Söz ve anlam araçları bünyesinde görünüm arz eden bu retorik değer, dilde etkileyiciliği arttırmayı, ifadeye coşku, âhenk ve heyecan katmayı amaç edinmektedir. Dilsel grafiğin odak noktalarında konuşlanan kavramlar arasında, zayıf olanın güçlü olana benzetilmesi teşbih sanatını açıklar niteliktedir. Benzetme sanatının işlem basamağında reaksiyona giren dört öge (benzeyen, kendisine benzetilen, benzetme yönü, benzetme edatı) işe koşulmasına rağmen, işlem esnasında bu ögelerin tamamının bulunma zorunluluğunun olmadığı görülmektedir. Benzetme işleminde anlamın güç kazanması, bu ögelerin azalış göstermesiyle bağlantılı olmaktadır. Dolayısıyla birbirinin yerine geçen görüngülerin, benzerlik faktörüne dayanarak eğretilmeli anlatımı sağlaması teşbih sanatının içerik analizini gerçekleştirmektedir. Sanatsal yaratımın özgün aktarımı olan bu düşsel yapı, Gagauz edebiyatının otantik ve estetik bir derinliğe egemen olduğunu bildirmektedir.

**Anahtar kelimeler:** Gagauz yazını, teşbih sanatı, estetik, semantik, analiz.

### Giriş

Yaratıcı eylemin estetik sunumu olan şiirsel yapı, göstergelerin anlam kuşağına giren her unsurdan yararlanma eğilimindedir. Şiir dilindeki betimsel oluşum, düş ve sezgilerin daha zengin tasarımlar ve sıra dışı imgelemler kazanarak, sanatçının hislerindeki yaratı düzleminin söz sanatları dizgesine aktarımını sağlar. Böylelikle alışılmamış imgelemin, söylemde beliren gizil güce ulaştığı, okuyucunun duygu evreninin estetik katmana taşındığı görülür. Dolayısıyla ifadeyi güçlendirmek, sözü canlı ve etkin kılmak amacıyla, aralarında ortak nitelik olan iki varlıktan, güçsüz olanı güçlü olana benzetme işlemi teşbih sanatını görünür kılar.

Dildeki anlamlı birimlerin çok değişik kuruluşlar ve bileşimler içinde, sonsuz sayıdaki düşünce ve duygunun anlatımına elverişli oluşu, dilbilimsel kuralların rehberliğinde, yepyeni sözce ve tümceler, bağdaştırmaların üretimine olanak veren olgu, yaratıcılığı betimler (Aksan, 2011: 46). Kavramın ana belirtilerini taşıyan anlam, sözcük söylenildiğinde insan zihninde bazı ikincil hayallerin, anlam ve hislerin oluştuğu, sözcüğün birtakım çağrışımların doğmasına yol açtığı görülür (Aksan, 2004: 69). Söz sanatlarının temeli sayılan teşbih, bir varlığı başka bir varlık yardımıyla anlatma (Karadağ, 2000: 222) olarak ifade edilir. Buradaki amaç, sözü daha anlaşılır kılmak, somutlaştırmak ve güçlendirmektir (Ekici, 2009: 51). Sanatkâr, bir varlık, durum veya güzellik karşısında duyduğu heyecanı anlatırken, daha etkili olma düşüncesiyle teşbihi kullanır (Çevirici, 2006: 40).

### Bulgular

Gagauz yazınına dair analiz edilen şiirsel metinlerde teşbih (benzetme) sanatının görüntü katmanı şu şekilde yansımıştır:

#### 1.

Sän bir yıldız göklerde,

Kuvedin kökleşti bizlerde.

Gagauziyam – sänsin Canım,

Allahtan adanmış Vatanım!

Gagauziyam – sän bir Ana!

Sendän taa paalı yok, Sän anna!

Yaşa yıllarda, yaşa cannarda,

Gagauziyam, kalma aarda!



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(Zanet, 2021: 86)

Vatan sevgisi teminin işlendiği şiirde, vatanın arz ettiği önem, teşbih sanatının estetik düzleminden ilham alınarak aktarılmıştır. Şair, vatanını yıldız, can ve anne kavramlarıyla ilişkilendirerek ifadeye simgesel ve olgusal bir görünüm yüklemiştir. Bu kavramların benzetme işlemine dâhil edilmesiyle vatanın ölümsüzlüğüne, kudretine ve kutsallığına vurgu yapılmıştır. Söze estetik değer katmak ve okuyucunun dikkatini canlı kılmak isteyen şair, duygu ve düşüncelerini teşbih sanatı aracılığıyla yansıtmıştır.

2.

Makar ki bakışın yalpak,  
Saplêêr o bir bıçak gibi.  
O gözlerin – iki çakmak,  
Erä salt kıvılcın serpti.

(Zanet, 1998: 36)

Şair, hislerini somutlaştırmak, görünür kılmak adına teşbih sanatına başvurmuştur. Şiirde sevgilinin nazik bakışının bir bıçak gibi olduğu ve gözlerinin iki çakmak gibi yere kıvılcın serptiği dile getirilmiştir. Şair, duygu atmosferini canlı ve coşkun kılmak amacıyla bu tarz bir söylemi tercih etmiştir. Benzetme işleminde estetik vurgunun yanı sıra mübalağa (abartma) sanatının da varlığı sezilmiştir.

3.

O ellerin iki kanat gibi,  
Sarıp, büüledilär beni.  
O saçların, sansın yangın,  
Tutuşturdu hererciimi.

(Zanet, 1998: 72)

Şair, sevgiliye olan hayranlığını belirtirken abartma sanatını işlese de asıl eylemi teşbih sanatının duygu penceresinden yansıtmaktadır. Şiirde sevgilinin ellerinin iki kanat gibi şairi büyülediği, saçlarının ise şairin her yerini yangın gibi tutuşturduğu ifade edilerek olanaksız bir durum aktarılmış, böylece mübalağa yapılmıştır. Fakat mübalağayı yaratan temel işlem benzetme olduğundan baskın sanat tarzı teşbihtir.

4.

Senin bakışın –  
Güldän esinti.  
Kıvrak gür-kaşın –  
Gaytan şiridi.

(Zanet, 1998: 190)

Şair, okuyucunun dikkat algısını aktif konuma getirmek, estetik izlenimi yoğunlaştırmak gayesiyle benzetme sanatına yönelmiştir. Dörtlükte, sevgilinin bakışının gülden bir esinti olduğu; kıvrak, gür kaşının ise kaytan şiridi olduğu dile getirilmiştir. Hislerini teşbih sanatı aracılığı ile işleyen şair, estetik yansımanın edebi örüntüsünü benzetme işlemiyle dışa vurmuştur.

5.

Kılıç gibi yardı üüreemi o lafın.  
Ansızdan, haşlanıp, yandı o canım.

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Azarlayıp baktın gözümä –

Nedän hem kimdän bu kinnii sän aldın?

(Zanet, 2018: 210)

Şair, sevgili tarafından azarlanmış ve söz konusu durumun nedenini sorgulamıştır. Şiirde, sevgilinin şaire karşı kullandığı ifadenin, şairin yüreğini kılıç gibi yardığı, bu nedenle üzüntü duyan şairin aniden canının haşlanıp yandığı dile getirilmiştir. Yüreğin kılıç gibi yarılması teşbih sanatının işaretleyici unsuru olmuştur. Şair, okuyucunun duygu katmanında derinlik algısı yaratmak amacıyla heyecanı gerçekliğin ötesine taşımış, abartma sanatından ilham almıştır.

### 6.

Gün fırladı Dan Erindän

Dooru bulut denizinä

Da razgeldi o, ansızdan,

O denizin derinniinä.

Düüler hem çırpınêr orda,

Tuzaa düşmüş bir kuş gibi,

Aman, yok er bulutlarda

Ne güneşä, ne da günä deyni.

O bulutlar, asker gibi,

Durêrlar – emirä kurban!

Güneş taa yukarı pindi –

Oldu o bulutlar da darmadaan.

(Zanet, 2018: 222)

İlk dörtlükte günün tan yerinden doğruca bulut denizine fırlaması, ikinci dörtlükte günün tuzağa düşmüş bir kuş gibi çırpınması ve son dörtlükte bulutların asker gibi dizilip emir beklemesi teşbih sanatını görünür kılmıştır. Şair, sözün canlılığını ve estetik ritmini arttırmak gayesiyle benzetmeye gitmiştir.

### 7.

Güneş, güneş gibi o bakışın,

Lüzgär, lüzgär gibi geler sesin,

İnan, inan!

İçim, içim yanêr hem can erim

Yaman, yaman bana, benim yarım,

Yaman, yaman!

(Zanet, 2018: 289)

Şiirde şair, sevgilinin bakışını güneşe, sesini rüzgâra benzeterek teşbih sanatının görüngü düzlemini okuyucunun dikkat algısına odaklamak istemiştir. Şairin, hislerini bu yöntemle işlemesinin nedeni, anlatımdaki coşkuyu ön plana çıkarma eğiliminden kaynaklı olmuştur. Şair, içinde bulunduğu duygu



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iklimini benzetme tarzında ifade etmiş, yaşadığı hissel yoğunluğu pekiştirmek adına tekrar (yineleme ) sanatına başvurmuştur.

**8.**

Kanadım - bir ak elken.

Neredäydim mi temen?

Uçtum dan erlerinä

Getirdim günü sizä.

(Zanet, 2012: 18)

Dörtlükte şair, leylek kuşunu tasvir etmekte ve kuşun belirgin özelliklerini okuyucunun zihninde canlandırmaktadır. Şiirde leyleğe, insana ait özellikler verilmesi teşhis (kişileştirme) sanatını, leyleğin insan gibi konuşturulması ise intak sanatını işaretlemektedir. Şair, leyleğin kanadını bir ak yelkene benzeterek teşbih (benzetme) sanatını vurgulamaktadır. Söylemin dikkat çekmesi, merak uyandırması ve sanatsal betim kazanması teşbih sanatının doğrultusunu estetik bir perspektife taşımaktadır.

**9.**

Uzunsun daalar gibi,

Tatlısın ballar gibi,

Gezärsan evdän evä,

Başçada güllär gibi.

(Akt. Zanet, 2010: 343)

Dörtlükte, kişinin dağlar gibi uzun, ballar gibi tatlı ve bahçedeki güller gibi olduğu dile getirilmiştir. İfadenin estetik bir katmana yerleşmesi adına, teşbih sanatına yönelen şair, ironi unsurlarını da işe koşarak anlatım olanaklarını estetik bir düzleme taşımıştır.

**10.**

Uzundan da ses gelir,

İncä belli yär gelir.

Beli incä – dal gibi,

Dili tatlı – bal gibi.

(Akt. Zanet, 2017: 343)

Şair, sevgilinin belinin inceliğini dal'a, dilinin tatlılığını ise bal'a benzeterek teşbih sanatının görüngenü evrenini betimlemiştir. Şiirsel yaratımın estetiksel varlığına lirik bir üslup katan şair, realist boyutun benzetim şemasını çizmiştir.

**11.**

Şiirin dilindä käämil balsın,

Türkü sesindä-sarp bülbülsün

Hem da güzellik tarafından

Çok anılmış gülün çiçääsin.

Bir ayoz gibi insanın,

Küçüü-büüyü sevdi seni.

Kimä deyni sän duudun?!



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(Köse, 2001: 167)

Şair ilk dörtlükte kişiyi şiir dilinde kusursuz bir bal'a, türkü sesinde sarp bülbüle, güzellikte çok anılan gül çiçeğine; son dörtlükte ise kişinin insanlığını koruyucu meleğe benzetmiştir. Şair, okuyucuyu etki alanına çekmek amacıyla benzetme sanatını işlemiş, söylemi aktif bir yörüngeye ileterek abartılı öğelerle harmanlamıştır. Semantik bağlamı zenginleştiren şair, okurun dikkat düzlemini aktivize etmiştir.

12.

Sansın gündür ana bakışı,  
Yıııdêr o canı hem kaşı,  
Herbir adımını da bilir,  
Raatsızlaa kendini hep çeker.

(Kösa, 2011: 25)

Şair, dörtlükte ana bakışını gün'e benzetmiş ve anne olgusunun kutsallığına işaret etmiştir. Şair, his açısını genişletmek amacıyla teşbih periyodunu okurun ilgi odağına sunarak ifadeye canlı ve estetik bir üslup katmıştır.

13.

Sän – gecämsin hem günüm,  
Toprakta gezän,  
Yıldızımsın hem gülüm,  
Gözeldän gözäl.

Sän – serin suda çöşmäm,  
Donaklı yärim,  
Sän – taazä, sıcak ekmääm,  
Sevgili karım.

(Filioglu, 2005:102)

Şair, hayat arkadaşını (eşini) gece ve gündüze, yeryüzünde gezen yıldıza, güle, serin sudaki çeşmeye, taze sıcak ekmeğe benzeterek ona karşı hissettiği duygu selini gün yüzüne çıkarmıştır. Böylece şair, eşine olan sevgisini teşbih ögesi çerçevesinde yansıtmıştır. Bu duygusal coşkuyu abartma unsuruyla harmanlayarak ifadeyi özgün bir katmana taşımıştır. Asıl gayesi güzellik olan teşbihin, estetik boyutunu duygu grafiğine yükleyen şair, tasviri evrenin sınırlarını zorlamış, okurun dikkat açısını genişletmiştir.

14.

-Aman, mari Menevşä,  
Ne da gözäl adın var.  
-Aman, sevdam İvançu, benim aadım pek gözäl,  
Kırda menevşaya benzär.  
-Aman, mari Menevşä,  
Ne da kıvrak boyun var?  
-Aman, sevdam İvançu,



Benim boyum pek kıvrak,  
Eşil fidanda bir yaprak.  
-Aman, mari Menevşâ,  
Ne da gözâl üzün var?  
-Aman, sevdam İvançu,  
Benim üzüm pek gözâl,  
Kırmızı almaya benzâr.

(Kolça, 2020: 12)

İki sevgili arasında geçen diyalogu konu edinen şiirde, sevgilinin adı menekşe çiçeğine, boyu yeşil fidana, yüzü ise kırmızı elmaya benzetilmiştir. Teşbih sanatına gönderimde bulunan şair, sözün etki derecesini arttırmayı hedeflemiştir. Sözcelerin aktif kullanımı ve hissel izdüşümün okurun ilgi düzlemindeki yansımaları estetik dizge yardımıyla çizilmiştir.

### 15.

Bobanın gözleri –  
Gökün maavilii.  
Bobanın nasaadı –  
Yaşamak düzeni.

Bobanın sevdası –  
Güneşin yalpaklı.  
Bobanın elleri –  
Topraan kuvedi.

(Sirkeli-Kristioglo, 2016: 38)

Şair, babanın gözlerini göğün maviliğine, verdiği nasihati yaşamı dokuyan tezgâha, sevdasını güneşin nazikliğine, ellerini ise toprağın kuvvetine benzetmiştir. Söylemin etki gücünü arttırmak gayesiyle yoğun bir benzetmenin etkisi altına giren şair, ifadeye yaratıcı bir üslup kazandırmıştır. Böylece estetik imgelemin görünüm çerçevesini realist tabloya perçinleyerek anlam mekanizmasını güçlendirmiştir.

### 16.

Topraam sän benzârdin  
Bobamın çatlak auçlarına.  
Bobam da benzârdi  
senin tikennerinä...

Sän benim aaçlum gibi  
dayanırdın kurakta  
Hem benim yavklum gibi  
Sevârdin salt uzaktan.

(Baboglu, 2003: 37)



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Şair ilk dörtlükte toprağı babasının çatlak avuçlarına, babasını da toprağın dikenlerine benzetmiştir. İkinci dörtlükte ise toprağın kuraklığa karşı dayanıklılığını kendisinin açlığa olan gücüne benzetmiş ve toprağın, yavuklusu gibi kendisini uzaktan sevdiğini belirtmiştir. Şiirde benzetme öğelerinin gizil işlevi estetik yönden betimlenerek okurun merak düzlemine yansıtılmıştır.

17.

- Aç, mari Rada, kapuyu,

Göreyim senin boyunu.

- Yoktur mu gördüğün fidan baada?

Benim boyum benziy ona.

- Aç, mari Rada, kapuyu,

Göreyim senin üzünü.

- Yoktur mu gördüğün pak ekmek?

Benim üzüm benziy ona pek.

- Aç, mari Rada, kapuyu,

Göreyim senin yanaanı.

- Yoktur mu gördüğün al alma?

Benim yanaam benziy ona.

- Aç, mari Rada, kapuyu,

Göreyim senin kaşını.

- Yoktur mu aldım, gördüğün gaytan Varnada?

Benim kaşım benziy ona. ( Gaydarıcı, 2018: 31)

Şiirde iki sevgilinin karşılıklı diyalogu söz konusu olmuştur. Sevgilinin boyu bağdaki fidana, yüzü pak ekmeğe, yanağı al elmaya ve kaşı kaytana benzetilmiştir. İfadeye güç ve âhenk katan edebi sanatlardan olan teşbihin, ifadeye anlamsal derinlik ve sanatsal perspektif dizayn ettiği görülmüştür. Teşbih ibaresinin yaratıcı öğelere transfer edilmesi sonucu söylemin zenginleşerek estetik boyut kazandığı tespit edilmiştir.

### Sonuç

Çalışmada bürünsel yapı ve anlam arasındaki estetik âhenkle bütünleşen edebi sanatlar dairesinin semantik düzlemdeki izdüşümü ele alınmıştır. Sanatsal doğrultunun duygusal açılımı metin bağlamında analiz edilerek, anlam ve işlev odaklı gramatikal bulguların özgün sesletimine vurgu yapılmıştır. Örtük his ve motiflerin hayal unsuruyla reaksiyona girmesi sonucu, yaratı ekseninin zenginleştiği dikkati çekmiştir. Ayrıca biçem grafiğinin retorik öğeler yardımıyla özgün birimlerle harmanlandığı, bu estetik oluşumun, söz varlığına coşku ve heyecan yüklediği belirmiştir. Anlamsal boyutta derinlik kazanan söylemin ise güzellik algısını sanatsal dokuyla harmanladığı, sanatçının düşsel yaratı önermesinin alışılmamış mazmunlar, otantik desenler ve lirik bildirişimlerle betim tablosunda konuşlandığı saptanmıştır.

Çalışmada anlatımın orijinal bir dizilimle yeniden oluşum arz ettiği, zayıf olanın güçlü olana benzetildiği ve asıl amacı güzellik olan teşbihin, sanatsal bir eylem olduğu gün yüzüne çıkarılmıştır. Dolayısıyla anlaşılır ve etkili bir ifade oluşturma çabası, teşbih sanatını görünür kılmıştır. Benzetme sürecinde öğelerin azaltılması işleminin ise anlamı güçlendirip sıra dışı çağrışımların doğmasına imkân sunduğu görülmüştür. Gagauz edebiyatının estetik dizge açısından değerlendirilmesi, ulaşılan verilerin yorum gücüyle anlamlandırılması, sanatçının düş potansiyeli ile üslup çizgisini anlaşılır bir konuma taşımıştır. Teşbih sanatının ritim ve heyecan yaratmadaki işlevi, düşlemin estetik boyutunda işlenerek, anlatım şemasının aktif bir söyleme kavuşmasını sağlamıştır. Dolayısıyla anlam dağarcığını yaratıcı katmana taşıyan teşbihin, söz sanatları yörüngesinin temel estetik birimini sembolize ettiği dikkati çekmiştir.



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Gagauz yazınına dair taranan şiirsel metinlerde hissel bir çağrışım olan benzetme ögesinin estetik yansıması incelenmiş, semantik bağlamdaki düşünsel boyutu irdelenmiş ve estetik vurgusu yüzey yapıya ulaştırılmaya çalışılmıştır. Böylece Gagauz yazınının birtakım estetik kavramlar aracılığıyla canlı ve yaratıcı bir doğrultuya egemen olduğu görülmüştür.

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### USE OF HERBAL PRODUCTS IN PATIENTS WITH TYPE 2 DIABETES

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#### ABSTRACT

Type 2 diabetes is a chronic metabolic disease characterized by hyperglycemia. The global prevalence of diabetes was stated by the International Diabetes Federation as 536.6 million (10.5%) adults in 2021. In the Turkish Diabetes Epidemiology Study in our country, it was emphasized that the prevalence of diabetes reached 13.7% in 2010. At the same time, the International Diabetes Federation reported the diabetes mortality rate as 6.7 million in 2021, and 4% in individuals under the age of 60 in our country. Diabetes, which is a chronic disease with a high prevalence and mortality, also has serious complications. Serious complications of diabetes, being a long life disease, high prevalence and mortality complicate the management of the disease for patients. In the treatment of type 2 diabetes; lifestyle changes, medical nutrition, oral antidiabetic therapy, and insulin therapy are practiced. Patients with type 2 diabetes have difficulty in adapting to these treatment practices. Diabetic patients often prefer the use of herbal products, which is one of the traditional and complementary medicine treatments. There are studies showing that the use of herbal products in patients with Type 2 diabetes is high in the world and in our country. At the same time, studies emphasize that healthcare professionals do not report the use of herbal products by patients. Clinical and animal experiments with the active ingredients of herbal products show that herbal products reduce blood glucose, HbA1c, triglyceride, LDL values and have the effect of improving HOMR-IR values. In conclusion, although herbal products commonly used in the treatment of Type 2 diabetes have the potential to be effective, more randomized and meta-analysis studies are needed. It should also be noted that herbal products can be harmful and ineffective. For this reason, it is important for diabetic patients to use herbal products in consultation with health professionals.

**Keywords:** Diabetes, patient, herbal product

#### INTRODUCTION

Type 2 diabetes is a lifelong metabolic disease characterized by an increase in blood glucose levels due to the insufficiency or ineffectiveness of the insulin hormone, and a disturbed carbohydrate, protein and lipid metabolism (Özata, 2016). The International Diabetes Federation (IDF) reported the global prevalence of diabetes as 9% (463 million adults) in 2019 and 10.5% (536.6 million adults) in 2021. This figure is estimated to rise by 12.2% in 2045 and reach 783.2 million people (Sun et al., 2022). The prevalence of diabetes in our country was 7.2% (24,788 adults) in 2002 and rouse to 13.7% in 2010, increasing by 6.5%. According to the Turkish Adult Heart Health and Hypertension Research and Risk Factors (TEKHARF) study, the prevalence of diabetes is 8.4%. Diabetes ranks fifth in a study on disease burden conducted in 2016. The mortality rate of diabetes according to the IDF was 4.2 million in adults between the ages of 20-79 in 2019 compared to 6.7 million in 2021, representing 11.3% of all deaths (Sun et al., 2022). The IDF reported the diabetes-related mortality rate as 4% in people under the age of 60 in Turkey in 2021 (Ogurtsova et al., 2022).

Diabetes is a chronic disease with a high prevalence and mortality both in the world and in our country. It also has serious macro and micro complications. The recent COVID 19 pandemic has further increased the risk of diabetes complications. This increase was highlighted at the International COVID-19 and Diabetes Summit (Zhang et al., 2021). Given the increasing prevalence of the disease, mortality rate and serious complications, it is important for patients with diabetes to be able to manage diabetes. In the treatment of type 2 diabetes, it is preferred as the first step to revise patients' medical diet and lifestyle (such as exercise, quitting smoking and alcohol, and a stress-free life). If the blood-glucose balance of



the diabetic patient cannot be achieved, oral antidiabetic drugs are added to the treatment. Insulin therapy is started in cases where insulin deficiency progresses (Özata, 2016). Diabetic patients have difficulty in adapting to treatment after diagnosis. Although much progress has been made in the medical treatment of diabetes, patients can turn to traditional and complementary medicine treatment (Sheikhrabori et al., 2017). It has been shown in studies that diabetic patients mostly resort to the use of herbal products, which is a traditional and complementary medicine modality (Ching et al., 2013; Alsand et al., 2018). Studies conducted in the world and in our country found that a considerable number of patients with diabetes use herbal products (Amirehsani et al., 2013, Başer et al., 2018, Karaman et al., 2018, Amaeze et al., 2018, Kifle et al., 2021). The reasons for preference of herbal products are the chronic course of the disease, difficulties in complying with the treatment, the side effects of the drugs used in the treatment, and the belief among the public that herbal products are harmless (Koyu-Bellikçi et al., 2019).

### **1. Effect Mechanisms of Herbal Products Used in Type 2 Diabetes**

Herbal products used in type 2 diabetes exert their effects by providing anti-inflammatory, anti-oxidation and anti-glucose actions and by regulating blood lipid metabolism among other mechanisms.

#### **1.1. Anti-inflammatory effects**

A modest level of inflammation occurs in type 2 diabetes, leading to an increase in proinflammatory cytokines. They damage beta cells in the pancreas, reducing insulin secretion and increasing insulin resistance. Some herbs used in type 2 diabetes improve insulin resistance by reducing increased proinflammatory cytokines (Oguntibeju, 2019; Pang et al., 2019).

#### **1.2. Anti-oxidation effects**

When the human body cannot maintain an internal balance against external stimuli, the homeostasis balance is disrupted. Oxidative stress occurs with the release of free radicals. Antioxidant enzymes reduce oxidative stress by defending against free radicals (Aslankoç et al., 2019). The activity of antioxidant enzymes in islet cells in the pancreas is lower than in other tissues. For this reason, pancreatic cells are more exposed to oxidative stress, which leads to insulin resistance. Some plants used in type 2 diabetes activate antioxidant enzymes, reduce oxidative stress, and positively affect insulin resistance (Oguntibeju, 2019; Pang et al., 2019).

#### **1.3. Anti-glucose effects**

In type 2 diabetes, hyperglycemia occurs when blood glucose cannot be controlled. Chronic hyperglycemia damages pancreatic beta cells and reduces insulin secretion. Some herbal products stabilize blood glucose and prevent hyperglycemia. Alpha amylase enzyme secreted from the pancreas also breaks starches into oligosaccharides in the small intestine. Alpha-glucosidase enzyme converts oligosaccharides to monosaccharides and glucose in the small intestine. Inhibition of alpha-amylase and alpha glucosidase enzymes reduces glucose absorption and lowers post-prandial hyperglycemia. Some herbs reduce post-prandial hyperglycemia through this mechanism. Glucagon-like peptide-1 (GLP-1) is secreted by L cells in the small intestine and causes insulin secretion. GLP-1 plays an important role in balancing the glucose level in the blood. Dipeptidyl peptidase-4 (DPP-4) is the substrate of GLP-1. Herbal products show their effects by inhibiting DPP4 (Khyade, 2021).

#### **1.4. Blood lipid metabolism-regulating effect**

Lipid metabolism disorder plays an important role in the pathogenesis of type 2 diabetes and increases pancreatic cell dysfunction and causes insulin resistance. Studies show that some of the herbal products used in Type 2 diabetes reduce triglyceride, cholesterol and LDL levels. Fatty acids play an important role in the synthesis of triglycerides, and acetyl-coenzyme A carboxylase (ACC) plays an important role in the metabolism of fatty acids. Some herbal products reduce triglycerides by reducing fatty acids in plasma, while some herbal products reduce ACC (Pang et al., 2019, Khyade, 2021).

#### **1.5. Other effects**

Recently, it is being emphasized that there is a link between type 2 diabetes and gut microbiomes, the gut microbiome disorder being closely related to insulin resistance and the onset of Type 2 diabetes



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(Khyade, 2021). Some plants have been found to effectively alleviate Type 2 diabetes by changing the properties of the gut microbiota (Gao et al., 2018).

### 2. Herbal Products Most Commonly Used in Type 2 Diabetes

Herbal products frequently used in studies conducted in our country are cinnamon, black cumin, olive leaf, blueberry, fenugreek, garlic, lemon, turmeric, ginger, sage, parsley, cherry stalk, okra, broad bean, thyme, ginseng (İlhan et al., 2016; Başer et al., 2018; Karaman et al., 2018; Bellikçi Koyu et al., 2021; Ergün et al., 2021; Çınar et al., 2022). Herbal products that are frequently used in studies conducted in other countries are cinnamon, ginger, fenugreek, black cumin, olive, nettle, garlic, chicory, green tea, thyme, purslane, and regional herbal products (*Hagaenia abyssinica*, *Otostegia integrifolia*, *Moringa oleifera* seeds) in some African countries (El sayed et al., 2011; Amirehsani et al., 2013; Azizi-Fini et al., 2016; Amaeze et al., 2018; Mekuria et al., 2018; Alqathama et al., 2020; Kifle et al., 2021). It is also reported that patients did not consult health professionals about the herbal products they use in studies (Annie Chang et al., 2011; Amirehsani et al., 2013; Öztürk et al., 2015; Amaeze et al., 2018; Mekuria et al., 2018; Alqathama et al., 2020; Bellikçi Koyu et al., 2021; Çınar et al., 2022).

### 3. Studies on Herbal Products Used in Type 2 Diabetes

Studies on herbal products used in type 2 diabetes include randomized controlled clinical trials, animal experiments and meta-analysis studies. El Sayed et al. (2011) showed in a clinical study that purslane seeds have hypoglycemic, hypolipidemic and insulin resistance-reducing effects. Another study conducted in patients with type 2 diabetes found that ginger improved insulin sensitivity, LDL and triglyceride values (Mahluji et al., 2013). It has been determined that the herbal composition created with white mulberry, nettle, cinnamon and dandelion reduces HbA1c, mean blood sugar, total cholesterol and serum triglyceride values in patients with Type 2 diabetes (Chatterji et al., 2018). Wainstein et al. (2012) found that olive leaf extract normalizes glucose homeostasis in humans and facilitates glucose homeostasis by reducing the digestion and absorption of starch in animal models. In another animal-experimented study, cinnamon had an antihyperglycemic effect, improved lipid profiles, and protected against damage caused by oxidative stress (Beji et al., 2018). In a meta-analysis study on the use of cinnamon in patients with type 2 and prediabetes, cinnamon was found to reduce fasting blood sugar and insulin resistance values (Deyno et al., 2019). According to Abunab et al. (2017), olive leaf extract is beneficial for glycemic and lipid control in diabetic rats in their systematic and meta-analysis study. There are also studies in the literature showing that some herbal products used in diabetes had no effect on glucose metabolism (Araki et al., 2019; Mahluji et al., 2013).

## CONCLUSION

As a result, it was determined that patients with Type 2 diabetes in our country and in the world often prefer using herbal products and the herbal products used were cinnamon, ginger, fenugreek, garlic, olive leaves, cranberry, lemon, sage, chicory, and regional products. There are randomized controlled clinical studies, animal experiments and meta-analysis studies showing that herbal products have positive effects on Type 2 diabetes. However, more experimental randomized controlled clinical studies, animal experiments and meta-analysis studies are needed. Also, it was seen that the patients did not consult the health professionals about the herbal products they used. Measures should be taken to ensure that diabetic patients use herbal products in consultation with healthcare professionals.

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### PURCHASING PERCEPTION OF GENERATION Z STUDENTS TO TOGG CARS

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#### **Abstract**

In this study, Turkey's first 100% electric domestic car TOGG, the purchasing perception of the Z generation has been examined. Turkey's Automobile Enterprise Group, or Togg for short, is a Turkey-based automobile manufacturer company. The automotive sector has been spreading all over the world in recent years and directing the economy. Due to its structure, the automotive industry is the main product buyer of basic industry branches such as iron and steel, light metals, petrochemistry, rubber and plastic. Turkey, with a population of approximately 85 million, is an important vehicle production center for world markets as well as an important market. Young people are an important market for new generation vehicles with their high potential to adopt new technologies and their sensitivity to climate and environment. Examining the approach of the Z generation to electric vehicles will be a guiding study for future studies. TOGG automobile preferences of 500 university students studying in technical and social sciences at 3 different universities in Turkey and the factors affecting these preferences are investigated. In the study, the relationship between students' perception of price, brand awareness, external influences, perceived quality and purchasing perception was examined. The results show that price perception, brand awareness, external influences, and perceived quality have a significant relationship on purchasing perception.

**Keywords:** TOGG, Generation Z, Electric car

#### **Introduction**

The automotive industry is one of the strongest areas of the industry all over the world. Due to its structure, the automotive industry is the main product buyer of basic industry branches such as iron and steel, light metals, petrochemistry, rubber and plastic (Görenler and Görenler, 2012; Kocakaplan et al., 2013; Ülengin et al., 2014; Pişkin, 2020; Demir et al., 2017). The automotive sector is an important field in many aspects in Turkey. In addition, Turkey is an important market with a population of approximately 85 million. Turkey's young population is among the reasons why Turkey is an important area for the automobile industry. Young people are an important market for new generation vehicles with their high potential to adopt new technologies and their sensitivity to climate and environment.

There is fierce competition in the automotive industry (Gibson et al., 2014). The needs and expectations of consumers are increasing day by day.

Companies in the automobile industry need to adapt to the demands of customers and emerging technology. The main focus of the industry and related researchers is the research of consumers' purchase intention and the factors affecting purchase intention in different market segments.

A brand can be defined as "a name, term, sign, symbol, or design, or combination of them which is intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competitors" (Barich and Kotler, 1991; Keller, 1993). Information in the memory of consumers is very important in the decision-making process (Alba, Hutchinson and Lynch 1991). Consumers form an opinion about brands based on their previous experience. One of the dimensions of brand knowledge is brand awareness, and brand awareness is related to the probability of a brand's name coming to mind



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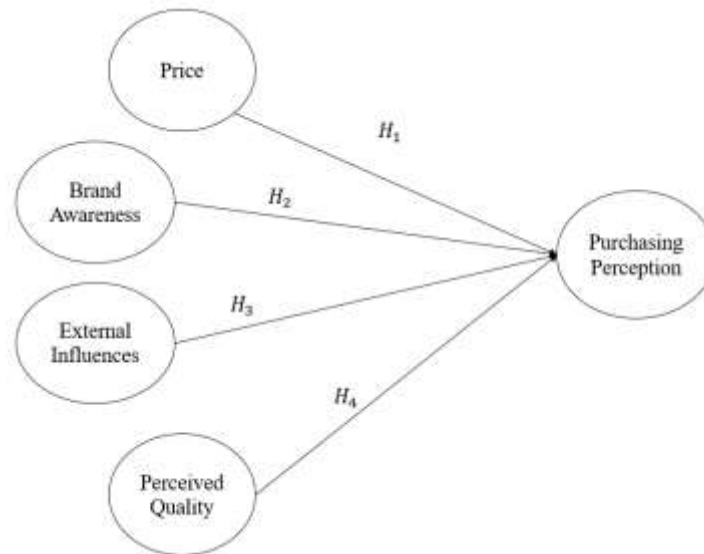
and consists of brand recognition and brand recall performance. (Rossiter and Percy, 1987; Aaker, 1991; Keller, 1993).

Consumers' decision-making structure is defined as the way a person reacts to their overall purchasing decision (Nayeem & Casidy, 2013). Consumers use information channels that they think are reliable in their automobile purchasing decisions (Doran, 2002). The choice of information sources consumers use for cars can include numerous criteria such as information from dealers, information from family/friends, number of family/friends consulted, number of cars tested, and time spent doing research before making a final decision (Nayeem & Cassidy, 2013). Price is a very important factor in terms of market power. Supply and demand determine the price in the market (Dodds et al., 1991). Price is generally seen as an indicator of product quality (Chiang and Jang, 2007). Monroe (1976) examined the effects of price and brand familiarity on brand preferences.

In this study, Turkey's first 100% electric domestic car TOGG, the purchasing perception of the Z generation was examined. Turkey's Automobile Enterprise Group, or Togg for short, is a Turkey-based automobile manufacturer company. In the research, the relationship between students' price perception, brand awareness, external influences, perceived quality and purchasing perception was examined. The results show that price, brand awareness, external influences and perceived quality have a significant relationship on purchasing perception.

### Research Model

A consumer's behavioral intention while buying a car should include price, brand awareness, external influences and perceived quality. This study aims to identify the variables that affect a consumer's purchase intention and to determine the relationship between purchasing behavior and purchase intention. The research model with all theoretical constructs is provided in Fig. 1, whereas the hypothetical relationships among theoretical constructs are summarized in Table 1



*Figure 2 Research model*

**Table 1.** Research hypotheses

<b>Hypothesis 1</b>	Price has a positive influence on purchasing perception.
<b>Hypothesis 2</b>	Brand awareness has a positive influence on purchasing perception.
<b>Hypothesis 3</b>	External influences has a positive influence on purchasing perception.
<b>Hypothesis 4</b>	Perceived quality has a positive influence on purchasing perception.



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### Research Design

To examine the effect of car buying perception on Generation Z and to test the research model, a survey was conducted with university students. The instrumentation, sampling, and scale validation process are described in the subsections below. The questionnaire consists of two parts; While the first part measures the automobile perceptions of the participants in terms of price, brand awareness, external influences, perceived quality, and purchasing perception the second part includes the demographic information of the participants. The measure of each theoretical construct consisted of multiple quizzes utilizing a 5-point Likert scale ranging from one (strongly disagree) to five (strongly agree).

The framework embraces information on seven dimensions, including price (three items), brand awareness (six items), external influences (four items), perceived quality (seven items), and purchasing perception (five items) all measured by using a five-point Likert-type scale. On the other hand, consumer intention (three items) uses a five-point Likert-type scale to consider respondents' probability of purchasing an automobile brand.

A survey was designed and implemented to collect empirical data on the perceptions of Gen Z on automobile brands, their preferences, and the factors affecting their preferences. A questionnaire was used to collect data in this study. Measurement items, hypotheses, and research framework were determined concerning other studies. Although most of the measurement items were from existing studies to establish content validity, a pilot test was conducted with university students to validate the measurement items. Based on the results of the pilot test, we revised the wording of the measurement items. As it was not possible to obtain a list of all university students in Turkey, a non-probabilistic judgment sampling technique was used to collect data from the participants. The sample size was determined as at least 385 participants at a significance level of 0.05 and a power of 95%. Using the convenience sampling method, 528 people were reached between January and April 2022. Initially, 528 people were reached, 23 people were excluded from the study for various reasons, and ultimately the data of 505 participants were analyzed. The demographic data of respondents in comparison with the sample frame was shown in Table 3.

Data analysis involves descriptive statistics and structural equation modeling using AMOS structural equation program. Each characteristic was compared using a chi-square test in terms of its frequency distribution. The results as shown in Table 3. AMOS is designed to estimate and test structural equation models (SEMs). SEMs are statistical models of linear relationships among latent (unobserved) variables and manifest (observed) variables. It is also used for exploratory and confirmatory factor analysis, as well as path analysis. Its purpose is to estimate the coefficients in a set of structural equations. For this research, AMOS is used to investigate the causal relationships, where the path coefficients are tested for significance and goodness-of-fit.



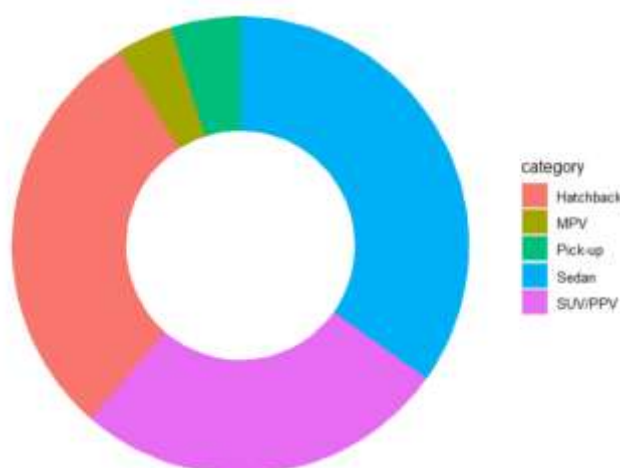


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**Table 2** Demographic Variables

Variable	N	%	$\chi^2$	p-value
<i>Gender</i>			0.097	0.755
Female	249	49.3		
Male	256	50.7		
<i>Age Interval</i>			45.725	***
Between 18-19	142	28.1		
Between 20-21	140	27.7		
Between 22-24	161	31.9		
Above 25	62	12.3		
<i>Educational Level</i>			18.572	***
First grade	140	27.7		
Second grade	104	20.6		
Third grade	159	31.5		
Fourth grade	102	20.2		
<i>Total Income</i>			207.855	***
≤2826 ₺	44	8.7		
2827-2900 ₺	43	8.5		
2900-4000 ₺	72	14.3		
4001-7000 ₺	148	29.3		
7001-10000 ₺	96	19.0		
10001-15000 ₺	65	12.9		
15001-20000 ₺	19	3.8		
Above 20000 ₺	18	3.6		

The research sample consists of students between the ages of 18 and above 25. The sample consisted of 505 students, 249 (49.3%) female and 253 (50.7%) male. When the total income is examined, it is seen that 148 (29.3%) people work with a wage of between 4000- 7000 ₺. The donut chart of the automobile segment of interest is given in Figure 3.



*Figure 3. The donut chart of the automobile segment of interest*

### **Scale validation**

Prior to testing our hypotheses, a series of confirmatory factor analyses (CFAs) was conducted to examine whether all study variables were distinct (Table 2). The measurement model should



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demonstrate goodness of fit for empirical data and meet the requirements of certain indexes. These; chi-square normalized by degrees of freedom ( $\chi^2/df$ ) should be less than five (Bentler, 1989); Tucker–Lewis index (TLI), incremental fit index (IFI), and comparative fit index (CFI) should all exceed 0.9, and root mean square error (RMSEA) should be less than 0.10 (Henry & Stone, 1994). In addition, factor loads should be higher than 0.5. The average variance extracted (AVE) and composite reliability (CR) or all factor loadings should be higher than the cut-off values of 0.30 and 0.70, respectively (Hair et al., 2006).

**Table 3.** Confirmatory factor analysis for convergent validity

Variables	Cronbach's $\alpha$	CR	AVE
Brand awareness	0.95	0.95	0.67
Perceived quality	0.93	0.93	0.76
External Influences	0.92	0.92	0.75
Price	0.89	0.89	0.67
Purchasing perception	0.95	0.95	0.67

### Hypotheses testing

We tested the associations between price perception, brand awareness, external influences, perceived quality and purchasing perception using SEM (Figure 2). The maximum likelihood estimation procedure (ML) was used in this study.

**Table 4:** Goodness of Fit Measures for the Estimated Model

Goodness-of-fit measure	Estimated model
<i>Absolute fit measure</i>	
Likelihood-ratio chi-square ( $\chi^2$ )	925.85
Degrees of freedom	311
CMIN/DF	2.97
Non-centrality parameter (NCP)	614.85
Root mean square error of approximation (RMSEA)	0.062
Expected cross-validation index (ECVI)	2.23
<i>Incremental fit measures</i>	
Normed fit index (NFI)	0.85
<i>Parsimonious fit measures</i>	
Parsimonious norm fit index (PNFI)	0.706
Parsimonious goodness of fit index (PGFI)	0.674
Model (AIC)	1115.85

We obtained a chi-square fit value of  $\chi^2=925.85$ ,  $\chi^2/df$  value of 2.97 for the model fit. The goodness of fitness values RMSEA=0.062, AIC=1115.85, NFI=0.85, RFI=0.828, IFI=0.901, TLI=0.879, CFI=0.90, TLI=0.878. Goodness of fit measures for the estimated model values are shown in table 4. The results of the SEM are shown in Table 5, where the arrows represent relationships between latent constructs. The path coefficients show that hypothesis H1 (i.e., There is a positive relationship between brand awareness and purchasing perception is confirmed. As illustrated by the arrow, the brand awareness latent construct is positively related to purchasing perception. This result shows that purchasing behavior is more common in people with brand awareness.

The path coefficients show that hypothesis H2 (i.e., There is a positive relationship between perceived quality and purchasing perception is confirmed. As illustrated by the arrow, the perceived quality latent construct is positively related to purchasing perception. The path coefficients show that hypothesis H3 (i.e., There is a positive relationship between external influences and purchasing perception) is confirmed. The path coefficients show that hypothesis H4 (i.e., There is a positive relationship between price and purchasing perception) is confirmed.



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**Table 5:** Hypothesis results for the structural model

Research hypothesis Path	Estimate	SE	CR	Conclusion
H1: Brand awareness → Purchasing perception	0.399	0.184	2.16	Supported*
H2: Perceived quality → Purchasing perception	1.539	0.371	4.14	Supported*
H3: External Influences → Purchasing perception	0.120	0.287	0.41	Supported*
H4: Price → Purchasing perception	5.164	1.197	4.31	Supported*

\* Significant at the level of  $p < 0.005$

### Conclusion

The automotive industry is one of the most important markets in the world. In this study, Turkey's first 100% electric domestic car TOGG, the purchasing perception of the Z generation was examined. The hypotheses were analyzed using structural equation modeling. First, the reliability of the questionnaire was tested by performing confirmatory factor analysis. The relationship between students' price perception, brand awareness, external influences, perceived quality and purchasing perception was examined. The results show that price, brand awareness, external influences and perceived quality have a positive relationship with purchasing perception.

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### WILLIAM GRANT STILL: AFRO-AMERİKALI KLASİK BESTECİLERİN DUAYENİ el(1895-1978)

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#### Özet

William Grant Still “birlikte ama ayrı ayrı” ırkçılık söyleminin en güçlü olduğu günlerde bir siyahi besteci olarak, özellikle klasik müzik besteleyen bir siyahi besteci olarak adını duyuran Afro-Amerikan müzik tarihine adını pek çok ilklere imza atmış bir duayendir. William Grant Still’e atfedilen en önemli unvan Afro-Amerikan bestecilerin Duayeni unvanıdır. Bunun nedeni ise biyografisine bakıldığında sıralanan ‘ilkler’dir. Still ismi New York’da ilk beyaz radyo orkestrasını yöneten siyahi müzisyen olarak duyulmuştur. Yine müzik tarihi sahnesine Los Angeles Senfoni Orkestrasını ve ardından Hollywood Bowl’da kendi iki bestesini yöneten ilk siyahi besteci olarak adını yazdırmıştır. Dahası bir Opera tarafından bestesi sahnelenen ilk siyahi besteci de William Grant Still’dir. Still bu ilkler dizininin hepsinde siyahi özelliği ile öne çıkmaktadır. Oysa o, yalnız siyahi bir besteci olmanın ötesinde yaşamı boyunca ulaşmaya çalıştığı ırklar ve kültürler ötesi kimliği ile de dikkat çekmektedir.

Still’in profesyonel bir müzisyen, bir besteci olarak kendisinde oluşan bu ilkleri bestelerine nasıl yansıttığı yaşamı boyunca geçtiği farklı müzik evrelerinde izlenebilir. Harlem Rönesans’ından, modern müziğe, siyahi ilahi ve blues kullanımından batı klasik müziğine ve en sonunda Amerikan milliyetçiliğine uzanan bir müzik yaşamıdır onunkisi. Bu evreler Still’in ürettiği müziklerde ırk, sınıf, müzik üslupları ve farklı müzik türleri ve hatta cinsiyet ve coğrafi sınırları bile sınayan bir görünümüdür. Bu nedenledir ki günümüzde tartışılan ve anlaşılmaya çalışılan bir müzisyen olmaya devam etmektedir. Bu araştırma William Grant Still’i anlamaya ve anlatmaya çalışan çabanın sonucudur.

**Anahtar Sözcükler:** Klasik Batı Müziği, Siyahi Besteciler, Harlem Rönesansı

#### Abstract

William Grant Still is an individual who could get his voice heard as a composer, a classical composer, during a time when “separate-but-equal” segregation was at its high. As the title of this paper indicates his soubriquet is ‘dean of Afro-American classical composers’. This is because of his ‘firsts’. Still made history as an Afro-American when he was the first black to conduct a white radio orchestra, the first to write a symphony, to conduct Los Angeles Philharmonic Orchestra and conduct his two compositions at Hollywood Bowl, and the first to compose an opera. In all these firsts he comes forth as a black man. However, all his life he tried to reach a place free of race, nationality, and culture. William Grant Still’s musical adventure stretches from Harlem Renaissance to modern, negro spirituals and blues to classical music and finally to an American nationalistic approach. His approach to music transcends race, nationality, culture, and even gender and geography. That is why he is still being discussed by critics and researchers. This research is an attempt to commemorate an extraordinary individual and composer.

**Keywords:** Western Classical Music, Black Composers, Harlem Renaissance

#### GİRİŞ

Amerikalı siyahi bestecilere giderek artan ilgi ve onlarla ilgili yapılan sayısız araştırma ve yayına rağmen William Grant Still zaman zaman besteleriyle, yazılarıyla ve kişiliğiyle araştırmacıları hayrete düşüren çelişkiler sunmaktadır. Konumuzun başlığında da belirtildiği gibi William Grant Still’e



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atfedilen en önemli unvan Afro Amerikan bestecilerin Duayeni unvanıdır. Bunun nedeni ise biyografisine bakıldığında sıralanan ‘ilkler’dir. Still ismi New York’ta ilk beyaz radyo orkestrasını yöneten siyahi müzisyen olarak duyulmuştur. Yine müzik tarihi sahnesine Los Angeles Senfoni Orkestrasını ve ardından Hollywood Bowl’da kendi iki bestesini yöneten ilk siyahi besteci olarak adını yazdırmıştır. Dahası bir Opera tarafından bestesi sahnelenen ilk siyahi besteci de William Grant Still’dır. Still bu ilk dizininin hepsinde siyahi özelliği ile öne çıkmaktadır. Oysa o, yalnız siyahi bir besteci olmanın ötesinde yaşamı boyunca ulaşmaya çalıştığı ırklar ve kültürler ötesi kimliği ile de dikkat çekmektedir.

Still’in çelişkilerinin anlaşılmasına yardımcı olacak açıklama DuBois’in *The Souls of Black Folk* isimli kitabındaki anlatımıdır. “*Bir zenci kendisine gerçek bir kişisel kimlik vermeyen bir Amerika’da doğar. Kendisini hep başkalarının gözünden değerlendiren ve kendi gerçeğini başkalarının yansıttığı bir dünyadır bu. Ona çifte bir bilinç kazandıran bir dünya görüşü ortaya çıkar. Kendini ve ruhunu hep başkalarının metresiyle ölçen ve ona hep biraz küçümseme ve acıma ile bakan bir bakış açısı kazanır. Bu durumda o kendisini hem Amerikalı hem de zenci hisseder, bir ikili kişilik gibi. İki ruh, iki düşünce, iki barışamayan çabalama; Siyahi bir bedende birbirleriyle savaştan iki ideal. Amerikalı bir siyahinin öyküsü bu savaşın ve barışma çabasının öyküsüdür. Barındırdığı ikilemleri birleştirerek gerçek ve daha iyi bir öz benliği bulma çabası.*” (1903, 9)

Still’in profesyonel bir müzisyen ve bir besteci olarak kendisinde oluşan bu ilkleri bestelerine nasıl yansıttığı yaşamı boyunca geçtiği farklı müzik evrelerinde izlenebilir. Harlem Rönesans’ından, modern müziğe, siyahi ilahi ve blues kullanımından batı klasik müziğine ve en sonunda Amerikan milliyetçiliğine uzanan bir müzik yaşamıdır onunkisi. Bu evreler Still’in ürettiği müziklerde ırk, sınıf, müzik üslupları ve farklı müzik türleri ve hatta cinsiyet ve coğrafi sınırları bile sınayan bir görünümde. Bu nedenledir ki günümüzde tartışılan ve anlaşılmaya çalışılan bir müzisyen olmaya devam etmektedir.

Bu araştırma William Grant Still’i anlamaya ve anlatmaya çalışan çabanın sonucudur.

### ERKEN YAŞLAR VE GELİŞİM YILLARI

William Grant Still 1895’de elit bir siyahi ailenin oğlu olarak Mississippi’de dünyaya geldi. Profesör olan babası o üç aylıkken öldürülünce annesi yaşadığı ortamdaki şiddet ve ırkçı eylemlerden korkarak, çocuğunu da korumak amacıyla Little Rock, Arkansas’a taşındı. Orada anneannesi, Anne Fambro, ile beraber oturdukları evde anneannesinin iş yaparken söylediği siyahi ilahiler ve blues’ları ve kölelik dönemine ait öyküleri dinleyerek büyüdü (Still, Dabrishus, Quin, 1996).

Still’in yazdığı hatıraları onun çevresiyle nasıl iletişim kurduğunu ve yaşam koşullarının onu nasıl şekillendirdiğini açıkça ortaya koyuyor: kararlı, amacından sapmayan, şaşmaz bir inanca sahip, sorumlu enerji dolu bir kişilik. Fiziki görünümü bile onun kişiliğini yansıtan bir öge haline gelmiş. Kimine göre de ‘bir film yıldızı’ gibi yakışıklı, kibar, iyi giyinen, parası olduğu zaman bonkör, olmadığı zaman kimseye ricacı olmadan yaşayan bir birey. Her zaman inançlı, ancak zihninde hep bir şeyler tasarlayan, olumlu enerjisini kaybetmemeye çalışan bir insan (Still, Dabrishus, Quin, 1996; Smith, 2008).

Annesi Carrie Still yaşamının ilk yıllarında onun karakterinin gelişimine, dünyaya bakış açısının oluşumuna etki eden en önemli etmenlerden birisiydi. Anne Carrie üniversite mezunu bir öğretmendi. Disiplinli, inançlı, kilisesinde faal olan Carrie, oğluna doğru davranış ve düşünce aşılayandı. Still’in karakterini etkileyen ikinci kişi annesinin ikinci eşi olan üvey babası olmuştur. Charles Shepperson Still’e iyi bir üvey baba oldu. Onu klasik müzik dünyası ile tanıştıran ve onun müziği anlamasına neden olan bir rehberdi. Eve aldığı plakçalar ve klasik plaklarla ve götürdüğü konserlerle Still’e müzik, özellikle de klasik müzik sevgisini aşılamıştı. Bu plaklar ve konserlerle Still Puccini, Wagner gibi ustaların operaları ile tanışmış oldu. Zaten Still’in müziğe yatkınlığı küçük yaşlarda kibrit kutularından kendisine yaptığı enstrümanlardan da anlaşılıyordu (Still, Dabrishus, Quin, 1996).

### MÜZİK YAŞAMINA İLK ADIMLAR

Anne Carrie Shepperson, müziği ciddi bir uğraş olarak görmediği gibi oğlunun tıp eğitimi almasını istiyordu. Liseyi bitirdiği sene onu tıp eğitimi alması için Wilberforce Üniversitesi’ne gönderdi. Ancak Still mezuniyetine iki ay kala ‘benim için sadece müzik var’ diyerek annesine karşı çıkararak eğitimini yarıda bıraktı. Üniversite yıllarında kendi kendine saksafon, obua gibi enstrümanları çalmayı öğrenmiş,



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bir müzik grubu kurmuş ve bu grup için besteler yapmıştı. Küçük yaşlardan beri de annesinin ısrarıyla keman çalmayı da biliyordu. Okulunu bıraktığında tek amacı Oberlin Konservatuvarına girerek ‘besteci’ olmayı öğrenmekti. Kemanını ve obuasını alarak hem hayatını kazanmak hem de idealindeki okula gidebilmek için Cleveland, Ohio’ya gitti. İlk olarak çalıştığı Luna Parkta çaldığı müzik ile kalabalıkları eğlendirmeye başladı. Bu dönemde kendi orkestrası ile konserler veren W. C. Handy ile tanıştı. Handy orkestrası ile turnelere çıkmasının yanı sıra müzik ile ilgili yayınlar yapan bir yayın evi sahibiydi. Handy 20. yüzyılda popüler müziğin etkin isimlerinden birisi olarak hatırlanan besteci, prodüktör ve yayıncıydı. Still’e ilk ciddi anlamda iş veren kişi de Handy oldu (Borroff, 2001).

Handy ve orkestrası ile çaldığı turnelerde ırkçılığın ne denli nefret dolu olduğunu, siyahilerin hiç neden gösterilmeden şiddete maruz kaldığını, tutuklandıklarını hatta linç edildiklerine şahit oldu. Bu konuda bir şeyler yapması gerektiğini, bir mücadele vermesi gerektiğini biliyordu ama bunu nasıl yapacağını henüz keşfetmemişti. Bu konuda ilk adımı 1918’de Birinci Dünya Savaşı sırasında Amerikan donanmasına katılarak attı. Diğer siyahiler gibi o da ülkesi için savaşan her asker gibi saygı göreceğini düşünüyordu. Ancak, o dönemlerde siyahi askerler orduda da ırkçı ayrımcılığa maruz kalıyorlardı.

1918’de ordudan ayrılınca Openlin Konservatuvarında ilk ciddi bestecilik ve teori dersleri aldı. Onun yeteneğini fark eden hocası ücretsiz olarak kompozisyon derslerine girmesini sağladı. Oberlin Konservatuvarında derslere devam ederken sessiz film gösterilerinde piyano çalıyor ve hademelik yapıyordu. Bu eğitim ona Klasik Batı müziğinin özelliklerini ve inceliklerini öğretmişse de kendisini kapana sıkışmış hissetmesini ve daha farklı ufuklar aramasına engel olmadı (Reef, 2003).

### NEW YORK’A GELİŞ YENİ USTALARLA ÇALIŞMA

1919 yılında New York’a geldi. Aynı yıl Ohio’da beraber çalıştığı Handy’de New York’a gelmiş ve siyahi bestecilerin eserlerini yayımlayan bir şirket kurmuştu. Handy, Still’i gündüzleri orkestrasında çalmasını geceleri ise şarkı aranjanmanları yapması için işe aldı. Bu dönemde Still evlenmiş ve çocuk sahibi olmuştu. Ancak maddi nedenlerle eşi kendi ailesinin yanında kalıyordu. Bu iş sayesinde ailesini yanına alarak ilk kez çocuklarıyla birlikte vakit geçirmeye başladı. Onlarla oyunlar oynayıp bisiklete binmenin keyfini çıkarıyordu.

Still tüm elemanlarının siyahilerden oluştuğu *Shuffle Along* adlı müzikal için de aranjanmanlar yapıyordu. 1922’de *Shuffle Along*’un yaptığı bir Boston turnesine Still’de orkestra elemanı olarak katılmıştı. Bu yolculukta George W. Chadwick ile tanıştı ve ondan bestecilik dersleri almaya başladı. Chadwick, Oberlin’deki hocalarının aksine Still’i hayalindeki gibi besteler yapması konusunda cesaretlendirdi. Yaptığı besteleri dinliyor ona önerilerini ve eleştirilerini sunuyordu. Still, bu görüşleri isterse kabul ediyor isterse red ediyordu. Chadwick ona kendi sesini duyurabileceği besteci olarak benliğini bulabileceği bir ortam sağlamıştı (Smith, 2008, 2000).

Boston’da dört ay Chadwick’le çalıştıktan sonra New York’a dönen Still siyahi müzisyenlerin çalışmaları yayımlayan Black Swan Records plak şirketi için çalışmaya başladı. İşte o günlerde kendisine bestecilik yolunda farklı bir açı kazandıracak Edward Varese ile tanıştı. Varese birbirleriyle harmoni oluşturan klasik anlayışın aksine uyumsuz seslerin çarpışmalarından doğan bir müzik stiline temsilcisiydi. Avant-guard adı verilen bu tarz Still’e yeni ufuklar açmıştı. Ancak bu dönemde yaptığı bestesi *From the Dream of Lands* olumlu ve olumsuz eleştiriler aldı. Still bu eserinde kendisinden çok hocası Varese’nin var olduğunu düşünerek kendi stilini, üslubunu yaratması gerektiğine karar verdi. Modernist olarak tanımlanacak teknikleri bir yana bırakarak kendi müziksel anlatımını yaratması gerekiyordu. Afro-Amerikan tarihini ve kültürü araştırarak işe başladı. Bir siyahi besteciden beklenen sıradan eserler yerine Afro-Amerikan temalarını içeren özgün müzikler yaratmak istiyordu. İşte bu günlerde Harlem Rönesans’ı adlı akımla tanıştı (Reef, 2003).

### HARLEM RÖNESANSI VE İLK ESERLER

Birinci Dünya Savaşı sona erdiğinde bir grup yazar, şair, ressam ve heykeltıraş siyahi sanatçı bir araya gelerek Harlem Rönesans’ı adı verilen bir harekete öncülük yaptılar. Bu grup siyahi Amerikalının yaratıcılığını simgeleyen etkin bir hareketti. 1920ler ve 30larda siyahiler için yeni bir vizyon oluşturan bu hareketin felsefesi Howard Üniversitesi’nden Alain Locke’ın grubun beklentilerini ve amaçlarını belirten manifestosu tarafından açıklanıyordu. Başlangıçta bir edebi akım gibi ortaya çıkan bu hareket 1931’lere gelindiğinde yaratıcı sanatların hepsini kucaklıyordu (Murchison,1994).



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1931 Yılında Still Harlem hareketinin bir parçası ve müziksel sesi oldu. Yarattığı müziği ile bastırılan ve hor görülen Amerikalı siyahilerin sesi olabileceğine ve onlar adına adalet ve eşitlik isteyebileceğine inanıyordu (Rodríguez, 2019).

Harlem geceleri müziğe caz adı verilen yeni bir form tanıtmıştı: canlı, sıcak ve devamlı değişen sesler. Caz performansları tıpkı konuşma gibiydi. Sanatçılar melodilerini ve ritimlerini ve nakaratları birbirlerine yansıtıyorlardı.

Still, bu dönemde caz, blues seslerini modern müziğin akorları ile birleştirerek *Levee Land* isimli bir soprano ve küçük bir orkestra için yazılmış eserini besteledi. Still insan sesini de bir enstrüman gibi kullanarak 'hey', 'baby' gibi basit sözcüklerin kullanımıyla esere hüznü, cıvıltı veya hayret unsurları yerleştirmişti. Bu eser Ocak 1920'de güzel sesiyle 'Mutluluk Kraliçesi' olarak anılan Florence Mill tarafından seslendirildi. Büyük beğeni kazanmasına rağmen Mill'in ani ölümü üzerine 'bir Florence Mill daha bulamam ki' diyerek bu eserini bir daha hiç seslendirtmedi (Reef, 2003).

### DARKER AMERICA

*Levee Land* çok beğeni kazanan bir eser olmasına rağmen Still'in bestelerini anlamakta güçlük çeken müzik eleştirmenleri yine de bu siyahi besteciye üst düzeyde olarak nitelendirdiler. Müzik eleştirmenlerinden biri nasıl Einstein İzafiyet Teorisi ile insanlardaki zaman, mekân ve çekim kavramlarını alt üst edip şaşırttıysa, Still'in müziği de insanda aynı şaşırtıcı etkiyi yapıyor demektir (Murchison, 1994).

Still *Levee Land* eserinden sonrada beste yapmaya devam etti. Amerika'daki siyahilerin öyküsünü anlattığı *Darker America* isimli eserini tamamladı. Bu eserde tutkulu dualarıyla içlerindeki hüznü yenen insanları anlatmaya çalışıyor. Eserde yaylılar Amerikalı siyahileri korno hüznü simgeliyor. Hüznü teması yumuşatılmış metal nefeslilerin canlandırdığı umut teması ile zaman zaman yer değiştiriyor ve eser obua'nın seslendirdiği bir dua ile sona eriyor (Oja, 1992).

Rochester, New York'taki Eastman Müzik Okulu'nun yöneticisi Howard Hanson bu eserin okulundaki bir konserde çalınması istiyordu. Kendisi de müzisyen olan Howard, Still'in tanınması için çaba sarf edenlerdendi. İki müzisyen yakın arkadaşlık kurarak beraber çalışmaya başladılar. Howard, Still'e okulunda öğretmenlere ve şeflere konuşmalar yapması için işe aldı.

Still, *Darker America*'nın başarısından sonra müziği kendisine maddi olarak da katkıda bulunduğu için mutluymuştu. Bunu özellikle annesi Carrie Shepperson'la paylaşmak istiyordu. Ne yazık ki Carrie kanserdi ve New York'a oğlunun müziğinin icra edilmesini dinlemek için seyahat edemeyecek kadar hastaydı. Nitekim, oğlunun sanatta olağanüstü başarı gösterenlere verilen Harmon Vakfı ödülü aldığını göremeden yaşama veda etti (Reef, 2003; Smith, 2000).

1929 yılında Still'in yaşamı son derece hızlı geçiyordu. Bir radyo programı için şarkılar aranje etmek üzere Los Angeles'a gitti. Son derece sade ve popüler şarkıları aranje etmek onu rahatsız etmemişti. Onun için yeni bir deneyim ve gelir kaynağı olmuştu bu programlar.

### BİR BALE: SAHDJİ

1930'da çalıştığı radyo programı bitince Los Angeles'dan Still New York'a geri döndü. Harlem Rönesans'ının fikir önderlerinden olan Alain Locke Still'e *Sahdji* isimli bir öykü gönderdi ve ona bu öyküyü kullanarak bir bale eseri yaratabileceği konusunda fikir verdi. Bu öykü Afrikalı bir kabile reisinin en sevdiği karısının öyküsüydü. Talihsiz Sahdji eşinin yeğenine âşık oluyor ve öykünün sonunda da ölüyordu.

Still bu öyküyü okurken bile zihinde melodiler canlanmaya başlamıştı. Still bu bestesi için Afrika müziği ile ilgili araştırmalarının sonunda karmaşık ritimler yarattığı bale eserini ortaya koydu. Eserde davullar bir iki ritmi birden çalıyor, hızla yere vurulan ayaklar ve şaklatılan ellerle zengin bir melodi yaratılıyordu. Still bu eseriyle dinleyicisi Afrika'ya taşımak istemişti (Oja, 1992; Reef, 2003).

Still bu eserini arkadaşı Howard Hanson'a ithaf ederek onu onurlandırmayı istemişti. Eser yine arkadaşının öncülüğünde Eastman School of Music'de ilk kez sahneye kondu. Hanson bir provadan sonra orkestra elemanlarının enstrümanlarını yere koyarak eseri ayakta alkışladıklarını anlatarak eserin beğeni kazanacağından ne kadar emin olduğunu belirtiyordu. Balet hem müzik eleştirmenleri hem de





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izleyiciler tarafından büyük bir beğeni ile ayakta alkışlarla karşılandı. Bir eleştirmen bu gerçek bir müzik, bestecinin egzotik bir yeteneği ve inanılmaz bir güzellik anlayışı var diyordu (Smith, 2008, 2000).

### AFRO-AMERİKAN SENFONİSİ

1929'da tüm Amerika'yı etkileyen Büyük Ekonomik Buhran başladı. Still bu dönemlerde işsizdi ve ailesi ile ilişkileri de yıpranıyordu. Bu dönem Still için bestelerine odaklanabildiği verimli bir sürecin başlangıcı oldu. Still uzun zamandır blues ve Afro-Amerikan müzik üslubunu birleştirebileceği senfoni bestelemeyi düşünüyordu.

Still en ünlü eseri olan *Afro-Amerikan Senfonisi*'ni bu dönemde tamamladı. Hatıra defterine ne kadar zor süreçler geçtiğini yazarken eseri tamamladığında 'bana tüm ilhamımı veren yüce rabbime en naçizane şükranlarımı sunuyorum' diye yazıyordu (Murchison, 1994; Smith, 2000).

Dört bölümden oluşan *African-American Senfoni'si* Amerikan İç Savaşından önce dönemleri canlandıran bir eserdir. Blues temalarıyla başlayıp biten birinci bölüm yalnız insanların gönlündeki özlemleri anlatıyor. İkinci bölümde kornolar ve yaylıların birleşen ahengi hüznün ve ruhani özlemlerin simgesi oluyor. Üçüncü bölümde Still siyahi Amerikalının espri anlayışını çarpışan simballerle ruhu yücelten bir müzikle anlatmaya başlıyor. Bölümün devamında korno, keman ve flüt sesleri canlı bir temayı tekrar ederek siyahi Amerikalının farklı öykülerini canlandırıyor. Dördüncü bölüm geçmiş hüznün anılarını geleceğe dönük sakin bir asaletle birleştiriyor ve eser son buluyor. *Afro-Amerikan Senfonisi* yine arkadaşı Howard Hanson'un öncülüğünde Rochester'da seslendirildi ve dinleyiciyi büyüledi (Murchison, 1994; Smith, 2000).

Still bestelerinin başarıları Amerika dışında da duyulmaya başlamıştı. 1933'de arkadaşı Howard Hanson *Afro-Amerikan Senfonisini* Berlin Filarmoni Orkestrasına çaldırarak onun sesini Avrupa'ya duyuruyordu. Dinleyici bu eseri o kadar beğenmişti ki eserin bitiminde 3. Bölümün yeniden çalınmasını istemişti. Amerika'da yaşanan tüm olumsuzluklara ve ayrımcılığa karşın Avrupa benzer tepkiler göstermemiş Still ve pek çok siyahi bestecinin eserleri Avrupa'nın ünlü senfoni orkestraları tarafından icra edilmiştir (Thurman, 2021).

### LOS ANGELES VE *BLUE STEEL* VE *TROUBLED ISLAND*

1924 yılına gelindiğinde Still iki bale, bir senfoni ve pek çok farklı küçük beste yapmıştı. Ancak bir hayali daha vardı. Bir Opera bestelemek. Bu nedenle farklı alanlarda çalışanlara kaynak sağlayan Guggenheim Vakfına baş vurdu. Vakıf ona gerekli kaynağı sağlamayı kabul edince, Still Los Angeles'e yerleşerek hemen çalışmaya başladı.

Opera fikrini ve yaratacağı melodileri çok uzun zamandan beri zihninde taşıdığı için gece gündüz demeden çalışarak çok kısa bir zamanda bir Vudu öyküsünü anlatan *Blue Steel* operasını tamamladı. Bir akşam Still'in müzisyen arkadaşları onun bahçesinde operanın arylarını seslendirdiler. Eser bittiğinde bütün çevre komşularının bahçelerinden ve sokaklardan alkış sesleri yükseldi (Sol, 2005).

Ne yazık ki Birleşik Amerika'da bulunan hiçbir opera kumpanyası bu eseri sahnelemek istemedi. Önyargıları ile körleşmiş olduklarından siyahi bir Amerikalının bir opera yazabileceğine inanmamışlardı. Hayal kırıklığına uğrayan Still, eserini bir kenara koymak zorunda kaldı.

Still bestecilik konusunu araştırmaya ve eser üretmeye devam etti. Bu red edilişler ve hayal kırıklıkları arasında Still, 1936'da Los Angeles Filarmoni Orkestrasını Hollywood Bowl'da yöneterek müzik tarihine adını yazdırmış oldu.

Still 1937'ye gelindiğinde Haiti adalarının kölelikten adanın özgürlüğüne kavuşması mücadelesini sürdüren ve bir suikasta kurban gidinceye kadar adanın ilk Cumhurbaşkanı olan Jean Jacques Dessalines'in yaşamını yansıtan *Troubled Island* adlı operası üzerinde çalışmaya başlamıştı. Eserin Librettosunu Langston Hughes yazıyordu. Ancak, Hughes İspanya'da olması eserin tamamlanmasını engeller duruma gelince Still Verna Arvey'den yardım istedi. Başarılı bir librettist olan Arvey Still ile ahenk içinde çalışıp eserin tamamlanmasında önemli bir rol oynamıştı. İlerleyen yıllarda Still ve Arvey evlenerek uzun süren mutlu ve verimli bir beraberliğe adım atacaklardı (Sol, 2005).



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Troubled Island'da Blue Steel'in kaderini paylaşarak aralarında Metropolitan Operası olmak üzere pek çok opera kumpanyası tarafından bir siyahi opera besteleyemez düşüncesiyle red edildi (Bogdan, 2021).

### SYMPHONY IN G MINOR

20. yüzyılın ortalarında Amerika'da yaşam değişmeye başlamıştı. Kırsal Güney bölgelerinden endüstriyel Kuzeye doğru bir göç başlamıştı. *Afro-American Senfonisi* Afro-Amerikalı'nın geçmişi ile ilgiliydi. Still bestelediği ikinci senfonisinin gelecekle ve yaşamın değişimine ait olmasını istemişti. Still *Symphony in G Minor* isimli senfonisi ilkinden farklı bir ruh halini yansıtmaktaydı. Bu eser melodisiyle Amerika'daki değişimi ve gelişmeyi anlatmaya çalışıyordu. Flütlerin yavaş ve ince sesiyle başlayan senfoni tıpkı bir lokomotif andırırçasına trampetlerin ve davulların sesiyle hızlanıyor ve dinleyicisine geleceği çağırıyordu.

Leopold Stokowski'nin şefliğini yaptığı Philadelphia Orkestrası bu eseri dünyaya ilk kez duyururken, esere büyük hayranlık duyan Stokowski esere 'Yeni bir Irkın Şarkısı' ismini verdi (Murchison, 1994; Reef, 2003; Smith, 2000).

### 1940'LI YILLAR

1940'lı yıllarda mutlu bir aile yaşamı olan Still besteci olarak kendisini bulduğuna inanıyordu. Bu döneme ait en önemli eseri Katherine Garrison Chapin'in şiiri *And They Lynched Him on a Tree* adlı eserini müziğe uyarlamasıydı. Bu eserinde Still siyahileri ve beyazları simgeleyen iki farklı koro kullanarak Amerika'nın güneyindeki küçük bir kasabadaki halkları canlandırmaya çalışmıştı. Korolar ırkçılığın yarattığı nefreti anlatan insanın içine işleyen bir öyküyü anlatıyorlardı (Smith, 2008).

1940lar dünyanın bir büyük savaşa daha şahit olduğu yıllardı. Still savaşta ölen siyahi askerler için *In Memoriam: The Colored Soldiers who Died for Democracy* gibi ağıtlar besteledi.

Bu yılların en önemli olayı 1949 yılında Elenor Roosevelt ve New York belediye başkanı La Guardia'nın gayretleriyle New York City Opera'sının Still'in *Troubled Island* operasını sahneye koymasıydı. Still operası Amerika'da ilk kez sahnelenen siyahi besteci olarak bir kez daha tarihe geçti (Reef, 2003; Smith, 2008,2000; Soll, 2005).

*Troubled Island* izleyicisinin beğenisi kazanmıştı ancak, insanoğlunun önyargılı ayırıcısı ve ırkçı çirkin yüzü bir kez daha ortaya çıkıyordu. Müzik eleştirmenleri 'bu zenci de çok oluyor artık' düşüncesiyle ortak bir karar alıp bu opera hakkında olumsuz eleştiriler yazmaya karar verdiler. Bu kararlarını da Still'e söylemekten çekinmediler. Still'in şef arkadaşı, Leopold Stokowski ona 'eleştirmenler çoğu zaman bir eseri dinlemeden bile yazı yazarlar' diyerek teselli etmeye çalışmıştı (Reef, 2003).

Bu olay Still için giderek kendi içine kapanması ve Los Angeles'da kendi halinde ailesi ile yaşamını sürdürmesine neden oldu. Yine besteler yaptı. Ancak eşi Verna ile birlikte okullara giderek gençlerle konuşmayı ve onlara her etnik grubun değerli olduğunu Amerikan melodisine her birinin katkısı olduğunu anlatmaya çalışarak geçirdi. Onlara kardeşlik fikrini aşılamaaya çalıştı. Önyargıların genç yaşlarda engellenebileceği inancındaydı.

Kendisine Afro-Amerikalı Bestecilerin Duayeni unvanı verilerek hak ettiği şöhreti yakalamış oldu. Bir New Orleans gazetesi onun için darbe yaparak değil hassas ve ince bir inandırıcılıkla senfonik müziği ile ırkçı engelleri aştı yorumunu yapmıştı (Arvey, 1984).

Still'in en son halk önünde görüldüğü zaman University of Southern California'dan fahri doktora ödülü aldığı gün oldu. Bir seri kalp krizleri geçiren besteci 1978'de seksen üç yaşında yaşama veda etti.

### BİTİRİRKEN

Still iki yüzden fazla beste bırakarak aramızdan ayrıldı. Kendisini önce bir Amerikalı sonra bir siyahi olarak gördü. Irklar arasındaki harmoniye inandı ve bir gün birbirlerini anlayacaklarına inancı sonsuzdu. Still müziğin bestecisinin yüreğinden geldiğine inandığı için herkesin yüreğiyle konuşabileceğini biliyordu. Kendi müziği ne kadar içtense Amerikalıların da o kadar içten ve samimi olmalarını istiyordu. Amerikalı olan her şeye bağlı olmak ve sevmek gibi. Onun müziğinde gerçekten de Amerika'yı Amerika yapan tüm karışimleri duyabiliyor insan: siyahi, İrlandalı, Kızılderili, Musevi, Müslüman ve diğerleri...

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“Tanrı yeryüzüne yalnızca güller, menekşeler veya kardelenler vermedi. Çok farklı çiçekler yarattı oraya buraya yerleştirerek, birbirlerinin güzelliklerini yansıtarak. Farklılıkları azımsayan herkes bilmelidir ki dünya çeşitlilik olmadan çok sıkıcı bir yer olurdu. Herkes aynı şekilde düşünseydi ilerleme hiç gerçekleşmezdi.” (Haas, 1972, 113).

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### READING LOCAL POLITICAL DEVELOPMENT AND URBAN DEVELOPMENT IN THE CONTEXT OF WOMEN

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#### **Abstract**

Although development is a concept that comes to mind with its economic dimension; It includes many social and political variables beyond the economy. Development for a country follows a path from local (city) to the region and nation. For the development of a nation in both economic and political (representation/participation/democracy) sensory, the cores of development must start from the local/cities. For individuals living in the city, besides economic development, cultural, social, physical, and political development must occur simultaneously. Meeting political needs is possible with political development. In this respect, political development; For the development of political life, it can be defined as the whole of the efforts to develop the mechanisms of participation of the citizens in the administration and to encourage participation. The meaning of political development at the urban level can be expressed as the inclusion of local people living in the city into the existing political system in that area. In this respect, local/urban political development can be defined as the development of democratic culture by strengthening the channels of participation of the people in the making and implementation of local government's decisions. The most important indicators of the existence of political participation in the local area how active the citizens are in local politics, how much they participate in local politics, and how well they are represented in local assemblies.

The more developed a city is, the more it is expected to be developed in terms of political development. When urban development and political development are considered together, the units that we will look for indicators of political development are; the city council, the provincial council, and the city council. In the study, a discussion will be made on women in the context of urban development and political development. For this purpose, political development will be discussed at the level of democracy and representation. In this sense, the relationship between urban developments - political development, and women are examined in the context of Isparta, Antalya, and Burdur, which are selected according to their development levels from the Western Mediterranean Region of Turkey. In the provinces of Antalya, Burdur, and Afyon, elected based on Socio-Economic Development Index - SEGE (Sosyo-Ekonomik Gelişmişlik Sıralaması Araştırmaları), the representation of women in local assemblies and city councils, which are seen as participation and representation mechanisms, is very insufficient.

**Keywords:** Urban Development, Political Development, Local Politics, Local Political Development, Political Representation and Participation, Women's Representation.

#### **INTRODUCTION**

Development can be defined as the economic, political, and social development of a country in all areas, the development of its institutions and infrastructure services, and the social, physical, cultural, political, and economic improvements that this creates in the lives of individuals. Although economic development comes to mind first when development is mentioned; for a city to be developed, it must



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contain all the components of development and be developed economically, socially, culturally, and politically. As a city develops, it is expected that there will be an improvement in all areas of social life, which indicates local development. This linear relationship should be expected for local political development, which is one of the pillars of development. Values such as political life, social participation, representation, and strengthening local democracy are also read as indicators of local political development. The fact that a city is developed in terms of political development means that local democracy especially works well. For this, groups living in the city must have the right to represent, and the channels of governance and political participation must be open. When urban development and political development (democracy, political participation, and representation) are considered together, the first important administrative units, municipal councils, provincial councils, and city councils come to mind. In the study, while the local political development is handled in terms of representation, the focus is placed on women.

In the study, first of all, the position of Turkey in terms of women at the international level was examined, then national policy documents, development plans, and national and international research were examined and the level of representation of women throughout the country was revealed with numerical data. The answer to this question/problem in the study, which wants to discuss the existence and linearity of the relationship between development and local political development from the focus of women, has been sought by discussing the representation of women in the political and administrative mechanisms of the city.

### CONCEPTUAL BACKGROUND

Development can be defined as the development of a country's economic, social and political structures and the social, cultural, political, and economic improvements it creates in the lives of individuals, and the increase in social welfare. Although development is a concept that comes to mind with its economic dimension, it should not be forgotten that it also affects other areas outside the economy. II. After World War II, the use of the concept of development has increased, and the concept and discourse of development have evolved as a version of the understanding of always going better and forward within the theory of modernization (Ökten, 2007: 93). Development means that besides meeting the need for economic growth, equity, sustainability, a fair life, social justice, democracy, representation, and participation are the highest goals for governments (Clark, 1996: 37-40).

The general acceptance is that development in all its dimensions is national. However, when the relationship between urban development and development is mentioned, it is expected that developed cities will also develop economically. What should happen is the realization of development in all its dimensions (economic, social, political, and cultural) in developed cities. Since development progresses from local (city) to region and nation; The key, the beginning of the foundation of catching the development trend in the national and even the international arena is the cities. City administration or local administrations refer to the duties of the city in social, cultural, economic, political, physical, and administrative areas and the whole of the activities carried out to fulfill these duties. For this reason, the expression of local development management is also used instead of city administration or local administrations (Kaya, Şentürk, et al. 2008: 85). In this respect, local development is all of the economic, social, cultural, physical and political development policies carried out at the local level by realizing local dynamics. Local development is to develop individual, institutional, and social capacities that will enable productive and effective participation in and benefit from development processes at both national and local levels. In addition, it is also important to be able to influence the decisions of the administration and to ensure that all segments of society can be included in the administrative/political process to build this capacity. The main goal in local development is to provide more effective, inclusive, and accountable service provision in which every segment of the society is involved (Şen, 2010: 25). There are many actors/units in city management or local development management, such as central government and local governments, non-governmental organizations, city councils, and development agencies (Kaya, Şentürk, et al. 2008:84). Total development in a country takes place in five dimensions, starting from the city. These are (Kaya, 2007: 4; Kaya, Şentürk, et al. 2008:81): physical development that includes the infrastructure, planning and control activities that the city needs, economic development that includes planning, incentives, and organizations for the development of the urban economy, and training and organizations for employment, social development, which includes the



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facilities and activities required to increase the social welfare of the citizens, cultural development that includes the facilities and activities for the development of the urban cultural life, and political development, which includes the development of the participation and representation mechanisms of the citizens in the administration for the development of political life. Physical, economic, cultural, social, and political development can be a means of overall development, but it does not provide development alone unless it covers just, equitable and disadvantaged groups (Clark, 1996: 37-40).

Local political development, on the other hand, is the development of democratic culture by strengthening the representation and participation channels of the people in the functioning of local governments, service delivery, decision-making, and implementation. Local governments, which are the units where the first examples of democracy are seen, are the closest administrative units to the citizens. For this reason, it has always been called the cradle of democracy and the school of politics and has taken an important place in the development of democratic culture. Because in local government units, citizens have easier political representation and participation. For this reason, the participation of citizens in politics (apart from voting behavior) can be achieved more easily at the local level. The meaning of political development at the urban level can be expressed as the inclusion and representation of the local people living in the city in the existing political system in that area. According to Göymen (2010: 133), the missions of local governments in terms of local development have four important dimensions economic development, social sharing and inclusion, political participation, and cultural pluralism. In this respect, political participation and representation mechanisms need to be improved for the full development of local political development. Although central administration/national politics come to the fore in the context of taking important steps for local political development and making public policies, there should also be practices that encourage the participation of the people in the administration and politics with a series of local practices. For example, informing all citizens about political representation and decision-making mechanisms and encouraging them to use these mechanisms. Thus, more democratic, participatory, transparent, and accountable political structures and processes will be created.

Development should be human-oriented, egalitarian, inclusive, and multidimensional (economic, social, political, and cultural) (Göymen, 2010: 132-133). Local government organizations should pay attention to how growth reflects on individuals and society, how development results affect different layers of society, that it includes positive discriminatory policies for disadvantaged groups who cannot receive an equal share in the development process, and that development is complementary and overall in all its dimensions. Since local governments are seen as the first core of democracy, representation, and political participation, just as it is necessary to increase the effectiveness of local governments for economic development in the national sense, the development of all dimensions in the national sense depends on the experience of development in all dimensions in local governments.

### **LOCAL DEMOCRACY AND REPRESENTATION FOR LOCAL POLITICAL DEVELOPMENT**

Conceptually, democracy, which consists of the words “demos” and “cratos”, expresses the people living in the city with the concept of demos, power, and sovereignty with cratos. The concept of democracy, which is narrowly defined as the “rule of the people by the people” in the narrow sense of Abraham Lincoln, includes values such as individual freedom, equality, representation, participation, social welfare, and justice in its broad definition (Görmez, 1997: 60). The concept of democracy is often used together with local government units, as it emerged in the units called “communes”, which were seen as the first local government units. Communes, by advocating concepts such as freedom, equality, and participation, formed the first examples of the democratic management approach we understand today. For this reason, local government units are referred to as the cradle of democracy and the first school of politics.

Today, local governments in democratic regimes are considered the most important indicator of democratization because they exist as the closest political administrative units to the people. Local governments are seen as a form of administration established to meet the common needs of local community members, to provide local services related to economic and cultural wealth and welfare, and to perform these services under their responsibility with general authority and for the benefit of the local



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community. In addition, it is seen as an autonomous and democratic form of administration that accepts people as the basis of local democracy without any discrimination, implements openness, transparency, human rights, pluralistic and participatory democracy principles in its functioning, and has a public legal personality, where the authorities are used by local government units (Gölküçük, 1993:13). There are different opinions focused on the relationship between local governments and democracy. The first of these is the opposing view to the local government-democracy relationship, which is based on the notion that local government contradicts the principle of democratic election, and that local politics leads to an increase in conflicts of interest rather than strengthening democracy. Another view is that the relationship between democracy and local government is a forced one (Keleş, 1998:55). Despite these views, when viewed on the axis of the world, it is a fact that local governments are an important building block in the administrative structure in almost every country, albeit at different times. From the point of view of local governments, an important point is to make a clear distinction between local democracy and democratic local government. If a country's political system is a democracy, it must be at the local level as well as at the national level. However, the establishment of local government bodies with purely elections and thus the possibility of self-government to the local people is not sufficient to give institutions a democratic quality (Keleş, Yavuz, 1989:24). In real terms, the existence of democracy in local governments depends on the full functioning of all kinds of representation and participation mechanisms, including all citizens. As a matter of fact, in theory, local government legislation emphasizes cooperation in the context of both citizens and other stakeholders in the city by displaying a participatory understanding.

The most important actors of local development are local governments and especially municipalities. The most important factor of local political development is the institutions that increase or facilitate the representation and participation of the people such as local councils, non-governmental organizations, and city councils. In this context, headman offices, municipalities, local assemblies, and city councils are seen as participation and representation mechanisms in local governments. The aim of the city councils established to strengthen public participation in local governments in Turkey is to develop the city vision and citizenship awareness in urban life, to protect the rights and law of the city, sustainable development, environmental awareness, social assistance, and solidarity, transparency, accountability and accountability, participation and to try to implement the principles of decentralization (5393/76). It is aimed to represent different segments of the society in local administrations by forming retirees, children, youth, and women's councils within the city councils. According to the Law, municipalities are public legal entities with administrative and financial autonomy, which are established to meet the local common needs of town residents and whose decision-making body is elected by the voters. The municipal council is the decision-making body of the municipality and is formed by elections (5393/3). The provincial council is the decision-making body of the special provincial administration and consists of members elected by the voters in the province (5302/9). The number of members of local councils is determined according to the population of the province/district. The metropolitan municipality council, on the other hand, is the decision-making body of the metropolitan municipality and consists of members equal to the total number obtained by taking one-fifth of the number of members of the district municipal councils within the boundaries of the municipality for each district (2972/6).

The most common understanding of development as a concept is the economy. In other words, if we are talking about the development of a country; The first thought that comes to mind is that all national economic indicators of that country are good. Of course, the relationship between the concept of development and the economy can present a situation such as the association of other concepts related to development with the economy. Based on this situation, it is a situation emphasized in the literature that there is a relationship between political development and economy and between economic development. It is accepted in the literature that there is a relationship between democracy and economic development, a cause-effect link. Along with the existence of opposite views (Zakaria: 2009: 76-78; Lijphart, 2012: 66-68; Touraine, 2004: 407), according to many views, especially free market economy advocates, economic development cannot take place without a democratic environment. According to Fukuyama (1999: 108), every highly industrialized country has a stable democracy. According to Dahl (1998: 61-62), democracy is dominant in all countries where the rules of the market economy operate, and since these countries develop more easily, modern democratic countries are economically developed countries. Countries governed by democracy are richer than other countries. The existence of democratic



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institutions enables countries to develop faster (Dahl, 1998: 63). Local governments, which are the first core of democracy, representation, and political participation, have important functions with their key roles in policy-making, providing first-hand service, supporting innovations and providing local welfare. For this reason, it is necessary to increase the effectiveness of local governments for economic development in the national sense, and to make local democracy more functional for political development, that is, to increase local representation and participation. The ability to experience development in national terms with all its dimensions depends on the reflection of development to local governments with all dimensions and including all groups. Considering that the development process does not affect all social segments, in the same way, it should be ensured that the specific conditions of disadvantaged social groups are taken into account, integrated into the development process, and received the necessary share from the blessings of development.

### THE POSITION OF WOMEN IN TURKEY ACCORDING TO INTERNATIONAL INSTITUTIONS AND RESEARCH

The issue of the status of women, which is seen as a universal problem, is also discussed at the supranational level. In this context, Turkey's position in international indexes is not encouraging. In these texts, the emphasis on equality of the sexes in every field and the desire/effort to be achieved are seen.

The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), the United Nations Commission on the Status of Women, the European Union's Equality Directives, the Beijing Declaration and Platform for Action, the Vienna World Conference on Human Rights, the efforts of the European Charter for Equality of Women and Men in Local Life pioneering works in the context of raising the social status of women. In addition, UNDP (United Nations Development Programme) measures four indices and reveals the necessity of addressing development in terms of human rights rather than simply expressing it in economic terms ([www.tr.undp.org](http://www.tr.undp.org)). These four indexes that UNDP takes into account are Human Development Index (HDI), Inequality Adjusted Human Development Index (IHDI), Gender Development Index (CDI), and Gender Inequality Index (GII). In the Gender Inequality Index (GII) 2020 data, which is an index that tries to reveal national human development achievements in terms of gender inequality, the first three countries in the category of high human development in the ranking of 189 countries are Norway, Ireland, and Switzerland. Turkey, on the other hand, ranks 54th among 64 countries in this group ([hdr.undp.org](http://hdr.undp.org)). The Gender Development Index (CDI), prepared by the Human Development Report Office (HDRO), was calculated for 166 countries, and in 2018 data, the female HDI value for Turkey was 0.771, while the male HDI value was 0.834. With these data, it has been observed that the human development level of women is lower than that of men in Turkey (UNDP, Human Development Report, 2019).

The Global Gender Gap Index (GGG) is an index that evaluates the progress of 144 countries towards gender equality in four thematic dimensions (economic participation and opportunity, success in education, health and survival, and political empowerment). According to 2017 data, Turkey ranked 131st among 144 countries on this list ([www.weforum.org](http://www.weforum.org)). Finally, there is the World Economic Forum's (WEF) Global Gender Equality Index, in which all countries around the world are ranked by gender equality. While Iceland, Norway, Finland, and Sweden rank first in this index for 2019, Turkey was ranked 130th in the list of 153 countries (2020 Global Gender Gap Report).

In addition to gender-related indicators, women's visibility in fields such as management and politics is behind our country on an international scale. According to the 2019 data of the EU Statistics Office (Eurostat), 1/3 of the managers in the European Union countries are women. The country with the highest number of female managers is Latvia with 53.5% and Bulgaria with 49%. In addition, 1/3 of the managers in the European Union countries are women. The country with the highest rate of women in senior female management is Romania with a rate of 33.8%. In this ranking, Turkey took fourth place from the bottom with a rate of 11%. Likewise, only 6% of those who work as CEOs are female managers, even in the senior management of large enterprises that are on the world's top 500 list. Finally, The Economist has been publishing the glass ceiling index since 2013. According to the glass ceiling index of 2019, Sweden, Norway, and Iceland are among the best countries to be a working woman, while Turkey, Japan, and South Korea are among the worst countries ([prnewswire.com](http://prnewswire.com)).





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### THE REPRESENTATION OF WOMEN IN TURKEY

Unlike sociological studies, the relationship between women and the city based on political science has been questioned more in the context of democracy, representation, and participation. After gaining universal suffrage in the 19th century, women's struggles for representation were questioned based on the right to vote and to be elected, and the low level of political representation. In terms of recent history, in Articles 67, 68, and 70 of the 1982 Constitution, the right to elect and be elected in local and parliamentary elections, to form a political party, to enter and leave parties by the procedure, to participate in referendums, and to enter public services are regulated to cover all citizens. Likewise, the Constitution has granted all citizens the freedom of thought and opinion, freedom of expression and dissemination, freedom of the press, and assembly rights and freedoms in Articles 25, 26, 28, 29, 33, and 34 without making any distinction between men and women. The prohibition in Article 68 that political parties cannot establish women's branches was lifted with Law No. 4121 dated 23.07.1995. Thus, if political parties wish, they will be able to open an additional area of political participation for women (ailevecalisma.gov.tr). In Article 83 of the Political Parties Law No. 2820 dated 1983, it was stated that political parties cannot pursue aims contrary to the principle that everyone is equal before the law without any discrimination based on language, color, gender, political thought, philosophical belief, religion, sect, and similar reasons. Parties voluntarily go to quota applications with their own decisions and determine their candidates accordingly. However, since this situation has no sanction, it cannot be said that it contributes to the improvement of women's representation. When the governments whose number of ministers changed between 29 and 16 after 1980 are examined, the number of female ministers changes between 0 and 2 (TÜİK b, 2021). The desired point in women's representation has not been reached for the full realization of political development in national politics. In addition, in the presidential government system, which was put into practice with the General Elections of 24 June 2018, only 1 (5.8%) of the 17 ministers in the cabinet is a woman. In addition, only 6 (9.8%) of the 61 deputy ministers working in ministries are women. Only 18 of the 76 members of the presidential policy boards are women. When we look at the latest status of female representation as of 2022, while 480 of 581 deputies were male, the number of female deputies remained unchanged, while the number of female deputies decreased to 101 (17.3%) (tbmm.gov.tr).

At the point of local political development, the representation of women is insufficient. According to the results of the 31 March 2019 local elections, only 3 of the 30 metropolitan mayors are women (female mayors were elected for Gaziantep, Aydın, and Van Metropolitan Municipalities, and there was a change of office due to the ongoing judicial processes in Van Metropolitan Municipality). Out of a total of 1389 mayors (metropolitan, metropolitan district, provincial municipality, district town municipalities), 42 (3%) are women. Out of a total of 20,745 municipal council members, 2,284 (11%) and 48 (3.8%) of 1,271 provincial council members are women. In addition, according to the results of the 31 March 2019 local elections, 115 village headmen and 970 neighborhood headmen, and a total of 1085 (2.16%) female headmen were elected throughout Turkey (TÜİK c, 2019). The number of the female headman in Turkey, which was 680 (1.36%) before the local elections, increased by 59.5% to 1085 (2.16%) in the last election. Although the increasing number of female neighborhood headmen in local elections presents a positive situation in Turkey's urban politics and administration, the representation of women in politics is not sufficient when looking at the general picture.

Regarding the city councils in terms of local political development, in the 11th Development Plan, it is stated that suggestions will be developed for the city councils to work more actively and the participation mechanisms of the disadvantaged segments in the decision-making processes will be strengthened (11th Development Plan, 2019: 197). While some numerical targets were included in the plan on many issues, the target of increasing the women's representation in the parliament, which was only 17.3 in 2018, to 20% in 2023, was included to ensure gender equality (11th Development Plan, 2019: 153). Apart from this target, no numerical target has been found to strengthen the representation of women in national and local politics. Likewise, one of the purposes of the study of the *Gender Equality Scorecard* made by TEPAV (The Economic Policy Research Foundation of Turkey) was stated as the absence of women in any plans and policies made by the decision-making mechanisms at the local level, due to the absence of gender-sensitive analyzes at the provincial level (TEPAV, 2014: 3). The Constitution, the 2018-2023 *Women's Empowerment Strategy Document* and the *Action Plan* were examined in detail in the report



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published by Gender Inequality Monitoring Centre CEİD (Cinsiyet Eşitliği İzleme Derneği) under the name of *Gender Equality Monitoring Report in Turkey* (Türkiye’de Toplumsal Cinsiyet Eşitliğini İzleme Raporu-TCE) in 2021. In the aforementioned report, it is stated that the 11th Development Plan does not have specific targets for reducing gender inequality (CEİD, 2019-2020, 2021:38). In the same report, while evaluating the national action plan, it was emphasized that it was a shortcoming that transformative actions were not foreseen to increase the low representation of women at the national and local level to the international level. In the 2018-2023 Action Plan, it was stated that it is a positive development to impose more responsibilities on institutions and organizations compared to the previous plan (CEİD, 2019-2020, 2021:115).

The issue of women’s representation is closely related not only to democratic development but also to social, cultural, economic, and physical development. For this reason, the position of women living in a disadvantaged position in the city in terms of local development is insufficient in terms of political development as well as in terms of cultural development. Just as the representation of women is important in terms of local political development, the position of women in business life should be improved in terms of cultural development. Considering the status of female executives in the private sector, it is seen that there are 50 women in total (in positions such as chairman of the board, vice chairman, member, CEO, and general manager) in the list of “Turkey’s 50 Most Powerful Business Women” published by Fortune Turkey in 2019 ([www.fortuneturkey.com](http://www.fortuneturkey.com)). In senior management positions in the public sector (such as local administration, general manager, deputy general manager, department head, vice president, provincial manager, and regional manager), only 532 of the 5877 employees are women (The Ministry of Family and Social Services-Turkey, 2019: 57).

50.2% of Turkey’s population is men, and 49.8% is women (TÜİK a, 2020). However, with the emphasis on supporting women as a part of development throughout the country in the 10th and 11th Development Plans, the research and official data discussed above show that women are not fully actors in terms of representation and participation in the public decision-making mechanisms of the city.

### INVESTIGATION OF THE WEST MEDITERRANEAN REGION OF WOMEN’S REPRESENTATION

#### Method

The study aims to consider political development, which is thought to be related to urban development, through women on the plane of representation and political participation. Based on the premise that cities develop as they develop, or development is achieved as the level of development rises, the development/development of cities positively shapes the political dimension of development. Whether local political development is achieved or not is related to representation, participation, and democracy. Therefore, the question of the research is “Where is the woman in local political development?”

For this reason, the study dealt with the relationship between urban development - political development, and women in the context of Isparta, Antalya, and Burdur, which were selected according to their development levels from the Western Mediterranean Region. For this purpose, three provinces from the 1st, 2nd, and 3rd levels in the Western Mediterranean region were selected according to the SEGE (Socio-Economic Development Index) ranking. Considering 52 variables, SEGE ranked 81 provinces according to their level of development in 2017 and divided the provinces into six levels. In SEGE, the most developed provinces are in the first and second tiers. There are a total of 24 provinces in the first and second stages. Moderately developed provinces, on the other hand, consist of cities in the third, fourth, and fifth levels. These cities consist of the cities in this range, including the 25th and 65th provinces among 81 provinces. In SEGE 2017, the cities in the sixth level and at the lower level of development mostly consist of the cities located in the Eastern and Southeastern Anatolia Regions. The sample of the study was chosen as Antalya (developed city), which is in the 5th rank and one of the first tier provinces, Isparta, which is the 16th rank and 2nd tier province, and Burdur, which is the 32nd and 3rd tier province. Within the scope of the research, the representation of women in local assemblies and city councils in Antalya, Isparta, and Burdur provinces was examined. Data; It was collected from the websites of local councils and city councils in the mentioned provinces, national and international indexes, and reports measuring gender inequality.



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### Findings

Representation and participation in the context of local democracy, the importance of equal and fair representation of disadvantaged groups in local political development, and local political participation mechanisms in Turkey have been discussed above. In terms of political development, the functionality of the mechanisms of justice and participation in representation within the local political actors comes to mind. The principle of justice in representation, in the sense that all social groups can find a place in the political system and participate in decision-making mechanisms, has been included in many laws in Turkey. However, in practice, disadvantaged groups such as women do not have access to fair and equal representation. In the study, the representation status of Antalya, Isparta, and Burdur, which are evaluated within the same development policies in the Western Mediterranean region and show similarities in economic, social, and geographical terms, in both the city council and local assemblies were examined. The development index of the region, which includes three cities called TR61 region, is in fourth place among twenty-six regions with 1,359. Likewise, according to the development index ranking published by SEGE in 2017, Antalya ranks 5th and is one of the first-tier provinces in developed city status. Isparta ranks 16th and is one of the 2nd tier provinces in the status of a moderately developed city. Burdur, on the other hand, is in the 32nd rank, with the status of a moderately developed city and one of the 3rd tier provinces. Especially, Antalya emerges as the province with the best value in tourism, agriculture, the number of foreign capital companies per capita, and the literacy rate of women (SEGE, 2017).

Antalya Metropolitan Municipality Council, which is seen as the political participation and representation mechanism in the mentioned provinces, nineteen district municipal councils in Antalya (Table 1), Isparta Municipal Council and Provincial General Assembly, and Burdur Municipal Council and Provincial Assembly members were examined (Table 2). . At the same time, the number of city council members and their representation status, which are discussed both in terms of governance and as the most important participation channel, were examined in the provinces in question. The data were collected from the website of the relevant local councils.

According to the 2001 population data, the population of Antalya is 2,619,832. 50.18% (1,314,755) of this population is male and 49.82% (1,305,077) is female. The population of Isparta consists of a total of 445,678 people. Of this population, 49.52% (220,699) is male, and 50.48% (224,979) is female. According to the 2001 population data, the population of Burdur is 273,716. Of this population, 50.19% (137,372) are men and 49.81% (136,344) are women (TUIK d, 2021). Considering the male-female-population ratios in the cities in question, there is not a big difference, although the female population is higher in Isparta, while the male population is higher in the cities of Antalya and Burdur.

Considering the population rates and development status, it is expected that the representation rates of women and men in these three cities will be close to each other. However, when the Antalya metropolitan municipality council and nineteen district municipal councils are examined, it is seen that women are not represented in proportion to their population (Table 1). Since Antalya is a metropolitan municipality, the metropolitan municipality council and the district municipal council exist alongside the city councils as a participation and representation mechanism. In none of the nineteen district municipal councils, the female representation rate is not higher than the male representation rate, and it is not even close to each other. In all district municipal councils, male representation is more than female representation, which is not fair and equitable. Women's representation is out of the question in three district municipalities (Gündoğmuş-İbradı-Kemer). District municipal councils with the highest female representation are generally the districts that are socioeconomically developed regions. These are Konyaaltı district municipal council (29.03%), Korkuteli district municipal council (20%), Muratpaşa district municipal council (18.91%), and Kaş district municipal council (18%), respectively.

The metropolitan municipal council is formed by the sum of the mayor of each district and one-fifth of the number of district municipal council members. The representation rate of women (5 women) in the Antalya Metropolitan Municipality Council, which consists of 121 members with the sum of one-fifth of the nineteen district municipal councils and the district mayors, is 4.13%. In general, it is thought that general women's representation in local assemblies across Turkey is not equal and fair, as in the case of Antalya. In the province of Antalya, women are not sufficiently involved in the socioeconomic structure



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of the city and cannot be adequately represented in decision-making mechanisms. Women in the region generally become members of women's associations for education, assistance, and employment. This situation affects the representation and participation of women in Antalya, revealing that the majority of women are not interested in politics and are only interested in political voting (Yuva, 2015).

**Tablo 1: Status of Women's Representation in Antalya Metropolitan Municipality**

ANTALYA METROPOLITAN MUNICIPALITY					
City council	Number of Women	%	Number of Men	%	Total
Antalya Metropolitan Municipality	5	4,13	<b>116</b>	95,87	<b>121</b>
Muratpaşa Municipality	7	<b>18,91</b>	30	81,08	37
Aksu Municipality	1	3,84	25	96,16	26
Döşemealtı Municipality	2	8	23	92	25
Kepez Municipality	5	11	40	89	45
Konyaaltı Municipality	9	<b>29,03</b>	22	70,96	31
Alanya Municipality	5	13,51	32	86,49	37
Demre Municipality	2	13	13	87	15
Akseki Municipality	1	10	10	90	11
Elmalı Municipality	2	13	13	87	15
Finike Municipality	3	20	12	80	15
Gazipaşa Municipality	3	12	22	88	25
Gündoğmuş Municipality	-	-	9	100	9
Kaş Municipality	2	<b>18</b>	9	82	11
İbradı Municipality	-	-	10	100	10
Kemer Municipality	-	-	15	100	15
Korkuteli Municipality	5	<b>20</b>	20	80	25
Kumluca Municipality	2	8	23	92	25
Manavgat Municipality	5	16	26	84	31
Serik Municipality	4	13	27	87	31

The chairman of the executive committee of Antalya city council, which consists of 25 members, is a woman and there are only 4 female members in the executive committee. While the chairperson of the women's council is a woman, the chairpersons of the disabled, youth, and retirees councils are men. The chairman of the executive board of the Burdur city council is male and there is only 1 female member in the 11-member executive committee. However, all 5 members of the women's council and its chairman are women. While the chairman of the council for the disabled is a woman, the president of the youth council is a man. The chairman of the executive board, which was formed as a result of the ordinary meeting of the Isparta city council on July 26, 2019, is male and there are only 2 female members in the 15-member executive committee. However, the election of the executive board members and the ordinary congress were brought to the judiciary by the old municipality administration and the Isparta city council is now inactive due to the legal process. The Isparta municipality does not view the discussions on the re-establishment and revitalization of the recent Isparta city council positively ([www.medya32.com](http://www.medya32.com)).

Since Isparta and Burdur are provincial municipalities, besides city councils, municipal councils and provincial councils also exist as local participation and representation mechanisms. When we look at the representation rates of the municipal councils in the provinces of Isparta and Burdur, it is seen that the male representation is generally over 80% and the female representation does not exceed 19%. In the city of Isparta, where the female population is higher, the representation of women in the municipal council (5 women) is only 19%, while this rate is 12% in the Burdur



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municipal council (3 women). In the two cities in question, it was observed that the general provincial assemblies were more masculine structures.

**Tablo 2: Representation of Women in Isparta and Burdur Municipality**

Provincial Municipality	Council	Number of Women	%	Number of Men	%	Total
Isparta Municipality	City council	6	%19	25	%81	31
	Provincial Assembly	1	%3	33	%97	34
Burdur Municipality	City council	3	%12	22	%88	25
	Provincial Assembly	1	%4	26	%96	27

It has been argued that the most important indicator of local political development is a fair, equitable, and inclusive representation mechanism. If we want to talk about a total development at the local level, if we are talking about the discourse of justice in representation in legal and political discourse, and if we place this in the electoral system as a principle, it is expected that the female-male representative ratios will show an equal and fair distribution in local assemblies, the cradle of local democracy. However, in the provinces of Antalya, Isparta, and Burdur, which were selected from the Western Mediterranean Region according to SEGE's development index rankings, we can talk about a very weak representation of women within the scope of local political development. We can see that this situation is similar to the representation of women in national politics in terms of the deputies sent to the parliament from these provinces. Because 2 of the 15 deputies in Antalya's parliament are women, 1 of the 4 deputies of Isparta is female, and there are no female deputies among the 3 deputies of Burdur. As a result, numerical data specific to the study area tells us that local participation mechanisms do not show an inclusive, fair, and equitable distribution of representation and offer masculine structures.

### CONCLUSION

The inability of women to be adequately represented in the cities where they live as residents of the city brings about their inability to benefit from urban opportunities, their incomplete representation in the production processes, and their inability to participate sufficiently in the decisions that directly concern them in their daily lives. This situation cripples the foundation of freedom and democracy, which is characteristic of the spirit of urbanization. At the same time, it causes the decisions taken, the politics carried out and the policies implemented in the cities to be carried out only with a masculine mentality, and it leads to overlooking the issue of women's representation in terms of evaluating urban development. This situation, which is incompatible with the understanding of democratic management, makes it invisible that the growth and development of cities are closely related to their democratic development. It does not seem possible to establish a truly democratic culture and fully develop local political development without solving the representation problems of women in local/cities.

A full realization of local political development is possible with the existence of equal representation and participation mechanisms. Laws provide equal and fair participation to all groups in many ways of representation and participation, such as accessing urban services, voicing demands, accessing the city administration, and following the work of decision mechanisms (assemblies). The aforementioned regulations are presented to the whole city as "citizens" with the understanding of "citizen law". However, it has been observed that local political development cannot be achieved in terms of women's visibility/presence in the context of being in the administration as a representative and being among the decision-makers/policymakers. The number of women representatives in local assemblies and city councils, which is the most important political representation and participation mechanism in the local, presents the negative side of the situation for women.

The analyzed national and international documents show that women are not fully actors in terms of representation and participation in the public decision-making mechanisms of the city in Turkey. Similarly, in the sample of Antalya, Isparta, and Burdur, whose local assemblies and city councils were



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examined, the research findings showed that the representation of women was very insufficient. Antalya, which is relatively good in terms of gender equality, is in a more advantageous position compared to Burdur and Afyon in terms of women's representation. However, women's representation in local assemblies and city councils in Antalya is insufficient. To call a city a developed city, besides the economic, cultural, and political indicators, conditions such as women's visibility, women's representation, and equality between the sexes must also be met.

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### ADVANCES IN ECO-FRIENDLY LUBRICANTS FOR TRIBOLOGIC APPLICATIONS

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#### **Abstract**

With the increasing population, developing technology and industrial breakthroughs, the need for energy has increased. Not only energy, but also the use of lubricants used in almost all mechanical systems has experienced huge increases. As an alternative to mineral oils, biofats have emerged. This is very good news in terms of reducing dependence on oil, which is at an end, recycling waste, and obtaining cheaper oils. The emphasis on biolubricants is a result of the growing demand for environmentally friendly lubricants that are less toxic to the environment, renewable and provide viable and economical alternatives to conventional lubricants. In this study, the production processes, raw materials and areas of use of biofats are mentioned. In addition, comparisons were made in terms of mechanical properties.

**Keywords:** Tribology, biofats, lubricants, mineral oil

#### **INTRODUCTION**

Constantly growing industrialization, modernization and development have increased the demand for energy, such increases in energy consumption are often associated with fossil fuels. More petroleum-based products, including fuel and lubricants, are needed to meet high energy demand. Some of the petroleum-based lubricants used that are harmful to the environment are returned to the environment. This is a worrying issue as most petroleum-based lubricants are toxic and non-renewable. Several efforts are being made to slow down these imminent threats, including the development of green energy systems and the use of renewable resources as a potential alternative to mineral-based products.

Due to increasing energy needs, dependence on oil has increased, which has increased the concern all over the world in terms of environmental pollution. In order to avoid these concerns in terms of easy degradability and renewability in lubricating oils, many bio-oil studies have been done and continue to be done. The term "bio-based lubricant" or "bio-lubricant" refers to all lubricants derived from bio-based raw materials, i.e. vegetable oils, animal fats or other hydrocarbons that do not harm the environment. In addition to being easily biodegradable and renewable, bio-based lubricants are known to have good lubrication.

In this study, bio-oil usage areas, bio-oil production, use of raw materials that can be used as a base will be mentioned. Studies on the evaluation of the performance of the lubricating oil under conditions such as low temperature, high temperature and overpressure and the analysis of the basic properties such as oxidative stability and viscosity index, which are the basic criteria of the lubricating oil, will be examined and presented by making comparisons. As a result, a study will be carried out on a plant-based lubricating oil as a substitute for mineral-based lubricants and analyzes will be presented on the properties that should be basically present in the lubricating oil.

#### **HISTORICAL DEVELOPMENT OF ENVIRONMENTALLY FRIENDLY LUBRICANTS**

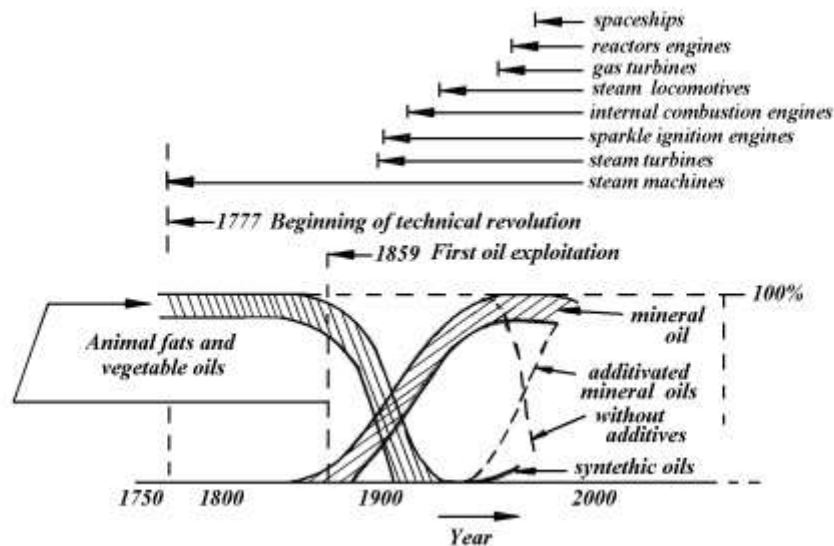
Terms such as toxin residues, ozone depletion, pollution of the earth's waters, air pollution and soil pollution are current events related to the environment. The increasing environmental awareness has led industry and environmental scientists to carry out activities to raise public awareness. The development





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of applications involving vegetable oils and animal fats is shown in Figure 1 and compared with other fats (Ștefănescu et al., 2002).



**Figure 1.** Development of lubricant applications [3]

The lubricants consisted of natural oils and fats originally obtained from plant- and animal-based raw materials dating back to 1400 BC. The modern lubrication market flourished after the first oil well was drilled in Titusville, PA in 1859. Since then, lubricants have evolved into petrochemically modified synthetic oils from the 1960s, today's environmentally friendly biolubricants collected from raw materials from the oleochemical industry (Davim, 2016). Since the beginning of the twentieth century, research on the properties of bio-oils has received great attention, as 50% of all lubricants worldwide go into the environment through use, spillage, volatility or improper disposal (Lunren et al., 2007), (Lundgren et al., 2008). 95% of these lubricants entering the environment are obtained from petroleum-based oils and are harmful to many biological ecosystems (Schneider, 2006).

Traditional eco-friendly lubricants are typically derived from naturally occurring organic matter whose properties and benefits vary depending on biological factors such as nutrient availability, climate, light, temperature and water (Düzçükoğlu and Şahin, 2011), Erhan, 2000).

### USES OF PLANT OILS

Two-stroke marine engine oils, chain saw and saw oils, railway wheels requiring lubrication, die separation processes, wire rope oils, hydraulic machinery oils of building bridge construction, underground work and agricultural equipment, lubricants used in the food industry, oils used in the metalworking industry; are the application areas of vegetable oil-based oils in many areas (Shashidhara et al., 2010). These lubricants are used in the automotive, food, cosmetic and metalworking fields (Salman and Durak, 2011).



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**Table 1.** Areas of use of vegetable oils (Allotibi, 2017)

Vegetable OIL	USE AREAS
<b>Canola oil</b>	Hydraulic and tractor gear oils, metal cutting fluids, food industry oils, absorbed oils
<b>Cocoa oil</b>	Gasoline engine oils
<b>Olive oil</b>	Automotive lubricants
<b>Palm oil</b>	Steel industry, rolling elements
<b>Canola oil</b>	Chain saw lubricants, air compressor-agricultural equipment
<b>Safflower oil</b>	Light paints, diesel fuel, enamel
<b>Flax seed oil</b>	Color thickening in coatings, paints, varnishes, chemicals
<b>Soybean oil</b>	Lubricants, biodiesel fuel, metal processing-mold industry, paint, coating, soap, shampoo, detergent, pesticide, disinfectant, hydraulic oil
<b>Jojoba oil</b>	Grease, cosmetics industry, lubricant applications
<b>Sunflower oil</b>	Grease, diesel fuel
<b>Kufeya flower (Cuphea) oil</b>	Cosmetics and motor oil

The products of multinational oil companies producing lubricating oil include biodegradable products for use in the maritime and shipping industry, garden tractor hydraulic oils with biodegradability properties, engine oils, chain saw oil that takes care of the ecological balance used in tree cutting (Erhan, 2000).

According to Shashidhara and Jayaram, the potential uses of these lubricants according to vegetable oil types are given below. Vegetable oils are made up of chains of three fatty acid molecules bonded to a glycerol molecule called triglycerides. Fatty acids differ in each vegetable oil with different chain lengths and double bonds areas (Shashidhara et al., 2010).

Vegetable oils are biodegradable better compared to petroleum-based lubricants. Palm oil is the most desired type of vegetable oil; because it has the potential to meet the demand for "plant-based lubricants" (Lovell et al., 2006).

Vegetable oils are very good candidates for use as lubricants, offering good lubricity, "poor viscosity-temperature dependence", high biodegradability, non-toxicity (Erhan, 2000), (Schneider, 2006).

For many years, natural oils such as palm oil, rapeseed oil, sunflower oil, oil oil and soybean oil, derived from fatty acids, have been used in lubricants with a biodegradable base; this type, compared with mineral oil, will show minimum coefficients of friction, excellent wear protection and three other biological qualities, and this is due to their lower stability to hydrolytic stress and thermal oxidative, and mainly the low properties of cold flow. Additives can improve these limits (Maleque et al., 2003), (Lundgren et al., 2008).

Fish oil, algae oils and vegetable oils are superior raw materials for producing new polymers. They differ in unsaturation and structure, but have many different good qualities. While vegetable oils have different degrees of unsaturation; fish oils have a higher degree of unsaturation (Lovell et al., 2006).

### **The Development and Current Status of Eco-Friendly Oils in the World**

Starting in the 1970s and increasing in recent years, the environmental effects of lubricants in both production and use are the subject of scientific research. From an environmental point of view, the



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degradable properties of mineral-based lubricants are quite low. It also contains many types of additives. It is known that this has a very harmful poison effect on the environment. Since the beginning of industrialization, mineral-based lubricants have been used in all applications; industrial gears, hydraulic systems, vehicle engines, gears, etc.: after a great storm in the Black Forest region of Germany in 1985, the first environmentally compatible lubricant (Environmentally Adapted Lubricants EAL's) in Europe was introduced (Salman and Durak, 2011).

Rudnick noted that canola and castor oil are one of the most widely used oils as base oils among vegetable oils, and are also used as additives to many oils (Alotaibi, 2017). It is stated in studies that lubricants are mostly prepared with more than 90% oleic acid content, and canola oil generally contains oleic acid in the range of 60-70%. In addition to the use of canola-based lubricants as a viscosity enhancer in other lubricants, it is also stated in studies that they are widely used in hydraulic and power transmission (Maleque at al., 2003), (Schneider, 2006).

Soybean oil is used in lubricant formulas to limit physical properties such as oxidation stability and high flash point, and studies have been conducted to improve soybean oil by applying chemical methods (Durak, 2004), Carcel at al., 2005).

The appropriateness of the use of sunflower oil as a base oil among different lubricants that can degrade in nature is noted (Maleque at al., 2003), (Goyan at al., 1998). Although olive oil is an expensive lubricant, it is noted that it is a source of linoleic fatty acids and unsaturated fatty acids, with very good lubricating properties (Adhvaryu at al., 2004). Although it is possible to use jojoba oil as an additive in different applications requiring high thermal stability, such as jet engines, they have found that it causes some problems in cold weather due to its high flash point (Menezes at al., 2012). It is also stated that vegetable oils can be used as additives to improve the lubricating properties of the base oil, for example, cotton oil can be used as a friction coefficient reducing additive in applications requiring low speed (Hwang, 2006).

Under boundary lubrication conditions, sunflower, corn, soybean and olive oil and mineral oil were used as lubricants in the cutting process of steel and zinc-coated plates in the press cutting process. It has been noted that all vegetable oils exhibit lower friction value than mineral oil, with olive oil performing best. In addition, when examining the surface shape, steel plates lubricated with vegetable oils were also found to obtain better surfaces (Siniawski and San, 2007).

With the triglyceride structure present in vegetable oils, it provides the desired qualities from the lubricant under the boundary lubrication conditions to a great extent. With its long and polar fatty acid chain, it promotes the formation of oil films that can withstand high pressure and reduces friction and wear by separating metal surfaces (Choi at al., 1997). The polarity of fatty acids enables the production of molecular film that increases the lubricity of the oil and the tribological properties of the surfaces (Scheider 2006) (Goyan at al., 1998). Another study using olive and soybean oil as lubricants indicated that film formation was preserved and reduced wear (Li at al., 2001). Experiments with phosphate-ester-containing canola oil have shown excellent load-bearing capacity, good anti-wear and friction-reducing properties (Dharma, 2002).

They subjected cocoa, sunflower and castor oil from vegetable oils to corrosion testing (ASTM D130, ASTM D665) as base oils. The head group (COOH) of fatty acids in vegetable oils has an increase in corrosion due to its high polarity and the fact that it contains water. However, it has prevented this undesirable situation by using appropriate corrosion inhibitors and it has been suggested that vegetable oils can be used effectively as base oils with these additives (Durak, 2004).

It has been noted that esters derived from vegetable oils are both cheaper and show better tribological performance compared to synthetic esters (Wagner at al., 2001). They noted that oils with a longer fat chain showed lower frictional properties, saturated fats showed better tribological properties than unsaturated fats and those with low polarity of esters with high degree of polarity (Javadas and Nair, 2007).

The lubricating properties of canola oil have been studied by various researchers (Sraj at al., 2001), (Bhuyan at al., 2006). In his experimental study with canola oil, which he added as an additive to the base oil in different ratios (0-50%), Durak investigated the effect of additive rates at 25°C and 100°C



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temperatures in different environments with constant load. It was revealed that the contribution of canola oil at high bed speeds reduced the coefficient of friction, that the canola oil added at the same rates was lower than the coefficient of friction at 25°C compared to 100°C, and that the highest rate of decrease in the coefficient of friction was achieved when 50% canola oil was added to the base oil (Maleque and Majuki, 2002).

In an experimental study conducted by Ștefănescu et al., it was shown that canola oil can be used in industrial applications when canola oil and traditional mineral oil are examined in terms of their lubricating capacity (Ștefănescu et al., 2002). It was determined that the friction coefficient values were close to each other and even the canola oil was lower.

The abrasion properties of palm oil were investigated by Masjuki and Maleque with four ball tests under elastohydrodynamic lubrication conditions, at room temperature (approx. 28°C) with different loads at 1500 rpm and 1 minute test time, and the wear conditions were examined with an optical microscope. In the study, they found that palm oil improved its wear properties (Maleque and Majuki, 2002).

In the experimental study conducted by Maleque and Masjuki, mixtures obtained by adding different proportions (0, 5, 10%) of palm oil to the mineral lubricant were tested in ring-block and ball-block wear test sets. It has been found that when palm oil is added to the mineral lubricant, its activity on the metal surface increases quite remarkably. The lubricant with the addition of 5% palm oil preserved the surface layer in the actual slip contact area (Cao et al., 2000).

As a result of the experimental study with Cao et al. canola oil, both sulfurized octodecenoic acid and docosanoic acids in canola oil showed excellent load carrying capacity, reduction in friction coefficient and high anti-wear behavior. Octodecenoic acid functions as an anti-wear and friction-reducing additive in canola seed oil have been identified by the adsorption protective layer form on the surface of the lubricated steel. It is advantageous to use canola oil as a lubricant in terms of being quickly degradable and cost-effective. However, due to the low heat transfer properties of this oil, it has been stated that there may be disadvantages if used at temperatures above 80 °C (Cao et al., 2000).

For mineral-based oils, jojoba oil may be a potential fat additive. When they mix jojoba oil into four different oils in proportions of 5, 10, 20, 30%; they stated that it has anti-rust, anti-saponification, anti-wear, and friction-reducing properties, and that it protects base oil (Bisht et al., 1993). Asadauskas et al. showed anti-oxidation properties when used with a 1% additive ratio and the results found that its anti-wear property was greatly improved when compared to commercial engine oil at 10W30 SG-grade (Asadauskas et al., 1996). Durak et al. examined the tribological properties of room temperature and high temperatures in a fixed-load radial shift test set by adding sunflower oil as an additive to mineral-based base oil. In their study, they found that it could be used as a friction-reducing additive in mixed and boundary lubrication zones at room temperature (Durak et al., 2004).

Fox et al. investigated the effect of free fatty acids on the boundary lubricating performance of sunflower oil (Fox et al., 2004). Under boundary lubrication conditions of stearic acid at 150°C, sunflower oil has been shown to effectively reduce both wear and friction. They have revealed that when linoleic acid is added to sunflower oil, there is no significant change in wear, the wear performance increases with the addition of oleic acid, and stearic acid reduces the coefficient of friction and wear more effectively than others.

Soybean oil is an oil that is used for multiple purposes in industry. It was used by Fernando and Hanna as an alternative lubricant in two-stroke engines (Fernanda and Hana, 2001). They investigated the crude and gummy viscosity of soybean oil and stated that soybean oil at a temperature of 160°C has a higher viscosity than mineral oil and that the viscosity index values are higher than mineral oils.

### ADVANTAGES AND DISADVANTAGES OF VEGETABLE OILS

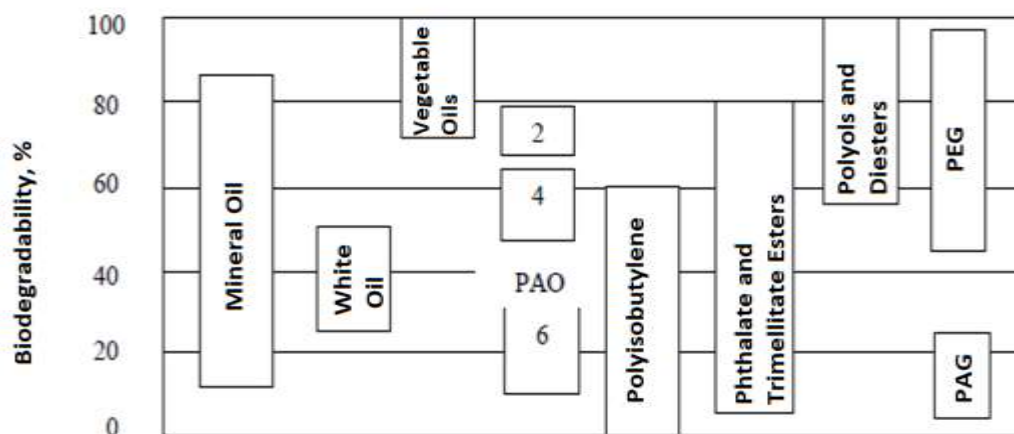
Compared with petroleum lubricants, bio-lubricants have higher lubrication, lower volatility, higher cutting stability, higher viscosity index, higher load carrying capacity and superior cleaning and dispersantness (Adhvaryu et al., 2004), (Bennion and Scheule, 2010), Karaosmanoğlu, 1997). So petroleum oils are excellent alternatives to oils. Traditional eco-friendly lubricants are typically derived from naturally occurring organic matter whose properties and benefits vary depending on biological



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factors such as nutrient availability, climate, light, temperature and water (Duzcüköğlü and Şahin 2011), (Erhan, 2000).

The properties of vegetable oils such as not being toxins, easy and rapid biodegradation (Figure 2.), high viscosity indices, low volatility, high exacerbation points, edible sources and not creating high costs, agricultural origin bring the use of these oils as lubricating oils to the forefront. If the mineral oil production cost is 1, the production cost of synthetic lubricating oil is 4-5, and for vegetable oil it is calculated as 1.4-2. The disadvantages of vegetable oils can be listed as low hydrolytic resistance, low oxidation stability (some vegetable oils), incompatibility with some additives, high viscosity and high pour point (some oils). Vegetable oils usually have a high viscosity index. This property, as it is known, indicates that the tendency of oil to change viscosity with temperature will be small, and this quality is a positive feature for lubricants (Malchev, 2009).



**Figure 2.** Degradability of different content oils (Durak and Batz, 2003)

Since vegetable oils have a solid glycerin (Triacylglycerol, TAG) structure and are amphiphilic, they make these oils and their derivatives an excellent lubricant and a candidate for special fluid. Therefore, these oils; it is of particular interest for industrial applications that are in contact with the environment and have costly wastes that are accidentally spilled, leaked into the environment, dripping, creating a large amount of waste material after use. In addition, thanks to the double bonds available in the TAG structure, it improves technical properties such as thermo-oxidative, low temperature stabilization and lubrication. In the natural state, vegetable oils are limited as industrial fluids due to their poor thermo-oxidation stabilization, low temperature behavior and the nature of severe temperature, pressure, shear stress, metal surfaces and other disruptive tribochemical processes that occur in environmental conditions.

Throughout the various tribochemical processes, the structure of the oil must have extreme temperature changes, slip disturbances, strong physical and chemical adsorption power with the metal to ensure stabilization, thereby maintaining excellent limit lubrication properties. Since they have a TAG polar-tipped structure, they spontaneously tend to make a single or multiple layer with tight packaging on solid surfaces. As a result, it forms a layer in the metal surface in the rows of pits and roughnesses and thus is interpreted as preventing metal-to-metal contact. The strength of the fluid film on the metal surface and the size of the adsorption indicate the performance efficiency of the lubricant (Salman and Durak, 2011).

### RESULT

It is known that petroleum resources are limited and therefore dependence on oil should be reduced. In addition, the return of petroleum resources to the environment during their use and the negative effects of petroleum wastes on the environment universally pose a serious threat and concern. These negative effects have created a new field of study for the implementation of greener oils in the field of lubricating oil, as in other areas. At the beginning of these studies are the studies on vegetable oils. Vegetable oils



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are environmentally friendly and while assimilated in the natural environment, they have the ability to break down and this process has no ecological harm. Plants with oiling properties that can be grown worldwide will be researched and used as lubricants will create the potential for new business opportunities and the production of environmentally sensitive products will be ensured.

In this study, a general introduction of various plant-based lubricants is made and the potential use areas of these lubricants according to vegetable oil types are mentioned. The studies conducted with vegetable oils were examined, their development in the world and their current position were revealed, their possibilities of use as lubricating oil and oil additive candidates and their tribological properties were examined and their advantages and disadvantages were indicated.

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### CHARACTERIZATION OF MICROSTRUCTURE AND HARDNESS PROPERTIES OF Ti-Cu/B<sub>4</sub>C COMPOSITES

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#### **Abstract**

In recent years, research and development studies on titanium and titanium-based alloys have attracted great interest. Potential applications of these materials include; advanced propulsion systems, energy conversion devices and components used in other high-temperature structures. Titanium-copper-based materials produced by powder metallurgy method by adding copper to titanium have a significant popularity due to their potential to exhibit improved mechanical properties and biocompatibility. In this research work, the effect of intermetallic phases and adding B<sub>4</sub>C as reinforcement on the microstructure and hardness properties of Ti-Cu/B<sub>4</sub>C composites produced by powder metallurgy were investigated. Ti and Cu powders were mechanically alloyed to increase the tendency and form intermetallic phases between Ti and Cu. Composites alloys were produced by adding different ratios of B<sub>4</sub>C to the Ti-Cu matrix. The microstructural properties of the composites were evaluated, and hardness and density were also investigated. The microstructure analysis showed that Ti<sub>2</sub>Cu and B<sub>4</sub>C phases were formed in the microstructure. Rockwell hardness test showed an increase in hardness with increasing B<sub>4</sub>C content, which is related to intermetallic phases formed in the microstructure, moreover, results reported that the density decrease with increasing B<sub>4</sub>C.

**Keywords:** Ti-Cu, B<sub>4</sub>C, Powder Metallurgy, Microstructure, Hardness

#### **INTRODUCTION**

Titanium alloys have a wide range of applications, especially in biomedical and aerospace fields to their unique features like high corrosion resistance, excellent strength-to-weight ratio, and biocompatibility (Ren et al., 2022). As stated by numerous research works, the inclusion of Cu improves Ti base alloys as a promising material in dentistry and orthopedics, enhancing the strength, hardness, and wear resistance, and improving the biocompatibility and antibacterial activity. This is related to the effect of forming various Ti<sub>x</sub>Cu, intermetallic compounds and other phases (Akbarpour et al., 2022; Akbarpour and Moniri Javadhesari, 2020). Generally, titanium alloys show three microstructures  $\alpha$ ,  $\alpha+\beta$ , and  $\beta$  alloys, by including the b-stabilizing elements, helping to decrease the melting point and lower the titanium reactivity leading to ease casting (Kikuchi et al., 2003). the most suitable  $\beta$ -stabilizing element is copper. according to the Ti-Cu binary alloy equilibrium phase diagram that shows the formation of ( $\alpha$ Ti+Ti<sub>2</sub>Cu) eutectoid alloy at 7% of Cu concentration (Liang et al., 2008). literature mentions that increasing Cu content can change the mechanical properties of the alloy, also Ti alloy that contains less Cu content has more biocompatibility(Geurtsen, 2002; Holden et al., 1955). One of the ceramics particles that are used as reinforcement materials in metal matrix composites (MMCs) is Boron carbide



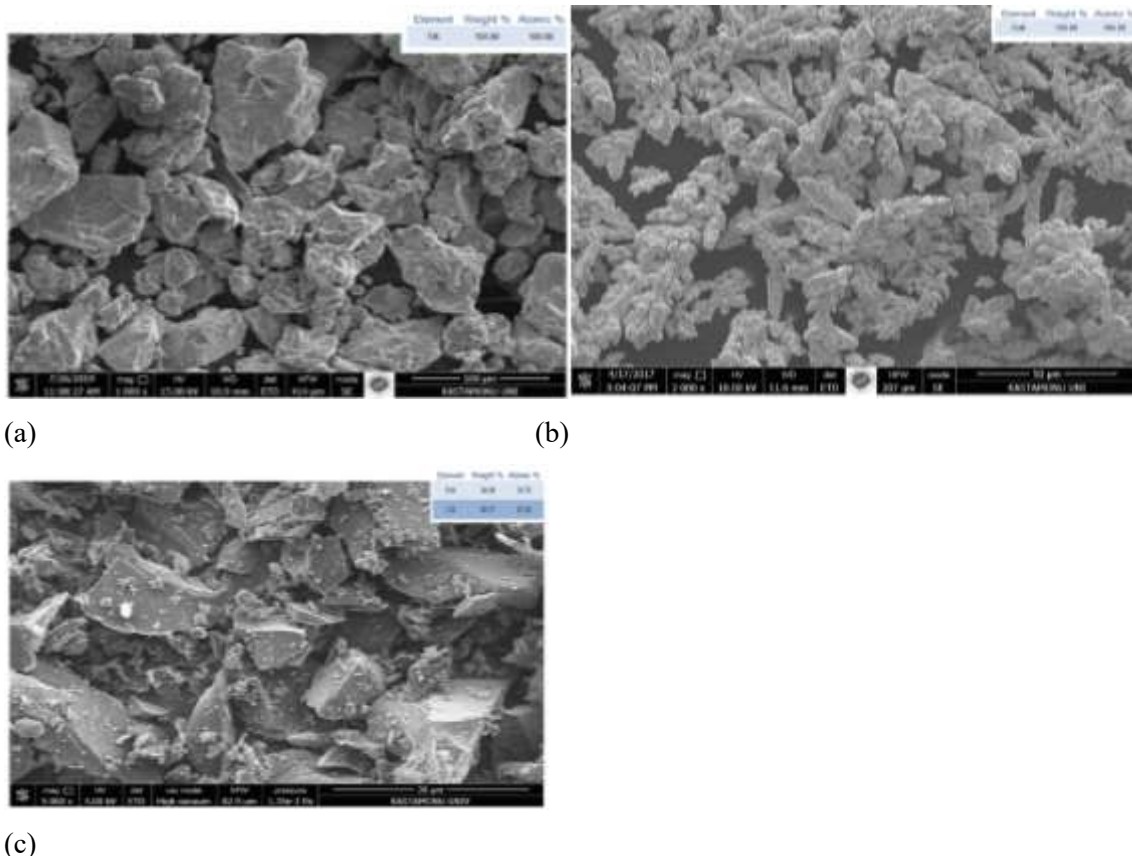


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(B<sub>4</sub>C), which has unique properties with excellent hardness and corrosion resistance as well as good mechanical properties, low density, and high melting point. making it have a wide range of applications in industrial fields (Karabulut et al., 2016). The powder metallurgy PM technique is a process that is used to fabricate alloys from metal powders by mixing and pressing, and has the capability to fabricate an alloy from different metal powders. PM has the advantage of producing components with improved chemical and microstructure homogenous (Balog et al., 2016). Among the many techniques of the PM approach where press and sintering are the simplest and most economic (Balog et al., 2019). In this work, 325 mesh of Ti and Cu powders were used as matrix and 325 mesh B<sub>4</sub>C powder as reinforcement material. PM technique was used to fabricate five groups of alloys through mixing and cold press then sintering. investigation of microstructure, hardness, and physical properties was achieved for all alloys. the alloys contain variant ratios of B<sub>4</sub>C as reinforcement.

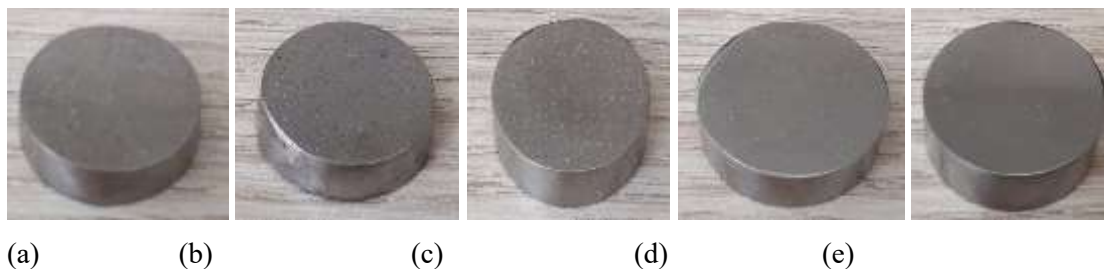
### 2. MATERIALS AND METHODS

Five groups of Ti-Cu base alloys were fabricated using the powder metallurgy technique, Ti and Cu powders with <95% purity, and 325 mesh (Figures 1 a and b) were blended using a mixing ball machine type RETSCH P100. As well, Ti+25Cu/B<sub>4</sub>C alloys were fabricated by mixing the Ti-25Cu mixed powder with (3, 6, 9, 12) %wt. of B<sub>4</sub>C powder shown in Figure 1c, with <95% purity and 325 mesh. The mixed powders were pressed with cold pressing using (SPECAC GS15011 hydraulic press) device and then underwent through sintering process by using the argon atmosphere sintering furnace (PROTHERM) device, in order to achieve the final alloys (Figure 2). The sintering process was carried out at 1100 °C for 60 minutes. As received raw powders were analyzed using scanning electron microscopy SEM (FEI QUANTA 250 FEG). The Produced alloys were prepared through abrasion and polishing process, moreover, the Etching process was achieved using Kroll solution in order to study the microstructure. Microstructure investigation was achieved using an optical microscope (OLYMPUS GX41 microscopy). Rockwell-B hardness device was used to measure the hardness of produced alloys and study the effect of B<sub>4</sub>C on hardness values. The density of five alloys estimated according to Archimedes' principle according to ASTM B962-08 standard. All preparations and tests procedure were achieved at the laboratories of Kastamonu University.



**Figure 1.** EDS and SEM analysis of row powders (a) Ti powders, (b) Cu powder and (c) B<sub>4</sub>C powder



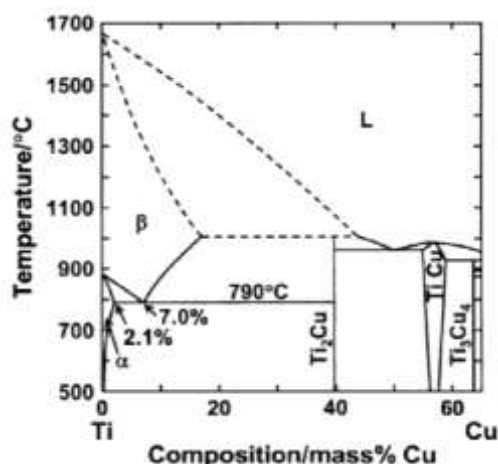


**Figure 2.** Sintered alloys (a) Ti-25Cu. (b) Ti-25Cu/3%B<sub>4</sub>C, (b) Ti-25Cu/ 6% B<sub>4</sub>C, (b) Ti-25Cu /9% B<sub>4</sub>C, (b) Ti-25Cu/12% B<sub>4</sub>C

### 3. RESULTS AND DISCUSSION

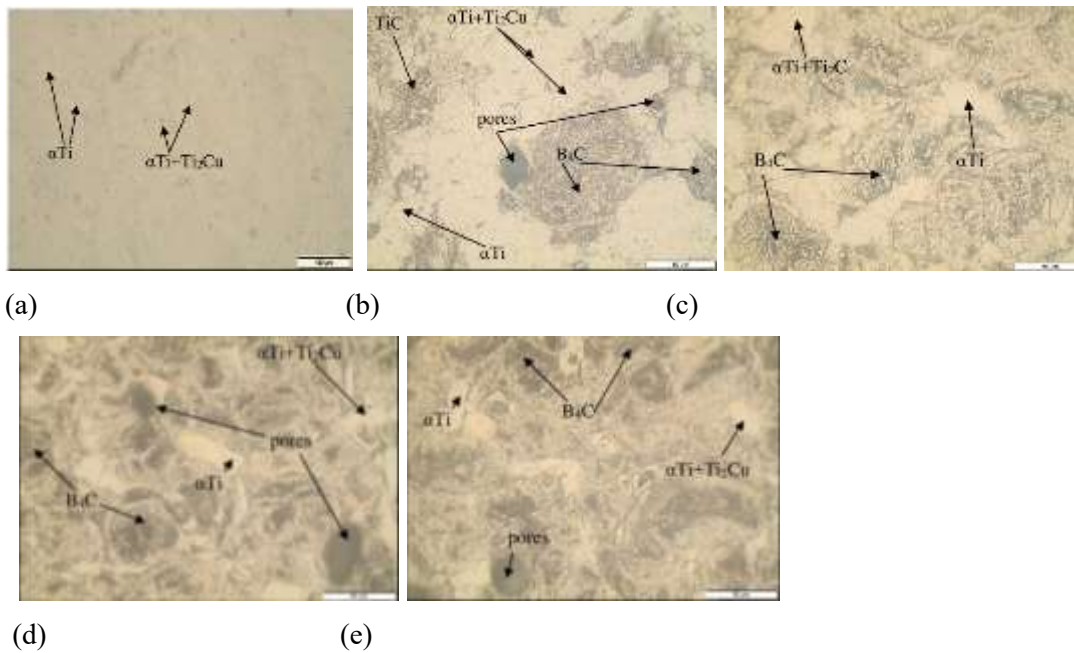
#### 3.1 Microstructure of Sintered Alloys

Microstructure evaluation of Ti-Cu alloys was according to the Ti-Cu phase diagram system (Figure 3) (Kikuchi et al., 2003). The micro-optical topography images of Ti-25Cu and Ti-25Cu/B<sub>4</sub>C alloys are shown in Figure 4a-e. Mainly Ti-Cu sintered alloys consisted of two types of phases, αTi and little amount of Ti<sub>2</sub>Cu phase as a result of the reaction of Ti and Cu (Equation 1) (Liang et al., 2008). More amount of Ti<sub>2</sub>Cu will be formed with the increase of Cu content (Zhang et al., 2016). Figure 4a shows the optical topography of Ti-Cu alloy with 25% Cu content, as can be observed, there are two regions were formed, the lighter regions are αTi and the darker regions are αTi+Ti<sub>2</sub>Cu lamellar intermetallic compound which is a hypereutectoid compound formed from the transformation of βTi during cooling from 1100 °C. Figure 4b-e shows the microstructures of alloys that contain (3, 6, 9, 12) % B<sub>4</sub>C, the inclusion of B<sub>4</sub>C lead to forming additional phases, and the reaction of Ti with B<sub>4</sub>C occurs according to Equation 2 (Liang et al., 2008). As a result of this reaction TiC, TiB, and TiB<sub>2</sub> phases will be formed along with αTi and αTi+Ti<sub>2</sub>Cu, and the precipitated B<sub>4</sub>C particles (dark areas) in the Ti-Cu matrix (Sousa et al., 2021). TiC is formed in the reaction zone (the regions around the B<sub>4</sub>C). and As the TiB<sub>2</sub> phase has a lower thermodynamic stability than the TiB phase, which will help to transform TiB<sub>2</sub> to TiB before consuming of remain Ti (Ren et al., 2022). Moreover, it is observable that the dark areas increase and become more homogenous as B<sub>4</sub>C concentration increases, which means more B<sub>4</sub>C precipitated in the matrix and more TiC formed near αTi.



**Figure 3.** Portion of Ti-Cu phase diagram

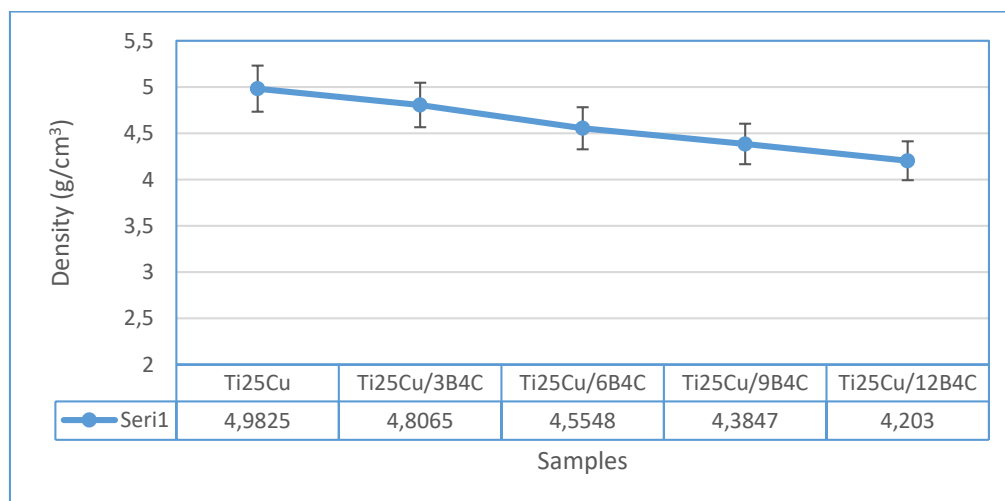




**Figure 4.** Optical micrograph of; (a) Ti-25Cu, (b) Ti-25Cu/3%B<sub>4</sub>C, (c) Ti-25Cu/6% B<sub>4</sub>C, (d) Ti-25Cu/ 9% B<sub>4</sub>C, (e)Ti-25Cu/ 12% B<sub>4</sub>C

### 3.2 Relative Density

The measured density of alloys with and without B<sub>4</sub>C shown in Figure 5. The highest density value is for Ti25Cu alloy without B<sub>4</sub>C reinforcement, the inclusion of B<sub>4</sub>C in the matrix led to a decrease in the density as can be observed for Ti25Cu-3B<sub>4</sub>C which contains 3% of B<sub>4</sub>C, with increasing B<sub>4</sub>C content the density decreases more. the lowest value was for the alloy with 12% B<sub>4</sub>C. This is related to the reason that the brittle particles (B<sub>4</sub>C) have a low density (Shashidha et al., 2018). Moreover, as the content of B<sub>4</sub>C in the matrix increases, the density of the alloy becomes lower.



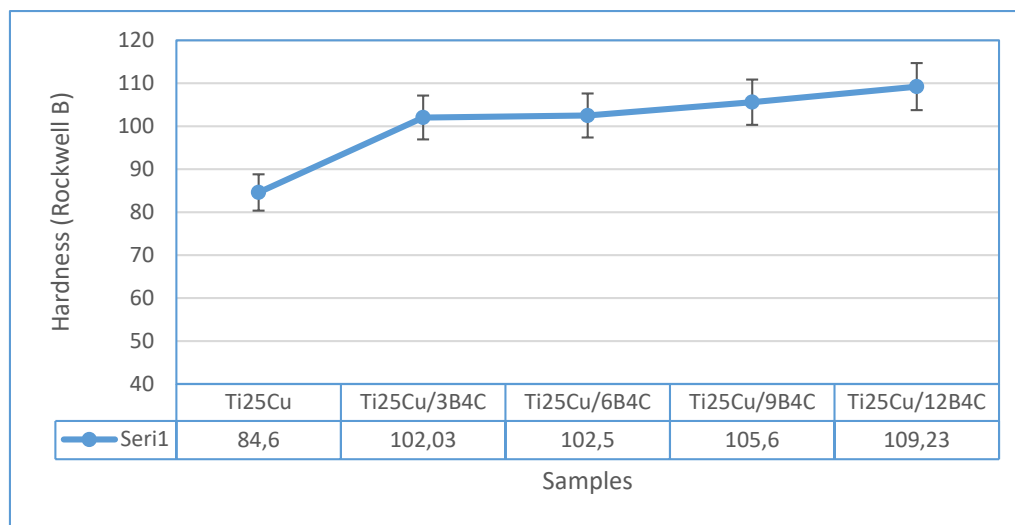
**Figure 5.** Density of Ti-25Cu and Ti-25Cu/B<sub>4</sub>C alloys

### 3.3 Hardness

The variation in the hardness of Ti-Cu base alloys with and without B<sub>4</sub>C is summarized in Figure 6. The Hardness results show that the Ti-25Cu plain alloy has the lowest hardness value. However, the hardness of Ti-Cu alloys was seen to increase with the inclusion of B<sub>4</sub>C as reinforcement in the matrix, from Figure 5, as can be noticed, the Ti25Cu-12B<sub>4</sub>C alloy that contains a maximum amount of B<sub>4</sub>C which is 12% has the highest hardness. Basically, this can be credited to the carbide particles in the lattice, and these particles are harder than other phases, and the main restrain of localized deformation during the hardness test is due to the presence of the harder phases in the matrix. as well as, B<sub>4</sub>C, and like other



strengthens fortify the matrix by creating a mass dislocation during cooling due to dissimilarity of thermal expansion coefficients between the  $B_4C$  and the matrix (Nagaral et al., 2018). Furthermore, unparallel strains will be formed among the matrix and the reinforcement particles that restrict the dislocation movement and lead to enhancing the hardness of the alloy.



**Figure 6.** Rockwell hardness of Ti-25Cu and Ti25Cu/ $B_4C$  alloys

#### 4. CONCLUSION

In this study, five groups of Ti-Cu base alloy without and with reinforced of (3, 6, 9, 12) wt.%  $B_4C$  were produced using a powder technology technique. Microstructure, and the influence of  $B_4C$  particles on relative density, and hardness were investigated. The main outcomes of this study are as follows:

- Optical micrographs show the formation of  $Ti_2Cu$  intermetallic compound with  $\alpha Ti$  phases, also show the  $B_4C$  particles homogenously distributed in the Ti-Cu matrix, furthermore, the most homogenous carbide phase in the matrix for the alloy with 12% of  $B_4C$ .
- The relative density affected by adding  $B_4C$ , the base Ti-25Cu alloy was the higher density, while the density becomes lower as the  $B_4C$  content increased.
- The Rockwell hardness test investigation shows the hardness was affected by  $B_4C$  amount, the maximum hardness value was for the alloy that contains 12%  $B_4C$ , and it was observable that the hardness values correlated directly with  $B_4C$  content.

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### NEW APPROACHES TO THE MATRIX OF DIAMOND CUTTING TOOLS USED IN NATURAL STONE CUTTING WORKS

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#### **Abstract**

In the natural stone sector, which has an important place in the field of mining in our country, it is of great importance for the country's economy to use resources efficiently and to bring natural resources into the economy without wasting them. For this reason, the production of economic diamond cutting tools with high cutting performance, which will be used in the processing of natural stones, is an important issue that needs to be emphasized. The reliability and efficiency of diamond cutting tools are important factors that determine the production quality and cost of many products. The cutting speed and lifetime of diamond cutting tools are highly dependent on the quality of the tool. The matrix requirements of cutting/machining tools are therefore very high. For this reason, many matrices have been developed depending on the natural stone type. Generally, bronze, nickel, cobalt, iron and their alloys are used in the matrix of cutting tools produced in the industry. A hard matrix is preferred especially for cutting hard stones. When a very ductile matrix is preferred, the matrix wears out rapidly and the diamond grain breaks out of the tool in a shorter time than expected. This shortens the life of the cutting tool and reduces the cutting quality. In the case of using hard matrices, fractures occur in the sockets due to vibrations during the cutting process of natural stone. In this case, it reduces the life of the cutting tool and product quality. Considering all these reasons, the production of new generation diamond cutting tools has become a necessity. Adaptation of new generation materials to cutting tool technologies also leads to improvement in properties. High entropy alloys (HEAs), graphene, carbon nanotube and carbon nanofiber doped composites form the basis of new generation cutting tools. Depending on the advances in materials science, it is an expected result that there will be development in diamond cutting tools used in natural stone cutting works.

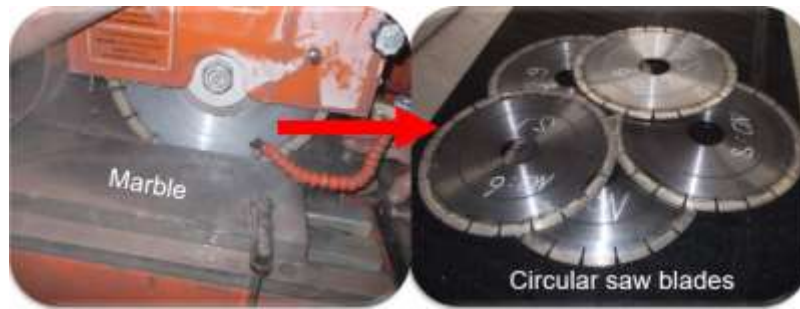
**Keywords:** Natural stone, diamond cutting tools, new generation materials

#### **1. INTRODUCTION**

The effective use of natural resources in the natural stone industry without wasting them is of great importance for the national economy. For this reason, the production of diamond cutting tools with high cutting performance and affordable prices to be used in the processing of natural stones is an important issue to be considered. Fig. 1 shows the marble cutting process and circular saw. Generally, bronze, nickel, cobalt, iron and their alloys are used in the matrix of the cutting tools produced in the cutting tool industry. If a very ductile matrix is preferred, the matrix wears out rapidly and the diamond particles in the cutting tool break off sooner than expected. This shortens the life of the cutting tool and reduces the cutting quality. When hard matrices are used, natural stone fractures occur due to vibrations during the cutting process. Such a situation shortens the life of the cutting tool and reduces the product quality (Stachowiak and Batchelor, 1993; Konstanty, 2005).



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**Figure 1.** The marble cutting process and circular saw blades (Islak, 2012).

The first diamond cutting tools for cutting natural stones were developed by Felix Fromhold in France in 1885. Thirteen years later, large-diameter diamond cutting saws were used in the quarries at Euville. In the same years, cutting tools using Brazilian type black diamonds were developed for the first time. Black diamond cutting tools were used to cut limestone and marble during the construction of large buildings in Paris in the 1900s (Konstanty, 2005). The idea of bonding diamond by bonding metal powders was put forward by Gay in 1883, starting from the production of abrasive materials produced by combining commercial abrasives such as quartz or emery in a metal matrix. Gay argued that good results would be obtained by using powder metallurgy techniques such as hot pressing or infiltration to shape the matrix, and he argued that brass, iron and steel powders could be used for this. Advances in tool production, with the development of powder metallurgy, led to the use of saws reinforced with diamond grains in natural stone cutting applications in the 1940s (Lundblad, 1990). More than 95% of the diamond consumption in the industrial field is synthetic diamonds. The modern production techniques of diamond tools have shown that diamond can be used in different fields. These techniques have led to a radical change in the techniques and mechanisms of the stone and construction industry, road repair, oil drilling, woodworking, cutting frozen foods, and the production of many parts made of glass, ceramics, metal, plastic and rubber (Konstanty, 2005). Today, the market for diamond tools is advancing rapidly. The latest figures show that the demand for diamond abrasives is increasing rapidly. This figure was 1 billion carats in 2000, 380 million carats in 1990 and 100 million carats in 1980. This trend on diamond tools leads to diversity by using them both for surface treatment and for cutting stones such as granite, marble and travertine. Nowadays, the fact that diamond is in competition with traditional abrasives such as silicon carbide and aluminium oxide in terms of price/performance ratio causes a decrease in its price (Konstanty, 2005).

### 2. MATRIX SELECTION

Metal matrices used in the production of sockets in diamond cutting tools have two basic functions. The first is to hold the diamond firmly, and the second is to wear it optimally at a rate compatible with the diamond loss. Techniques that maximize this relationship include control of atomic bonding, mechanical strength, and wear rate at the matrix-diamond interface. As a result of excessive wear of the matrix, diamond grains should neither protrude excessively from the matrix surface without support, nor should they break out of the matrix prematurely. For this, the wear resistance of the matrix must be compatible with the wearability of the material to be cut. A matrix that is too soft wears out quickly and can cause the diamond to fall out of its seat prematurely. On the other hand, matrices with excessive wear resistance cause the diamond to break and blunt. This causes the surface of the socket to shine. This event is generally known as polishing (Çelik, 2009).

When a hard natural stone is processed, very little wear product (sediment) is formed in the form of fine powder. Under such conditions, erosion of the matrix is slow. On the other hand, if soft and sandy natural stone is processed, coarse-grained sediment is formed as a wear product. This causes rapid wear of the matrix. At the same time, the processing conditions for stone cutting should also be considered. For example, the transport of stone particles formed during cutting with the gang saw is prevented by the back and forth movement of the gang saw blade. Therefore, if the removal conditions of the stone particles are improved, the matrix in the rotating gangway will wear more than the saw (Çelik, 2009; Islak, 2012). The second function of the matrix is to hold the diamond for as long as possible. Retention of the diamond is a mechanical or mechanical/chemical condition. Yield strength is an important



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property in determining the ability of the matrix to hold the diamond, as the bonds between the diamond and the matrix will be broken when the yield limit of the matrix is exceeded. However, the breaking strength of the diamond is not only a degree of elastic deformation around the diamond, but also a condition related to the shape of the diamond, which raises the stress intensity. Therefore, the notch sensitivity and ductility of the material are important parameters (de Châlus, 1994; Konstanty, 1999; Konstanty, 2005).

Although the matrices generally hold the diamond mechanically, studies are carried out to improve the adhesion of diamonds by supporting chemical bonding. This can be achieved using alloys containing carbide-forming elements. Some of these alloys must be melted at the hot pressing temperature in order to wet the diamond particles and strengthen their adhesion by surrounding it. Therefore, carbides nucleate on the surface of the diamond grains and there is an increase in the density of reactive elements to form a continuous interfacial layer. After a certain point, the increase in the strength of the interface ceases and weakens depending on the thickness of the carbide layer due to the development of pores. In addition, the formation of very thick carbide layers causes blunting even of sharp-edged diamond surfaces. Technical problems arise in using very strong binder alloys as matrix material, since the optimum concentration of carbide builders is less than the amount to induce wetting. To overcome these problems, powders containing chromium and tungsten have been used in many studies. But on an industrial scale, this technique appears to be inapplicable. The increase in tool performance is not sufficient due to additional powder treatments and the need to protect the graphite mold. Graphite mold reacts with additional alloy powders during the process and fragments occur during the removal of the sockets. In addition, carbide-forming elements reduce the ductility of the matrix. For example, the presence of excess chromium in the cobalt matrix causes significant porosity due to the Kirkendall effect and the presence of undesirable brittle phases such as  $\sigma$ . Due to the above problems, studies are being conducted on the use of metal-coated diamonds rather than chemically reactive matrices (Akyüz and Hofmann, 1998; Levin and Gutmanas, 1990).

### 2.1. Cobalt Based Matrices

Cobalt and cobalt-based alloys are used as a matrix in diamond cutting tools to produce long-lasting tools. Unlike other metals, cobalt powder;

1. It varies in grain size, size distribution, grain shape and chemical purity.
2. High density sockets are produced under conditions of low pressure and low sintering temperature.

In hot pressing conditions, cobalt;

1. Due to its high yield strength and toughness, it has excellent holding properties.
2. With the addition of different powders, the resistance against abrasive wear is improved.

Experiment results show that hot pressing parameters change the microstructure, phase composition, hardness, mechanical strength, ductility and wear resistance properties of pressed cobalt. Important factors in the selection of dust particles are particle size and the type and content of pollutants (Konstanty and Bunsch, 1991; Konstanty, 1997; Konstanty, 2003). Particle size affects the condensation temperature, which determines the degree of deterioration of the diamond when 1000 °C is exceeded, which causes excessive consumption of hot press consumables. Such systems are not economical due to the uncontrolled and excessive losses in cutting tool production with hot press systems without a protective atmosphere unit. As a rule, the larger the powder size, the harder it is to remove the formed pores. The amount of pores in the coarsest grain size is around 4-5%. Even if this is reduced by sintering at 1000 °C, a decrease in the mechanical properties of the cutting tool occurs. In practice, cobalt powders coarser than 3  $\mu\text{m}$  are used as a suitable matrix for diamond cutting tools by mixing with bronze powders, which facilitate condensation and allow the processing of less abrasive materials. Most cobalt powders are produced by chemical methods. The chemical, physical and technological properties of the powder, the purity of the raw material depend on the type and production method. Impurities such as oxygen, sulfur, magnesium, calcium and sodium negatively affect both the production conditions and the final product after production (Konstanty, 2005; Islak, 2012).





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In the 1990s, the search for alternative materials to cobalt gained importance due to the instability of cobalt prices and the uncertainty of cobalt resources in Africa. This uncertainty of the industry has led to the development of powders with little or no cobalt consisting of at least two components. Today, efforts to develop alternative materials to cobalt continue (Çelik, 2009).

### 2.2. Iron Based Matrices

Iron and its alloys are widely used in the production of matrices of diamond cutter sockets. Zhao et al. investigated the effect of Fe-based pre-alloyed powder on the microstructure of the diamond drill matrix and diamond holding strength. The results showed that the relative density, flexural strength and plasticity of the matrix materials increased with the sintering temperature and the degree of pre-alloying. It was emphasized that the effect of pre-alloying degree on them is more important than the sintering temperature within the experimental parameters. In addition, Fe-based matrices have a thermal corrosion effect on diamond in the high temperature sintering process. With sintering temperatures ranging from 900 °C to 1020 °C, the diamond graphitization rate greatly increases and the holding power decreases. A low pre-alloying degree accelerated the diamond graphitization rate. However, Fe-based matrix materials with an adequate degree of pre-alloying have been reported to be suitable for improving the wettability of the matrix to diamond, mitigating diamond graphitization, reducing thermal damage to diamond, and increasing holding power (Zhao et al., 2019).

Han et al. investigated the effect of nano-vanadium nitride on the microstructure and properties of sintered Fe-Cu based diamond composites. The hardness, relative density, flexural strength and wear loss weight of the produced samples were tested and then the fracture surfaces and worn surfaces of these samples were analyzed using scanning electron microscopy (SEM) and energy dispersive spectrometry (EDS). The results showed that the nano-VN added Fe-Cu based diamond composites exhibited an improvement in mechanical properties, plasticity and wear resistance. Diamond composites showed the best properties with the addition of 2% nano-VN. In other words, the flexural strength and HRB hardness of the diamond composites increased by 25% and 20%, respectively, and the wear resistance of the matrix and the coefficient of holding force of the matrix against diamond were significantly improved. However, it has been reported that excessive amounts of nano-VN negatively affect the mechanical properties of Fe-Cu-based diamond composites (Han et al., 2020).

Çelik studied the feasibility of Fe-Cu-Ni-Mo based matrices for diamond cutting sockets. In the study, 750-800-850 °C was chosen as the sintering temperature, 35 MPa as the pressure and 4 minutes as the time. The effects of production parameters on microstructure and mechanical properties were evaluated. It was determined that the hardness decreased and the density increased with the increase of the sintering temperature. It has also been experimentally determined that the bending strengths change depending on the matrix composition with the increase in sintering temperature (Çelik, 2009).

The production of diamond drills by infiltration method is also among the studies in the literature. Li et al. produced Fe-based diamond drill composites by pressureless infiltration method. The effects of boron on density, hardness, flexural strength, grinding rate and microstructure were investigated. A Fe-based diamond composite containing 1% B by weight has an optimum overall performance, especially the grinding rate is increased by 80%. After comparing with tungsten carbide (WC)-based diamond composites with and without 1% B, the results showed that the Fe-based diamond composite containing 1% B by weight exhibited higher flexural strength and wear resistance (Li et al., 2016).

Bulut et al. studied the determination of the matrix composition for diamond cutting tools according to the hardness and abrasiveness properties of the rocks to be cut. Two metal matrix compositions based on Co and Fe were selected and their microstructures, mechanical properties and wear properties were investigated comparatively. Microstructural, physical and mechanical characterizations were made by SEM-EDS, XRD, density measurement, hardness measurement, compression tests and abrasion tests. The cutting performance of the samples was also evaluated by on-site field tests. The results showed that the mechanical properties of different matrix composition, hardness and wear resistance of Co-based matrices are higher than Fe-based matrices. On-site field tests have reported by the authors that the Fe-based matrix is more suitable for cutting marble, while the Co-based matrix is more suitable for cutting granite (Bulut et al., 2021).



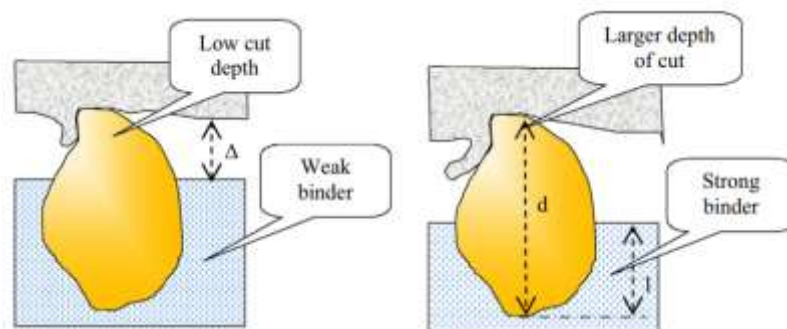
### 2.3. Copper Based Matrices

In the use of bronze alloys formed with elemental copper and tin or their mixtures, the condensation degree of the matrix increases and the wear resistance decreases. Tools prepared in this way are used for machining materials with very low abrasiveness. In the case of using tin bronze, liquid phase sintering occurs in hot pressing. This liquid phase acts as a filler in the matrix. Diffusion among the elements that make up the matrix strongly influences the alloying degree. In order to control this effect, the sintering time, pressure and temperature should be selected appropriately. Tin bronze is added to the matrix in different formulations. These different matrix combinations result in different properties (Konstanty, 2005; Islak, 2012).

Soltani and Tayebi studied on the determination of wear parameters and mechanisms of diamond/copper tools in marble cutting. They used 78% brass (Cu-10Zn)+ 16% bronze (Cu-10Sn)+ 6%Co composition as matrix. Factors affecting grinding efficiency such as specific energy, cutting force, metal binder abrasion rate, grinding rate, wear resistance and mean free path were evaluated with formulas and equations. The effect of different wear mechanisms on the metal binder and diamond grains of the cutting tool was evaluated by cutting a very hard type of marble stone called Cappochino Beige Marble. The presence of abrasive, surface fatigue, impact and erosive wear was confirmed by scanning electron microscope images. According to the low hardness of the cutting tool and the wear in the matrix, the life of the cutting tool was low, but the cutting rate was quite high (Soltani and Tayebi, 2020).

### 2.4. Advanced Technological Matrices

Recently, new advanced technological matrices other than cobalt, iron, copper and their alloys have become the focus of the scientific community. In these studies, carbon nanotubes, carbon nanofiber-containing matrices as well as special alloy matrices are used. The positive effects of nano-reinforced particles on composite materials have been determined in many studies. However, the use of nanotechnology in cutting tool technologies is very limited. Sidorenko et al. they added 0.1% carbon nanotube to the commercial metal matrix called Diabase-V21 and compared it with the pure matrix in terms of mechanical properties. Carbon nanotubes led to a reduction in the grain sizes of the alloying elements forming the matrix and thus to an improvement in the mechanical properties of the matrix such as hardness, modulus of elasticity and flexural strength. In addition, it has been reported that there are significant increases in cutting speeds in the cutting process with carbon nanotube cutting tools (Sidorenko et al., 2015). Matrix strength causes an increase in the amount of material cut during the cutting process. The relationship between the matrix strength and the amount of material cut is given in Fig. 2.



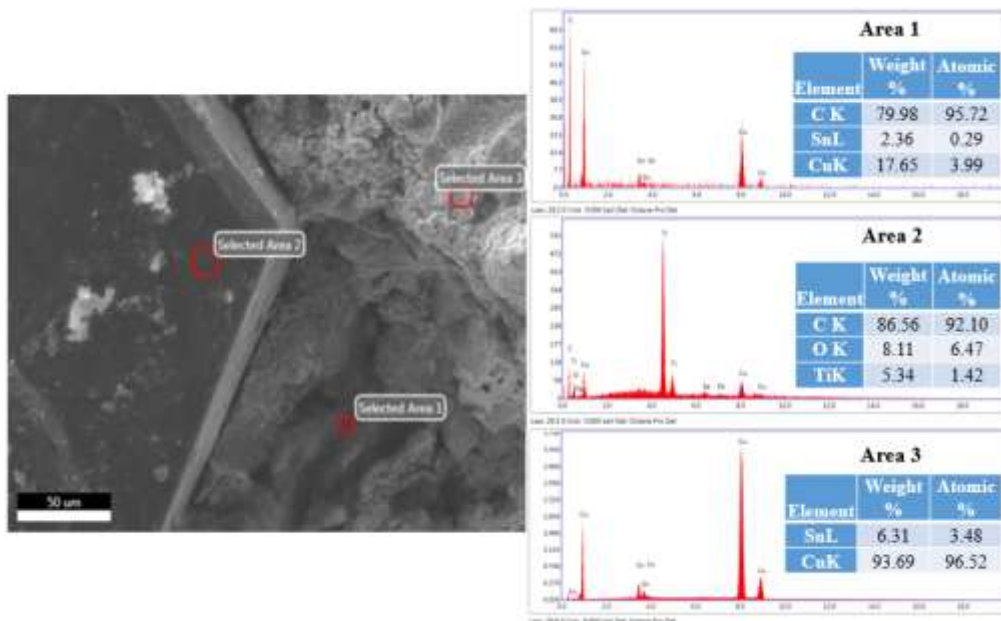
**Figure 2.** Relationship between matrix strength and amount of material cut

Islak et al. in their study, they investigated the microstructure, mechanical and corrosion properties of the sockets in which they added carbon nanofiber at different rates into the bronze matrix. With the increase in the amount of carbon nanofiber, the hardness of the sockets increased, while the wear rate and friction coefficients decreased. In addition, the maximum value (462,309 MPa) was obtained with 0.25% carbon nanofiber additive in transverse rupture strengths (Islak et al., 2021). Carbon nanofibers increased the strength of the bronze matrix. The position of the carbon nanofiber and diamond grains in the bronze matrix and the EDS analysis of some regions are shown in Fig. 3. Since diamond is composed



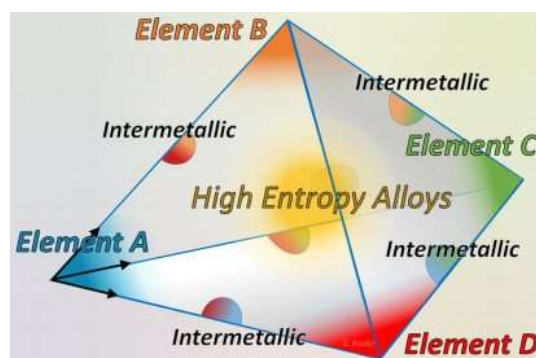
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of carbon atoms, the carbon element in region 2 represents diamond. The carbon in region 1 represents the carbon nanofiber (Islak et al., 2021).



**Figure 3.** SEM-EDS analysis of carbon nanofiber doped diamond cutting socket

High entropy alloys (HEAs) have attracted increasing attention in recent years due to their unique composition, microstructure and tunable properties. They are defined as solid solution alloys containing more than five basic elements in equal or nearly equal atomic percentage. Normally, the atomic ratio of each component is greater than 5%. The presence of many elements in the alloy in close proportions to each other causes high mixing entropy. Therefore, it complicates the formation of intermetallic phases and facilitates the formation of simple, face-centered cubic (FCC) or body-centered cubic (BCC) solid solutions, or a combination of both. HEAs attract the attention of researchers significantly, especially in terms of mechanical properties such as high strength value compared to conventional alloys (Zhang et al., 2014; Liu et al., 2016; Erdoğan et al., 2019). The formation of high entropy alloys is given in Fig. 4.



**Figure 4.** The formation of HEAs (URL-1, 2022)

The use of high entropy alloys for diamond cutting tool matrices is limited. Zhang et al. developed FeCoCrNiMo HEAs by powder metallurgy for diamond cutting tool applications. It shows that FeCoCrNiMo HEAs with pure face-centered cubic crystal structure produced by mechanical alloying and then spark plasma sintering can be obtained by this method. Samples with higher stiffness could be obtained at higher temperatures and lower pressures, while samples with higher flexural strength were formed at lower temperatures and pressures. It has been stated that FeCoCrNiMo HEAs have considerably higher hardness and better wear behavior than metal matrices used in commonly used diamond tools and can be used in diamond cutting tools (Zhang et al., 2018).



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In a different study, FeCoCrNiMo high entropy alloy matrix diamond reinforced composite was produced. In the spark plasma sintering process carried out at 950 °C, there were significant increases in the mechanical properties of the composite. In addition, the ability of the matrix to hold the diamond is quite high. At higher sintering temperature, diamond deterioration and formation of brittle phases adversely affected the performance of the composite (Zhang et al., 2020).

MAX phase materials have also found their place in natural stone cutting/processing technologies. 3-ONE-2 and Hilti have developed the MAX 312 sockets for dry drilling into concrete. The performance of these MAX phase segments has been reported to be superior to that of the Co-based matrix diamond cutting segments (Fig. 5). These materials, which overcome the problem of contamination of the concrete powders caused by the high temperature and insufficient toughness of the segments during the drilling process, are closer to market use (Sun, 2011).



**Figure 5.** comparison of concrete dry drills made of diamond-Co and dimond-312 (Sun, 2011).

### 3. CONCLUSIONS

As the cutting quality is desired in natural stone cutting works, there are developments in cutting tool technologies depending on the technological advances in the field of materials science. Obtaining a smooth surface after cutting and a long service life of the cutting tool is always expected. The task of the cutting tool matrix is to hold the diamond firmly and exhibit optimum wear performance. Previously, traditional metal powders were used in matrix production, but now new generation material groups have started to appear in matrix production. Especially carbon nanotube, carbon nanofiber doped matrices, high entropy alloys and MAX phase matrices are preferred in the production of diamond cutting tools.

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### CHALLENGES LEAD TO ENTREPRENEURSHIP: A REVIEW ON COVID-19 AND GHOST KITCHENS

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#### Abstract

The crises experienced bring many problems with them. Businesses may face entropy in such periods. In particular, global negativities create opportunities as well as challenges. Experiencing and overcoming unique challenges gives businesses great experience. Seizing the opportunities that arise helps to reverse the entropy process and turn it into negative entropy. The COVID-19 pandemic has profoundly affected restaurants as well as all sectors. Their inability to do business, especially during the lockdown and full closure periods, has led to great economic difficulties. Food and beverage business managers who wanted to eliminate the negative effects of the pandemic took action both to alleviate the economic costs caused by the pandemic and to regain the customers they lost. In this process, the ghost kitchen was evaluated as an important opportunity for entrepreneurs as a niche market. The global ghost kitchen market size was valued at \$43.1 billion in 2019 and is estimated to succeed in \$71.4 billion by 2027. That motivates entrepreneurs. The pandemic process has accelerated and catalyzed the development of the ghost kitchen. In this study, the effects of the Covid-19 pandemic on restaurants were investigated. In the light of the secondary data collected, the current status of the ghost kitchen initiative was examined and evaluations were made about its future. However, the advantages and possible challenges of the ghost kitchen were discussed. Thus, it is aimed to contribute to the newly emerging ghost kitchen literature and to propose a road map for further studies. This paper is original as it deals with an emerging topic.

**Key words:** Ghost Kitchen, Challenges, Advantages, Authenticity, Covid-19, Entrepreneurship

#### INTRODUCTION

It is an undoubted fact that the development of technology has increased the speed of change and transformation in the world. This process triggers change in economic, social, cultural and environmental fields (Murphie and Potts, 2017; Williams, 2004). Accordingly, interpersonal relations, communication patterns, shopping and consumption habits, behavioral patterns and many other things are changing (Barbu, Florea, Ogarca and Barbu, 2018; Douglas and Craig, 1997). The change process continues in the form of a circulation. In other words, the development of technology alone does not direct human behavior. At the same time, people's wishes and demands are fueling the progress in technology. It is possible to talk about a mutual interaction in both change and development processes.

People's habits are not only affected by technology. Many variables such as globalization (Gupta, 2011), demographic statuses (Krishnamurti and Gupta, 2017), economic crises (Gedik and Avşar, 2017), impressive marketing strategies (Khawaja, 2018), social media (Palalic, Ramadani, Gilani, Gërguri-Rashiti and Dana, 2020) and global epidemics (Ivkovis, 2021) also affect consumer behavior. Experienced developments affect businesses and prompt them to seek to keep up with this process. It is possible to evaluate this process as both an opportunity and a threat for businesses (Doh, Tashman and



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Benischke, 2019). While people's demand for innovation offers many opportunities, the globalization of the market increases the number of competitors and the rate of competition (Shangquan, 2000). Adapting to major environmental challenges encourages businesses to become entrepreneurs (Doh and etc., 2019). Adapting to major environmental challenges encourages businesses to become entrepreneurs (Gharagozloo, Askarzadeh and Gharagozloo, 2021). Businesses turn to research and development (R&D) activities in order to produce more innovative and value-added products and services. Innovation activities are not limited to products and services only. In order to gain cost advantage in intense competition, innovations are also made on production processes (Vargas, Prestes, Miotto and Prudencio, 2021).

Businesses turn to technology for cost advantage (Schroeck, Jacobs, Bhayani, Nguyen, Penson and Hu, 2017). By robotizing production processes, it tries to standardize service quality and thus aims at customer satisfaction and loyalty (Berezina, Ciftci and Cobanoglu, 2019; Kumar and Balaramachandran, 2018). The use of robotic technology also ensures the qualification of the workforce (Oosthuizen, 2019). Using the internet to take the market by the throat represents another innovation process. Initiatives such as online advertisements (Wiktor and Sanak-Kosmowska, 2021), social media advertisements (Murphy, Corcoran, Tatlow-Golden, Boyland, and Rooney, 2020), online ordering (Ganapathi and Abu-Shanab, 2020), using information systems to reach customers (Cobanoglu, Dogan, Berezina and Collins, 2021) are current examples of initiatives on the process.

The challenges facing the world require innovation and entrepreneurship (Liguori and Winkler, 2020). In this study, the effects of the Covid-19 pandemic on restaurants were investigated. In the light of the secondary data collected, the current status of the ghost kitchen initiative was examined and evaluations were made about its future. Thus, it is aimed to contribute to the newly emerging ghost kitchen literature and to propose a roadmap for further studies.

### LITERATURE REVIEW

#### Pandemic Shock

When the coronavirus epidemic first emerged, it was a health crisis. As a result of the rapid spread of the virus, some restrictions were imposed on international travel. The detection of infected people in many parts of the world resulted in the Corona Virus being declared a pandemic by the World Health Organization (WHO) on March 11, 2020 ([www.who.int](http://www.who.int)). After this date, more drastic measures began to be taken to prevent the pandemic. Suspension of international flights (Sobieralski, 2020), travel restrictions (Devi, 2020), suspension of educational activities (Redinger, Cornia and Albert, 2020), curfews (Freckelton, 2020), lockdowns (Foa, Gilbert and Fabian, 2020), mask and distance requirement (Garan, Yöney and Bozkurt, 2021) are the leading ones. Thus, the impact of the pandemic was not limited to the health field. It has penetrated to the very depths of social, cultural and economic life.

#### Changing Human Behavior and Businesses' Seek for Response

Pandemics have an impact on human psychology and emotions as well as their economic and social effects. In other words, the toll on individuals is not just physical and financial, but emotional as well (Restubog, Ocampo and Wang, 2020). According to Lades et al. (2020), people are exposed to significant emotional changes during the pandemic period. Worry, anxiety, functional impairment, anxiety about being infected, and reduced quality of life are the main ones (Restubog et al., 2020). Fear of being infected drove people apart. It led to the start of a contactless era. Concepts such as virtual education (Surkhali and Garbuja, 2020) and remote work (Brynjolfsson, Horton, Ozimek, Rock, Sharma and TuYe, 2020) began to settle in society. Online shopping has become widespread (Neger and Uddin, 2020) and the concept of isolated holiday has been adopted (Ivanova, Ivanov and Ivanov, 2021). In short, hygiene and sanitation gained importance. People moved away from closed and crowded places. These were the first examples of changing consumer behavior.

The long-term closure of businesses has also brought many problems. Significant revenue losses occurred (McKibbin and Fernando, 2020). As a result, many people became unemployed (Wandner and O'Leary, 2020). Businesses lost customers (McKibbin and Fernando, 2020). After the first shock of the pandemic was overcome, relaxation began. This process has been called the new normal. The initiation of vaccination studies and the rapid increase in vaccination rates after that, though not completely,



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enabled the markets to start to revive. Consumer sensitivities led businesses to new ventures. In addition, the challenges brought by the process necessitated new initiatives. As a result, many innovations began to be implemented (Chesbrough, 2020). The entrepreneurial moves of businesses have been an important step for the sectors to recover from the dramatic effect of covid- 19 and recovery.

### **Restaurants Response to Covid-19**

Undoubtedly, the sectors in the service industry are among those most affected by the pandemic. The labor-intensive structure of the sector necessitates one-to-one relationships (Kenen, 1966). In the pandemic, where hygiene and sanitation are at the forefront, people prefer to stay away from such an interaction (Gunay and Kurtulmuş, 2021). This points to a particularly difficult situation for restaurants. Restaurants are important stakeholders of the service industry. The Covid-19 pandemic has had a significant impact on restaurants, as it has on all other sectors. Their inability to do business, especially during lockdown and full closure periods, has led to great economic difficulties. The food service industry remains particularly vulnerable to the negative consequences of crises due to the unique characteristics of service and exceptional treatment of foodstuffs (Elshaer and Marzouk, 2019).

The closure of its businesses during the full closure period, capacity restrictions, distance between tables, sterilization regulations, decreasing customer flow, lack of awareness among suppliers have been the driving force of new practices (Elshaer, 2021). Food and beverage business managers took action both to alleviate the economic costs caused by the pandemic and to regain the customers they lost.

Some restaurants have stepped in favor of their customers by discounting their menus. Using the technological infrastructure, they provided flexibility to their customers in terms of reservation, payment and reimbursement. They also announced the measures they took against the pandemic with their advertisements on social media, thus allowing their customers to give feedback (Bae and Chang, 2020). Thus, the main issues that restaurant businesses need to find solutions to in the new normal are to adapt to government policies, analyze changing consumer behaviors, and develop new marketing strategies. This represents the third phase (response) in the theoretical model for the impact of Covid-19 on restaurants. Restaurants initially struggled to comply with government-imposed bans and restrictions. Capacity limitations, distance between tables (social distance), hygiene training of personnel, disinfection points, supply of disposable materials are the leading ones. Afterwards, they updated their marketing and sales strategies within the framework of customer requests.

Some restaurants have taken important economic decisions in order to get out of the economic depression and to overcome the crisis with the least damage. Some of these are stopping new investments, taking some of the support services employees on leave, reducing the salaries of the remaining team members, cutting their senior managers by half (Yost, Kizildag & Ridderstaat, 2021). Yilmaz and Sahin (2021) revealed that restaurants took important steps to avoid entropy during the pandemic process. Employee orientation, customer orientation, product and service orientation, operational orientation and marketing orientation are the main ones. In addition to all these initiatives, the concept of the ghost kitchen began to gain importance during the pandemic process.

### **A Rapid Review of Cloud Kitchens**

The concept of ghost kitchen is named in different ways in there lated literature such as dark kitchen, cloud kitchen, shadow kitchen, shared kitchen, virtual kitchen, satellite kitchen (Wankhede, Fernandes and Deore, 2021). Ghost kitchens are a work space where the product is delivered to the consumer with a package service after its realization (Süzer, Uçuk, Doğdubay and Dinç, 2021). Food and beverage businesses operating in the concept of ghost kitchen do not have a service department. Thus, the cost of service personel and service equipment such as forks, spoons, knives and plates are eliminated. Inaddition, the expenses of the enterprise such as electricity and wate rare also reduced. Ghost kitchens originated in India before the Covid-19 pandemic (Yeşilyurt and Kurnaz, 2021).

The fact that people involved in business life in countries such as America and England could not spare time for cooking enabled ghost kitchens a grip on market tightly. The pandemic process, on the other hand, increased the interest in the new initiative. Countries have imposed some restrictions on food and beverage businesses, as well as all sectors, in order to stop the Covid-19 pandemic. The measures taken by government official stop revent the pandemic caused lockdowns in all sectors. Ghost kitchens have





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become an important savior and solution tool for food and beverage businesses (Wankhede and et al, 2021).

Online ordering has played a key role in the pandemic process. During curfews and lockdown periods, consumers can easily consume their favorite foods and beverages by ordering online. The concept of the ghost kitchen differs according to the approach of the enterprises. Oracle (2020), has examined this in three headings. The first is cloud kitchens with a single brand concept. There are no service areas. They do not share their production area with other brands. As a single brand, they provide online take-out service. The second is cloud kitchens with a shared kitchen concept. Multiple food and beverage businesses are together. It is a business area where they can rent and use the necessary equipment, callcenter service and courier unit that provides delivery. The last one is cloud kitchens with virtual brand concept. It is based on the fact that an existing food and beverage business includes another brand that only serves home.

Due to the Covid-19 pandemic, business models that deliver take-aways to both desk customers and homes have been developed. This approach is described as a hybrid cloud kitchen in academic papers (Sundram, 2020). Hybrid cloud kitchens also include a service area. Thus, it offers the opportunity to serve both table customers and homes. Cloud kitchens reached a value of 43.1 billion dollars in 2019. It is predicted that the market value will reach 71.4 billion dollars in 2027. The cloud kitchen model is also being adopted as a new business model in Turkey and is becoming more and more important (Allied Market Research, 2020).

### DISCUSSION

The Covid-19 pandemic has put the system, which is already stuck with many problems, into a difficult situation. The great negativities caused by the pandemic in social, cultural, economic and psychological aspects are absolutely undeniable. However, considering only adverse events to assess the overall impact of the pandemic will lead to the wrong conclusion. Or it will result in a lack of full understanding of the effects of the pandemic. In this context, it would not be wrong to say that the difficulties created by the pandemic encourage change and transformation in many areas. It is clear evidence that many academic studies have addressed the catalytic effect of the pandemic (Miles and Shipway, 2020; Moorhouse and Wong, 2021; Profit, Edmonds, Shah and Cheyney, 2020; Riefa, 2020; Wojtas and Walecka, 2020).

It is quite possible to evaluate the ghost kitchen in this context. Restaurant owners and managers, who wanted to eliminate the negative effects of the pandemic, searched. Thus, it seems that the ghost kitchen has been on the agenda lately. The pandemic process has pushed businesses to seek ways to reduce rising costs, compensate for losses, and recover. The ghost kitchen idea, brought to life by entrepreneurs, was seen as an important light in the restaurant industry. In addition to providing a significant cost advantage, the fast-spreading habit of package service during the pandemic (Dsouza and Sharma, 2020; Gavilan, Balderas-Cejudo, Fernández-Lores and Martínez-Navarro, 2021) also created a suitable environment for this initiative. Academic papers did not remain indifferent to this development.

Academic papers cover the new venture with many different names such as ghost kitchen, dark or invisible kitchen, (Moyeenudin, Anandan and Bindu, 2020), cloud kitchen (Moyeenudin, Bindu and Anandan, 2021), virtual kitchen, take-out kitchen, shadow kitchen, delivery-only restaurants. The ghost kitchen controversy is not new. It dates back to the pre-pandemic period. Therefore, it is not the right approach to consider the initiative as a product of the pandemic process. It would be more accurate to mention the accelerator or catalyst effect of the pandemic on ghost kitchens. The pandemic has focused the restaurant industry, which is in search of a new one, to the ghost kitchen. Discussions on this innovation, which was brought to the agenda very quickly, are still continuing.

Moyeenudin et al. (2020) stated that ghost kitchen practitioners should focus on branding and support this with an online application. Because consumers associated ghost kitchen with online ordering the most. In another paper, the sustainability of the ghost kitchen, which is in the niche market position, was emphasized. Accordingly, ghost kitchens are advantageous compared to others in terms of low operational costs, real pricing opportunity, computerization, food quality, mechanical expenses and hygiene (Wankhede and et al, 2021). According to John (2021), digitally pivoted platforms such as cloud kitchens and delivery aggregators will eclipse all other formats due to the potential long-term prevalence of the COVID-19 virus. However as a downside, these segments do not enjoy the same



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visibility or brand presence of full-service operators and are entirely dependent on online aggregators for their sustenance. The absence of client-facing staff would also make service recovery difficult in the event of a failure. According to Othman and et. al. (2021), perceived control, convenience and service determined that fulfillment leads consumers towards phantom kitchen use. Chhabra and Rana (2021) revealed that hygiene in takeaway is very important for consumers. Again, it is a priority to have physically visited the restaurant before ordering online. Reviews and ratings by other consumers play a role in the ordering process. Service industries are labor intensive. Therefore, the human touch becomes important in the process. However, the cloud kitchen concept lacks personal interactions. The system is dependent on the internet. Possible connection problems will cause instant orders to be missed and financial losses (Choudhary, 2019).

### CONCLUSION

Ghost kitchens are a very new market. There are still too many dynamics to be calculated. Although it has met consumer needs during the pandemic, it still has to deal with many challenges. More work needs to be done on the most basic concepts such as marketing, management, employment, logistics, branding. In particular, the "place" factor, which is one of the most basic elements of the marketing mix, disappears. The absence of a physical place brings many difficulties in terms of marketing and brand image. The physical space element is replaced by variables such as hygiene, delivery speed, quality and taste of food, promise time. All these processes need to be reconsidered and customized for the ghost kitchen.

It is true that food or flavors have a soul. However, it has a soul in its physical spaces. The combination of both creates an authenticity and plays a major role in consumer satisfaction. Physical space factor disappears in ghost kitchens. The process of choosing the dishes from the online environment is in progress. A similar situation prevails in sectors where tangible products (clothes, computers, furniture, etc.) are sold. However, in the food and beverage industry, the service element is at the forefront and online ordering eliminates the instant service, that is, the presentation factor. This seems to be an issue that the ghost kitchen needs to resolve. It should be answered in which process the element of authenticity, which remains only in taste and disappears for physical space, should be loaded.

Increasing computerization will reduce the need for labor. It is clear that it will cause negative effects on the workforce in the long run. In addition, intensive use of technology necessitates qualified employment. The shortage of skilled labor and shrinking employment is another challenge that the ghost kitchen venture must solve. Change and transformation will not stop. The pandemic process has accelerated this and imposed it on society. In order for businesses not to suffer from entropy, they should adopt this as their destiny and manage the process in the best way possible.

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### NOMOFOBİNİN AKADEMİK PERFORMANS ÜZERİNE YANSIMALARI: BİR GÖZDEN GEÇİRME

REFLECTIONS OF NOMOPHOBIA ON ACADEMIC PERFORMANCE: A REVIEW

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#### Özet

Akıllı telefonlar, günümüzün en önemli uyuşturucu olmayan bağımlılıkları arasında yer almaktadır. Bir diğer ifadeyle, akıllı telefon bağımlılığı olarak da bilinen nomofobi, modern çağın dijital bağımlılıkları arasında yer almaktadır. Nomofobi, bireyin mobil cihazına erişemediğinde veya mobil cihaz vasıtasıyla iletişim kuramadığında deneyimlediği irrasyonel korku ve kaygı olarak tanımlanmaktadır. Günümüzde tek tık ile insanların tüm işlerini kolaylıkla yapabilmeleri, sosyal medya platformlarını aktif şekilde kullanabilmeleri ve dolayısıyla akıllı telefonlardan ve internette uzak kaldığında işlerin aksayacağı düşüncesi bu hastalığın temel belirtilerindedir. Özellikle üniversite gençliği arasında bu bağımlılığın prevalansı her geçen gün artmaktadır. Artan bu bağımlılık düzeyi genellikle üniversite öğrencilerinin ders temelli akademik performanslarını olumsuz yönde etkileyebilmektedir. Dolayısıyla bu gözden geçirme çalışmasının temel amacı, nomofobinin akademik başarı üzerindeki yansımalarını sağlıkla ilgili bölümlerde okuyan üniversite öğrencileri açısından ele alan yayınların derlenmesidir. Bu amaç doğrultusunda 2017-2022 yılları arasında Türkçe/İngilizce dilinde yayımlanmış ve Yükseköğretim Kurulu Tez Merkezi, Google Akademik, Tübitak-Ulakbim, Science Direct, Researchgate ve Web of Science veri tabanlarından erişilen 10 adet araştırmaya yer verilmiştir. Çalışma sonucunda, ilgili yayınların %70'inde nomofobinin akademik başarı üzerine olumsuz yönde yansımaları olduğu tespit edilmiştir. Buradan hareketle, öğrencilerin akademik performansları üzerinde akıllı telefon bağımlılığının olumsuz etkilerine dair kanıtların birikmeye başladığı, fakat konuyla ilgili daha fazla görgül çalışmaya gereksin duyulduğu belirtilebilir. Özellikle sağlık alanı gibi insan hayatının söz konusu olduğu bir alanda eğitim gören öğrencilerin, nomofobi ve onun ders başarısı üzerindeki olumsuz etkileri hakkında yeterli bilgiye ve farkındalığa kavuşturulması son derece önemlidir. Bu bağlamda mevcut müfredatlara konuyla ilgili derslerin konulması ve gerekli eğitimlerin verilmesi önem arz etmektedir.

**Anahtar Kelimeler:** Akıllı telefon, dijital bağımlılık, ders başarısı, üniversite öğrencisi, sağlık eğitimi

#### Abstract

Smartphones are among today's most important non-drug addictions. In other words, nomophobia, also known as smartphone addiction, is among the digital addictions of the modern age. Nomophobia is defined as the irrational fear and anxiety that an individual experiences when he or she cannot access or communicate with their mobile device. One of the main symptoms of this disease is the idea that people can easily do all their work with a single click in today, use social media platforms actively, and therefore things will be disrupted when they are away from smart phones and the internet. The prevalence of this addiction is increasing day by day, especially among university youth. This increasing in the dependency level can negatively affect the course-based academic performance of university students. Therefore, the main purpose of this review is to compile publications that deal with the reflections of nomophobia on academic achievement in terms of university students studying in health-related departments. For this purpose, 11 studies published in Turkish/English between 2017-2022 years and accessed from the Council of Higher Education Thesis Center, Google Akademik, Tübitak-Ulakbim, Science Direct, Researchgate and Web of Science databases were included. As a result of the study, it was determined that 70% of the related publications had negative reflections of nomophobia on academic achievement. From this point of view, it can be stated that evidence has begun to accumulate on the negative effects of smartphone addiction on students' academic performance, but more empirical studies on the subject



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are needed. It is extremely important that students who study in a field such as health, where human life is in question, have sufficient information and awareness about nomophobia and its negative effects on academic success. In this context, it is important to include courses on the subject in the existing curricula and to provide the necessary trainings.

**Keywords:** Smartphone, digital addiction, course success, university student, health education

### GİRİŞ

Günümüz dünyasında teknolojik gelişmeler ve bu gelişmelere paralel olarak insan yaşamını derinden etkileyen birtakım süreçler yaşanmaktadır. Hiç şüphesiz bunlardan birisi, belki de en dikkat çeken internet ve akabinde gelişen mobil cihazlar, özellikle de akıllı cep telefonlarıdır. Dünyamızı kuşatan akıllı cep telefonları eskisine kıyasla pek çok işin daha kısa sürede ve yer-mekân unsurlarının olabildiğince ortadan kaldırılarak yapılabilmesinde sıklıkla yardımına başvurulmuş bir kaynak haline gelmiştir.

Gençlerin yeni teknolojilere yönelik kabul düzeyleri ve mobil cihazları kullanma oranları yaşlılara kıyasla daha yüksektir. Buna paralel olarak cep telefonu ile iletişim kurma yoğunluğunun gençler arasında daha fazla olduğu da bilinmektedir. Konuyla ilgili çalışmalar incelendiğinde; mobil cihaz denilince üniversite öğrencilerinin akıllarına ilk olarak cep telefonlarının geldiği ve bu akıllı cihazları daha çok internette gezinme, sosyal ağlara girme ve paylaşımlar yapma, oyun oynama, e-kitap okuma, video izleme ve e-mail atma gibi amaçlar doğrultusunda kullandıkları görülmektedir (Adnan ve Gezgin, 2016). Öte yandan, günlük hayatta sıkça kullanılan akıllı telefonların mevcut davranış alışkanlıklarımızı da derinden etkileyerek birtakım sorunlara yol açtığını ifade etmek mümkündür. Söz konusu bu sorunlardan birisi de nomofobi olarak da bilinen akıllı telefon bağımlılığıdır.

Günümüzün en önemli uyuşturucu olmayan bağımlılıkları arasında yer alan nomofobi, akıllı telefondan mahrum kalma korkusu anlamına gelen İngilizce “No Mobile Phobia” cümlesinin kısaltılmasıdır. Dünyada ve Türkiye’de yapılan çalışmalar incelendiğinde, nomofobinin en fazla genç yetişkinlerde, özellikle de üniversite öğrencilerinde yaygın olduğu görülmektedir (Apak ve Yaman, 2019). Nomofobi düzeyi yüksek olan bireyler, psikolojik olarak sürekli telefonlarını kontrol etme, sürekli mesaj veya bildirim gelip gelmediğini kontrol etme eğiliminde olurlar. Ayrıca nomofobik bireylerin, akıllı telefonlarını gün boyunca hiç kapatmadıkları ve uyurken bile telefonlarını yanlarından ayırmadıkları da bilinmektedir (Ö. Güler ve Veysikarani, 2019).

Nomofobi terimi ilk defa 2008’de İngiltere’de Posta İdaresi tarafından yaptırılan bir araştırma neticesinde gündeme gelmiştir. Katılımcıların %53’ünün akıllı telefonlarını kaybettiklerinde, şarjları bittiğinde veya kapsama alanı dışında olduklarında kendilerini huzursuz hissettikleri, kadınların %48’inin, erkeklerin ise %58’inin bu endişeyi deneyimledikleri ve ayrıca katılımcıların %9’unun ise akıllı telefonları kapalı olduğu zaman kendilerini stresli hissettikleri tespit edilmiştir (Erdem vd., 2016).

Son yıllarda teknolojik cihazların, öğrencilerin psikososyal durumları ve akademik başarıları üzerindeki olumsuz etkileri dikkat çekmektedir. Akıllı telefonlar da bu cihazların başında gelmektedir. Literatür incelendiğinde konuyla farklı araştırma sonuçlarının olduğu görülmektedir. Örneğin Fransa’da yapılan bir çalışmada (Tavolacci vd., 2015); öğrencilerin üçte birinin, özellikle de kız öğrencilerin, akıllı telefondan mahrum kalma korkusu yaşadıkları ve bu durumun hem akademik performanslarına hem de genel sağlık durumlarına olumsuz yansıdığı raporlanmıştır. Tıp fakültesi öğrencileri üzerinde İran’da yapılan bir çalışmada (Darvishi vd., 2019), öğrencilerin yaklaşık %40’ının cep telefonu ile harcadıkları zaman arttıkça, sınavlarından daha düşük notlar alacaklarını düşündükleri ortaya konulmuştur. Sağlık bilimleri öğrencilerinin katılımıyla gerçekleştirilmiş bir başka çalışmada da (Baghianimoghdam vd., 2013), öğrencilerin yaklaşık dörtte birinin, akademik başarıları üzerinde akıllı telefonların ciddi anlamda olumsuz etkileri olduğunu ifade ettikleri raporlanmıştır. Türkiye’de 195 öğrencinin katılımıyla yapılan çalışmada (Hoşgör vd., 2017), nomofobi ölçeği alt boyutlarından “Çevrimiçi Olamama” değişkeninin, öğrencilerin genel ağırlıklı not ortalamaları üzerinde anlamlı bir etkisinin olduğu rapor edilmiştir.



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### YÖNTEM

Bu çalışma, dokümanter türde bir gözden geçirme çalışmasıdır. Çalışmasının temel amacı, nomofobinin akademik başarı üzerindeki yansımalarını sağlıkla ilgili bölümlerde okuyan üniversite öğrencileri açısından ele alan yayınların derlenmesidir. Bu amaç doğrultusunda Yükseköğretim Kurulu Tez Merkezi, Google Akademik, Tübitak-Ulakbim, Science Direct, Researchgate ve Web of Science veri tabanları 01-05 Ağustos 2022 tarihleri arasında taranmıştır. Bu veri tabanlarından tarama yapılırken şu anahtar kelimelerin farklı bileşimleri kullanılmıştır: nomofobi, nomophobia, akıllı telefon bağımlılığı, smartphone addiction, ders performansı, course performance, akademik başarı, academic success, akademik erteleme, academic procrastination, okul başarısı, school success. Tarama işlemi sonucunda, çalışmaya dâhil edilme kriterlerine uyan 10 adet yayın incelenmiştir. Çalışmada kullanılan dâhil edilme kriterleri şunlardır:

- Yayınların nicel türdeki makale ve tezlerden olması
- Yayınların 2017-2022 sürecinde yayımlanmış olması
- Yayınların Türkçe veya İngilizce dillerinde olması
- Yayınlarda Yıldırım ve Correia (2015) tarafından geliştirilerek, Yıldırım vd. (2015) tarafından Türkçeye geçerlik ve güvenilirliği yapılmış olan Nomofobi Ölçeği'nin kullanılmış olması
- Yayınların örneklem grubunu sağlıkla ilgili alanlarda okuyan üniversite öğrencilerinin oluşturulması

### BULGULAR

Nomofobinin akademik başarı üzerindeki etkilerini sağlıkla ilgili bölümlerde okuyan üniversite öğrencileri açısından ele alan yayınların derlenmesi amacıyla gerçekleştirilen bu gözden geçirme çalışmasında, dâhil edilme kriterlerine uyan 10 adet yayın ele alınmıştır.

**Tablo 1: İlgili Yayınlarla Dair Tanımlayıcı Nitelikler**

No	Yazar/Yazarlar	Yıl	Yayın Dili	Yayın Türü	Ülke	Örneklem Sayısı	Katılımcılar
1	Özsavran ve K. Ayyıldız	2022	Türkçe	Makale	Türkiye	349	Sağlık alanından öğrenciler
2	Çatıker vd.	2022	İngilizce	Makale	Türkiye	241	Hemşirelik öğrencileri
3	Kubrusly vd.	2021	İngilizce	Makale	Brezilya	305	Tıp fakültesi öğrencileri
4	Baykan vd.	2021	Türkçe	Makale	Türkiye	511	Tıp fakültesi öğrencileri
5	Hoşgör	2020	Türkçe	Makale	Türkiye	258	Sağlık alanından öğrenciler
6	Güneş ve Gücük	2020	Türkçe	Makale	Türkiye	332	Tıp fakültesi öğrencileri
7	Sezer ve Atılğan	2019	İngilizce	Makale	Türkiye	680	Tıp fakültesi öğrencileri
8	Sharma vd.	2019	İngilizce	Makale	Hindistan	164	Tıp fakültesi öğrencileri
9	Ahmed vd.	2019	İngilizce	Makale	Hindistan	157	Fizyoterapi öğrencileri
10	Prasad vd.	2017	İngilizce	Makale	Hindistan	554	Diş hekimliği öğrencileri

Tablo 1'de yer verilen tanımlayıcı niteliklerde de görüldüğü üzere, yayınların 6'sı ulusal (%60), 4'ü uluslararası (%40) statüdedir. Yayımlı yılları itibarıyla değerlendirildiğinde en fazla sayıda yayının 2019 yılına (n: 3), en az sayıda yayının ise 2017 yılına (n: 1) ait olduğu görülmektedir. Diğer yandan 2020, 2021 ve 2022 yıllarında eşit sayıda (n: 2) yayının olduğu saptanmıştır. Bir diğer ifadeyle yayınların %30'unun 2019 yılında üretildiği ifade edilebilir. Konuyla ilgili yayınların %60'ının İngilizce dilinde olduğu ve Türkiye'de gerçekleştirildiği saptanmıştır.

Konuyla doğrudan ilgili herhangi bir yüksek lisans, doktora veya tıpta uzmanlık tezine rastlanamamış olup, mevcut yayınların tamamının (%100) araştırma makalesi türünde olduğu bilgisine ulaşılmıştır. Yayınların örneklem sayıları incelendiğinde; en azının 157, en fazlasının ise 680 örneklem hacmine sahip olduğu ve tüm yayınların örneklem sayısı ortalamasının 354,5 olduğu hesaplanmıştır. Dâhil edilme kriterlerine uyan yayınların katılımcı türleri incelendiğinde; yayınların %50'sinin örneklemini





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tıp fakültesi öğrencilerinin oluşturduğu görülmektedir. Diğer taraftan hemşirelik, fizik tedavi ve diş hekimliği bölümlerinde okuyan öğrencilerinin ise en az temsil oranına sahip olduğu belirlenmiştir.

Çalışmaya dâhil edilen yayınların nomofobi ve akademik performans ilişkisi temelindeki birtakım önemli bulgu ve sonuçlarına Tablo 2’de yer verilmiştir.

**Tablo 2: İlgili Yayınlar Dair Temel Bulgu ve Sonuçlar**

No	Yazar/Yazarlar	Nomofobi Düzeyi	Nomofobinin Akademik Başarıya Yansımalarına İlişkin Başlıca Sonuçlar
1	Özsavran ve K. Ayyıldız	Öğrencilerin yaklaşık %20'sinin ciddi düzeyde nomofobik olduğu saptanmıştır.	Öğrencilerin nomofobi düzeyleri ile genel ağırlıklı not ortalaması arasında istatistiksel açıdan anlamlı bir farklılık olmadığı sonucuna varılmıştır.
2	Çatiker vd.	Öğrencilerin orta düzeyde nomofobik oldukları saptanmıştır.	Öğrencilerin nomofobi düzeylerinin akademik başarıları üzerinde istatistiksel açıdan anlamlı etkisi olmadığı sonucuna varılmıştır.
3	Kubrusly vd.	Öğrencilerin yaklaşık %12'sinin ciddi düzeyde nomofobik olduğu saptanmıştır.	Nomofobinin öğrencilerin depresyon, kaygı ve stres düzeylerini olumsuz yönde etkilediği, bunun da öğrencilerin akademik performanslarına olumsuz yönde yansıdığı sonucuna varılmıştır.
4	Baykan vd.	Öğrencilerin yaklaşık %12'sinin ciddi düzeyde nomofobik olduğu saptanmıştır.	Nomofobinin akademik erteleme ( $\beta=0,22$ ) üzerinde pozitif yönlü, genel ağırlıklı not ortalaması ( $\beta=-0,08$ ) üzerinde ise negatif yönlü ve anlamlı etkileri olduğu sonucuna varılmıştır.
5	Hoşgör	Öğrencilerin ortalamasının üzerinde bir nomofobi düzeyine sahip oldukları saptanmıştır (3,23±0,81)	Öğrencilerin dersi derste dinleme ( $\beta=-0,22$ ) ve derse katılım ( $\beta=-0,13$ ) düzeyleri üzerinde nomofobinin negatif yönlü ve anlamlı etkileri olduğu sonucuna varılmıştır.
6	Güneş ve Gücük	Öğrencilerin %11,4'ünün ciddi düzeyde nomofobik olduğu saptanmıştır.	Öğrencilerin nomofobi düzeyleri arttıkça, akademik başarılarının düştüğü sonucuna varılmıştır.
7	Sezer ve Atılğan	Öğrencilerin orta düzeyde nomofobik oldukları saptanmıştır.	Not ortalaması 50-60 düzeyinde olan öğrencilerin nomofobi düzeylerinin, 80-90 ve 90-100 arasında olanlara kıyasla istatistiksel açıdan daha yüksek olduğu sonucuna varılmıştır.
8	Sharma vd.	Öğrencilerin yaklaşık %27'sinin ciddi düzeyde nomofobik olduğu saptanmıştır.	Öğrencilerin cep telefonlarında geçirdikleri süre ile son 3 ayda yapılan sınavlardan aldıkları puanlar arasında istatistiksel olarak anlamlı bir farklılık olmadığı sonucuna varılmıştır.
9	Ahmed vd.	Öğrencilerin orta düzeyde nomofobik oldukları saptanmıştır.	Öğrencilerin nomofobi düzeyleri ile akademik performansları arasında negatif yönlü fakat istatistiksel açıdan anlamsız bir ilişki olduğu sonucuna varılmıştır.
10	Prasad vd.	Öğrencilerin %24'ünün ciddi düzeyde nomofobik olduğu saptanmıştır.	Öğrencilerin yaklaşık %40'ının telefonda daha fazla zaman harcadıklarında, mesleki sınavlarından daha düşük not aldıkları sonucuna varılmıştır.

Yayınların %60'ında (Özsavran ve K. Ayyıldız, 2022; Kubrusly vd., 2021; Baykan vd., 2021; Güneş ve Gücük, 2020; Sharma vd., 2019; Prasad vd., 2017) öğrencilerin %11 ila %27 oranında ciddi düzeyde nomofobik olduklarının rapor edildiği tespit edilmiştir. Ayrıca yayınların %30'unda (Çatiker vd., 2022;



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sezer ve Atılgan, 2019; Ahmed vd., 2019) öğrencilerin orta düzeyde nomofobik oldukları; %10'undaysa (Hoşgör, 2020) ortalamının üzerinde nomofobik oldukları raporlanmıştır.

Çalışma sonucunda, ilgili yayınların %70'inde (Özsavran ve K. Ayyıldız, 2022; Kubrusly vd., 2021; Baykan vd., 2021; Hoşgör, 2020; Güneş ve Gücük, 2020; Sezer ve Atılgan, 2019; Prasad vd., 2017) nomofobinin akademik başarı üzerine olumsuz yönde yansımaları olduğu tespit edilmiştir. Örneğin bunlar arasından Kubrusly vd. (2021)'nin araştırmasında; nomofobinin öğrencilerin depresyon, kaygı ve stres düzeylerini olumsuz yönde etkilediği, bunun da öğrencilerin akademik performanslarına olumsuz yönde yansıdığı rapor edilmişken; Hoşgör (2020)'ün araştırmasındaysa öğrencilerin dersi derste dinleme ( $\beta=-0,22$ ) ve derse katılım ( $\beta=-0,13$ ) düzeyleri üzerinde nomofobinin negatif yönlü ve anlamlı etkileri olduğu raporlanmıştır.

Baykan vd. (2021)'nin araştırmasında da akıllı telefon bağımlılığının, akademik erteleme ( $\beta=0,22$ ) üzerinde pozitif yönlü, genel ağırlıklı not ortalaması ( $\beta=-0,08$ ) üzerinde ise negatif yönlü ve anlamlı etkileri olduğu ortaya konulmuştur. Bunun aksine, çalışmaların %30'undaysa (Çatıker vd., 2022; Sharma vd., 2019; Ahmed vd., 2019) akıllı telefon bağımlılığı olan nomofobinin üniversite öğrencilerinin akademik performansları üzerinde istatistiksel olarak anlamlı bir etkiye sahip olmadığı ortaya konulmuştur. Örneğin bu çalışmalardan Sharma vd. (2019)'nin araştırmasında, üniversite öğrencilerinin cep telefonlarında geçirdikleri süre ile son 3 ayda yapılan sınavlardan aldıkları puanları arasında istatistiksel olarak anlamlı bir farklılık olmadığı sonucuna varılmıştır.

### SONUÇ VE ÖNERİLER

Akıllı telefonlar, günümüzün en önemli uyuşturucu olmayan bağımlılıkları arasında yer almaktadır. Bir diğer ifadeyle, akıllı telefon bağımlılığı olarak da bilinen nomofobi, modern çağın dijital bağımlılıkları arasında yer almaktadır. Akıllı telefonların aşırı kullanımının yol açtığı pek çok fiziksel rahatsızlığa ve trafik kazalarına ek olarak, son yıllarda öğrencilerin psikososyal durumları ve akademik başarıları üzerindeki olumsuz etkileri de dikkat çekmektedir. Bu bağlamda akıllı telefonların bağımlılık derecesinde problemlili kullanımının, hem öğrenmeyi güçleştirdiği hem de öğrencilerin akademik başarılarının düşmesine neden olduğu belirtilebilir. Dolayısıyla bu çalışmada, akademik başarı üzerinde nomofobinin etkisini ele alan ve örneklem grubunu sağlıklı ilgili bölümlerde okuyan öğrencilerin oluşturduğu yayınların derlenmesi amaçlanmıştır.

Çalışma sonucunda, ilgili yayınların %70'inde nomofobinin akademik başarı üzerine olumsuz yönde yansımaları olduğu ortaya konulmuştur. Buradan hareketle, öğrencilerin akademik performansları üzerinde akıllı telefon bağımlılığının olumsuz etkilerine dair kanıtların birikmeye başladığı, fakat konuyla ilgili daha fazla görgül çalışmaya gereksin duyulduğu yorumunda bulunulabilir. Özellikle sağlık alanı gibi insan hayatının söz konusu olduğu bir alanda eğitim gören öğrencilerin, nomofobi ve onun ders başarısı üzerindeki olumsuz etkileri hakkında yeterli bilgiye ve farkındalığa kavuşturulması son derece önemli ve kritiktir. Bu bağlamda mevcut müfredatlara konuyla ilgili derslerin konulması ve gerekli eğitimlerin verilmesi oldukça önem arz etmektedir.

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### AN ALTERNATIVE STATISTICAL METHOD FOR SCOUR DEPTH AT DOWNSTREAM OF DAMS UTILIZING PREVIOUS EMPIRICAL STUDIES

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#### **Abstract**

In line with the increasing needs in the period we live in, dam design with a very high head has become a necessity. Reducing the energy of the spilled water to the downstream part without damping due to its high head causes scour problems. These local scours; it depends on the unit discharge, the velocity of the free jet hitting the downstream pool, the width of the jet, the penetration depth, the headwater depth, the tail water depth, the physical properties of the bed material and the relations of these parameters with each other. The water jet has a great role in the formation of the local scour hole in the downstream region of the dams. Significant scours were observed at the downstream of some dams opened for operation. These scours can progress and seriously jeopardize the safety of the dam. Scouring is a very complex issue. This issue is gaining more and more importance with each passing day as there are many hydraulic structures destroyed due to downstream scour. Every designer rightly wants to use the equations that he/she will be sure of with confidence. It is within the scope of this study to obtain reliable equations for downstream scours of weirs. In the present study, it is aimed to develop a more practical and more accurate equation compared to the previous equations developed to calculate the scour depth downstream of the dams. For this purpose, a reliable equation was developed using IBM SPSS Statistics 22 software, which will be of great benefit to the relevant designers. It was concluded that the developed equation and the scour depth values obtained from the previous equations are quite compatible with each other.

**Keywords:** Scour, dam, water jet, discharge, statistical method.

#### **1. Introduction**

The water jet has a great role in the formation of the local scour hole formed in the downstream region of the free-falling weirs. The effect it creates on the downstream bed as a result of the potential energy of the water jet converting into kinetic energy due to its fall is not even comparable with the effect that would normally occur on the bed from the stream. As seen in the example of Segovia Dam in Figure 1, the falling water jet from a height can cause serious scours downstream of the dam, and these scours can progress and seriously jeopardize the safety of the dam.





**Figure 1.** Segovia Dam (URL-1, 2018)

Significant scours were observed at the downstream of some dams opened for operation. Although a 10-meter-high plunge pool was built at the downstream of the Kariba Dam, which was put into operation in 1960, a 75-meter scour occurred in the measurements made in 1984. In the studies carried out in 2015, it was determined that a 90-meter natural pool was formed at the downstream of the dam. It is reported that a budget of 294 million dollars was allocated for the repair of the dam. The scours that will occur in the downstream of the dam significantly threaten the slope stability of the downstream bed. In case of damage to the foundation part of the dam body, the stability of the dam is at risk. Especially under dynamic effects, this risk increases even more (URL-1, 2018; Tunc, 2020).

The dimensions and shape of the scour depth are generally dependent on the hydraulic parameters acting on the stream bed, such as flow rate, velocity, jet plunge angle, jet aeration, fragmentation, and downstream water depth, the characteristics of the stream bed material, and time. The scour problem should either be completely avoided or limited by controlling the scour depth. Due to high costs, it is often not possible to completely eliminate the scour problem. For this reason, controlling the scour depth is a more economical and common practice. For example, in an arch dam built on a narrow valley, the flood waters fall freely over the dam and pass to the downstream part of the dam. If the falling water body does not fall far enough from the dam body, it will endanger the stability of the dam due to the scour at the downstream of the dam. For this reason, it is desired that the water masses falling from the free-fall weirs fall far enough from the dam body (Yıldız, 2001; Tunç and Emiroğlu, 2018).

Since scour negatively affects the stability of the hydraulic structure on the ground, it has been the subject of many researchers from the past to the present. Since the scour pit formed at the downstream of the hydraulic structures damages the hydraulic structure, the designers want to use the equations they will be sure of safety. However, today, a simple formula or method that can give the depth of scour has not been obtained. Each feature of the hydraulic structure on this subject has been examined separately and it has been revealed that handling the subject is an important criterion to reach the result (Emiroglu et al., 2017; Tunc et al., 2022).

The aim of the present study; It is the estimation of scour at the downstream of the dam with a numerical method that is more up-to-date and more accurate than the equations developed in the past. It is aimed to calculate the scour depth at the downstream, which can be a major threat to the dams, with a practical equation developed in the current study, easily and with high accuracy.



## 2. Previous Empirical Formulas

Schoklitsch (1932) is one of the leading researchers who gave an empirical formula for obtaining the scour depth formed at the downstream of vertical weirs. Equation (1) given by Schoklitsch (1932) is given below.

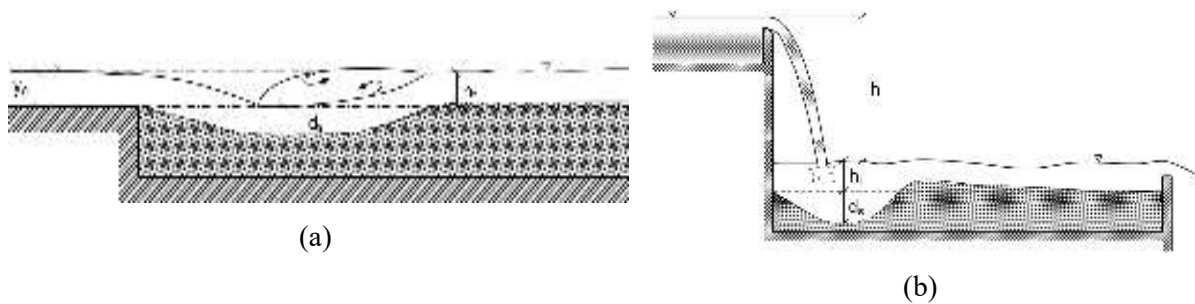
$$d_s = K_o \frac{q^{0.57} h^{0.20}}{d_{90}^{0.32}} - h_t \quad (1)$$

Here, if the unit of  $d_{90}$  is taken as millimeters,  $K_o=4.75$  and if taken as meters,  $K_o=0.52$ . In the formula given by Schoklitsch (1932), sill status and weir type are not taken into account. The presented equation does not include dimensionless parameters.

Veronese (1937) formed an important basis for the practical calculation of the scour depth downstream of the weirs. The researcher presented Equation (2), taking into account the grain diameter.

$$d_s = 3.68 \frac{h^{0.225}}{d_{50}^{0.42}} q^{0.54} - h_t \quad (2)$$

Veronese (1937) carried out the experiments on two different sets of experiments for rectangular weirs without shrinkage (Figure 2). The presented equation does not include dimensionless parameters. It is seen that the effect of threshold height is not taken into account in Equation (2). The Veronese equation is an empirical equation obtained as a result of studies for the limit scour depth formed by the vertical jet. As a result of his studies, Veronese (1937) determined the most important among many parameters taken into account for scour depth calculation as unit flow and total head, but he argued that scour is more dependent on unit flow than the difference between reservoir level and tailwater level (head height). Veronese (1937) concluded that for materials with a size smaller than 5 mm, the scour depth in the model is independent of the material size. In his experiments, he achieved maximum scour depths between 0.055 and 0.22 m.



**Figure 2.** Experimental sets designed from the Veronese (1937) study

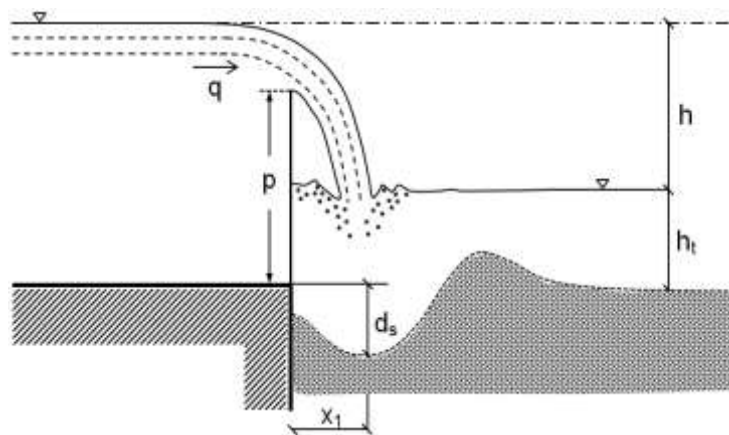
Kotoulas (1967) studied free-fall jet scours in non-contraction weirs and presented the following Equation (3) for the maximum scour depth.

$$d_s = \frac{1.90}{g^{0.35}} \frac{h^{0.35} q^{0.70}}{d_{95}^{0.40}} - h_t \quad (3)$$

where  $d_s$ =scour depth (m),  $h_t$ =tailwater depth (m),  $h$ =head height (m),  $q$ =unit discharge ( $m^2/s$ ) and  $d$ =grain diameter. The unit of  $d_{95}$  is meters.

The developed equations do not contain dimensionless parameters. Experiment set drawing from Kotoulas (1967) experimental work is presented in Figure 3.





**Figure 3.** Free-fall jet scour (Kotoulas, 1967)

As can be seen, the studies on finding an empirical equation for the scour depth downstream of the dam are quite old. However, many of the previous equations do not include dimensionless parameters.

### 3. Present Statistical Method

In the present study, Equation (4) was developed to determine the scour depth at the downstream of the dam using IBM SPSS Statistics 22 software. While developing Equation (4), the data in Table 1 were used. Although the basic structure of Equation (1) and Equation (2), developed by Schoklitsch (1932) and Veronese (1937), is similar, the related constant coefficients are different. Although the scour depths calculated by both equations are close to each other, their averages were evaluated in this study. First, the dimensionless parameters  $q^2/g.d_{50}$ ,  $h_t/d_{50}$  and  $h/d_{50}$  were calculated for different weir and channel geometries and different flow values. Here;  $q$ =unit discharge,  $g$ =gravitational acceleration,  $d_{50}$ =50% passing grain diameter,  $h_t$ =tailwater depth,  $h$ =head height and  $d_s$ =scour depth. The values of the calculated dimensionless parameters were analyzed as the output of the mean scour depths calculated from the previous equations as input in the SPSS program. In addition, scour depths were calculated for the related variables in the developed Equation (4) and are listed in Table 1.

**Table 1.** The parameters used for Equation (4) developed from the present study

$Q$ (m <sup>3</sup> /s)	$B$ (m)	$q$ (m <sup>2</sup> /s)	$h$ (m)	$h_t$ (m)	$d_{50}$ (mm)	$d_{90}$ (mm)	$d_{95}$ (mm)	$g$ (m/s <sup>2</sup> )	Schoklitsch $d_s$ (m)	Veronese $d_s$ (m)	$q^2/g.d_{50}^3$ (-)	$h_t/d_{50}$ (-)	$h/d_{50}$ (-)	Mean $d_s$ (m)	SPSS $d_s$ (m)
0.2	0.5	0.4	1	0.5	3.5	6.2	6.5	9.81	1.069	0.825	0.00038	0.143	0.286	0.947	0.794
0.2	0.5	0.4	2	0.5	3.5	6.2	6.5	9.81	1.302	1.049	0.00038	0.143	0.571	1.175	1.155
0.2	0.5	0.4	3	0.5	3.5	6.2	6.5	9.81	1.454	1.197	0.00038	0.143	0.857	1.325	1.437
0.2	0.5	0.4	4	0.5	3.5	6.2	6.5	9.81	1.570	1.311	0.00038	0.143	1.143	1.440	1.679
0.2	0.5	0.4	1	1.0	3.5	6.2	6.5	9.81	0.568	0.325	0.00038	0.286	0.286	0.447	0.362
0.2	0.5	0.4	2	1.0	3.5	6.2	6.5	9.81	0.802	0.549	0.00038	0.286	0.571	0.675	0.527
0.2	0.5	0.4	3	1.0	3.5	6.2	6.5	9.81	0.954	0.697	0.00038	0.286	0.857	0.826	0.656
0.2	0.5	0.4	4	1.0	3.5	6.2	6.5	9.81	1.070	0.811	0.00038	0.286	1.143	0.941	0.767
0.5	0.5	1.0	2	2.0	3.5	6.2	6.5	9.81	1.038	0.541	0.00238	0.571	0.571	0.789	0.737
0.5	0.5	1.0	4	2.0	3.5	6.2	6.5	9.81	1.490	0.970	0.00238	0.571	1.143	1.230	1.072
0.5	0.5	1.0	6	2.0	3.5	6.2	6.5	9.81	1.785	1.254	0.00238	0.571	1.714	1.519	1.334
0.5	0.5	1.0	8	2.0	3.5	6.2	6.5	9.81	2.009	1.472	0.00238	0.571	2.286	1.740	1.559
0.5	0.5	1.0	2	2.5	3.5	6.2	6.5	9.81	0.538	0.041	0.00238	0.714	0.571	0.289	0.573
0.5	0.5	1.0	4	2.5	3.5	6.2	6.5	9.81	0.990	0.470	0.00238	0.714	1.143	0.730	0.833
0.5	0.5	1.0	6	2.5	3.5	6.2	6.5	9.81	1.285	0.754	0.00238	0.714	1.714	1.019	1.037
0.5	0.5	1.0	8	2.5	3.5	6.2	6.5	9.81	1.509	0.972	0.00238	0.714	2.286	1.240	1.211
1.0	0.5	2.0	4	3.0	3.5	6.2	6.5	9.81	2.181	1.319	0.00951	0.857	1.143	1.750	1.579
1.0	0.5	2.0	8	3.0	3.5	6.2	6.5	9.81	2.952	2.047	0.00951	0.857	2.286	2.499	2.297
1.0	0.5	2.0	12	3.0	3.5	6.2	6.5	9.81	3.454	2.529	0.00951	0.857	3.429	2.992	2.859
1.0	0.5	2.0	16	3.0	3.5	6.2	6.5	9.81	3.837	2.899	0.00951	0.857	4.571	3.368	3.339
1.0	0.5	2.0	4	4.0	3.5	6.2	6.5	9.81	1.181	0.319	0.00951	0.857	1.143	0.750	1.141
1.0	0.5	2.0	8	4.0	3.5	6.2	6.5	9.81	1.952	1.047	0.00951	0.857	2.286	1.499	1.659
1.0	0.5	2.0	12	4.0	3.5	6.2	6.5	9.81	2.454	1.529	0.00951	0.857	3.429	1.992	2.065
1.0	0.5	2.0	16	4.0	3.5	6.2	6.5	9.81	2.837	1.899	0.00951	0.857	4.571	2.368	2.412



$$d_s = \frac{\left(-2.28 \times \left(\frac{q^2}{g \times d_{50}^3}\right)^{0.61}\right)}{\left(-0.13 \times \left(\frac{h_t}{d_{50}}\right)^{1.13}\right) \times \left(0.83 \times \left(\frac{h}{d_{50}}\right)^{-0.54}\right)} \quad (4)$$

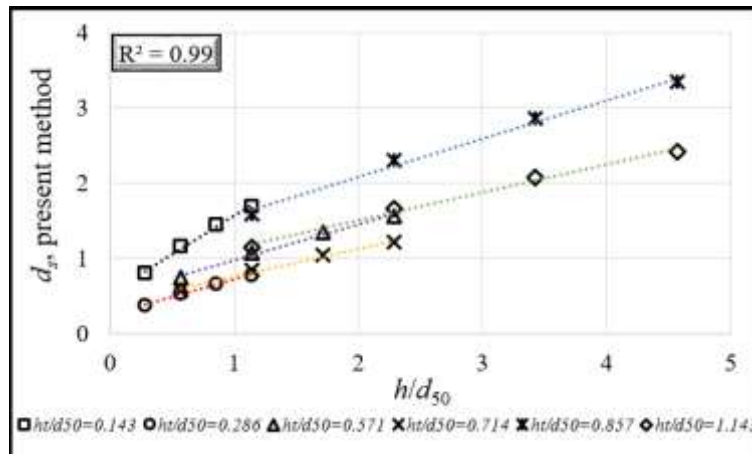
The output of the constant coefficients of the dimensionless variables in Equation (4) (expressed with parameter in Table 2) by the SPSS program is presented in Table 2. In addition, the standard deviation values of Equation (4) and the 95% confidence interval values are presented in Table 2.

**Table 2.** Parameter estimates for Equation (4)

Parameter Estimates				
Parameter	Estimate	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
x1	-2,277	11444416,31	-24043828,7	24043824,20
x2	,611	,074	,454	,767
x3	-,128	651619,199	-1369001,265	1369001,008
x4	1,134	,132	,857	1,411
x5	,828	4468912,975	-9388836,937	9388838,593
x6	-,542	,065	-,678	-,406

#### 4. Statistical Results and Discussion

The head is an important parameter that affects the scour at the downstream of the dams. Within the scope of the current study, the analysis was made according to the dimensionless head parameter ( $h/d_{50}$ ). It is seen that the scour depth increases with a near-perfect harmony with the increase of  $h/d_{50}$ . In this study, different unit discharges in the range of  $q=0.4-2.0$  m<sup>2</sup>/s, different head heights in the range of  $h=1.0-16.0$  m, different tailwater depths in the range of  $h_t=0.5-4.0$  m and a constant median grain diameter of  $d_{50}=3.5$  mm were tested. In Figure 4, the relationship between the increase in dimensionless drop height and the increase in scour depth is quite consistent with the near-perfect curve with a salience coefficient  $R^2=0.99$ .

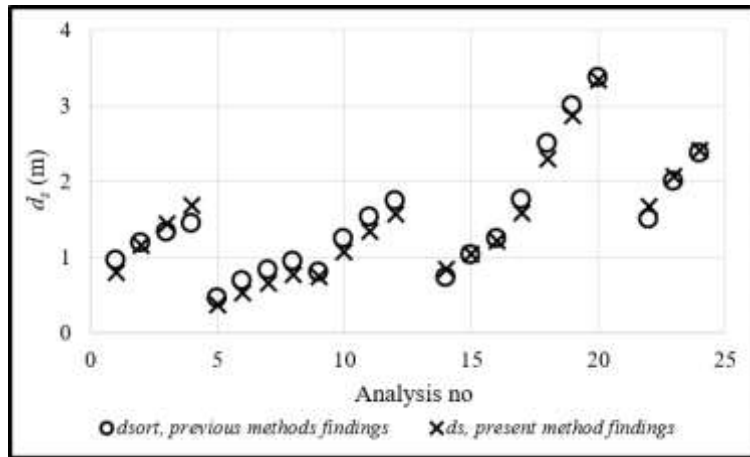


**Figure 4.** Variation of  $d_s$  values calculated by Equation (4) with dimensionless head ( $h/d_{50}$ )

In Figure 5, it is seen that the mean of the scour depth ( $d_s$ ) values calculated using the previous empirical methods (Equation 1 and Equation 2) almost coincide with the  $d_s$  values calculated from Equation (4) developed from the current study. This is an indication that a very accurate numerical method has been developed for the 24 analyzes performed.

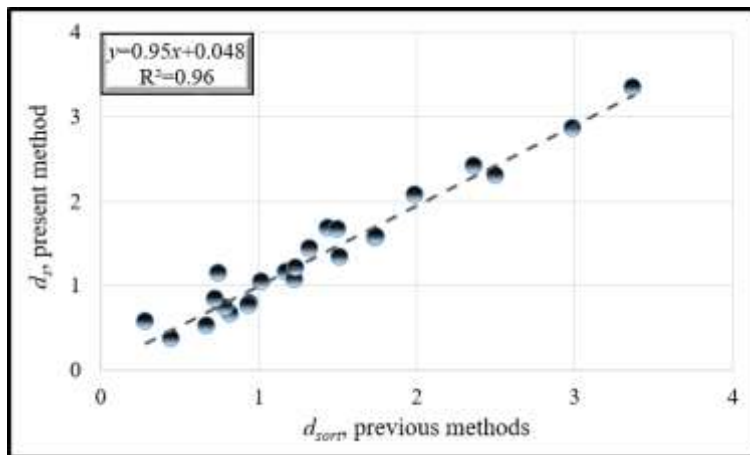






**Figure 5.** The average of the  $d_s$  values calculated from the previous methods and the  $d_s$  values calculated by the current Equation (4)

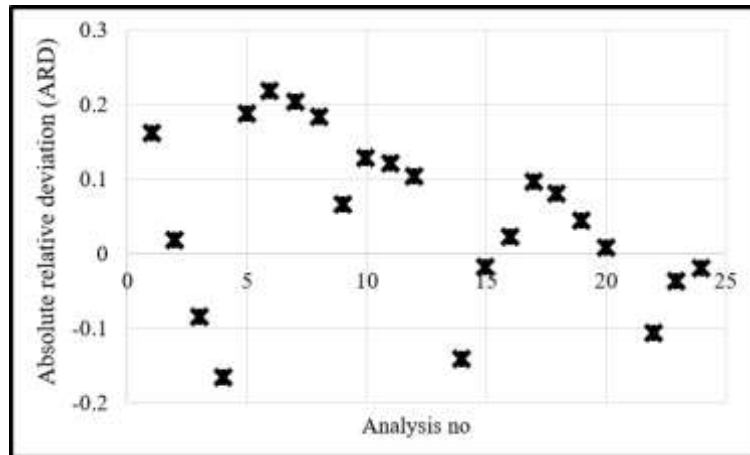
In Figure 6, the variation of the  $d_s$  values calculated from Equation (4) developed from the present study with the average of the scour depth ( $d_s$ ) values calculated using the previous empirical methods (Equation 1 and Equation 2) is presented. The correlation coefficient determined for the curve fitted very closely to the perfect line as  $R^2=0.96$  shows the accuracy and usability of Equation (4).



**Figure 6.** Variation of  $d_s$  values calculated from Equation (4) with the average of  $d_s$  values calculated using Equation (1) and Equation (2)

In Figure 7, absolute relative deviation (ARD) values were calculated to analyze the accuracy of the  $d_s$  values calculated with Equation (4). It is seen that ARD values vary between approximately -0.2 and +0.2. That is, the ARD values are quite close to the zero line. This supports the usability of the developed Equation (4) considering the relevant parameters and the previous empirical formulas.





**Figure 7.** Absolute relative deviation (ARD) values for  $d_s$  values calculated by Equation (4)

### 5. Conclusions

Reliable methods should be developed since the scour pit formed at the downstream of the hydraulic structures damages the hydraulic structure. The numerical methods developed in the literature are insufficient for the scour depth downstream of hydraulic structures. For this reason, it is necessary to carefully examine the hydraulic structure and flow characteristics in question. The conclusions drawn from the present study are summarized below.

- It is aimed to calculate the scour depth downstream, which can be a major threat to hydraulic structures such as dams, with a practical equation developed in the current study, easily and with high accuracy.
- In the present study, Equation (4) was developed to determine the scour depth at the downstream of the dam using IBM SPSS Statistics 22 software.
- A new numerical method was developed by using dimensionless parameters  $q^2/g.d_{50}$ ,  $h_t/d_{50}$  and  $h/d_{50}$  for different weir and channel geometries and different flow values.
- Within the scope of this study, different unit flow rates in the range of  $q=0.4-2.0$  m<sup>2</sup>/s, different head heights in the range of  $h=1.0-16.0$  m, different tailwater depths in the range of  $h_t=0.5-4.0$  m and a constant median grain diameter of  $d_{50}=3.5$  mm were tested.
- The relationship between the increase in the dimensionless head ( $h/d_{50}$ ) and the increase in the scour depth is quite consistent with the near-perfect curve with the coefficient of significance  $R^2=0.99$ .
- It is seen that the average of the scour depth ( $d_s$ ) values calculated using the previous empirical methods and the  $d_s$  values calculated from the Equation (4) developed from the current study almost coincide with each other.
- The correlation coefficient determined for the curve fitted very closely to the perfect line as  $R^2=0.96$  shows the accuracy and usability of Equation (4).
- It is seen that Absolute Relative Deviation (ARD) values vary between approximately -0.2 and +0.2.
- The fact that the ARD values are very close to the zero line supports the reliability of the developed Equation (4) considering the relevant parameters tested in the current study and the relevant previous empirical formulas.

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# 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

## A NEW STATISTICAL ANALYSIS UTILIZING BERNOULLI PRINCIPLE FOR DISCHARGE FROM THE WEIR

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### **Abstract**

Hydraulic structures are structures that control water and enable it to be used for various purposes. The main usage purposes of hydraulic structures are; it can be listed as correcting the flow regime in the river, raising the water level, improving the river transport, creating picnic areas, and establishing fish breeding farms. Weirs are one of the oldest hydraulic structures used to measure the discharge of water in small loaded nappe flows and channels. It is one of the hydraulic structures widely used in irrigation, rainwater channels, aeration of water, oxygen transfer, and sewage systems. Weirs are generally divided into three main groups as sharp-crested weirs, broad-crested weirs and labyrinth weirs. Since weirs are used in many fields in hydraulic engineering, it will be useful to examine the effects of their flow properties and different crest shapes on the discharge. In the current study; it is aimed to develop a statistical method by using the findings from Bernoulli principle that determine the discharge of weirs. Thus, the discharge value of the relevant weir will be calculated easily and with high accuracy by calculating with the developed equation without experimenting. In this context, IBM SPSS Statistics 22 software, an up-to-date statistical program, was used. An equation has been developed which converges to 1 for the determination coefficient "R<sup>2</sup>". With this equation developed within the scope of the current study, the discharge capacities of the weirs will be determined for the changing flow characteristics and changing crest shapes, and it will be very convenient in practice.

**Keywords:** Weir, hydraulic structure, discharge, Bernoulli principle, statistical method.

### **1. Introduction**

Hydraulic structures are very important structures that control water and enable it to be used for various purposes (for example, correcting the flow regime in the stream, raising the water level, improving river transport, creating picnic areas, establishing fish breeding farms, etc.) (USBR, 1987). Weirs are one of the oldest hydraulic structures used to measure the flow of water in small loaded nappe flows and channels (USBR, 2001). At the same time, weirs are hydraulic structures that are widely used in irrigation, rainwater channels, aeration of water, oxygen transfer, and sewage systems.

Weirs are generally divided into three main groups as sharp-edged weirs, thick-edged weirs and labyrinth weirs (Chanson, 2004). In addition, weirs are constructed with or without shrinkage. In non-contraction weirs, there is no narrowing in the entrance part like normal upstream spillways. In shrinking weirs, narrowing occurs at the same rate in both parts of the channel (Sturm, 2001). Both types have widespread use.

Weirs are placed perpendicular to the flow direction, as well as in the form of broken lines or circles and forming an angle with the flow direction. Crest shape is one of the parameters affecting the discharge capacity. The effect of crest shape on flow discharge capacity has not been fully explained. Tullis et al. (1995), in their study on the design principles of labyrinth spillways, emphasized that the shape of the crest has a significant effect on the flow coefficient. Amanian (1987), in his study on the design performance of labyrinth weirs, stated that weir height, thickness and shape have significant effects on the discharge capacity. Likewise, Waldron (1994) emphasized the importance of this issue.

Discharge for rectangular weirs with sharp edges; Accurate measurement is very important because it depends on many features such as viscosity, surface tension, weir and channel geometry, flow conditions. It is quite difficult to determine the discharge capacity of weirs. For this reason, many studies



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have been conducted to find equations to accurately calculate the discharge capacity (Rehbock, 1929; Kindsvater and Carter, 1957; Aydın et al., 2006).

Since weirs are used in many fields in hydraulic engineering, it will be useful to examine the effects of their flow properties, different crest heights and geometries on the discharge capacity. In the present study, a series of discharges were calculated for different nappe heights and weir widths by using the equation obtained to find the discharge of rectangular weirs with thin edges developed from the Bernoulli equation. It is seen that the weir crest height and channel width are not taken into account in the equation (Eq.5). It also does not contain dimensionless parameters. However, current studies (Emiroglu et al., 2017; Tunc et al., 2022) have reported that equations containing dimensionless parameters should be proposed in this regard.

The aim of the present study; is to develop a new numerical method that calculates the discharge capacity of thin-sided rectangular weirs easily, practically and accurately with a current statistical program (IBM SPSS Statistics 22 software). Thus, it will contribute to the literature and application engineers.

### 2. Sharp-edged weirs and their characteristics

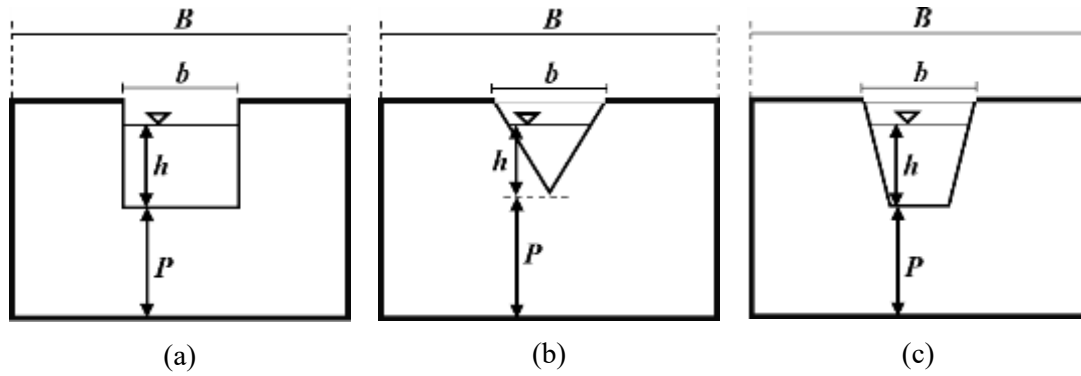
Structures that are placed perpendicular to the axis of an open channel in order to measure the flow of water and that flow water over them are called weirs. The surface of the water flowing over the weir is called a crest, and the flowing water reservoir is called a nappe. Weirs are generally divided into three groups; sharp-edged weirs, thick-edged weirs, and labyrinth weirs.

This type of weirs are made of plastic or metal materials in appropriate sizes. It has been determined by the USBR (United States Bureau of Land Reclamation Studies) that the following conditions must be met in the studies on thin-sided weirs.

- The upstream face of the weir layer should be vertical, smooth and perpendicular with the channel flux.
- The top thickness of the crest and the side layers should be between 0.03 and 0.08 inches (1 inch = 2.54 cm).
- The edges of the weir must meet in a plane and have suitable angles.
- The thickness of the entire weir layer must be the same. If the layers are thicker than the measurements specified in the second item, the layer should be thinned to the required thickness.
- The upstream edge of the weir must be straight and sharp.
- The overflow layer or nappe should only touch the upstream surface of the crest.
- Maximum downstream water height must be below crest height and at least 0.2 ft (1ft = 0.3048 m.).
- In order to prevent the nappe from sticking to the downstream part of the weir, the measured height should be at least 0.2 ft (Doğan, 2009; Emiroğlu et al., 2010).

Sharp-edged weirs are generally; They are collected in three main groups as thin-sided rectangular weirs, thin-sided triangular weirs and Cipolletti weir (Figure 1).

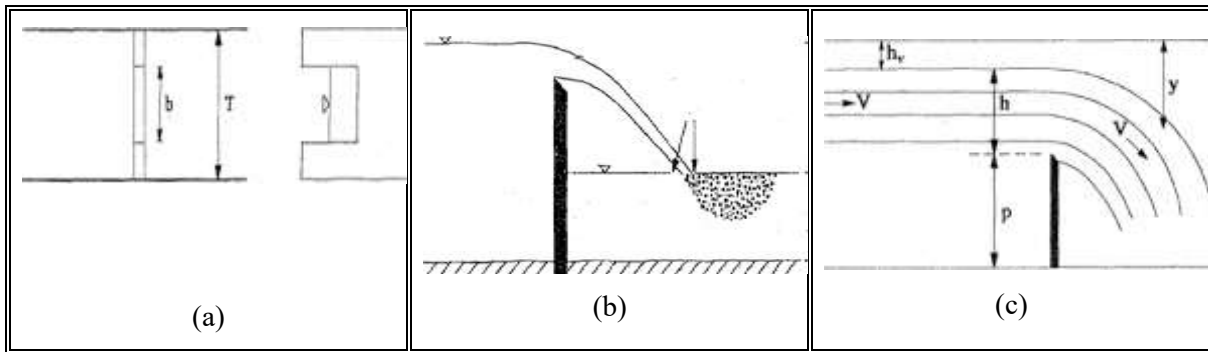




**Figure 1.** Sharp-edged weirs: a) rectangular weir, b) triangular weir, c) Cipolletti weir

**2.1. Sharp-edged rectangular weir**

In sharp-edged rectangular weirs, the crest of the weir and the lower and upper surfaces of the nappe are horizontal. Figure 2(a-c) shows the cross section of the weir, the shape of the nappe and the flow over the weir.



**Figure 2.** Sharp-edged rectangular weir and the flow over it: a) the cross section of the weir, b) the shape of the nappe, c) the flow over the weir (Dogan, 2009)

If Bernoulli's Equation is written between a point on the water surface on the upstream side of the weir and a point y below the energy line in the section where the weir is located.

$$P+h+h_v=p+(h+h_v-y)+V^2/2g \tag{1}$$

Here;  $p$ =weir height,  $h$ =nap load,  $h_v$ =upstream velocity height.  $h_v=(V^2/2g)$ . The velocity at a point y below the energy line is denoted by  $V$ .

$$V = \sqrt{2gy} \tag{2}$$

Accordingly, the theoretical flow is:

$$Q_t = \int_0^h V dA = \int_0^h V b dy = \sqrt{2gb} \int_0^h y^{1/2} dy \tag{3}$$

$$Q_1 = \frac{2}{3} \sqrt{2g} \cdot b \cdot h^{3/2} \tag{4}$$

$$Q = \frac{2}{3} C \cdot b \cdot \sqrt{2g} \cdot h^{3/2} \tag{5}$$



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The non-shrinking weir has a horizontal crest extending from one end of the channel to the other. Equation (5) is given for the non-shrinkage weir. In equation (5),  $Q$ =discharge,  $h$ =nappe height,  $b$ =weir width. In the experiments, it was observed that the discharge decreased by 62.2% due to the narrowing of the water nappe and the resulting head losses ( $Q=0.622Q_i$ ). It is generally expressed by a flow coefficient  $C$  and written as  $Q=C.Q_i$ . The coefficient of  $C$  is given in Table 1.

**Table 1.** Discharge coefficient formulas for weir (Dogan, 2009)

$b/B$	$C$
1.0	$C=0.602+0.075(h/p)$
0.9	$C=0.599+0.064(h/p)$
0.8	$C=0.597+0.045(h/p)$
0.7	$C=0.595+0.030(h/p)$
0.6	$C=0.593+0.018(h/p)$
0.5	$C=0.592+0.011(h/p)$
0.4	$C=0.591+0.0058(h/p)$
0.3	$C=0.590+0.0020(h/p)$
0.2	$C=0.589-0.0018(h/p)$
0.1	$C=0.588+0.0021(h/p)$
0.0	$C=0.587+0.0023(h/p)$

### 2.2. Dimensional analysis

The discharge over the weir is a function of several parameters expressed mathematically by Equation (6).

$$Q=f_1(h, b, B, P, \rho, \mu, g, \sigma) \quad (6)$$

Here;  $h$ =nappe height over the top of the weir,  $b$ =weir width,  $B$ =channel width,  $P$ =weir crest height,  $\rho$ =density of the fluid,  $\mu$ =dynamic viscosity of the fluid,  $g$ =gravitational acceleration,  $\sigma$ =surface tension. A dimensional analysis is performed to find a relationship between the discharge coefficient and the other parameters mentioned above. A mathematical expression of this relationship is given in Equation (7).

$$\frac{Q}{g^{1/2} \cdot b \cdot h^{3/2}} = f_2 \left( R, W, \frac{h}{b}, \frac{b}{B}, \frac{h}{P} \right) \quad (7)$$

Finally, Equation (8) is written. As can be seen, the discharge coefficient depends on the Reynolds number, Weber number, nappe height, weir geometry and channel geometry.

$$C_d = f_3 \left( Re, We, \frac{h}{b}, \frac{b}{B}, \frac{h}{P} \right) \quad (8)$$

here;  $Re$ =Reynolds number,  $We$ =Weber number.

Reynolds number, Weber number, surface tension and viscous effects are neglected.

The general definition of Reynolds number and Weber number are given in Equation (9) and Equation (10), respectively. Most fluid mechanics problems will have a characteristic velocity, length, and fluid property, such as viscosity and density, via dimensionless numbers. Different characteristic length and velocity definitions can be used for special conditions.

$$Re = \frac{V \cdot \ell}{\nu} \quad (9)$$



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$$We = \frac{V^2 \cdot \ell \cdot \rho}{\sigma} = \frac{2g \cdot h \cdot b \cdot \rho}{\sigma} \quad (10)$$

### 3. Statistical Method

In the current study, a numerical method was developed with the data in Table 2 using IBM SPSS Statistics 22 software. In Table 2, two different values were selected as weir width 0.5 m and 1.0 m. Like this; The discharge capacity of shrinking weirs for  $b/B=0.5$  and non-contracting weirs for  $b/B=1.0$  is determined. Dimensionless parameters were determined from Equation (8) by dimensional analysis. Reynolds number, Weber number, surface tension and viscous effects are neglected. Thus, Equation (11) based on dimensionless nappe height ( $h/p$ ), dimensionless weir width ( $b/B$ ) and dimensionless crest height ( $h/p$ ) was developed to calculate the discharge capacity. Flow coefficient ( $C$ ) values were calculated with the help of Table 1.

**Table 2.** Parameters and discharges used to determine the discharge by numerical method

$b$ (m)	$B$ (m)	$P$ (m)	$h$ (m)	$b/B$	$h/b$	$h/P$	$C$	$Q$ (m <sup>3</sup> /s)	$Q$ (L/s)
0.5	1.0	0.3	0.10	0.5	0.20	0.333	0.595	0.027	27.81
0.5	1.0	0.3	0.15	0.5	0.30	0.500	0.597	0.051	51.25
0.5	1.0	0.3	0.20	0.5	0.40	0.667	0.599	0.079	79.14
0.5	1.0	0.4	0.10	0.5	0.20	0.250	0.594	0.027	27.76
0.5	1.0	0.4	0.15	0.5	0.30	0.375	0.596	0.051	51.13
0.5	1.0	0.4	0.20	0.5	0.40	0.500	0.597	0.078	78.90
0.5	1.0	0.4	0.25	0.5	0.50	0.625	0.598	0.110	110.52
0.5	1.0	0.4	0.30	0.5	0.60	0.750	0.600	0.145	145.62
0.5	1.0	0.5	0.20	0.5	0.40	0.400	0.596	0.078	78.76
0.5	1.0	0.5	0.25	0.5	0.50	0.500	0.597	0.110	110.27
0.5	1.0	0.5	0.30	0.5	0.60	0.600	0.598	0.145	145.22
0.5	1.0	0.5	0.35	0.5	0.70	0.700	0.599	0.183	183.34
0.5	1.0	0.5	0.40	0.5	0.80	0.800	0.600	0.224	224.41
1.0	1.0	0.3	0.10	1.0	0.10	0.333	0.627	0.058	58.54
1.0	1.0	0.4	0.10	1.0	0.10	0.250	0.620	0.057	57.96
1.0	1.0	0.4	0.15	1.0	0.15	0.375	0.630	0.108	108.09
1.0	1.0	0.4	0.20	1.0	0.20	0.500	0.639	0.168	168.90
1.0	1.0	0.4	0.25	1.0	0.25	0.625	0.648	0.239	239.51
1.0	1.0	0.4	0.30	1.0	0.30	0.750	0.658	0.319	319.39
1.0	1.0	0.5	0.20	1.0	0.20	0.400	0.632	0.166	166.92
1.0	1.0	0.5	0.25	1.0	0.25	0.500	0.639	0.236	236.05
1.0	1.0	0.5	0.30	1.0	0.30	0.600	0.647	0.313	313.93
1.0	1.0	0.5	0.35	1.0	0.35	0.700	0.654	0.400	400.19
1.0	1.0	0.5	0.40	1.0	0.40	0.800	0.662	0.494	494.54

Analysis was done with Nonlinear Regression method in SPSS program. When the iteration history is analyzed, derivatives are calculated statistically. Moreover; The analysis was carried out according to the basic principles listed below.

- a. Major iteration number is displayed to the left of the decimal, and minor iteration number is to the right of the decimal.
- b. Run stopped after 24 model evaluations and 12 derivative evaluations because the relative reduction between successive residual sums of squares is at most  $SSCON=1,000E-8$





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After developing the optimum formula that will give the most accurate result with trials in the program, the determination of the relevant coefficients was realized. Thus, Equation (11) is produced.

$$Q = \frac{\left(\frac{b}{B}\right)^{4.8} + \left(\frac{h}{b}\right)^{0.9}}{\left(\frac{h}{p}\right)^{-2.25} + (C)^{1.38}} \quad (11)$$

The values, standard deviations, and 95% confidence interval values of the coefficients determined by the program are presented in Table 3. Accordingly, it can be said that the optimum method has been developed for the numerical analysis of the event in question. The ANOVA output of the developed numerical method is presented in Table 4. Table 4 shows the sum of squares, df, and mean squares values for regression, residual, uncorrected total, and corrected total.

**Table3.** The values, standard deviations, 95% confidence interval values of the coefficients determined with the SPSS program

Parameter	Estimate	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
x1	4,799	3,791	-3,062	12,660
x2	,901	,497	-,129	1,931
x3	-2,253	,279	-2,831	-1,675
x4	-1,383	,602	-2,632	-,134

**Table 4.** ANOVA output of the developed numerical method

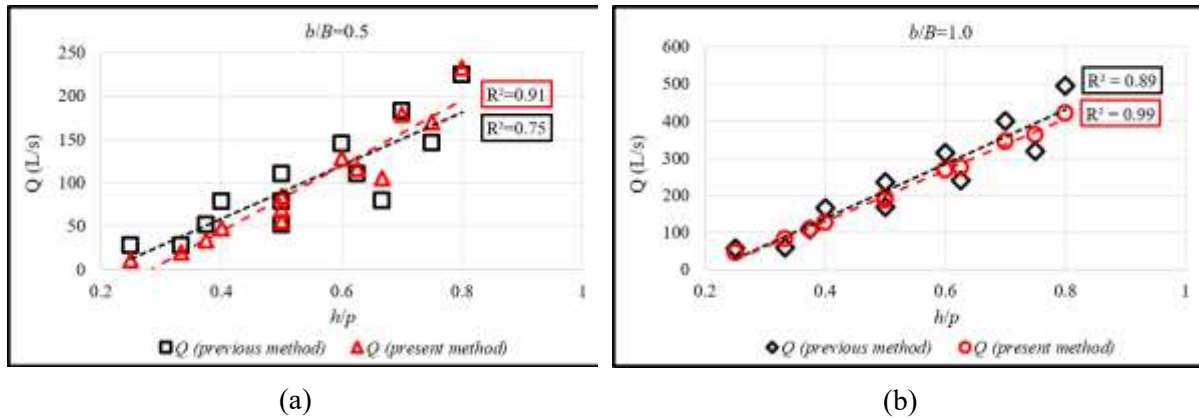
Source	Sum of Squares	df	Mean Squares
Regression	,971	4	,243
Residual	,040	22	,002
Uncorrected Total	1,011	26	
Corrected Total	,345	25	

Dependent variable: Q

### 4. Statistical Results and Discussion

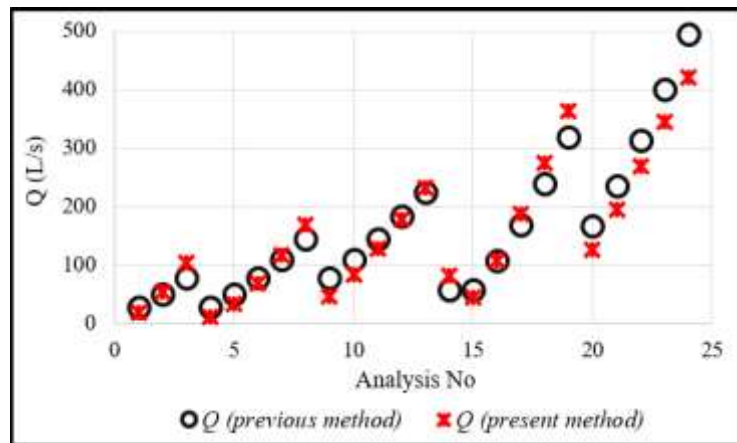
Within the scope of the present study, a series of numerical analyzes were performed for  $b/B=0.5$  weirs with shrinkage and for  $b/B=1.0$  weirs with no contraction. The variation of the discharge values calculated with Equation (5) to determine the discharge capacity of the weirs derived from the previous Bernoulli equation, and the discharge values calculated with the Equation (11) developed from the current study, with the dimensionless nappe height  $h/p$  are presented in Figure 3. It was observed that the discharge values increased almost linearly with the increase of the dimensionless nappe height  $h/p$ . In Figure 3(a), this situation is examined for shrinking weirs ( $b/B=0.5$ ), while in Figure 3(b) it is examined for non-contracting weirs ( $b/B=1.0$ ). While the coefficient of significance for the said relationship was determined as  $R^2=0.91$  for the findings obtained by the current study method Equation (11), it was determined as  $R^2=0.75$  for the findings obtained by the previous method Equation (5).





**Figure 3.** Variation of the discharge values calculated with the previous method (Eq. 5) and the current method (Eq. 11) with  $h/p$ : a) for  $b/B=0.5$ , b) for  $b/B=1.0$ .

In Figure 4, it is seen that the discharges calculated with the previous method Eq. (5) and the current method Eq. (11) are very close to each other. It is seen that the values calculated by both methods for a total of 24 analyzes almost overlap. Advantages of Eq. (11) over Eq. (5); It contains dimensionless parameters and the weir crest height ( $p$ ) and channel width ( $B$ ) parameters, which are thought to have a significant effect on the weir discharge capacity, are also included in the equation.

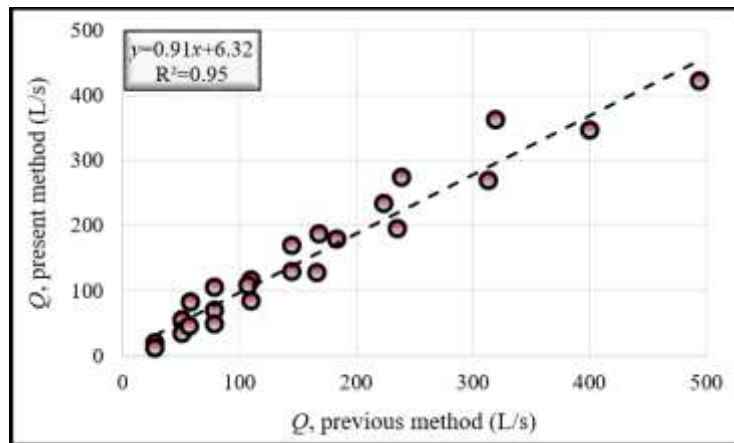


**Figure 4.** Discharge values calculated by previous Eq. (5) and current Eq. (11)

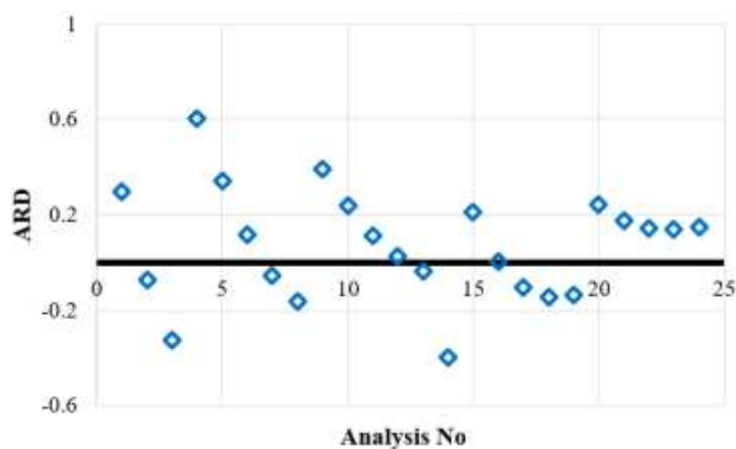
In Figure 5, the variation of the discharges calculated with the previous method Eq. (5) with the discharge values calculated with the current method Eq. (11) is presented. It is seen that the harmony between them is quite good and close to the perfect line. The coefficient of significance for the near-perfect linear increasing slope was determined as  $R^2=0.95$ .

In Figure 6, absolute relative deviation (ARD) values are presented to analyze the accuracy of Eq. (11) developed. It is seen that ARD values vary between -0.4 and +0.6. In this case, it was concluded that the deviation values for Eq. (11) are quite small and this equation can be used safely in practice and related research.





**Figure 5.** Variation of the discharges calculated by Eq. (5) with the discharge values calculated by Eq. (11)



**Figure 6.** Absolute relative deviation (ARD) values for Eq. (11)

## 5. Conclusion

The main conclusions of the present study are summarized below:

- ✓ In the current study, a new numerical method has been developed to calculate the discharge capacity of weirs using IBM SPSS Statistics 22 software.
- ✓ Two different values have been chosen as weir width 0.5 m for shrinking weirs and weir width 1.0 m for non-shrinking weirs.
- ✓ Equation (11) based on dimensionless nappe height ( $h/p$ ), dimensionless weir width ( $b/B$ ) and dimensionless crest height ( $h/p$ ) has been developed to calculate the discharge capacity of weirs.
- ✓ Analysis was performed using the Nonlinear Regression method in the SPSS program. When the iteration history is analyzed, derivatives are calculated statistically.
- ✓ Run stopped after 24 model evaluations and 12 derivative evaluations because the relative reduction between successive residual sums of squares is at most  $SSCON=1,000E-8$
- ✓ It has been observed that the discharge values increase in a nearly linear manner with the increase in the height of the dimensionless nappe  $h/p$ . Significance coefficient for the relationship in question;  $R^2=0.91$  for the findings obtained by Equation (11) and  $R^2=0.75$  for the findings obtained by Equation (5).
- ✓ It is seen that the discharges calculated by Equation (5) and Equation (11) are very close to each other. It is seen that the values calculated by both methods for a total of 24 analyzes almost overlap.



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- ✓ Advantages of Equation (11) over Equation (5); It contains dimensionless parameters and the weir crest height ( $p$ ) and channel width ( $B$ ) parameters, which are thought to have a significant effect on the weir discharge capacity, are also included in the equation.
- ✓ It is seen that the agreement between the discharge values calculated by Equation (5) and Equation (11) is quite good and close to the perfect line. The coefficient of significance for the near-perfect linear increasing slope was determined as  $R^2=0.95$ .
- ✓ Absolute relative deviation (ARD) values are seen to vary between -0.4 and +0.6. Thus, it was concluded that the deviation values for Equation (11) are quite small and this equation can be used safely in practice and related research.

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### AN ALTERNATIVE STRENGTH TEST TO PRODUCE EARTHQUAKE-RESISTANT RECYCLED AGGREGATE CONCRETE

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#### **Abstract**

According to the intended use of reinforced concrete structures; it is very important to determine whether there is sufficient safety under earthquake and vertical loads. In this context; one of the most important steps to be done is to determine the mechanical properties of concrete. The use of natural aggregate resources will be reduced by the use of recycled aggregates in the production of structural concrete. In addition, environmental pollution will be reduced and it will contribute to the protection of natural life. With the concept of earthquake resistant construction gaining importance, it is of great importance to apply the required strength tests for structural concrete in reinforced concrete structures in a correct and complete manner. With the developments in concrete production and application technologies, many strength tests can be performed to determine the mechanical properties of concrete. One of them is the Bohme abrasion test. In the present study, a series of produced concrete samples were subjected to the Bohme abrasion test in accordance with the relevant standard after curing in water for 28 days. After the experiment was finished, the volumetric abrasion loss of the samples was calculated. The decrease in Bohme abrasion loss indicates that the concrete strength will increase. As a result; it can be said that the Bohme abrasion loss values of a series of concrete samples tested generally decrease in a nearly linear parabolic with compressive strength. It was observed that the Bohme abrasion loss increased with the increase of the water cement ratio.

**Keywords:** Bohme abrasion test, concrete strength, recycled aggregate, eco-friendly concrete, earthquake resistant.

#### **1. Introduction**

Natural resources are decreasing day by day due to the increase in the world population and the change in consumption habits. Stopping this consumption will be possible with recycling. The construction sector is one of the sectors where the need for raw materials is the highest and therefore the amount of waste generated is the highest. By using these wastes as aggregate in concrete production or instead of it, both the damage to the environment and the consumption of natural aggregate resources will be reduced. Recently, the use of waste in the studies of researchers has received a great deal of attention. (Singh and Siddique, 2012; Tugrul Tunc, 2019).

Limestone wastes in India are waste in fertile lands (Figure 1). Similar conditions were previously reported in other African and European countries. The economic development of any region depends on the judicious use of its natural resources. Therefore, it is necessary to develop concrete technology that can absorb limestone waste. The use of limestone waste in concrete can be advantageous for both the mining and construction industries. Therefore, a research was conducted to develop a concrete technology that can use limestone waste as fine aggregate in concrete (Rana et al., 2017).



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**Figure 1.** Limestone waste in India (Rana et al., 2017)

The abrasion resistance of concrete is closely related to the aggregate abrasion resistance (Tugrul Tunc and Alyamac, 2020b). Since the amount of cement in concrete is less than the aggregate, the main abrasion effect comes to the aggregate. Abrasion strength of aggregates, specific gravity, hardness, void ratio etc. depends on its features. Glass-structured aggregates, schists, marly limestones, coarse mineral stones do not show resistance to abrasion. In this respect, the use of abrasion-resistant hard aggregates in concrete production increases the resistance of concrete against abrasion. For this purpose, usability and mechanical properties of limestone aggregates in concrete were investigated. It has been stated that abrasion resistance is the most important parameter in determining the usability of aggregates in concrete (Poitevin, 1999).

In the literature, the abrasion resistance of concrete aggregates has been investigated by different tests (Tugrul Tunc and Alyamac, 2019; Tugrul Tunc and Alyamac, 2020a). In Alyamaç and Aydın (2015), the Bohme surface abrasion test was applied to 28-day samples by replacing 10, 20, 30, 40, 50 and 90% by volume of marble dust and sand. They found a similar relationship between abrasion resistance and compressive and splitting tensile strengths, which determine the strength properties of concrete. They obtained optimum results with concrete mixtures containing 40% marble dust. In Alyamaç and İnce (2008), Bohme abrasion test was carried out on tile mosaic floor coverings containing steel fiber. Abrasion resistances were calculated as volume, and average surface abrasion values were obtained as  $9.3 \pm 0.3 \text{ cm}^3/\text{cm}^2$ .

In the near-surface part of the concrete, there are more fine aggregate particles than coarse aggregate particles and the paste phase formed by cement. For this reason, it is very important for fine aggregate particles to resist abrasion. Karpuz and Akpınar, (2009) investigated the effect of fine aggregate type used on roads on abrasion resistance. Bohme abrasion test was applied to concrete samples formed with limestone, basalt and aggregates containing limestone+basalt. They found the abrasion resistance of concrete samples with limestone aggregate as 33.1%, of concrete samples with basalt aggregate as 21.3% and of concrete samples produced by using both limestone and basalt aggregates as 27.8%. If the Los Angeles abrasion resistance of aggregates increases by approximately 35%, the abrasion resistance of concrete has increased by approximately 25% (Karpuz and Akpınar, 2009).

The concrete used as pavement in the road superstructure is exposed to abrasion due to the friction that will occur in the bridge piers and dams exposed to the water flow. Abrasion resistance of concrete; It varies depending on the concrete strength characteristics, the internal structure of the concrete, the construction of the concrete surface and the test method used. It is known that the most common test to determine the abrasion resistance of concrete is the Bohme (Dorry Device) Test (Yalcinkaya et al., 2014; Çobanoğlu and Çelik, 2017).

High strength concrete is defined in national sources such as TS 500, TS EN 206 and Earthquake Bylaw. According to TS 500, it has been stated that concrete with a class higher than C50/60 is considered as "high strength concrete". According to TS EN 206-1; It has been stated that concrete with C60/75 strength class and above is called "high strength concrete". In the Turkish Building Earthquake Code, it



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is implied that reinforced concrete buildings above C50/60 can be included in this class. Within the scope of international standards, high strength concrete is defined as concrete with "55 MPa and above compressive strength" in ACI 363R-10. Therefore, it can be said that "high strength concrete" is not clearly explained in the relevant standards. Although some standards explain by giving quantitative values, it is thought that these explanations will not be sufficient for the use of high strength concrete in practice. Because there is a lack of properties, design and construction rules of high-strength concrete.

As can be seen, the design must be done very well in the production of earthquake resistant high strength concrete. Therefore, relevant experimental tests are of great importance. In addition, using the inactive fine limestone aggregate from the aggregate quarries to provide adequate performance in concrete will also benefit the economy and the environment. In the current study; a series of Bohme abrasion tests were carried out to produce earthquake resistant concrete, to produce environmentally friendly concrete containing recycled aggregates and to produce abrasion resistant concrete. The aim of the present study is to reveal the effect of Bohme abrasion loss on concrete strength by determining the relationship between compressive strength and Bohme abrasion loss.

### 2. Experimental Study

In the current study, limestone aggregate from ready-mixed concrete companies in Elazig in Turkey was used. (Fig. 2). Specific weights of aggregate mixtures with the largest particle diameter of 31.5 mm are presented in Table 1, and unit weights and water absorption values are presented in Table 2 (Tugrul, 2015).



*Figure 2. View of limestone aggregates from the quarry*

*Table 1. Specific gravity values of the aggregates*

$G_{coarse}$	$G_{medium}$	$G_{fine}$
2.70	2.70	2.68

*Table 2. Unit weights and water absorption values of the aggregates*

Unit Weight			Water Absorption Rate		
$W_{coarse}$	$W_{medium}$	$W_{fine}$	$A_{coarse}$	$A_{medium}$	$A_{fine}$
1.72	1.72	1.88	0.9	1.0	1.7



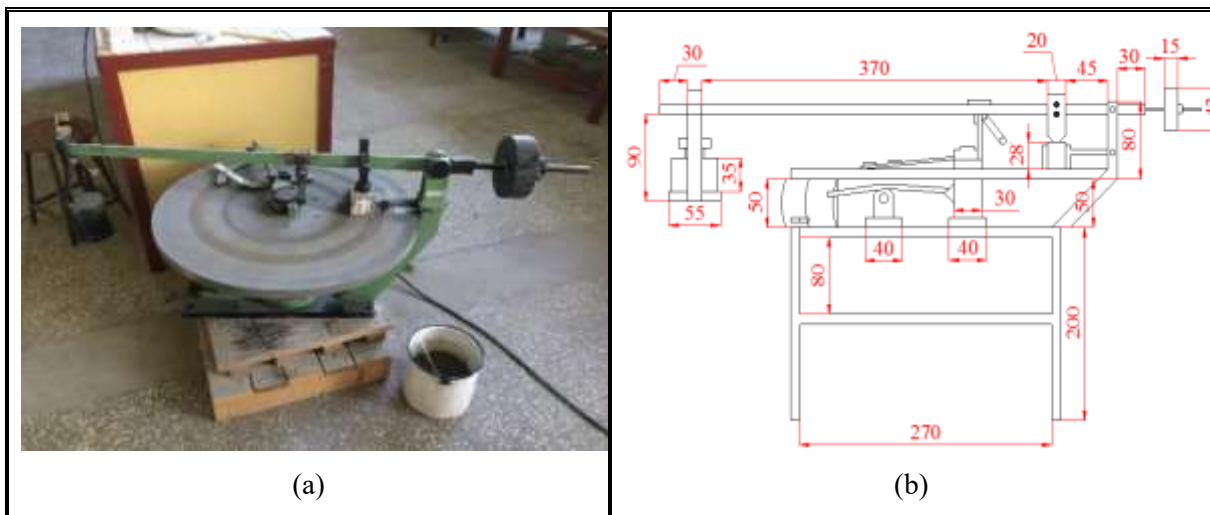
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Surface abrasion of concrete samples was tested on 71×71×71 mm cube samples cured in water for 28 days in accordance with relevant standards (TS EN 14157). In order to determine the unit volume weights of the relevant samples, the samples were weighed in air and water in the saturated state and dried in an oven at 105±5 °C for 24 hours. Oven-dry samples were placed on the abrasive disc. Testing of such materials is done with the Bohme (Dorry) apparatus, which consists of a 60 cm diameter metal plate rotating around a vertical axis and in a horizontal plane. Bohme abrasion device drawing is presented in Figure 3(a), side view sketch in Figure 3(b), plan sketch in Figure 3(c) (dimensions in mm). The abrasive surface was covered with 20 gr±0.5 gr sandpaper powder (corundum) and a load of 294±3 N was applied to the sample. 16 cycles of 22 turns each are applied to the sample. After each 22 rounds, the disc surface was carefully cleaned and the sample was rotated 90° on the same surface, and the same process was repeated. The abrasive on the disc strip is moved by taking care to keep it evenly distributed over the area determined by the sample width. This process was repeated 16 times for 3 samples from the same series. After the experiment was finished, the volumetric abrasion loss of the samples was calculated with the help of Equation (1). According to ASTM standards, this percentage of loss should not exceed 10% for 100 cycles for concrete aggregate, 50% for 500 cycles and 30% for road aggregates at 500 cycles. The appearance of the samples after the test is presented in Figure 3(d).

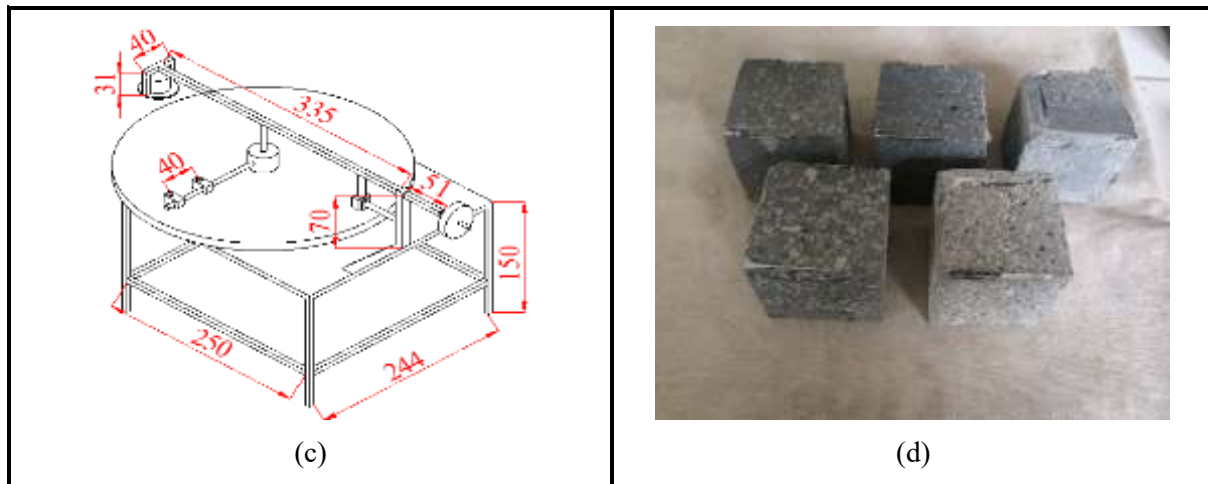
$$\Delta V = \frac{\Delta m}{\rho_r} \quad (1)$$

here;  $\Delta V$ =represents volume loss (cm<sup>3</sup>) after 16 cycles,  $\Delta m$ =represents mass loss (g) after 16 cycles, and  $\rho_r$ =sample unit volume weight (g/cm<sup>3</sup>).

The abrasion losses obtained from the study are given as the arithmetic average of 3 concrete samples for each series in the test results section, and the change in the abrasion resistance of the concrete samples is examined in detail by considering the relevant parameters and compressive strength.







**Figure 3.** Bohme abrasion test: a) Bohme abrasion device, b) side view draft drawing, c) plan outline drawing, d) view of concrete samples after test

In the current experimental study, a total of 42 concrete samples were produced, 3 for each concrete mix of 14 series. The water-cement ratio and the aggregate-cement ratio values of the concrete series are presented in Table 3.

**Table 3.** Water cement ratios and aggregate cement ratios of the concrete series

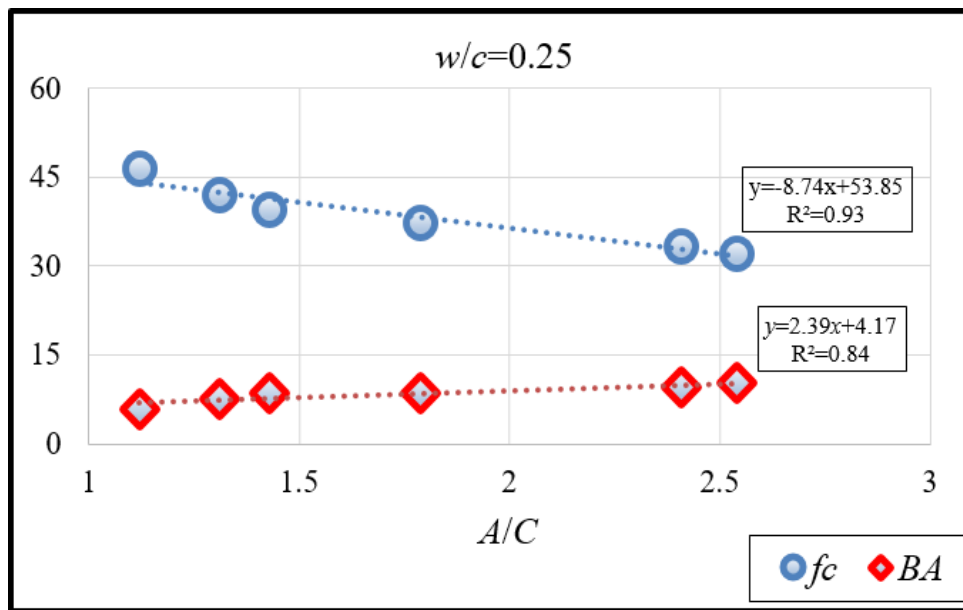
Code	W/C	A/C
C-1	0.25	2.54
C-2	0.25	2.41
C-3	0.25	1.79
C-4	0.25	1.43
C-5	0.25	1.31
C-6	0.25	1.12
C-7	0.30	2.47
C-8	0.30	2.35
C-9	0.30	2.26
C-10	0.30	1.68
C-11	0.30	1.37
C-12	0.30	1.24
C-13	0.30	1.16
C-14	0.30	0.84

### 3. Experimental Results and Discussion

In the present experimental study, the variation of different water cement ratios and different aggregate cement ratios with compressive strength and Bohme abrasion loss values were investigated. In addition, the variation of Bohme abrasion losses with the compressive strength of the tested samples was also investigated. Concrete compressive strength is the most important factor affecting abrasion resistance. Because concretes with high strength also have high abrasion resistance. This situation was reported by previous study (Kılıç et al., 2008). In the present study, it was determined that the compressive strengths for all samples varied between 28.4 and 46.4 MPa, while the Bohme abrasion losses ranged between 5.9 and 11.2 cm<sup>3</sup>/50cm<sup>2</sup>. It has been observed that the compressive strength values for the water-cement ratio  $w/c=0.25$  decrease almost linearly as the aggregate cement ratio increases. The coefficient of determination for the decreasing trend in compressive strength ( $f_c$ ) values was determined as  $R^2=0.93$ . It was observed that Bohme abrasion (BA) values for the water-cement ratio  $w/c=0.25$  increased almost linearly as the aggregate cement ratio increased. The coefficient of determination for the increasing trend in Bohme abrasion values was determined as  $R^2=0.84$ . It was observed that there was an increase of approximately 44.5% in compressive strength values (32.1-46.4 MPa) and a decrease of approximately 42.7% in Bohme abrasion values (10.3-5.9 cm<sup>3</sup>/50cm<sup>2</sup>). It is seen that the ratio of increase in

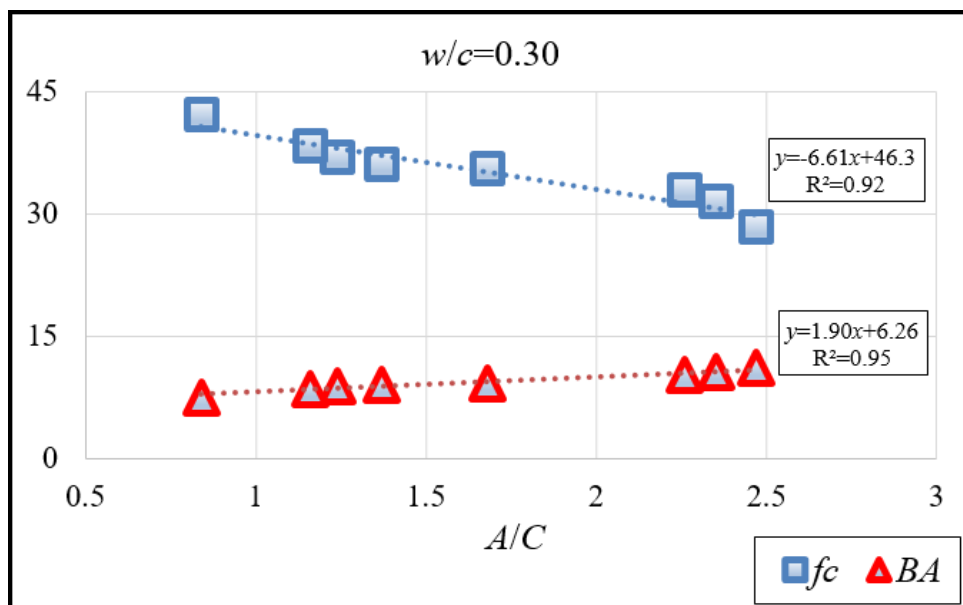


compressive strength and the ratio of decrease in Bohme abrasion loss are close to each other (Figure 4).



**Figure 4.** Variation of aggregate cement ratio with compressive strength and Bohme abrasion loss: for  $w/c=0.25$

It has been observed that the compressive strength values for the water-cement ratio  $w/c=0.30$  decrease almost linearly as the aggregate cement ratio increases. The coefficient of determination for the decreasing trend in compressive strength ( $f_c$ ) values was determined as  $R^2=0.92$ . It was observed that Bohme abrasion (BA) values for the water-cement ratio  $w/c=0.30$  increased almost linearly as the aggregate cement ratio increased. The coefficient of determination for the increasing trend in Bohme abrasion values was determined as  $R^2=0.95$ . It was observed that there was an increase of approximately 48.6% in the compressive strength values (28.4-42.2 MPa) and a decrease of approximately 33.0% in the Bohme abrasion values ( $11.2-7.5 \text{ cm}^3/50\text{cm}^2$ ) (Figure 5).



**Figure 5.** Variation of aggregate cement ratio with compressive strength and Bohme abrasion loss: for  $w/c=0.30$



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Figure 6 presents the variation of Bohme abrasion loss with compressive strength. Despite increasing compressive strength values, Bohme abrasion loss values decrease linearly with close to perfect fit. The coefficient of determination  $R^2=0.98$  is a clear indication of this. 63.4% increase in compressive strength values (28.4-46.4 MPa) compared to approximately 47.3% in Bohme abrasion values (11.2-5.9  $\text{cm}^3/50\text{cm}^2$ ).

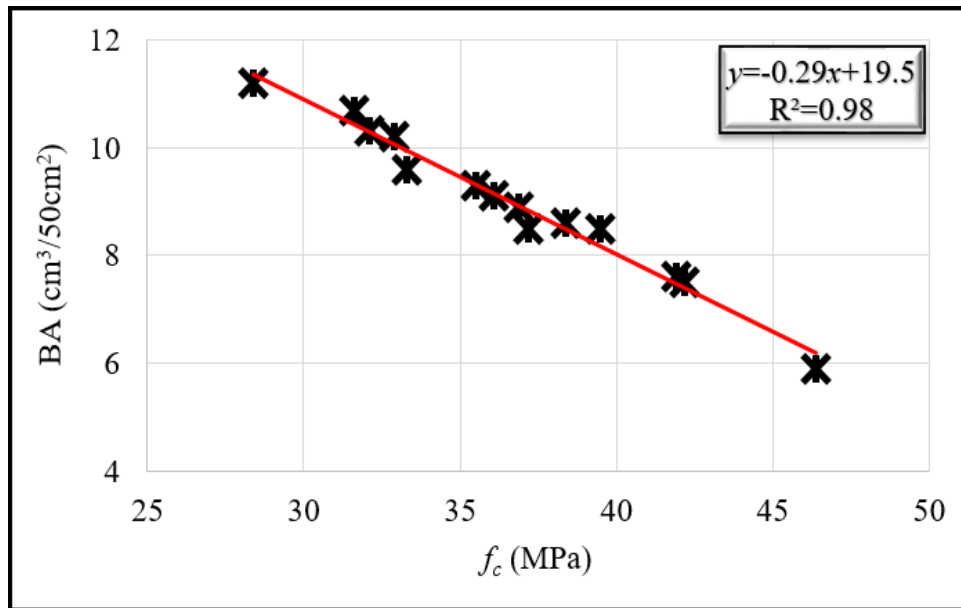


Figure 6. Variation of Bohme abrasion loss with compressive strength

### Conclusions

The conclusions from the present study are summarized below:

- Since natural resources are decreasing day by day due to the increase in the world population and the change in consumption habits, more importance should be given to recycling practices.
- The use of limestone wastes as aggregate in concrete will also provide benefits in terms of economy and environment if sufficient performance is provided.
- In the production of earthquake resistant high strength concrete, the design should be done very well. For this reason, it is necessary to carry out the design by performing the relevant experimental tests completely and accurately.
- Concrete compressive strength can be said to be the most important factor affecting abrasion resistance.
- It has been determined that the compressive strengths for all samples vary between 28.4 and 46.4 MPa, and Bohme abrasion losses vary between 5.9 and 11.2  $\text{cm}^3/50\text{cm}^2$ .
- It has been observed that the compressive strength values for the water-cement ratio  $w/c=0.25$  decrease almost linearly as the aggregate cement ratio increases. The coefficient of determination for the decreasing trend in compressive strength ( $f_c$ ) values was determined as  $R^2=0.93$ .
- It has been observed that Bohme abrasion (BA) values for the water-cement ratio  $w/c=0.25$  increase almost linearly as the aggregate cement ratio increases. The coefficient of determination for the increasing trend in Bohme wear values was determined as  $R^2=0.84$ .
- It is seen that the ratio of increase in compressive strength and the ratio of decrease in Bohme abrasion loss are close to each other.
- It has been observed that the compressive strength values for the water-cement ratio  $w/c=0.30$  decrease almost linearly as the aggregate cement ratio increases. The coefficient of determination for the decreasing trend in compressive strength ( $f_c$ ) values was determined as  $R^2=0.92$ .



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- It has been observed that Bohme abrasion (BA) values for the water-cement ratio  $w/c=0.30$  increase almost linearly as the aggregate cement ratio increases. The coefficient of determination for the increasing trend in Bohme abrasion values was determined as  $R^2=0.95$ .
- It has been calculated that there is an increase of approximately 63.4% in compressive strength values (28.4-46.4 MPa) but approximately 47.3% in Bohme abrasion values ( $11.2-5.9 \text{ cm}^3/50\text{cm}^2$ ).
- Despite the increasing compressive strength values, Bohme abrasion loss values decrease linearly with a near-perfect fit. The coefficient of determination was calculated as  $R^2=0.98$ .
- It was concluded that the abrasion resistance of the tested concrete samples increased with the increase in compressive strength and decrease in Bohme abrasion loss.

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### A PRELIMINARY INVESTIGATION OF COMPRESSIVE STRENGTH FOR RECYCLED AGGREGATE CONCRETE AT DIFFERENT CURING TIMES

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#### **Abstract**

Natural resources are decreasing day by day with the increase in the world population and the change in consumption habits. The construction sector is one of the sectors with the highest need for raw materials and therefore the highest amount of waste. By using these wastes as aggregate in concrete production or instead of it, the damage to the environment will decrease and the consumption of natural aggregate resources will decrease. Concrete compressive strength is one of the most important tests for us to have an opinion on the durability of concrete. For the compressive strength test, cubic concrete samples of certain sizes with certain content are produced. These samples, which are kept in the curing pool for a certain period of time, are subjected to a compressive strength test in accordance with the relevant standard. However, determining the concrete compressive strength for different curing times such as 7, 28, 56, 90 and 180 days is important for us to have a better knowledge of the produced concrete strength. In the present study, the 28-day compressive strength of recycled aggregate concrete was experimentally tested. It is aimed to estimate the compressive strength values at other curing times with the developed statistical method. For this purpose, it was determined that the determination coefficients ( $R^2$ ) of the equations developed using IBM SPSS Statistics 22 software, which is an up-to-date statistical software, are very close to 1. That is, it is possible to say that the results are of high accuracy. The compressive strength of recycled aggregate concrete was calculated by statistical method depending on the water-cement ratio, aggregate-cement ratio and curing time in the equations. Thus, application engineers will be presented with safe, economical, practical and time-saving designs that can predict compressive strength of recycled aggregate concrete for different curing times.

**Keywords:** Recycled aggregate concrete, compressive strength, curing time, statistical method, SPSS software.

#### **1. Introduction**

Determining how the concrete and reinforced concrete samples produced from recycling aggregates will behave when exposed to physical, chemical, biological and environmental effects has been within the scope of this work of many researchers. For this purpose, various experimental and analytical studies have been carried out by related researchers (Saribaş, 2018).

While it has been determined that the concrete produced with recycling aggregate is suitable according to the relevant guidelines, it has been determined that properties such as compressive strength and modulus of elasticity deteriorate with the use of high amount of recycling aggregate (Nyok Yong et al., 2013). Behnood et al. (2015), a 3-algorithm “M5” model was developed to determine the modulus of elasticity of concrete produced with recycled aggregate. The advantages of this model are; consists of simple mathematical expressions and is compatible with other calculation methods. For the development of the model, the data available in the literature were taken into account. It has been reported that the findings obtained from the model approach the true values to a certain extent.

It was determined that the recycled aggregate did not change the concrete performance much, despite the ratios varying between 0% and 100% in the concrete produced with the recycling aggregate, and the cement content was the main factor affecting the concrete performance. For this reason, it has been said that the concrete produced with recycling aggregate can be used in the production of structural elements when it is produced considering a good concrete mixing ratio (Lotfi et al., 2015). Silva et al. (2015), the



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ratio of recycling aggregate including the mixture was examined statistically and the creep behavior of concrete containing recycling aggregate was determined.

It has been determined that there is a significant decrease in mechanical properties with the increase of water cement ratio in concrete produced with recycling aggregate (Lopez-Gayarre et al., 2015). In addition, it has been stated that the strength of concretes with recycled aggregates decreases against thermal effects and there is a linear change between the increase in the recycling aggregate rate and the increase in thermal permeability (Zhu et al., 2015).

According to Tam et al. (2015)'s study, it was observed that the creep and shrinkage values of the concrete samples decreased with the increase in the recycled aggregate ratio in the produced concrete. In addition, it was stated that the effect of water cement ratio and aggregate cement ratio on the creep and shrinkage of the samples could not be determined exactly. In Gonzalez-Taboada et al. (2016), previous studies in the literature were examined with regression analysis and genetic algorithm methods to determine the compressive strength, elasticity modulus and splitting tensile strength of recycled aggregate concrete. In the analysis, both the characteristics of the recycling aggregate and the production parameters were taken into account.

In previous studies (Alyamac and Tugrul, 2014; Tugrul Tunc, 2019a), it has been seen that it is possible to prevent environmental pollution and improve the properties of concrete by using waste marble in concrete production and other related fields. It has been stated that it contributes to the marble industry, the environment, human health and the economy. By evaluating the previous study findings on the subject, formulas have been developed to calculate the compressive strength and splitting tensile strength of recycled concrete.

In the studies in the literature, the mechanical, physical, chemical, biological and durability properties of recycled aggregate concrete have been investigated in general. Most of these studies have stated that if the characteristics of the recycling aggregate obtained from construction wastes are well known and the necessary care is taken, these materials can be used in the production of new concrete.

In order to evaluate the high amount of waste potential created by construction and demolition wastes, studies on this subject in the world have been examined. It is stated that some countries in Europe collect taxes from individuals and institutions that create construction and demolition wastes for the elimination of these wastes (Khalaf and DeVenny, 2004). Aggregate constitutes approximately 55-80% of the concrete used in buildings. The reduction of natural resources, the waste of space resulting from the storage of wastes, the cost of transportation and environmental impacts have made it necessary to use recycling aggregates in recent years. The use of aggregate obtained from recycling is an application that is becoming increasingly common and even mandatory in some places. It is stated that it is mandatory to use recycled aggregate from construction concrete waste in 44 states in the USA (Yılmaz, 2013; Tugrul Tunc and Alyamac, 2019; Tugrul Tunc and Alyamac, 2020).

In terms of both environmental and ecological balances, construction and demolition wastes appear as an important waste source. The elimination of these wastes is done by burying them in designated storage areas in countries and cities that do not have the necessary infrastructure for recycling. A continuous storage area is needed for the disposal process by burying, and these buried materials do not disappear, causing environmental pollution. Due to the continuous construction in Europe and the world, the need for concrete is increasing day by day. On the other hand, approximately 25 million m<sup>3</sup> of concrete is used annually in the newly constructed buildings only for the province of Istanbul in Turkey, and this figure continues to increase every year (Saribaş, 2018).

Curing is of great importance in terms of adequate strength and performance in concrete. Because as it is known; If the evaporation rate of water from the concrete surface exceeds the perspiration rate of the concrete water, plastic shrinkage cracks occur on the concrete surfaces. This will cause an increase in permeability and a decrease in durability in concrete. When the previous studies for concrete production (Tugrul Tunc, 2019b; Tugrul Tunc, 2020) are examined; It is seen that the optimum curing time is 28 days. However, it can be said that while the strength of concrete increases rapidly in the first days, the rate of increase in concrete strength decreases over time. Although the hydration development of the cement depends on its fineness, the proportions of its complex components and whether it contains



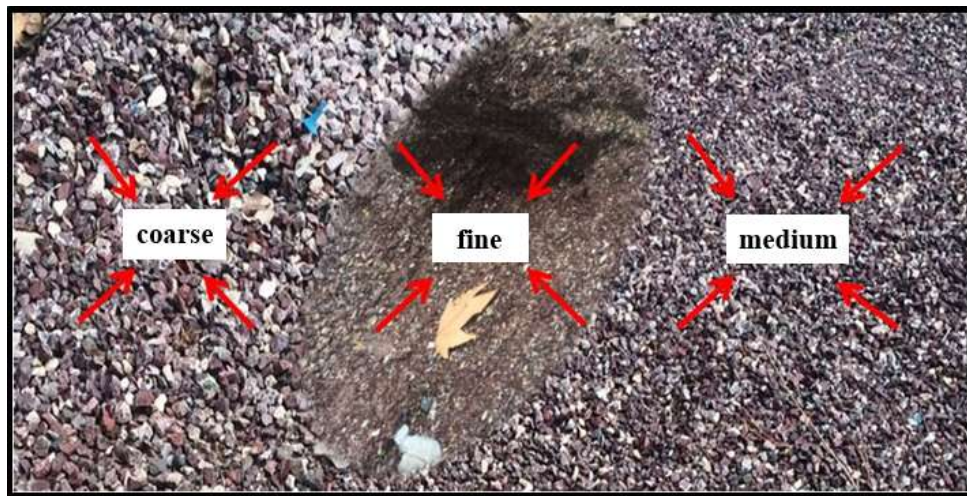
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pozzolans, it can be said that 60-80% of the hydration is completed in the first 7 days; therefore, curing is important especially in the first days (Bakır, 2014).

In the present study, the compressive strength value, which is an important mechanical property of concrete, was measured experimentally for different curing times. Considering the parameters affecting the concrete compressive strength, statistical analyzes were developed to obtain the strength for different curing times by using the up-to-date statistical software IBM SPSS Statistics 22 software. Alacakaya cherry marble aggregate from Elazığ province of Turkey was used to provide environmental and economic benefits in the concretes produced. Considering that the waste of this aggregate is high in the relevant region, it is aimed to produce environmentally friendly economical concrete. Thanks to the highly accurate formulas developed from the present study, it will be possible to determine the concrete mix ratio that will provide sufficient performance without the need for related tests. This situation will provide great convenience in application. The most important elements that distinguish the present study from previous studies in the literature are the use of waste marble aggregate specific to a certain region as recycling aggregate, testing different curing times, and being both an experimental and statistical study.

### 2. Materials and Method

With a total marble reserve of approximately 5.2 billion m<sup>3</sup> (13.9 billion tons), Turkey has 40% of the world's natural stone reserves. With its apparent reserve of approximately 1.6 billion tons, it has the potential to meet the world's need for 80 years with its current speed. Turkey ranks 7th in world marble (natural stone) production and 8th in export (Çetin, 2003). In the current study, cherry marble aggregates from Alacakaya marble quarries in Turkey's Elazığ province were used (Figure 1). Specific weights of aggregate mixtures with the largest particle diameter of 31.5 mm are presented in Table 1, and unit weights and water absorption values are presented in Table 2 (Tugrul, 2015).



**Figure 1.** View of the waste marble aggregate from the nature used in the present study

**Table 1.** Aggregate specific gravity values

$G_{coarse}$	$G_{medium}$	$G_{fine}$
2.71	2.70	2.64

*Table 2. Aggregate unit weights and water absorption values*

Unit Weight			Water Absorption Rate		
$W_{coarse}$	$W_{medium}$	$W_{fine}$	$A_{coarse}$	$A_{medium}$	$A_{fine}$
1.62	1.68	1.63	1.0	1.1	1.8





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In order to examine the variation of curing time and compressive strength in the produced recycled aggregate (RA) concrete samples, cubic samples of 150×150×150 mm were subjected to a compressive strength test in accordance with TS EN 12390-3 standard. A concrete test press with a capacity of 2000 kN was used in this experiment (Figure 2). The samples placed in the device were loaded with a constant speed of 6.8 MPa/sec, their breaking loads were determined and their compressive strengths were calculated using Equation (1).

$$f_c = \frac{P}{A} \quad (1)$$

here;  $f_c$ =compressive strength (MPa),  $P$ =maximum amount of load causing the sample to break (N) and  $A$ =the cross-sectional area of the sample (mm<sup>2</sup>) perpendicular to the direction of load application.



**Figure 2.** Compressive strength test device

The compressive strengths obtained from the study are given as the arithmetic average of 3 concrete samples for each series and the effect of curing time on concrete strength is discussed in detail. In Table 3, the relevant dimensionless parameters used in the statistical method of the recycled aggregate concrete (RC) samples produced in the current study are presented. The tests were carried out considering the cement content constant  $C=400 \text{ kg/m}^3$  and three different curing times (7, 28 and 56 days).

**Table 3.** Relevant parameters of the recycled aggregate concrete samples used in the developed statistical method

<i>W/C</i>	<i>RA/C</i>	<i>t<sub>curing</sub></i> (day)
0.38	4.6	7, 28, 56
0.40	4.6	7, 28, 56
0.42	4.5	7, 28, 56
0.45	4.4	7, 28, 56
0.55	4.2	7, 28, 56
0.60	4.0	7, 28, 56



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### 3. Results and Discussion

In the current study, considering different parameters for recycling concrete, 6 series concrete mixes, 3 different curing times, 3 samples were produced and a total of 54 samples were tested. Considering the average of the compressive strength values of 3 samples produced for each batch and each curing period, 18 experimental results were obtained. Then, Equation (2) was developed with a non-linear regression model using IBM SPSS Statistics 22 software. It was taken care to develop the equation that gives the most practical and most accurate result by making analyzes in the software in question.

$$f_c = 0.066 \times \left(\frac{W}{C}\right)^{-5.34} + 2.018 \times \left(\frac{RA}{C}\right)^{-17.54} + 13.48 \times (t_{curing})^{0.27} \quad (2)$$

Figure 3 presents the SPSS software findings. The draft of the equation developed according to Figure 3(a) and the coefficients (X1, X2, ..., X6) are shown. The statistical values and standard deviation values of the relevant coefficients were determined by analyzing in the program (Figure 3b).

\* NonLinear Regression.

```
MODEL PROGRAM X1=0.001 X2=0.001 X3=0.001 X4=0.001 X5=0.001 X6=0.00
COMPUTE PRED_=(X1 * WC ** X2) + (X3 * RAC ** X4) + (X5 * TC ** X6)
NLR FC
/OUTFILE='C:\Users\Dell\AppData\Local\Temp\spss2568\SPSSFNLR.TMP'
/PRED PRED_
/CRITERIA SSOCONVERGENCE 1E-8 PCOON 1E-8.
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(a)

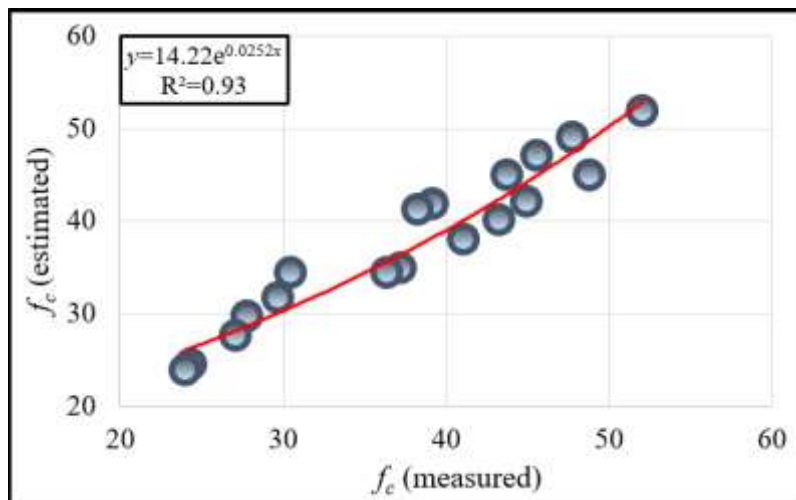
Parameter Estimates

Parameter	Estimate	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
X1	,066	,000	,066	,066
X2	-5,340	,036	-5,419	-5,261
X3	2,018	,000	2,018	2,018
X4	-17,539	,219	-18,016	-17,062
X5	13,475	2,497	8,035	18,916
X6	,272	3,285	-6,885	7,429

(b)

**Figure 3.** SPSS program outputs: a) forming of the equation, b) estimation of the coefficients by the program

In Figure 4, the variation of the compressive strength values obtained with the developed equation with the experimentally measured compressive strength values is presented. As can be seen; there is a near-perfect agreement between the estimated  $f_c$  values and the experimental  $f_c$  values. Calculation of the coefficient of significance as  $R^2=0.93$  is a clear indication of this situation.

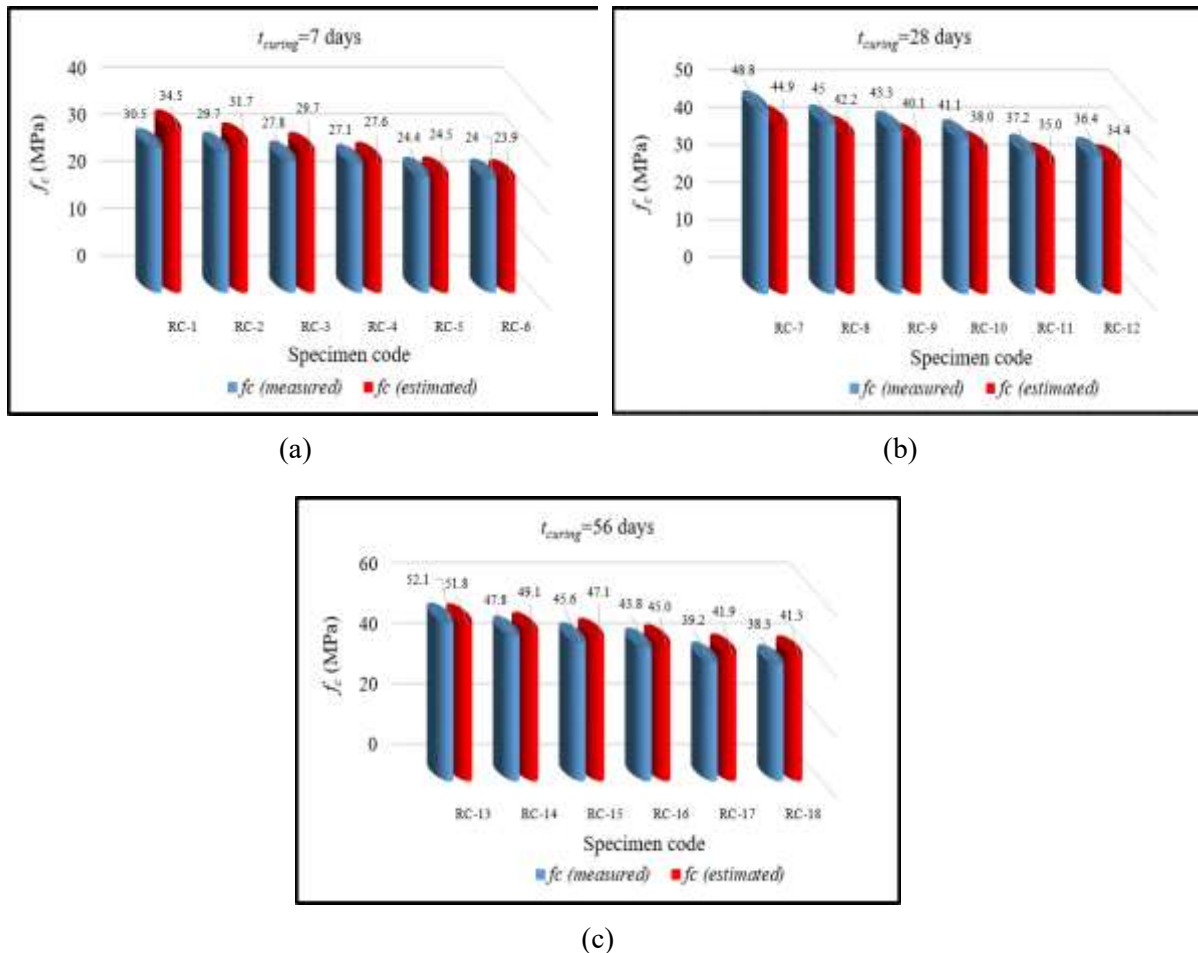


**Figure 4.** Variation of estimated  $f_c$  values with experimental  $f_c$  values



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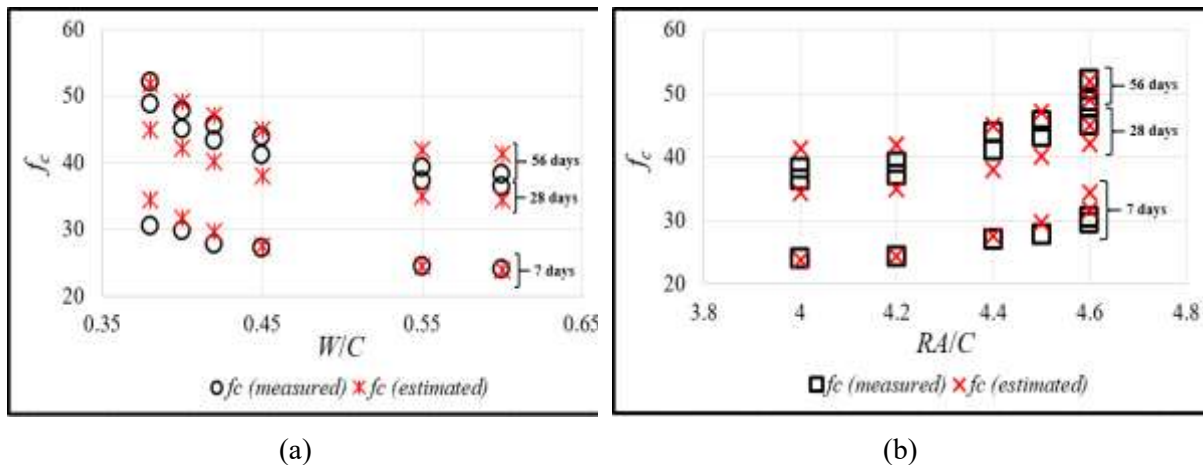
In Figure 5, the  $f_c$  values measured and the estimated  $f_c$  values are presented together for concrete samples with a curing time of 7 days ( $t_{\text{curing}}=7$ ), a curing time of 28 days ( $t_{\text{curing}}=28$ ), and a curing time of 56 days ( $t_{\text{curing}}=56$ ). In Figure 5(a), it has been calculated that there is an average of 5% variation between the measured  $f_c$  and the estimated  $f_c$  for concrete samples with a 7-day curing time. In addition, it is seen that the rate of change increases at higher values of compressive strength. In Figure 5(b), it has been calculated that there is an average of 7% variation between the measured  $f_c$  and the estimated  $f_c$  for concrete samples with a 28-day curing time. In Figure 5(c), it has been calculated that there is an average of 3% variation between the measured  $f_c$  and the estimated  $f_c$  for concrete samples with a 56-day curing time.



**Figure 5.** Both measured and estimated  $f_c$  values for different curing times: a) for  $t_{\text{curing}}=7$  days, b) for  $t_{\text{curing}}=28$  days, c) for  $t_{\text{curing}}=56$  days

In Figure 6(a), it is seen that with the increase of the water-cement ratio ( $W/C$ ), both the measured and estimated  $f_c$  values decrease linearly and approach the asymptote. It can be said that there is a decrease in approximately the same trend for three different curing periods. In Figure 6(b), it is seen that with the increase of the recycling aggregate-cement ratio ( $RA/C$ ), the  $f_c$  values increase almost linearly and approach the asymptote. It can be said that there is an increase in approximately the same trend for three different curing periods. An average of 54% increase was calculated in the transition from 7-day  $f_c$  values to 28-day  $f_c$  values. An average of 6% increase was calculated in the transition from 28-day  $f_c$  values to 56-day  $f_c$  values. This situation clearly reveals that the first week and even the first 28 days are very important for concrete to gain sufficient strength.





**Figure 6.** Variation of  $f_c$  values with related parameters: a) Variation with  $W/C$ , b) Variation with  $RA/C$

#### 4. Conclusions

The conclusions drawn from the present study are summarized below.

- The compressive strength value, which is an important strength property of concrete, was measured experimentally for different curing times.
- Considering that the waste aggregate used in the produced concrete is excessive in the relevant region, it is aimed to produce environmentally friendly and economical concrete.
- Taking into account the parameters affecting the concrete compressive strength, a formula was developed with a non-linear regression model to obtain strength for different curing times by using the up-to-date statistical software IBM SPSS Statistics 22 software.
- Care was taken to develop the equation that gives the most practical and most accurate result by making analyzes in the software in question.
- There is a near-perfect agreement between the estimated  $f_c$  values and the experimental  $f_c$  values by the current developed equation. The coefficient of significance was calculated as  $R^2=0.93$ .
- It has been calculated that there is an average of 5% variation between the measured  $f_c$  and the estimated  $f_c$  for concrete samples with a curing period of 7 days.
- It has been calculated that there is an average of 7% variation between the measured  $f_c$  and the estimated  $f_c$  for concrete samples with a 28-day curing period.
- It has been calculated that there is an average of 3% variation between the measured  $f_c$  and the estimated  $f_c$  for the concrete samples with a curing time of 56 days.
- It is seen that with the increase of the water-cement ratio, both the measured and estimated  $f_c$  values decrease linearly and approach the asymptote.
- As the recycling aggregate-cement ratio increases, the  $f_c$  values increase linearly and approach the asymptote.
- An average of 54% increase was calculated in the transition from 7-day  $f_c$  values to 28-day  $f_c$  values. An average of 6% increase was calculated in the transition from 28-day  $f_c$  values to 56-day  $f_c$  values. This situation clearly reveals that the first week and even the first 28 days are very important for concrete to gain sufficient strength.
- It will be possible to determine the mix ratio for the concrete that will provide adequate performance without the need for tests related to the reliable formula developed from the current study. This situation will provide great convenience in application.



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### INVESTIGATION OF BENDING DAMAGE BEHAVIOR OF NOMEX HONEYCOMB COMPOSITE SANDWICHES WITH E-GLASS/CARBON HYBRID FACE-SHEET

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#### **Abstract**

Nomex honeycomb core structures based on aramid material are preferred for use in sandwich composites, especially in the aerospace and defense industries, due to their ultra-lightness and strength. Fiber-reinforced composite face-sheets are used in sandwich panels to provide ultra-lightness and high bending rigidity and strength. The most preferred sandwich face-sheets in composite sandwiches are carbon and glass reinforced laminated composites. In cases where adequate strength conditions are provided, the use of carbon-reinforced composite face increases the costs in sandwich panels. Therefore, hybridizations can be made with different fiber types in the layers of composite faces to create an alternative. The main purpose of this study is to examine the bending and damage behavior of sandwich composites with Nomex core structure by hybridizing E-glass fiber and carbon fiber fabrics for laminated faces. Three different samples were produced for the upper and lower surfaces of Nomex honeycomb composite sandwiches as three-layer glass(3G), two-layer carbon and single-layer glass(2C/G), single-layer carbon and two-layer glass (C/2G). The use of DGEBA epoxy resin was preferred as the matrix material. Composite sandwich samples were produced by hand-layup and hot pressing method. Three point bending tests were applied to the samples prepared according to the ASTM standard. As a result of the experiments, hybridized samples were compared with E-glass/Nomex honeycomb composite sandwich as reference sample. Damages occurring at the face/core interface, core, and the layers of hybridized faces of sandwich samples were detected and examined with macro and micro images. The effects of face-sheet hybridization on flexural strength and damage behavior were determined.

**Keywords:** Composite Sandwich, Nomex Honeycomb, Bending Behavior, Damages.

#### **INTRODUCTION**

Sandwich structures are used in many fields of advanced technology industry due to their advantages such as low density, ultra lightness, very high rigidity and strength. Sandwiches consist of two thin faces and core material. Surfaces can be composite or metal in general. Cores vary in geometry and material type. The geometric structures of the cores can be in the form of lattice, honeycomb and foam. Sandwich cores can be metal-based, polymer-based and natural materials. Generally, aluminum as metal-based core material, PVC and PU as polymer-based core materials, and balsa wood as natural core material are used (Foo, Chai, & Seah, 2007; Han et al., 2016; Ramnath, Alagarraja, & Elanchezhian, 2019; Usta, Türkmen, & Scarpa, 2021; Wang, Saito, Gotou, & Okabe, 2019; Yin, Wu, Ma, & Nutt, 2011). In addition to the specified core materials, there are also polymer-based Nomex honeycomb core structures containing Nomex fibers.

Nomex composite sandwiches are used in many areas of aviation, space, automotive, high speed trains and boats, ship structures and defense industry. It is used as a structural integrity material in aircraft, especially on floors, doors, wings and rudders, due to its advantages. The reasons why Nomex honeycombs are mostly used in these areas are that they are ultra-light, have high corrosion resistance, provide heat, sound and electrical insulation as well as being flame retardant, resistant to environmental conditions, and exhibit perfect rigid/weight, energy absorption, and fatigue strength performances. In addition to these, it is very important that they form a good interface with the face materials and that they are compatible. Honeycombs are produced by sticking Nomex papers in different sequences to



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create the hexagonal geometry. The sticking of Nomex papers is done with epoxy. In order to form the honeycomb shape, the phenolic resin is dipped and curing process is performed. Nomex paper is aramid based material and consist of Nomex fibers (Ahmad et al., 2020; Karakoç, Santaoja, & Freund, 2013; Kim & Lee, 1997; Liu, Meng, Wang, & Guan, 2015; R Roy, Nguyen, Park, Kweon, & Choi, 2014; Rene Roy, Park, Kweon, & Choi, 2014). Some studies on Nomex honeycomb are presented below.

Liu et al. (2015) analyzed the tensile and compression characteristics of Nomex honeycomb cores experimentally and theoretically. As a result of the studies, they stated that the phenolic resin is effective in determining the brittle behavior damage in Nomex cores coated with resin. They determined that the resin coating provided an important effect in increasing the strength of Nomex cores, but it created a disadvantage in the case of strain(Liu, Wang, & Guan, 2015). Xie et al. (2020) examined the impact behavior of Al/Nomex honeycomb structure. They observed that the experiments revealed that the face thickness had an essential role on the impact behavior for the Nomex sandwich. They stated in their study that Nomex core density was another important factor on the stiffness of sandwiches (Xie, Jing, Zhou, & Liu, 2020). Zhang et al (2018) characterized the compression behavior of Nomex honeycombs preferred for aerospace applications. In their study, they examined the damage to the cell walls coated with phenolic resin. They determined the effects of phenolic resin on Nomex papers(Zhang, Liu, & Tizani, 2018). Xie et al (2021) determined the three-point bending behavior of Nomex honeycomb sandwiches with aluminum face plates and characterized the bending damage. They stated that the face and Nomex thicknesses were important factors in characterizing the bending behavior. They found that cell wall thickness was an important factor in theoretical analysis (Xie, Feng, Zhou, & Wang, 2021).

Depending on the application areas, the use of carbon fiber reinforced (CFR) composites is costly from time to time. In order to decrease the carbon composite cost and to provide sufficient strength from composite products, hybrid applications are carried out in fiber reinforcements. In these hybridizations, which vary according to the production method, the most preferred application is the hybridization of interlayer fiber fabrics (Kanitkar, Kulkarni, & Wangikar, 2017; Pandya, Veerajju, & Naik, 2011; Rajpurohit, Joannès, Singery, Sanial, & Laiarinandrasana, 2020).

Song (2015) made interlayer hybridization with carbon fabrics, aramid and glass fabrics in six different configurations as two different groups. As a result of the tensile tests they applied to the composites in two different hybrid groups, it was determined that the carbon fabrics exhibited better tensile behavior than other hybrid composites in hybridizations made in the middle region(Song, 2015). Wu et al. (2018) manufactured the inter-layered and intra-layered carbon/glass hybrid composite. The tensile and compression characterizations of the hybrid composites obtained as a result of the productions were investigated. The results demonstrated that the tensile and compressive strengths of the hybrid composites progressed by increasing of the carbon content(Wu, Wang, & Li, 2018). Nagaraja et al. (2020) made hybridization of carbon and glass fabrics in composites with two different layer sequences. It was determined that hybrid composites with outer carbon fabric exhibit higher tensile and bending strength values than hybrid composites with outer glass fabric (Nagaraja, Rajanna, Prakash, Koppad, & Alipour, 2020).

Considering the studies carried out, the fact that the strain values of glass fibers are higher than carbon fibers contribute different mechanical properties to hybrid composites. This situation also affects the damage mechanism densities and types(Badie, Mahdi, & Hamouda, 2011; Nagaraja et al., 2020; Naito & Oguma, 2017).

In this study, it was aimed to characterize the three-point bending behavior of Nomex honeycomb cores by hybridizing carbon and glass to the upper and lower face-sheet composite layers. The effects of glass composite faces on the three-point bending results of Nomex hybrid composite sandwiches hybridized with carbon fabrics, and the damage on Nomex core and hybrid composite faces were determined. Dominant damages on hybrid composite faces were determined in Nomex sandwiches.

### MATERIALS AND METHODS

In this study, the effects of glass and carbon composite face-sheets on the bending and damage characterizations of Nomex sandwiches were investigated. In the conducted research, the use of Nomex honeycomb was preferred as the core material of the composite sandwiches. Nomex honeycomb has a hexagonal structure with a diameter of 3.2 mm. The Nomex core height is approximately 10 mm. Carbon





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fabric (245 twill gr/m<sup>2</sup>) and e-glass fiber fabric (300 gr/m<sup>2</sup>) were used as the face material of the sandwiches. DGEBA epoxy (Hexion LR 160), matrix was chosen as the matrix material of the interface adhesive and composite faces. The hardener (LH160) at %25wt ratio was stirred with epoxy during 5 min for the hardening process. It was decided to use three-layers of fabrics on the composite faces of Nomex sandwiches. Three different Nomex composite sandwich samples were produced. Samples of Nomex sandwiches with composite faces of three layers of glass (3G) reference composite sample, two-layers of carbon and single-layer of glass (2C/G) hybrid composite sample, single-layer of carbon and two-layers of glass (C/2G) hybrid composite sample were produced for top and bottom faces.

Epoxy wetted glass, glass/carbon hybridized three-layer fabrics were placed on the upper and lower faces of the Nomex honeycomb using the hand layup method. Then, pre- and post-curing processes were applied under 5 bar pressure, respectively, and 3G/Nomex, 2C/G hybridized Nomex and C/2G hybridized Nomex sandwich plates were produced (Pre-cure: 90°C-1h, Post-cure: 120°C-2h). Three point bending samples were prepared from the produced sandwiches in accordance with ASTM C393/C393M-16 standard. The produced Nomex hybridized composite sandwich plates are given in Figure 1. Samples prepared according to ASTM standards are shown in Figure 2.

Three-point bending tests were performed on a Shimadzu AGS-X 100kN test device at the bending speed of 5 mm/min with respect to ASTM C393/C393M-16 standard. Performed test images are given in Figure 3 and Figure 4.



Figure 1. 3G/Nomex, 1C/2G and 2C/1G Hybrid/Nomex composite sandwich samples

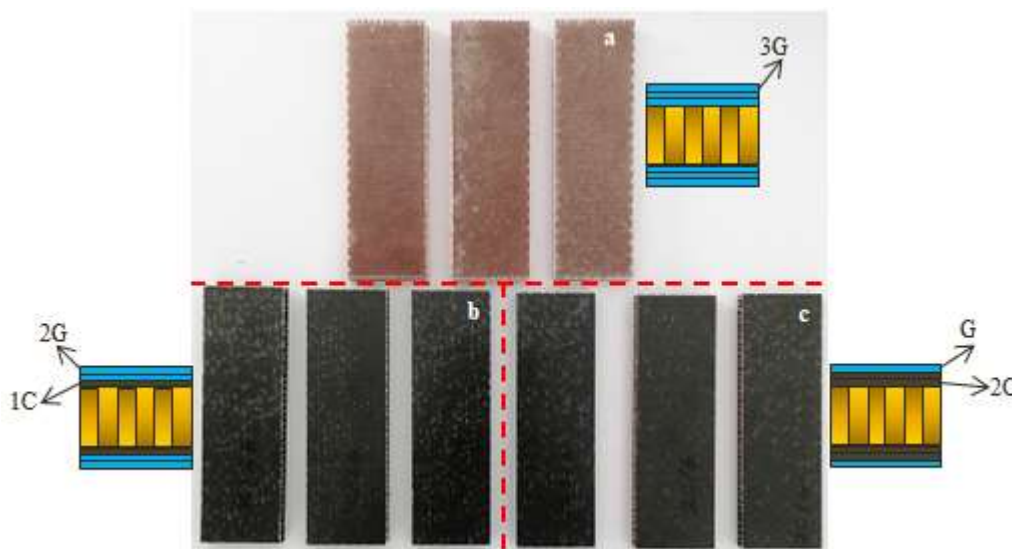
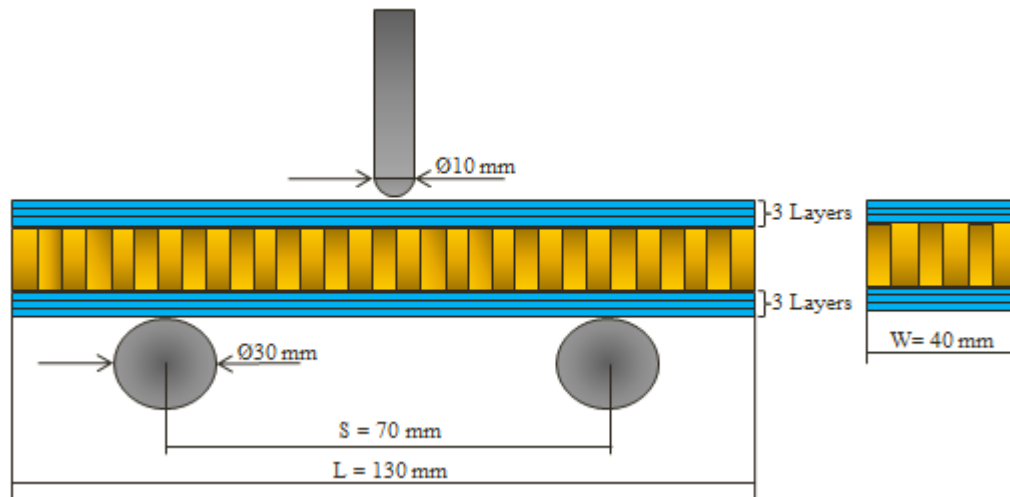
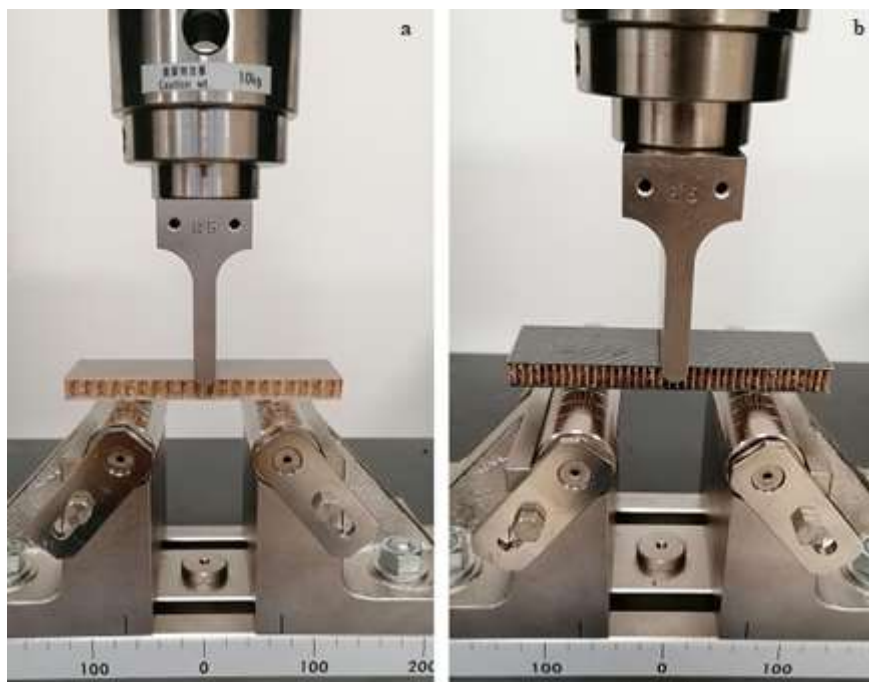


Figure 2. Three-point bending samples of 3G/Nomex (a), 1C/2G (b) and 2C/1G Nomex (c) hybrid composite sandwich





**Figure 3.** Schematic representation of the three-point bending test of Nomex sandwich samples

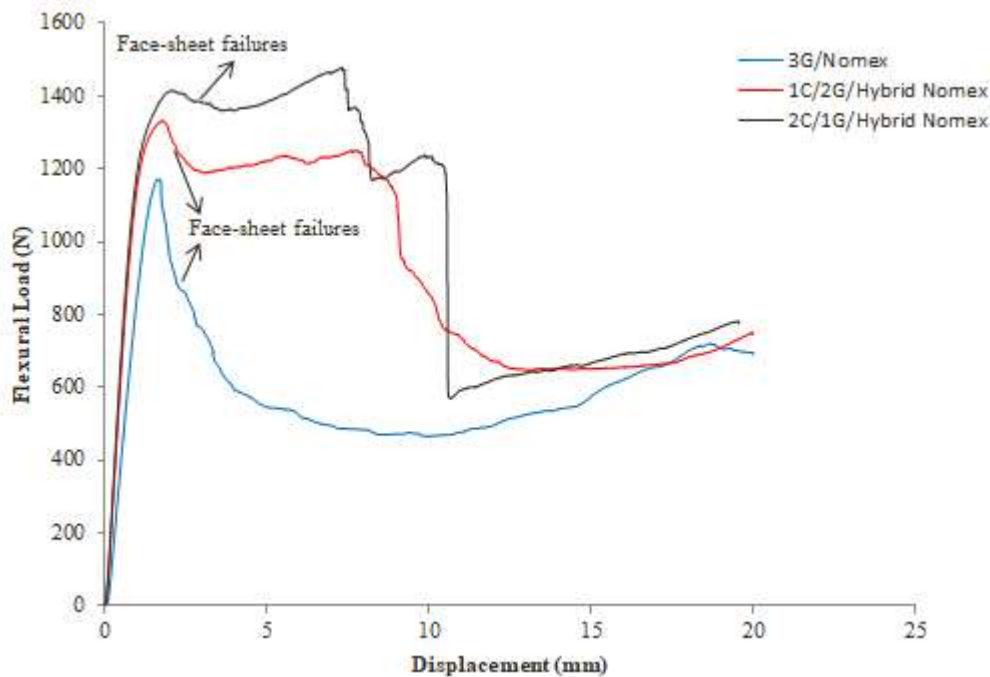


**Figure 4.** Three-point bending tests of Glass/Nomex (a) and Glass/Carbon Nomex (b) hybrid sandwich samples

## EXPERIMENTAL RESULTS

Graphic curves obtained from the three-point bending test results of 3G/Nomex, 1C/2G and 2C/1G Hybrid/Nomex composite sandwich specimens are presented in Figure 5.





**Figure 5.** Flexural load-displacement curves of 3G/Nomex, 1C/2G and 2C/1G Nomex hybrid samples

When Figure 5 was observed in detail, sudden force drops were observed in the flexural bending load curves of 3G/Nomex samples after reaching the maximum load value. It can be observed that there is a slow and gradual loss of load after the maximum load value in Figure 5 for 3G/Nomex sample. It was determined that the highest load loss after the maximum load value was in the 3G/Nomex samples.

If it is desired to examine the flexural bending load-displacement curves in three sections, the first section is the section where the composite sandwiches exhibit rigidity until the maximum load. The second section is the section where the core and composite face layers are generally formed, and the third section can be expressed as the section where the core damage is concentrated. It was also seen in 1C/2C and 2C/1G/ Nomex hybrid samples that were slow at load after maximum load. However, it was determined that the loss in load decreased after the maximum load with the increase of carbon layers. It was determined that the least load loss occurred in 2C/1G/Nomex hybrid samples after the maximum load. The ability to change the flexural strain properties of composite reinforcements, in other words, the flexural strain properties gains importance. It is thought that the losses in the load after the peak load are caused by the damages on composite faces. Damages on faces are generally debonding, interlayer delamination and local fiber breakage. Sudden loss of load after maximum load may indicate face/core delamination damage. It was determined that two separate peak load points were formed in 2C/1G Nomex hybrid samples, as seen in Figure 5. Here, it can be stated that the increasing of carbon layers and the hybridization of the composite sub-faces with the carbon layers increase the structural rigidity of the Nomex sandwich samples. In other words, it can be interpreted that as a result of the damages on the upper faces, the load carrying capacities of the upper composite faces is lost and the lower face layers are trying to meet the load. It is thought that the load increase in the third section of curve is due to the crushing of core and the lower surface trying to lift the load. The highest maximum bending force value was determined in 2C/G/Nomex samples. Approximate mean values of experimental results are presented in Table 1.

**Table 1.** Approximate mean values of experimental results

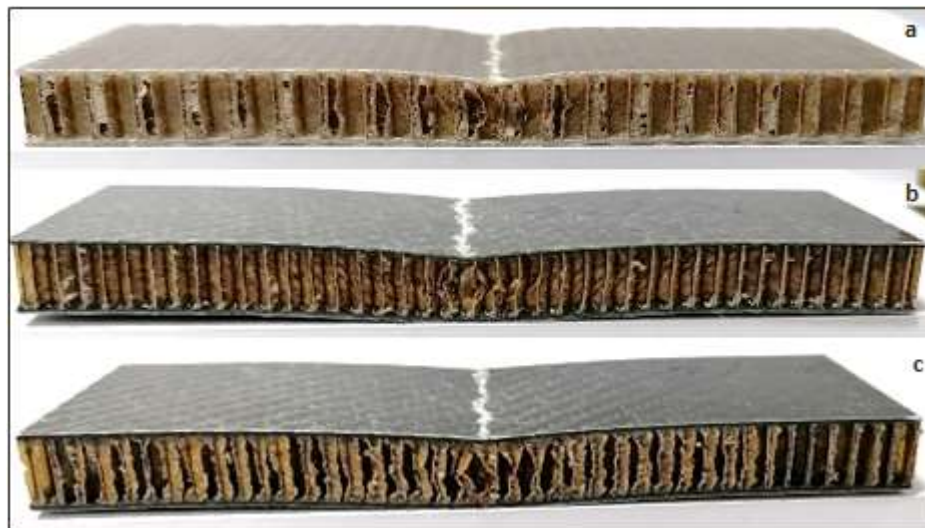
	<b>3G/Nomex</b>	<b>1C/2G/Nomex</b>	<b>2C/1G/Nomex</b>
<b>Bending Load(N)</b>	1203	1379	1511
<b>Deviations</b>	29,7	18,1	36.1



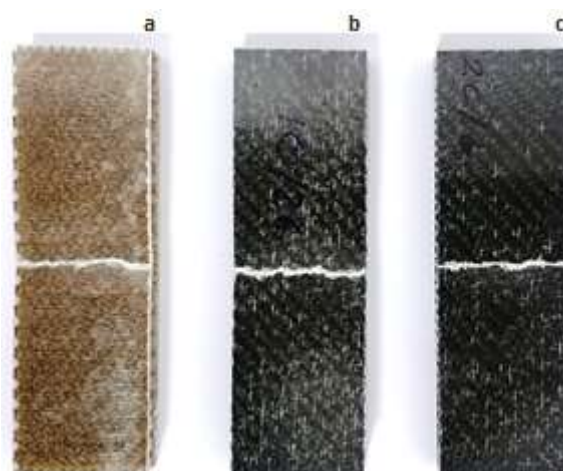
### DAMAGE ANALYSIS

In Figure 6, damaged macro images of 3G/Nomex, 1C/2G and 2C/1G/Nomex hybrid samples are given at the end of the experiments. Macro images of the damaged composite upper and lower faces of the test specimens are presented in Figure 7 and Figure 8, respectively. While damages were observed on the upper faces of all the samples, damage was only observed on the lower faces of the 3G/Nomex sample.

As a result of hybridization of 1C/2G and 2C/1G/Nomex hybrid samples with a carbon layer on their lower surfaces, it was determined that there was no damage on surfaces. It was interpreted that the most important factor in the absence of damage on the surfaces was the increase in the structural rigidity and bearing capacity of the sandwich structure as a result of hybridization with carbon. The micro image of the 3G/Nomex sample damage under bending load is presented in Figure 9. The buckling and crushing damages in the Nomex core structure are observed in Figure 9a. Delamination and fiber breakage damages on 3G upper faces are observed in Figure 9b. As seen in Figure 9c, it was detected that delamination damages occurred on 3G lower faces. At the same time, embedded Nomex fibers can be observed on the Nomex honeycomb core cell walls (Figure 9c). Microstructure images of 1C/2G/Nomex hybrid samples are presented in Figure 10. The effect of hybridization with carbon fabrics can be easily observed on Nomex core walls. It is determined in Figure 10a that there are buckling damages rather than crushing damage in the Nomex honeycomb cell walls. As the face damages of the hybrid sample is examined in Figure 10b, fiber breakage and delamination damages are seen in the glass layers. Delamination damages were also detected at the interface of the glass and carbon layers.



**Figure 6.** Macro images of 3G/Nomex (a), 1C/2G (b) and 2C/1G/Nomex (c) hybrid samples



**Figure 7.** Upper faces of 3G/Nomex (a), 1C/2G (b) and 2C/1G/Nomex hybrid (c) samples



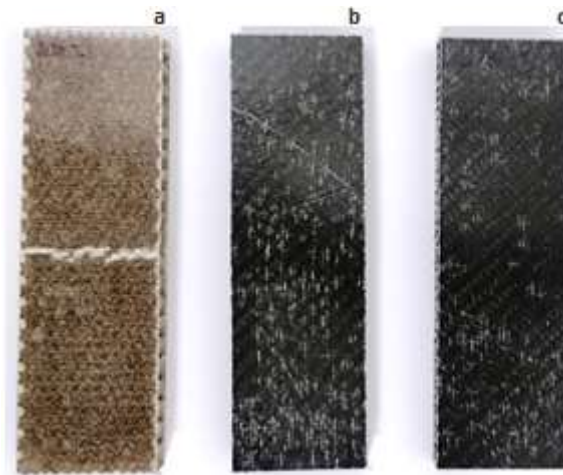


Figure 8. Bottom faces of 3G/Nomex (a), 1C/2G (b) and 2C/1G/Nomex hybrid (c) samples

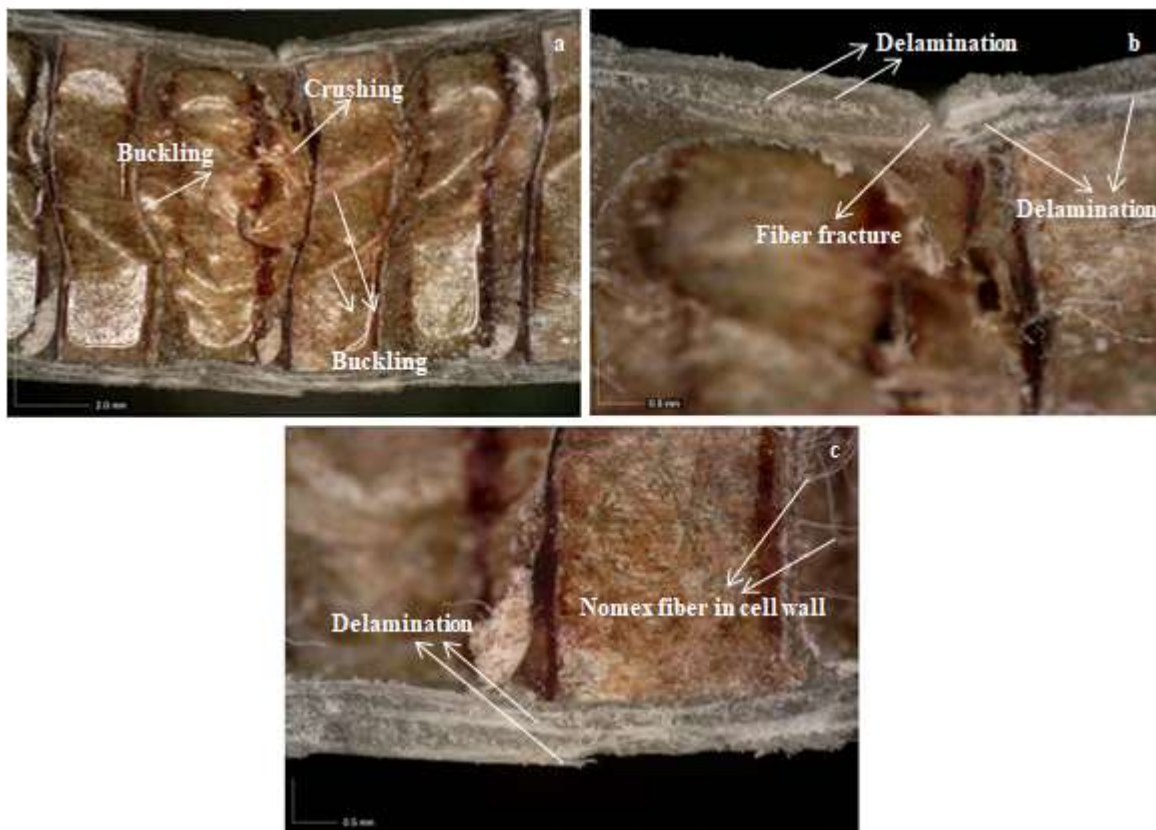
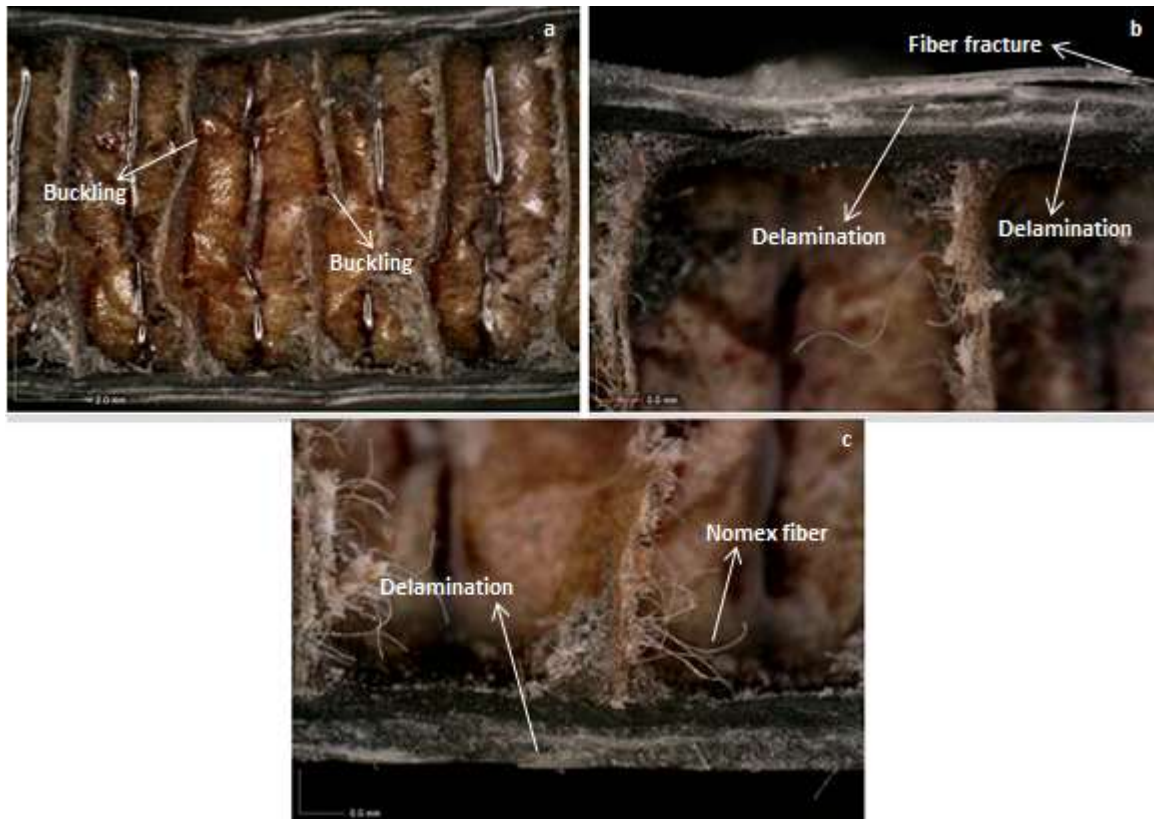


Figure 9. Micro images of 3G/Nomex sample



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**Figure 10** Micro images of 1C/2G/Nomex hybrid sample



**Figure 11.** Micro images of 2C/1G/Nomex hybrid sample

Damages in the 2C/1G/Nomex hybrid sample are shown in Figure 11. It was observed that buckling damages in the Nomex core structure spread with the increase of hybridization with carbon fabrics.



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However, crushing damage could not be detected. It is thought that this situation increases the load carrying capacity with the increasing of carbon layers on the hybrid faces and prevents the condensation of the damages on the Nomex core walls under the bending load and causes the load to spread by increasing the sharing on the cell walls. It can be interpreted that increasing the number of hybridization of faces with carbon increases the structural integrity and rigidity of Nomex composite sandwiches. It is considered as a very important key inference that carbon layers on hybrid faces increase the carrying capacity by allowing the load to spread in the Nomex cell walls.



**Figure 12.** Embedded Nomex fibers in Nomex paper

In the micro images given in Figure 12, Nomex fibers embedded in Nomex paper cell walls are thought to be an important factor in improving the structural integrity, rigidity of composite sandwiches and the interfacial strength between the upper and lower composite faces. It is thought that it makes significant contributions to the achieving of structural integrity by increasing the micro-locking and adhesion interface between the face/core.

### CONCLUSION

In this study, it was aimed to investigate the effects of carbon reinforcement on bending behavior by hybridizing E-glass faces with carbon fiber reinforcement in Nomex honeycomb composite sandwiches. Three point bending tests were applied to 3G/Nomex, 1C/2G and 2C/1G/Nomex hybrid specimens. Obtained results and comments are briefly summarized below.

When the experimental results were evaluated briefly, it was determined that the maximum bending loads of Nomex sandwiches increased with the increasing of carbon layers. It was thought that the strain values of E-glass fiber reinforcement higher than carbon as known were reflected in the load-displacement graphs. Maximum load values were found in 2C/1G/Nomex hybrid samples. It was determined that crushing and buckling damages intensified in the 3G/Nomex samples. It was determined that as the number of carbon layers in the hybrid Nomex samples increased, the buckling damage decreased but spread. The spreading of buckling damage on Nomex core cells with carbon reinforcement is an important consequence, and is thought to be an essential consequence in maintaining structural rigidity. It was defined that the densification of crushing and buckling damages increased the load value. While fiber breakage and delamination damages were effective on the composite surfaces of 3G/Nomex samples, it was determined that delamination damages were effective on hybrid composite faces.

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### FANTASTIC SPACES, IN THE WORKS OF SALVADOR DALI AND HIS WORK ON LEWIS CARROLL'S BOOK "ALICE IN WONDERLAND"

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#### ABSTRACT

The aim of this study is to make a research in general for fantastic space in Salvador Dali's fantastic works and in particular his works on book illustration. Salvador Dali, one of the cornerstones of surreal art and fantastic space; that has left its mark on the last century with its unique usage of form, understanding of subject and his compositions based on imagination. Many valuable artists such as Stuck, Böcklin, Kahlo, Klimmt, Wyeth were also interested in fantastic art. It is also possible to examine Dali's works under fantastic art. Although Lewis Carroll's "Alice in Wonderland" is a children's book, it has been the subject of many operas, ballets, films, paintings, and many other perceptual-conceptual works of art and has also been read by adults.

Salvador Dali has also worked in different fields such as hat design, furniture design, industrial product design. His book illustration for the book "Alice in Wonderland" is one of them. In this work, while abstract forms are combined with markers, he also constructs the story from his own point of view by ascribing meanings to the independent colors he uses. Owl, playing card, butterfly, tree, insect, young girl, snake, house, hand, centipede, mushroom, bird are some of these markers.

The imaginative point of view opens the doors of new worlds to the followers of these art products. The artist Charles Ludwidge Dodgson, nicknamed Lewis Carroll is a phenomena in the field of fantastic literature and Dali is a phenomena in perceptual-conceptual art works and fantastic art. Today, fantastic art, which rests on surrealistic foundations, is important because it forms a basis for the technologies and works of art of the future.

**Keywords:** Fantastic Art, Salvador Dali, Alice in Wonderland

#### INTRODUCTION

It is possible to come across fantastic places in many works produced with surreal, surreal, hyperrealistic, cubist, cyberpunk, stonepunk, steampunk (Kahraman&Kavut,2021) and similar understandings. These fictional spaces, which are the product of imagination and creativity, are mostly products created by the original perspective of the designer. Objects in these spaces carry symbolic and imaginary values as well as their real meanings. Fantastic spaces are included in the fiction for the same purpose as the artist resorts to fantastic elements (Yılmaz, 2011). Color is an important element in fantastic architecture. (Vostel&Higgins, 2019)



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There are universally well known artists who focused on fantastic art in history of art as Stuck, Böcklin, Kahlo, Klimt, Wyeth, Ernst, Magritte, Goya, Picasso and etc. Fantastic art is timeless, but since the beginning of contemporary art movements, it is possible to talk about more examples in this period due to the socio-political environment where the artist can be more independent. Fantastic art was first introduced in 1936 (MoMA), New York by curator and director Alfred Barr, jr. (Baudin, 2017) Science fiction establishes the deepest relationship with architecture among fiction genres. Fritz Lang's Metropolis is a turning point in this sense. (Serato-Combe, 2003) Surrealism is a style of thought. (Kalebek&Sayar, 2021) This style of thought is turned into an art movement that depends on fantastic art. It is also possible to examine Dali's works under fantastic art with his surrealist line of vision.



Pic. 1: Gustav Klimt, “The Kiss”(Url-1) Pic. 2: Frida Kahlo “Two Fridas”(Url-2)

Some examples of fantastic art

Salvador Dali has also worked in different fields such as hat design, furniture design, industrial product design. (Demirarslan&Demirarslan,2021) The lip sofa, which he created as a furniture design for the film artist Mae West, was adopted by the designers and produced as different versions and replicas. He also worked as an interior architect in the decoration of this movie artist's house. The Lobster Phone, which he designed for the English poet Edward James, is one of his fantastic industrial design works. He is also interested in fashion design with his magnificent hat designs. It was especially an earlier example of today's multi-disciplinary designers and artists. Although the subjects and compositions in his paintings are fantastic and surreal, the objects and figures are remarkably defined and the lines are clear. One of his best-known paintings, "The Persistence of Memory" has a fantastic depiction of nature and melting clocks. In another painting “Two Pieces Of Bread Expressing Sentiments Of Love” there is a fantastic depiction of a desert. The main objects are two pieces of bread, one of which consists of two pieces, the other one and drier than the first. Love is characterized by two different forms of bread and the silhouettes of men and women at the top abstracted detailly. Another painting reviewed for this article is the artist's Living Still Life. In this painting, objects such as plates, bowls, bottles, which are generally seen in all still lifes, are encountered. All materials of this objects are defined. Fruits, birds and leaves represent vitality. There is a table, balcony bars and a fictional space made of sea view. Unlike their counterparts, these objects are not constant and they are depicted in a flying extraordinary form.



Some of Dali's Paintings

Pic 3: “The Persistence of Memory” (Url-3), Pic 4: “Two Pieces Of Breed Expressing Sentiments Of Love” (Url-4) Pic 5: “Living Still Life”(Url-5)



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The famous writer, known as Lewis Carroll, whose real name is Charles Lutwidge Dodgson, was born in England in 1832 to a very large Anglican family. (Cohen,2015) One of the most important children's classics of English literature, Alice in Wonderland, owes its success and fame to the drawings of illustrator Sir John Tenniel, who was awarded the title of knight for his artistic achievements as well as Carroll. (Hancher, 2019) In particular, it is necessary to mention the designer Mary Blair in Walt Disney's 1951 musical cartoon adaptation, which will be evaluated as a depiction of modern Alice. (Bauer,2019) Although Lewis Carroll's "Alice in Wonderland" is a children's book, usually it has been adopted to opera, ballet, film, painting and many other perceptual-conceptual art products and accepted by adults as well. The main fictional characters of this book are Chesire Cat, White Rabbit, Hatter, Queen of Hearts, King of Hearts, Liar Turtle, Caterpillar and Alice. Some of the fictional locations in story are the dimly lit black forest and the boiling sea, the enchanting Boro Grove, the floating prison which is also Jafar's habitat, a swamp of sticky objects, the residence and castle of the Queen of Hearts, Tulgey and Whisper forests, Rabbit hole, Pit and the Hatter's house and wonderland. Aboveground and underground spaces are available. In this respect, it is an early example of world fiction.



Pic.6: Sir John Tenniel's Alice (Url-6) Pic. 7: Disney's Alice in 1951 designed by Mary Blair (Url-7)

Some Alice Designs

### MATERIALS AND METHODS

In this study, qualitative methods and scanning model were used. Official websites of institutions and organizations such as Teatre-Museu Dalí (Spain), Salvador Dalí Museum (USA), Gala - Salvador Dalí Museum (Spain) were examined and images related to the subject were analyzed. In addition, a literature study was conducted for this research.

### RESULTS

Salvador Dalí has an illustration for the book "Alice in Wonderland" and its cover. This book is published in Turkish by Bilgi Yayınları in Turkey in 2021 under the license of the Gala-Salvador Dalí Foundation and it is edited by Biray Üstüner. In 1968, a publisher agreed with Dalí for an illustration of his Alice book. The original drawings were made upon this agreement. In this work, the forms are presented in an abstract, humorous language and in a childish style that carries Dalí's point of view. Figures are placed in color-based compositions by undergoing size and perspective deformations. Various meanings have been attributed to these colors and the color has come to the fore in the expression of the figures.



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Pic 8: Sir Tenniel's and Dali's Illustration (Url-8)

The illustration of the first episode, where Alice encounters the hasty rabbit and then begins to fall into the rabbit hole, features a large white rabbit with yellow, green and orange contour lines, and a linear Alice. In the story, after the fall Alice comes to a fictional hall with locked doors and a golden key on a glass table in the middle of the room. Later, the girl realizes that this key belongs to the door of a small hole in the room. She drinks the potion in the bottle and shrinks, but this time she can't reach the key. Then she eats the cake that appears suddenly in front of her and gets a giant. When she understands it's unable to pass through the hole, Alice cries so much that 10 cm of tears accumulate in the room. In the second episode, Dalí expresses Alice's tears as drops and waves in green and blue. Linear Alice is also featured in this drawing and the following. After that, there is a portion of the story that speaks of physical spaces encountered on the seashore in England at the time. In addition to fictional spaces, physical spaces are also described in the story. In the illustration of the episode when Alice meets the animal committee, various animals that are or are not mentioned in the story are abstracted with a grotesque expression by the artist. Like owl, snake, mouse, and undefined felines and birds and etc. In the continuation of the story, when the young girl asks for the rabbit's gloves, she enters his house. She grows back by drinking the bottle she saw when she was about to pick up the gloves. In this section, the rabbit's house is designed in Salvador's work. Alice's long arm hanging from the window and the ladder extended for help are included in the drawing as the main codes in this part of the story. Later, Alice suddenly meets a caterpillar smoking a hookah on a mushroom. In the illustration of this section, the caterpillar is drawn both in two-dimensional and in three-dimensional. The three-dimensional caterpillar has the natural color of the creature. In the two-dimensional caterpillar, the main colors are yellow, red and blue are used. Alice is still linear. There is also a mushroom on this stage, but there is no hookah. This may be due to the fact that the work is a children's book. The chaotic home of the duchess, where the little girl meets the cat Chesire, is depicted in dark colors and with a more abstract and complex scene than the previous ones. In another part of the story, Alice attends a tea party at the hatter's house with the March Hare, the dormouse and the hatter, and eventually changes dimensions with the golden key. In this part of Dalí's illustration, the melting fluid clocks are used as in his magnificent painting "The Persistence of Memory". Cups, the main object of the classical English tea ceremony, are placed on this clock, and an orange key is a reference to the golden key. In the episode of Carroll's game of cricket where Alice and the queen of hearts meet, the painter interpreted the queen of hearts as a playing card and added a pinocchio-like nose to the jack of diamonds. In the section where the lying turtle tells Alice its story, the turtle is pictured with the stone on which it sits and using dark colors. The sad expression of the turtle is also reflected in the drawing. There is a small skull, a king, two birds and various forms on the stage in the illustration of the episode where Alice, Gribon and the Mock Turtle are chatting about the lobster dance. The background, which is full of dark colors and abstract forms, has no gaps that can be seen in other illustrations. In the drawing in the court part of the story, many objects throughout the story have been composed. The Chesire cat, its inks and bottoms, teacups and many figures are presented to the reader in a scene dominated by intense and dark colors, as in the previous picture.



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### DISCUSSIONS

The imaginative point of view opens the doors of new worlds to the followers of these art products. The artist Charles Ludwidge Dodgson, nicknamed Lewis Carroll is a phenomenon in the field of literature and Dali is a phenomenon in perceptual-conceptual art works and fantastic art. Today, fantastic art, which rests on surrealistic foundations, is important because it forms a basis for the technologies and works of art of the future. Fantastic art forms the foundations of the future through fictional spaces. Surreal art is also the basis of the Metaverse, which we can call a parallel universe today. (Turan& Kavut, 2021) According to both the Dali and Carol periods, they produced important works in terms of futuristic and fantastic art.

### CONCLUSIONS

In the story the doors are used for transformation object between the World and the wonderland. As the story progressed, the illustrations intensified and the colors darkened but all of the drawing are in vibrant colors. In all illustrations that is designed for the story, there are smooth blotchy transitions in the contours of the forms, except for the linear Alice. Butterfly forms on the cover and in the content attract the attention of the reader. Dali uses butterflies as markers almost in every image. Butterflies lay a bridge the present life and afterlife, especially in horror films and poems and in many other perceptual works of conceptual art. Thinking and designing with the images is one of the oldest intellectual processes of mankind. While the butterfly represents short life in some cultures, it is the symbol of eternal life in ancient Egyptians. (Öztañık, 2019)

It is not possible to keep people independent of time and space. Therefore, human will always exist in a time and in the environment of space. However, the concept of space does not only consist of the real spaces we are in, but also different fictional spaces can be encountered according to various scenarios and concepts, unlike in the real world. As a matter of fact, the heroes of the narrative exist in this fictional environment, and these fictional spaces, according to the type of fiction, complete the relationship of the heroes with their surroundings in works such as literary texts and films and theaters. Places that are generally a product of fantasy and cannot exist in reality are fantastic spaces. These spaces, which are the product of imagination and creativity, are mostly products created by the creator to serve a specific purpose. Objects in these spaces carry symbolic and imaginary values as well as their real meanings.

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### THE POLITICAL INFLUENCE OF NON-GOVERNMENTAL ORGANISATIONS IN THE MODERN INTERNATIONAL RELATIONS

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#### **Abstract**

In this study, the political and social importance of non-governmental organizations, which are the most important elements in the formation and settlement of a culture of democracy in international relations, is discussed. Taking into account the increasing number and influence of these non-state actors on international relations analyzing their influence on political processes is very important. They represent and support the interests of different levels of society and due to this fact they can contribute on global governance. In the study, the basic concepts of civil society the functions, characteristics and problems of non-governmental organizations are mentioned. Our research highlights the need of investigating the non-governmental organizations' supporting role in implementing state policies. The lack of international regulation for their work and activity makes the fact of establishing their legal status in international relations vitally essential.

In the current era of globalization, the increasing importance of multinational and non-governmental actors in international relations makes the need of acknowledging their concrete role and status actual. In the research, the social importance of non-governmental organizations was discussed, and socio-political activities of non-governmental organizations such as education, health and fighting against poverty were analyzed. Their vital role in offering relevant information to formulate state policies make them one of the key elements that influence crucial political decisions for the state political system. In some cases, non-governmental organizations may serve as a vital instrument for authorizing different social groups and as a result they can enlarge democratic participation. Namely, the subject draws attention as it is a very current subject for modern times.

**Keywords:** Modern international relations, civil society, political influence of non-governmental organizations

#### **Introduction**

Background of the research: In every society, there has always been a state and a functioning outside the state. For this reason, it is not possible for non-governmental organizations or political society to mean anything by itself. The "kinship" that exists between these two formations, which are necessary and indispensable to each other, has often developed in the form of a fierce struggle. This struggle, taking on various appearances historically, continues today in the context of democracy.

Because people's solving their problems by mutual "consent" without obtaining permission from the state has led to the emergence of a participatory structure. Participation is an indispensable element of the democratic order. On the other hand, people, groups, etc. items differ from each other in several respects.

Used methods: In the preparation of the study, some determinations were made about researches related to non-governmental organizations.

As a result, non-governmental organizations sometimes influence decision makers on issues that they do not see in the interest of society, leading them to take different decisions or review their decisions. In this way, they contribute to political and therefore social life as a separate element of power.

Materials and methods

One of the important issues identified is that statistical data on non-governmental organizations in countries are almost non-existent. Although the contribution of non-governmental organizations to





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social life is seen as important, the insufficient level of studies in this field has brought difficulties in terms of measurability. Considering the importance of concrete data in the determination of targets and strategies, it is seen as an important issue to make the contribution of non-governmental organizations to social and political life measurable, as in Western countries.

It is simultaneous with the emergence of the Renaissance and Reformation, the idea of progress and enlightenment (Gürsel, 2019). Non-governmental organizations, the first examples of which were seen in our country in the 1940s, but showed a great development after the 1980s, have not developed enough, contrary to the developments in the West.

Therefore, attempts to limit power have emerged not as a result of social developments, but rather as self-limitation of power. For example, there is no legal status in the form of non-governmental organizations in a lot of countries legal system. However, there are various organizations that are considered as non-governmental organizations. These include associations and foundations (Jeffrey, 2020). Professional organizations and trade unions are also recognized as non-governmental organizations. The association is a democratic non-governmental organization established to realize a certain common goal other than sharing profits.

In its modern civic view, an association is a group of people formally organized around a common purpose, idea, or interest. The Law on Associations No. 5253 has completely changed the approach of the state to associations and paved the way for the non-governmental organizations in the field of association in our country with much freer regulations (Işık, 2019). Foundations are organizations that have their own financial resources and spend it for public benefit projects or activities according to their own needs and their own decision. Foundations are a collection of goods. Foundation institution; It is accepted as a work of Islamic culture both in terms of theory, in terms of finding a base in the society and in terms of institutionalization.

However, with the new Law on Foundations, which has been prepared with a more liberal approach recently, various obstacles in front of foundations have been tried to be removed, and positive and important regulations have been introduced regarding the rights of foreign foundations. Trade unions are organizations formed by employees to protect and improve their rights against employers and the state (İnam, 2018). Although trade unions have a narrower scope and purpose than associations and foundations, they are accepted as non-governmental organizations. Professional associations have two types of organization. One is the associations that the employees in the same field come together and formed voluntarily, and the other is the professional organizations in the nature of public institutions that are considered as local administration organizations in terms of service.

Professional organizations in the nature of public institutions are non-governmental organizations. As a characteristic of non-governmental organizations, the state factor should not exist. However, due to their qualifications such as compulsory membership and having an organic bond with the state, professional organizations in the nature of public institutions are not non-governmental organizations such as associations and foundations in the modern sense. The main functions of non-governmental organizations can be listed as helping individuals to express their demands by forming public opinion, contributing to the establishment of a pluralist society structure, and acting as a protective buffer against some mechanisms imposed by the market economy and the practices of the state legal entity. Non-governmental organizations, which have such important functions, also have many problems (Habermas, 2019). These are lack of participation and information, lack of financial resources, limiting new regulations, lack of democracy within the organization, highlighting its ideological features, insufficient personnel and infrastructure, and miscommunication between non-governmental organizations.

While performing these functions and trying to find solutions to their problems, non-governmental organizations enter into various relations with the political power and try to achieve their goals by trying to influence the political power. So, they act as a pressure group. Pressure group in its simplest sense: It is a community that consists of people who perceive common interests, attitudes and views, and tries to influence the political power in the direction of their own interests, attitudes and views without aiming to come to power. Non-governmental organizations are important pressure groups, though not the only ones. There are also pressure groups.



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However, non-governmental organizations such as associations, foundations, professional organizations and trade unions are organized and permanent institutions. The level of education that has achieved a certain level of economic development is high and widespread, there is political participation and organization, the political power is the result of competition and free elections. It can be said that pressure groups fulfill three basic functions in democratic political systems that have changed hands: These functions are Representation, Communication and Control.

### Results

The administration wants to make statements about some decisions and make them public, but may avoid doing so directly. In these cases, the pressure groups related to the issue often act as a channel to act as the spokesperson for the administration. Pressure groups fulfill important functions in the direction of communication in the political system, which constitutes an important part of the social structure, being aware of environmental changes and keeping up with the changes. As a result of representation and communication, pressure groups also perform a control function before the political power and public opinion. This function is a multifaceted phenomenon. One dimension of control is to limit, if possible, change the actions that the political power can resort to against the group, and to turn it in their favor. The second dimension is about curbing groups that want to realize different or opposing interests and preventing a single group from determining public policy.

### Discussion

As the main point of the subject, we should say that the tools used by non-governmental organizations to reach their goals are diverse. Some of those; The methods used for persuasion are activities aimed at informing the political power, threats, continuing campaigns against and leaving debtors. With the method of persuasion, pressure groups try to convince and persuade them that they are right in order to get the desired result from the political power for the interests of their members and organizations.

Pressure groups carry out various activities in order to inform the political power, bureaucracy, parliament and political parties on a specific issue. These; collecting signatures, publishing papers, organizing meetings such as seminars, conferences, and symposiums.

The type and scope of using the threat method as a sanction tool is quite wide. It can be used in almost every stage of the conflict, even before it, and it can be applied in many different ways.

### Conclusion

As a result, non-governmental organizations, which have very important functions in the political and social sense, play a very important role in the establishment of democracy culture and consciousness in society. In parallel with the development of democracy, non-governmental organizations are also developing and the development and strengthening of non-governmental organizations strengthens democracy. Civilization should be paved for the development and strengthening of non-governmental organizations operating in many different fields, social problems expressed by non-governmental organizations should be sensitive to, and non-governmental organizations' beneficial activities for society should be supported. It seems that the star of non-governmental organizations will shine even more in the coming period and non-governmental organizations will be important actors in finding solutions to social problems and influencing political power.

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### SOCIAL JUSTICE AND INTEGRITY: A HEALTHY MÉLANGE FOR A WEALTHY NIGERIAN SOCIETY

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#### **Abstract**

In Nigeria, compromise and clandestine dehumanizing activities becloud the administration of social justice by the relevant stakeholders, resulting to increased backwardness in the society and the ensuing protests. From the comprehensive global perspective shaped by the United Nations Charter and the Universal Declaration of Human Rights, neglect of the pursuit of social justice in all its dimensions translates into de facto acceptance of a future marred by violence, repression and chaos. The research adopts historical and hermeneutic approaches for descriptive and prescriptive purposes. The research reveals that Social justice, when properly administered, promotes a society in which each individual matters, their rights recognized and protected, and decisions made in ways that are fair and honest. Comparative analysis proved that the world's great religions praise integrity as a principal spiritual virtue and moral quality. Hence, Integrity, when coupled with social justice plans and programs in a pluralistic society such as Nigeria results in coherent fusion of unity, equilibrium, free will, responsibility and benevolence to the betterment of the society. For a wealthy Nigerian society, the claims of social Justice must be treated as cardinal and paramount with systematic conscientization programs, overhauling of agencies for social justice, enactment and enforcement of laws against individuals and agencies that perpetrate injustice irrespective of their statuses, periodic monitoring and evaluation to ascertain the level of progress in matters of social justice, removal of tribal sentiments, filial prejudice, gender chauvinism, and class stratification that hamper the impact of social justice.

**Key Words:** Social Justice, Integrity, Nigerian Society, Unity, Human Rights

#### **Introduction**

Nigeria is a country vastly blessed with natural and human resources that could contentedly take care of her basic social, economic, political, and spiritual needs. Oko (2020) corroborates thus: "It is generally agreed that Nigeria as a nation is heavily blessed or endowed with enough resources to take good care of the social and basic needs of the citizens to move her to the level of a developed nation." Lack of shrewd management of these resources and their equitable distributions to the citizens have continued to jeopardize the total wellbeing of the citizens. Nwikpasi and Duson (2021) accurately capture the scenario in Nigeria thus:

The resources available in the country have not been fairly allocated and distributed. This may be due to the fact that those in charge of the distribution and allocation are not from where the resources come from. So the kleptomaniac approach is used, that is the sharer keeps more to himself (arrant conversion to avoid the word stealing) before he would even attempt to share, he has kept a substantial chunk from the "booty". This lopsided distribution is not only limited to oil revenue but also applies to other facets of the society such as appointments to positions (political) in the country even up to appointment to the Bench. The Federal Character enshrined in the constitution by virtue of the Federal Character Commission in Section 7 of the third schedule to the constitutions leaves much to be desired the minority tribes of the south-south cry out every day for justice, do they get it, when will there be justice for them. Most times mediocrity and sycophancy is preferred to quality and integrity as every appointment is also seen as a way to share the national cake to loved ones and old acquaintances.

Although a catalogue of policies and programs geared towards poverty alleviation, community development, social integration and human development have been initiated and launched by successive administrations in Nigeria, pathetically, almost all these programs and projects are in moribund state due to insincerity, selfishness, lack of professionalism, corruption and other clandestine activities. This



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view was substantiated thus: “Nigeria has never lacked or been in short supply of good policies or reforms; the problem has remained her inability to convert them to tangible, usable and quantifiable results” (Gabriel, 2014:137). In a research carried out by Aluko, Aluko and Ogunjimi (2022), it was revealed that one of the most worrisome challenges of Nigeria’s relay-race towards development has been the inability of Nigeria’s political system to adhere to social justice in administration of public affairs. In Nigeria, Social Justice is not only a secondary issue by practice, the society is also bedeviled by lip services and cosmetic approaches to social justice issues.

Nigeria’s successive democratic regimes are infested with social injustice and inequality in power sharing, decision making, infrastructural development, citing of developmental projects, and distribution of amenities, capacity building, political appointments, employments, and delivery of social services. The “Federal Character Principle” etched into the 1999 Constitution to address inherent cleavages of inequalities has been relegated to the background, giving rise to what could be termed ‘survival of the fittest’: the rich get richer while the poor get poorer; the most influential citizens monopolize the polity and keep recycling themselves into various levels of political offices regardless of their age and productivity, just for mere selfish interests. In the words of Akinrinde (2020);

the lack and deliberate emasculation of social justice within the society by the state and/or its machineries has over time, consequentially, informed a pathological situation; a situation where, due to the absence or deliberate neglect of the need for social justice in the accumulation of wealth, distribution of wealth and resources as well as social, economic and political relationships amongst the people, the rich are becoming richer whilst the less privileged are becoming more disadvantaged. The social implication and effect of this social pathology is the impulse by the rich or the privileged to see and use corruption to accumulate more wealth, resources and power in unjust social, economic and political exchanges in their bid to maintain the unjust socioeconomic and political systems, whilst the poor and the less privileged tend to see and use corruption as a leveler and means to accumulating their own share of the societal wealth, resources and power. The corrupt environment created by social injustice is therefore antithetical to any country’s quest for national security

The implications of an abused democracy and social justice system are not just poisonous to the citizens today, but more so for generations to come in terms of sustainable development and fundamental human rights. These discoveries have given rise to the need to understand the place of integrity in the administration of social justice and the combination of the duo as a healthy *mélange* for a wealthy Nigerian society. Integrity here would mean the quality of being honest and having strong moral principles in social justice issues in Nigeria.

### ***The Conceptualization of Social Justice:***

According to Gabriel (2014), “Social justice is a concept with multi-disciplinary perspectives. Its conceptual boundaries are continually in flux because scholars have attempted to define it in favor of their respective intellectual biases.” Thus, the definition of social justice varies based on a variety of factors such as political orientation, religious background, and social philosophy. Perez-Garzon (2018) identified three common elements in the contemporary theories about social justice, which includes a duty of the State to distribute certain vital means (such as economic, social, and cultural rights), the protection of human dignity, and affirmative actions to promote equal opportunities for everybody. Hage, Ring, and Lantz (2011) relayed Sue’s submission that the fundamental principles underlying the definition of social justice include values of inclusion, collaboration, cooperation, equal access, and equal opportunity. Such values are also the foundation of a democratic and egalitarian society.

A couple of scholarly definitions would substantiate Perez-Garzon’s observations. For instance, The United Nations’ 2006 document *Social Justice in an Open World: The Role of the United Nations*, states that “Social justice may be broadly understood as the fair and compassionate distribution of the fruits of economic growth.” Hage, Ring, and Lantz (2011) made reference to Van den Bos’ definition of social justice thus: “Social justice is generally defined as the fair and equitable distribution of power, resources, and obligations in society to all people, regardless of race or ethnicity, age, gender, ability status, sexual orientation, and religious or spiritual background.” Anku-Tsede (2015) states that social justice standards guide adjustments in social institutions that affect the distribution of socially available



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goods and the cost of supplying those goods across members of a society. Social justice encompass contribution as well as access to goods and they focus on accountability of institutions.

Historically, Social justice as a concept is associated with the fair and just relations between the individual and society, measurable in equal distribution of wealth, opportunities and social privileges. The concept can be traced through the theology of Augustine of Hippo and the philosophy of Thomas Paine. In the views of Clerk (2015), the term ‘social justice’ became used explicitly in the 1780s. A Jesuit priest named Luigi Taparelli is typically credited with coining the term, and it spread during the revolutions of 1848 with the work of Antonio Rosemini-Serati. The five main principles of social justice include access to resources, equity, participation, diversity, and human rights. By way of synthesis, Babalola (2014) opines that Social Justice can then be said to be a process, not an outcome, which seeks fair redistribution of resources, opportunities, and responsibilities; challenges the roots of oppression and injustice; empowers all people to exercise self determination and realize their full potential; and builds social solidarity and community capacity for collaborative action. Social Justice is to be understood from this perspective in this study.

### *The Place of Social Justice in Sustainable National Development:*

The Preamble to the Constitution of the International Labour Organization affirms that “universal and lasting peace can be established only if it is based upon social justice.” (TBC, 1987). The absence of justice often represents increased physical and emotional suffering as well as greater vulnerability to unimaginable traumatic experiences. The society advocates for a fair and proper administration of laws conforming to the natural law that all persons, irrespective of ethnic origin, gender, possessions, race, religion, etc., For the society, people are to be treated equally and without prejudice. Where these ideals are recognized, valued, practiced and protected, the citizens thereof enjoy the dividends of good governance and social justice.

According to Osi (2020), the ideal society is one in which social institutions are to be fair to all cooperating members of society, regardless of their race, gender, religion, class of origin, and reasonable conception of the good life, and so on. Sustainable development is suitably captured by the United Nations in the Brunt Land Report of 1987 as “development that meets the needs of the present without compromising the ability of the future generation to meet their own needs” (Ugwu & Ijah, 2011). Countries or institutions seeking development that would be sustainable must ensure there are equity, social development, inclusiveness, human-environment harmony and cooperation. While these principles cannot be undermined, social justice can be a stimulating factor (Abraham, 2012).

Social justice promotes fairness and equity across many aspects of society; it promotes equal economic, educational and workplace opportunities. It is also important to the safety and security of individuals and communities. Social justice makes rooms for the accommodation of different categories of people in the society: the children, aged, people living with disability, the women, the poor, and so on. It also accommodates racial, tribal and gender differences, religious affiliations, sexual orientations. These are all indices of sustainable national development, which are obvious farfetched in Nigeria.

### *Social Justice in Nigeria: An Appraisal:*

With the amalgamation of the Northern and Southern Protectorates in 1914 by the British colonial government, Nigeria became an amalgam of many and varied peoples and cultures. Dissatisfied with the colonial rule, Nigerian intellectuals turned themselves into nationalist movements and subsequently mounted political pressure on the colonialists for independence. Consequently, in 1960, Nigeria gained her Independence; this came with a lot of expectations as captured by Ogunna in Osi (2020) thus:

Immediately after the independence, the aspirations and expectations of the citizens from the new independent government were quite high and the politicians were enthusiastic to satisfy the citizens’ high hopes and expectations. But this requires among others, a virile, strong and effective, administration which was not in existence.

Ihejirika (2013) observes that at independence, most African leaders pledged to develop their economies, to democratize their political systems and to promote social justice amongst their citizens. Principles of democracy, social justice, equity, fair play and freedom characterized the post independence constitution. Mechanisms were put in place by the successive government to sustain,



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expand and consolidate these guideposts. Unfortunately, instability in governance stultified development in Nigeria as captured by Hassan and Yusuf (2020) thus;

In the early stages of the post-colonial period, there was agitation against the prolonged stay of military in power, which consequently gave birth to the second, third and fourth republics. On the other hand, successive military governments that had the intent of preparing the country for takeover by a civilian government enjoyed significant public support. But in cases where the military government reneged on its promise of a transition to civilian rule, the government lost the legitimacy it had gained through displays of public outrage.

Records from United Nations Development Programme 2014 report reveals that Nigeria ranked number 152 out of 187 countries in Human development, which is average quality of life and standard of living. The report puts Nigeria's Human Development Index at 0.381 which is below the prescribed level. This reveals an absence of continuity in policies when the tenures of specific governments come to an end. The rural areas have continued to be backward and low in economic and social well being. Lawal and Oluwatoyin (2011) opines that in spite of series of development strategies put in place by successive governments, and sometimes with good intentions, all attempts to generate meaningful development proved futile.

Two years after independence, the first National Development Plan policy was formulated between 1962 and 1968 with the objectives of development opportunities in health, education and employment and improving access to these opportunities, etc. This plan failed because fifty percent of resources needed to finance the plan was to come from external sources, and only fourteen percent of the external finance was received. After the civil war in 1970, the second national development plan 1970 to 1974 was launched, the plan priorities were in agriculture, industry, transport, manpower, defense, electricity, communication and water supply and provision of social services. The third plan, covering the period of 1975 to 1980 was considered more ambitious than the second plan. Emphasis was placed on rural development and efforts to revamp agricultural sector. The fourth plan 1981 to 1985 recognized the role of social services, health services, etc. The plan was aimed at bringing about improvement in the living conditions of the people. In the recent past, various strategies for development have also been tried with little or no result; among these were the structural adjustment programme (SAP), Vision 2010, national economic empowerment and development strategy (NEEDS), creation of development centers, etc. Currently, seven point agenda of the present administration with vision 2020 is left without any clear methodological approach towards achieving them. It is obvious that the current results so far are not what development connotes.

For Adah and Abasilim (2015) most national development problems in Nigeria arise as a result of poor implementation of policies and subsequently lack of adequate and reliable human resources. According to Osakwe (2010), the nature of Nigeria's development strategy has contributed to the slow pace in achieving poverty and unemployment reduction in the country, as such; the country has not gone through the normal process of structural transformation. According to Ibietan and Ekhosuehi (2013), the lack of coordination and harmonization of programs/policies both within the tenure of an administration and those succeeding it has been the impediment to development in Nigeria.

What the above analyses reveal could be rightly summarized that Nigeria's social justice system is in a sorry state and this has become the bane of Nigeria's development. A situation where the government claims to run free education, yet keep using some other means to extort monies from the pupils or students is an aberration of social justice. In Nigeria, most school administrators place illegal levies on school children and students with impunity; most of these schools (primary, secondary and tertiary) lack basic facilities and resources. Admissions into most of the tertiary institutions are now done with little or no attention to merit; as long as you can pay a prescribed amount, you're sure to secure admission.

In most cases, job opportunities are reserved for the elites in Nigeria while the poor masses loiter hopelessly in search of gainful employments. Most times, tribalism and favoritism play out in job interviews to the extent that the nonqualified candidates are preferred over the most competent candidates. According to Nworah (2017) "those minority groups feel left out in the scheme of things in Nigeria, a situation that has now bred distrust, fear and a sense of hopelessness, this invariably affects their sense of patriotism, likewise their national identity and psyche. There is a general lack of efficiency



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and effectiveness in the Nigerian Judiciary as a whole to deal with complex and time-consuming proceedings, which are the norm in major corruption cases. The inability to deal with corruption inside the judiciary and strengthen its integrity is an integral part of the overall corruption problem (United Nations, 2004).

One of the key electoral trends in Nigeria is the manner in which political actors, government agencies and citizens engage in election-rigging. Since the mid-seventies, politicians have urged their followers to vote along religious lines, Muslims are told to vote for Muslims while Christians are told to vote for Christians (Kalu, 2011). Those that eventually pose as the democratically elected government officials are not the popular candidates; the power of incumbency plays out in most electioneering process. The political class assign to themselves mouthwatering remunerations at the expense of the civil servants who practically beg to be given their legitimate wages as and when due. God-fatherism culture has become a common feature of Nigerian politics; influential politicians literally install their ‘puppets’ on political seats by all means with treaties for regular remittances of specific amount of money to the private coffers of these God-fathers. Asogwa (2008) opines that negative values like acquisition of wealth and power by all available means, breeds greed, dishonesty and all other vices that have plagued the nation’s leadership. Morality, which is the sense of right and wrong in human behaviour has been abandoned in our society. The Independent Electoral Commission (INEC) is often accused of compromise in the elections. The so called elected government officials are often accused of hoarding equipment, facilities and items procured for public use in their homes, warehouses and other hidden places.

Furthermore, the roads, public hospitals, public markets, other social, health and economic facilities are left in pathetic states with intermittent cosmetic attention given to them at will by the political class in order to win cheap popularity. In all these anomalies, the poor masses bear the direct brunt for they are the ones to be hospitalized in the public hospital where there are no adequate drugs. Their children are the ones to attend the public schools where the teachers are not devoted to their work because of the epileptic payment of salaries (Umeanolue, 2018). The religious bodies seem not to be helping matters as deemed right; most of the clerics are in unholy romance with the political class for their selfish interest, thereby relegating the truth to the background and further impoverishing the poor masses.

In Nigeria, institutions that support good governance, development, peace and justice are not only weak but lack credibility. This is accountable for the slow rate of development and a trend that has enthroned corruption, lack of accountability and mismanagement of resources, exploitation, marginalisation and ethnicity, consequently breeding social injustice and continuous search for peace and security in the country (Oladele, 2016). This situation breeds social justice crisis since social justice, peace, security, good governance and development can only flourish in a society with recognized credible institutions. The fundamental crisis of social justice is rooted in leadership, management and persistent self-centeredness. When the interests of some groups and cliques are served instead of those of a whole community or society, lust prevails over granting people the love and care they deserve, social justice is at stake (Obanubi, 2015).

### *Integrity as a Moral Quality and Religious Virtue:*

Nigeria is notoriously religious with three major religious groups, vis-à-vis African Traditional Religion, Christianity and Islam. These three religious groups place much value on integrity and morality, virtues needed in every society for progress and development. Their ethical standards and morals are built around their core beliefs and core values. The anomalies observed in this paper, which hamper social justice in Nigeria, are actually perpetrated by the adherents of these religious groups. This goes a long way to say that most adherents of religion in Nigeria only pay lip services to their faith. Integrity is required from the individuals in the society wherever they may be especially in governance. Governance is a popular concept that relates to power; authority; politics; policy; administration; government; steering; management; and organization.

The word ‘integrity’ has been traced to the same Latin root as integer and implies a wholeness of a person. Aulich (2011) hints that the word “integrity” can be traced back to the origin of the word which comes from the Latin word “integer” (adjective) with a meaning referring to the “whole or complete”. A review of the Huberts (2014) work introduces at least eight different views: wholeness and coherence;



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professional responsibility; moral reflection; value(s) like incorruptibility, laws and rules; moral values and norms; and exemplary behavior. Integrity implies the quality of acting in accordance or harmony with relevant moral values, norms, and rules, a choice based partly on some of the arguments already put forward. It is certain that integrity means more to a public servant than the dictionary definition; it means transparency, honesty, truthfulness, reliability, impartiality, sincerity, and trustworthiness. It involves total ethical behaviour at all times and in all situations, regardless of the consequences. Integrity means being honest and truthful in every area of life.

### *A Mélange of Social Justice and Integrity in Nigeria:*

The concept of integrity and good governance are mutually intertwined. The success and development of any society depend largely on the integrity of her leaders. According to Chan, Othman and Jones (2011), the lack of morality and ethics by leaders and the led in the society and organizations will result in a lack of security and credibility. It is indisputable that overwhelming majorities of problems besetting Nigeria today emanated from the dearth of ethical integrity and uprightness in the land. Owokalade (2022) observes thus:

A cursory review of the social vices in Nigeria will reveal serious issues concerning values and ethics such as dishonesty (reflecting as corruption), injustice, among others. Though entrenching values and ethics of a governance professional is a veritable tool for national growth and development, the assurance for its effectiveness and efficiency is only achievable when it is in the DNA of a Governance Professional as a person, and institutionalized by organizations.

The predicament of Nigeria in terms of underdevelopment and corruption can be adduced to the problem of leadership and lack of integrity by these leaders. Nigeria needs committed leaders who will govern with integrity and doggedly influence its human and natural resources toward the actualization of sustainable national development. Nwankwo, Atuluku, Mabamalu and Barnabas (2021) eulogize integrity, transparency and accountability in governance as the pathway to sustainable growth and development in Nigeria. These could be achieved if the public officers who are the driving forces in the implementation of the government policies and programs for good governance and dividends of democracy for the benefit of the citizens cautiously with determination shun and avoid perpetrating the following vices while discharging their duties:

1. Acceptance of bribes, tips, kickbacks, questionable gifts and other valuable items.
2. Favoritism in relationship with subjects (staff, customers, suppliers, bidders etc)
3. Undue concessions/clause(s) in contracts and negotiations
4. Disclosure of confidential information outside official framework
5. Deliberate provision/use of untrue information
6. Disregard/violation of ethical codes and due process
7. Non-disclosure of special (personal) interest in the conduct of official assignment
8. Secret profit
9. Questionable Hospitality
10. Weak/ineffective leadership
11. Weak internal control
12. Lack of monitoring
13. Unwarranted/uncooperative attitude towards other members/units in the organizational/control process
14. Undue hatred/suspicion/nervousness when the “auditor” is visiting
15. Ever readiness to blame environmental factors such as materialism, general decadence, poor salaries and conditions of service etc





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### **Recommendations:**

1. For a wealthy Nigerian society, the claims of social Justice must be treated as cardinal and paramount with systematic conscientization programs
2. Overhauling of agencies for social justice
3. Enactment and enforcement of laws against individuals and agencies that perpetrate injustice irrespective of their statuses
4. Periodic monitoring and evaluation to ascertain the level of progress in matters of social justice,
5. Removal of tribal sentiments, filial prejudice, religious and gender chauvinism, and class stratification that hamper the impact of social justice.
6. Civil society can help reaching social justice through conscientization programs, and advocacy.
7. Leaders at all levels should be tasked with the duty of projecting integrity in their dealings. They should also be made to give objective account of their governance periodically.
8. Corrupt leaders should be tried and made to face lawful penalties without fear or favour
9. Credible candidates should be elected as leaders and the electoral processes made free and fair.
10. Anti-corruption bodies should be empowered to duly prosecute anyone who has been convicted a culprit.
11. The media and nongovernmental organizations should act as watchdogs to the leaders.
12. Freedom of expression must not be compromised in any form in order to enable the citizens express their feelings about governance in the country.

### **Conclusion:**

Generally speaking, what the citizens of any nation always look out for in the society essentially cluster around the provision of opportunities and services that would ameliorate their plight. In the provision of such opportunities and services, equity and freedom are obligatory complements. The citizens need shelter, security, jobs, food, medical attention, justice and fair play. These are in line with Maslow's hierarchy of needs, which includes physiological, safety, love/belonging, esteem and self actualization. When these needs are not properly met, the citizens could be said to have been denied their rights of citizenship. To make room for progress and development in a nation, it is the duty of the stakeholders of such a nation to ensure that the citizens are provided with such opportunities and services.

Social Justice is not a blind concept; it seeks to do Justice to all the citizen of the state. The research reveals that the entire world's great religions praise integrity as a principal spiritual virtue and moral quality. This is not out of place in Nigeria among the three major religious groups (African Traditional Religion, Christianity, and Islam) whose adherents are at the helm of affairs in Nigeria. These adherents of religious groups are challenged to live up to the tenets of their religion by upholding integrity in governance. With the advocacy and numerous government policies on Social Justice, Nigeria has not fared well due to insincerity in the ranks and files of the Nigerian governance. Thus, those in leadership positions in Nigeria at various levels of governance should model integrity; these leaders should be able to give account of their stewardship, allowing the citizens freedom of expression in order to concur or fault their submissions. When Social Justice is properly administered with integrity, it promotes a society in which each individual matters, their rights recognized and protected, and decisions made in ways that are fair and honest. This is what Nigeria needs at the moment.

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### ARTIFICIAL INTELLIGENCE (AI) AND MANUFACTURING SECTOR: APPLICABILITY IN AFRICA COUNTRIES FOR TRADE ADVANTAGES

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#### ABSTRACT

Manufacturing sector plays a significant role in international trade for economic growth and development of any nation. Developed countries have experienced steady and sustainable growth in their manufacturing industries while developing countries lag behind. There have been huge decline in manufacturing capacities in African Countries over the years despite the abundant potentials and promising opportunities in the sector. This has limited industrial development for trade advantages and economic transformation for quality employment generation that can alleviate poverty across the continent. The close to fourth industrial revolution in developed countries among other things, is as a result of huge investment in new technologies and innovation that has encouraged the use of artificial intelligence (AI) in their manufacturing activities called smart manufacturing. The application of AI in manufacturing industry of developed economies has brought tremendous advantages to the manufacturing sectors and economies. This study is aim at carry out a comparative study between AI adaptable manufacturing firms in developed countries and non-smart manufacturing companies in Africa using cost of production and profitability measures of the selected firms as yard stick. The study revealed that manufacturing firms using AI in their manufacturing activities witnessed steady growth in outputs, low cost of production and high profitability even in time of economic shocks, while non AI compliance firms in Africa experienced decline and stagnant growth in manufacturing outputs, high cost of production and low profit over time. It is recommended that government and private stakeholders in Africa countries must as a matter of urgency increase investment in manufacturing sector of their various economies and encourage the application of AI in manufacturing industrial activities. This is to ensure that Africa's economy is not left behind in the 4<sup>th</sup> industrial revolution.

**Key words:** Artificial Intelligence, Smart Manufacturing, Production Cost and Trade Advantage

#### 1. INTRODUCTION

Manufacturing sector plays a significant role in economic development of any nation. Modern manufacturing industry contributes significantly to the accumulation of physical and human capital, employment of skilled and unskilled workers, generates enormous backward and forward linkages with other sectors thereby creating wealth opportunities for economic agents. Developed countries had experienced steady and sustainable growth in their manufacturing industries while the reverse is the case in developing countries (Ansu, McMillam, Page & Te Velde, 2016). They have been huge decline in manufacturing capacities in African Countries over the years despite the manufacturing potential and promising opportunities. This has limited industrial development for economic transformation and quality employment generation that can alleviate poverty across the continent. According to Signe and Johnson (2018), the manufacturing transformation of countries like United States, United Kingdom, France, Japan, German and recently China into some of the world's richest nations is a result of first industrial revolution. These had helped these economies to generate increasing structural change and economic development. The vicious circle in African continent is as a result of slow pace of industrial development in the face of increasing population target to increase to half of world's population in 2050 (Cilliers, 2021; Borhat, Rooney & Steenkamp, 2019). African countries have witnessed improvement



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in their manufactory industrial development but still not competitive enough in the global industrial chart with developed countries (ACET, 2018).

The reasons behind the industrial countries successes is not far from adaptability to new technologies and innovations. The close to fifth industrial revolution in developed countries was as a result of huge investment in new technologies and innovation that as encouraged the using of artificial intelligence (AI) and machine learning algorithm in their manufacturing activities called smart manufacturing. The application of AI in manufacturing industry of developed economies has brought tremendous advantages to their manufacturing sectors, trades and economies.

Several works had been carried out to examine the impact of artificial intelligence and machine learning on manufacturing system (Ikumapayi, et al., 2022; Jha, 2021; Luo, Li & Yu, 2021; Abideen, 2020; Huang, Wang & Liang, 2019; Buchmeister, Palcic & Ojstersek, 2019 ;). Despite their various findings and dispositions, they all agreed that artificial intelligence has positive impacts on manufacturing system. It was established in Ferencz, Javier and Garcia (2022), study that AI applicability brings about economics of scale, cost reduction, high turnover, increasing profit and high market values to the firms. Meltzer, (2018); Goldfar and Trefler (2018); unanimously affirmed that AI enhances trade advantages of an economy and that countries whose manufacturing companies are adaptable to AI enjoyed comparatives cost advantages and markets expansion.

In enhancing the usage of AI in manufacturing activities of less developed and developing economies who had lagged behind in industrial evolution pursue, this study is aim at carrying out a comparative study between AI adopted manufacturing firms in developed countries and non-smart manufacturing companies in Africa economies using the market values of the few selected companies across the continents.

### 2. CONCEPTUAL REVIEW

#### *Manufacturing*

Manufacturing is a transformation of raw material to finished goods. The modern manufacturing processes are handled by mechanized and automated equipment that is supervised by human workers. Thus, manufacturing is the making of products from raw materials using various processes, equipment, operations and manpower. Luo, Li and Yu (2021), stated that the traditional manufacturing industry has gradually transformed into modern manufacturing service industry after integrating information technology means such as internet, communication, computer and modern management methods. The sector is better and efficient with using of AI and machine learning algorithms in solving so many challenges facing the manufacturing processes. Manufacturing sector is an umbrella or conglomerate of several units of manufacturing session of an economy and therefore has play a vital role in economic growth and development of any nation. The developed economies have witnessed sufficient growth in their manufacturing industrial sector while African countries are at low pace in adopting to technologies despite the huge potential in term of natural and human resource. Adesina, (2017) stated that the Africa industrial sector is under developed and uncompetitive because of utilizes low technology with poor research and development activities and operates under weak infrastructure and poor industrial environment. Africa investment in technology and researches are the worst in the world compare to its counterpart all over the world. The success stories of developed nations in their manufacturing sector is as result of adequate investment in technologies innovation. Huang, Wang and Steven (2019), asserted that the manufacturing technologies journey started from use of mechanical power referred to as Industry 1.0, followed by those in the use of electrical power, such as solid state electronics and microchips for process control coined as Industry 2.0, later came those in the use of automation systems such as programmable logic controllers, robots, and automated guided vehicles, remembered called as Industry 3.0, and those in the use of digital communications such as digital threads and cyber enabling systems, commonly referred to as Industry 4.0. The possible advances of intelligent systems such as machine learning, artificial intelligence, and autonomous production, which will probably be referred to as Industry 5.0 in the future, may solve greatly optimization problems in industrial manufacturing system. The mine stone breakthrough in technological changes to manufacturing system is the coming of artificial intelligent (AI) and machine learning application in production activities.



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### *Artificial Intelligence*

Artificial Intelligence is the simulation of computer to perform the activities supposedly performed by human being excellently. According to Buchmeister, Palcic and Ojstersek (2019), AI is refer to any computer system able to perform tasks that generally require human intelligence. Machine learning is a type of artificial intelligence that makes use of data and algorithm to take accurate decision and solve problems that would have been difficult to solve perfectly by human being. The key driver to technological change in the industrial world will be Artificial intelligence (AI) and it is important to prepare human race to embrace a future activities that will be dominated by AI (Byrum, 2018). AI in manufacturing will have a crucial impact on the smart maintenance of the production environment in order to avoid sudden damages to machinery, manufacturers are predictive solutions. These AI-enabled solutions for manufacturing companies can predict the failure of equipment before they get damaged. Similarly, artificial intelligence in manufacturing also helps manufacturers to get faultless products to market on time. Thus, AI in manufacturing impacts product quality and ensure profits (Jha, 2021). The most effective AI systems will be designed around the concept of intelligent augmentation. AI will change the traditional methods of industrial operation ultimately leaving few activities to the human operator to decide the course of action (Khanna, 2018). The use of AI and machine learning in manufacturing process will result to smart manufacturing.

### *Smart Manufacturing*

Smart manufacturing is the efficient manufacturing process with large effective quality output from small resource with minimal cost and sustainable environment.

Wang, Zang, Qu, Dong and Zhou (2018), summarized that intelligent manufacturing has undergone three phases such as digital manufacturing known as first generation manufacturing, digital-networked manufacturing referred to as second generation manufacturing and the intelligent manufacturing called new generation manufacturing. The intelligent manufacturing impacts on product designs, digital twins, virtual reality, automation, quality products and self-maintenance are the smartest things to have ever happened to manufacturing processes (Jha, 2021). Many major economies including United States, China and European Union countries have prioritized smart manufacturing for sustainable manufacturing system (Ikumapayi et al., 2022; Bogle, 2017). Thus, smart manufacturing brings about cost reduction in production process.

### *Cost Reduction*

Cost reduction is a significance uses of available resources in the most effective ways with minimum human and resource expenses. Minimum cost of production enable a firm to produce in large quantity to meet the market demand. Therefore cost reduction brings about large market, high turnover, maximum profit and high market value to the firm and economy. A manufacturing firm or an economy whose enjoys average low cost of production, manufacturing products or services will surely have trade advantage in the production of product or service either in the industry or in the international trade. According to Goldfarb and Trefler (2018), the fixed cost of building AI capability brings about economies of scale and economies of scope to a firm. The firm overheads cost of personnel are reduced as a result of economies of scale and scope, resulting to higher production with minimum cost, higher turnover and returns. Ferencz, Javier and Garcia (2022), opined that artificial intelligence (AI) has strong potential to spur innovation, help firms create new value from data, and reduce production trade costs. These are the most efficient processes that have placed AI adoptable firms at competitive edges in term of products and market values.

### *Trade Advantage*

Trade advantage is the comparative cost advantage a firm or an economy has over others. Many developed economies enjoyed trade advantages over under developed or developing economies due to technological changes adoption. The future market would depend heavily on AI and quest for 5<sup>th</sup> industrial revolution is at actualization which raises questions against the countries of the world which still lagged behind (Davenport, Guha, Grewal & Bressgott, 2020). According to Meltzer (2018), the development of AI increases productivity growth, economic growth and new opportunities for



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international trade. The AI economies such as United State, China and European Union have enjoyed increasing production, increasing economic growth and great opportunities in international trade.

Below flow chart presents the relationship that exist between the concepts reviewed above:

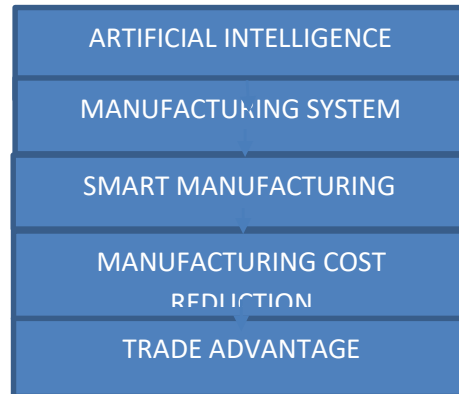


Figure 2.1: *Study Framework*

Figure 2.1 shows the relationship that exist between the concepts reviewed for this research. Meltzer (2018) concluded that AI has capacity to increase productive of goods and services of any economy for trade advantages and economy growth. Goldfarb and Treffer (2018) opined that artificial intelligent brings about economics of scale and comparative advantages. This has placed countries like China, United States of America, Britain and others at trade advantages overtime. These countries control the largest share of world market for products and services for economy prosperity and superiorities over other countries. The trade superiority of industrial nations is as a result of AI applicability in their manufacturing activities leading to smart manufacturing, cost reduction and accurate trade prediction and advantages (Yu, Wang & Lai, 2007)

### 3. THEORITICAL FRAME WORK

Modern production long run cost theory is adopted for this research due to its superiority over traditional production cost theory. The traditional production cost theory assumed technological factor as exogenous and constant over time (Koutsoyiannis, 1975). Therefore traditional cost theory analyses the behavior of cost activities in the short run and long run and arrives at the conclusion that both the short-run and long-run cost curves are U-shaped but the long-run cost curves are flatter than short-run cost curves (Nwokoye & Ilechukwu, 2018). U-shaped curved is the curve that relates the various units of output to its average costs as plants are installed in long-run to increase a firm output. Each plant instalment brings about increase in output and decrease in average cost but that decrease in average cost per output takes another upward movement above optimal point of planned plants installation. This is in oppose to the modern cost theory which is L-shaped. The economists have assigned the following reasons for the L-shaped curved as technological progress among others. As a firm faces technological progress, there would be increased in output and low average cost at every stages of technological change. This is in consonant with realistic in modern production activities because the modern cost theory put into consideration economies of scale enjoyed by the firm over time as result of long time production, managerial skill accumulated and technological expansion (Jhingan, 2004). In the modern production activities where firms enjoyed economies of scale such as technological progress and innovation, a firm is faced to witness increase in output with low cost of production. Base on this theoretical frame work, the applicability of Artificial intelligence as technological change in production process will result to increase in output, reduction in production cost and maximization of profit.

### 4. CASE-STUDY OF ARTIFICIAL INTELLIGENT MANUFACTURING FIRMS AND NON AI MANUFACTURING FIRMS

In the evolution of technological changing in the world, African industrial sectors have always slide behind compare to their counterpart in Euro, America and Asian countries. It's on that base African manufacturing companies will be classified under AI noncompliance countries while companies around



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Euro, American, Asian and others which literature has shown to be adoptable to AI in their industrial activities are categorized under AI adoptable countries. The table below presents the selected companies, the product or service of business, their countries, market values and AI exposure levels.

Table 1: Financial Worth of randomly selected companies in trillion, billion and millions of dollar, product or service of business, countries and their level of exposure to artificial intelligence (Source: gurufocus)

COMPANIES	PRODUCT OR SERVICE OF BUSINESS	COUNTRY	MARKET VALUE	AI ADOPTED/ LEVEL OF EXPOSURE
Apple	multinational technology company that specializes in consumer electronics, software and online services	USA	\$2.901 Trillion	Yes/High
IBM	Mutinational technological holding company	USA	\$119.86Billion	Yes/High
Alphabet	Multinational Technology conglomerate holding company	USA	\$1.311 Trillion	Yes/High
Microsoft	multinational technology corporation which produces computer software, consumer electronics, personal computers, and related services	USA	\$2.522 Trillion	Yes/High
Amazon	multinational technology company that focuses on e-commerce, cloud computing, digital streaming, and artificial intelligence	USA	\$1.691 Trillion	Yes/High
Tesla	multinational automotive and clean energy company	USA	\$1.061 Trillion	Yes/High
Berkshire Hathaway	multinational conglomerate holding company	USA	\$669.12Billion	Yes/Rising
Facebook	An online social media and social networking service	USA	\$935.64Billion	Yes/High
Exxo mobil	Oil and energy company	USA	\$259.38Billion	Yes/Low (rising prospect of full adoption of AI)
Johnson & Johnson	Consumer Health - MedTech - Pharmaceutical Products co	USA	\$450.35Billion	Yes/Rising
JP Morgan Chase	Multinational Investment banks and financial service holding com	USA	\$466.19Billion	Yes/Rising
Wells Fargo	Mutinational financial company	USA	\$186.44Billion	Yes/Rising
Tencent Holdings	multinational technology and entertainment conglomerate	China	\$562.84Billion	Yes/High
Alibaba	Multinational technology company specializing in e-commerce, retail, Internet, and technology growth and new opportunities for international trade.	China	\$330.67Billion	Yes/High
Pioneer Foods Group.	Foods and other subsidiaries	South Africa	\$22,272Million	Yes/Low (high future prospect of full adoption of AI)
Innoson Vehicle Manufacturing	Manufacturer Automobile cars	Nigeria	\$1.5 Billion	Yes/Low (high future prospect of full adoption of AI)
Tiger Brands Limited	Food and Beverages Company	South Africa	\$31.27 Billion	Yes/Low (high future prospect of full adoption of AI)
Dangote Group	Industrial conglomerate producer	Nigeria	\$276,054Million	Yes/Low (high future prospect of full adoption of AI)
Aspen	Pharmaceutical Industry	Nigeria	\$121 Million	Yes/Low (high future prospect of full adoption of AI)





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Note: Market capitalization of the top companies in USA, China and top Africa Companies as at 31<sup>st</sup> September, 2021 from PWC (2021). Market value and exposure level are our comparative assessment of role of AI in performance of the selected companies.

Table 1 lists the top 14 companies in the world and the top 5 companies in Africa. The table shown that American companies are taking the lead in the application of AI with positive reflection of that in their market values. The market values of USA companies range from trillion to millions of dollars which are indicators of efficiency production. Most of these top companies are heavenly engaged in AI like (Apple, IBM, Alphabet, Facebook and Microsoft) while others are in finance service, pharmaceutical, energy and oil. Nobody ever believed Chinese companies would come close in the world top multinational companies. The world leading multinational technology, entertainment conglomerate, e-commerce are Chinese owned private companies (Alibaba and Tencent holdings). Chinese companies have turned their low quality products into quality standard commodities as a result of AI application in their industrial activities. Low level of adoption of AI in the manufacturing system of African companies have put them at disadvantage in competitive world market. The top 5 African companies could not make the best 50 top companies in the world in the last world companies ranking (Forbes, 2022). This is obvious in the financial worth of top companies reported in the table above where the financial worth of companies like Apple, IBM, Alphabet, Microsoft, Alibaba and Tencent holding are in trillion and billion dollars respectively (\$2.901 Trillion, \$119.86Billion, \$1.311Trillion, \$2.522 Trillion, \$562.84Billion, \$330.67Billion) The Africa companies highest market value among the top 5 Africa companies is \$31.27 Billion from Tiger Brands Limited a South African company which deals in production of food and beverages. Innoson Vehicle Manufacturing Company is a Nigeria company whose net worth is \$1.5 Billion while others in the Africa chart have less than a billion net worth. Products and services of business in African companies cover foods and beverages manufacturing, industrial products and conglomerate, pharmaceutical products and automobile. The application of AI in the production processes of African companies are at retail marketing of their products and services. The financial service companies in African such as banks and insurance companies operate fully e-commerce and little of other AI support services. Banks are gradually embracing the using of AI in e-commerce and internet banking. There is also evident of Agricultural company in Kenya (Apollon) pushing forward in the application of AI in its agricultural operation. These are indicators of possibilities and prospects of the continent companies embracing the application of artificial intelligence in full capacity in nearest future.

### 5. CONCLUSION AND RECOMMENDATION

It is evident from the study that the future of human activities will surely depend on artificial intelligent and machine learning. This is as a result of the fourth industrial revolution yielding positive outcomes to every segment of the world economic activities and the world is fully ready to embrace the coming of fifth industrial revolution. It is on this note that the study is recommending that the countries of the world operating at slow pace of embracing technological change should wake up from their slumbers by forging a formidable for front in term of government private partnership for huge investment and conducive environment as applicable in western world. The recommendation is capable of laying a good foundation for the continent manufacturing firms adopting AI and machine learning at optimal capacity. We are looking at the future autonomous cars will be manufactured in the Africa continent, a future where manufacturing robots supporting system be adopted, a future where the continent will produce the best researchers in AI and machine learning algorithm to proffer solutions to many problems bedeviled the continent in term of low productivities and economic growth, abject poverty, security unrest, poor trade competitiveness and others.

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### ESTIMATION OF CARBON STOCK IN KPH BATUTEGI , LAMPUNG, INDONESIA (STUDYCASE IN AGROFORESTRY AND MONOCULTURE)

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#### **Abstract**

Changes in land use are basically unavoidable due to rapid population growth and the increasing community. The increase in the use of agroforestry and monoculture has a major impact on the ecological and economic aspects but often has an interest in land use and there is a mismatch between land use and the plan to be achieved. The purpose of the study was to determine stocks carbon which is managed agroforestry and monoculture. The research method used is secondary data, namely data that has been collected by other parties. The results obtained when viewed from the carbon stock in the study (Wulandari et., al, 2021) kph Batu Tegi on complex agroforestry has a carbon stock of 765.61 tons/ha, while in monoculture coffee land the carbon stock is only 13 tons C/Ha (Hairiah and Rahayu, 2010). Agroforestry systems have a greater ability to absorb and store carbon than crop-based farming systems or monocultures. This is due to the presence of trees that have high biomass and inputs of various quality litters and occur continuously, causing carbon stocks in agroforestry to be higher than in monoculture.

Keywords— Land Use, Agroforestry, Monoculture

#### **INTRODUCTION**

Land use change is a process where part or all of the function area changes from its original function to another function (Tiandi, 2016). This land change occurs dynamically and tends to coincide with population growth. The higher the population, the higher the need for land in settlements, which will cause a decrease in the carrying capacity. (Ariani and Harini, 2012). Population growth makes land use problems more complex and competitive (Suputra, 2012). Proper land management is needed to control ecological and economic requirements.

The pressure land availability due to population growth is a trigger for farmers to identify management systems between agroforestry and monoculture (Khususiyah, *et al.*, 2013). Agroforestry, which is generally known as mixed gardens with components of annual and seasonal crops, is used as an alternative chosen by the community with limited, because it is considered capable of providing sustainable income (Diniyati *et al.*, 2010). In a monoculture agricultural system, it is a cultivation step on an agricultural, namely by planting only one type of plant (Siregar, 2017). Therefore, the monoculture system more efficient.

Differences in the type of cropping pattern and the commodities planted cause the treatment carried out must be different, such as the handling and costs incurred by farmers, and the income earned by farmers is also different (Shinta, 2011). Determination of the management system applied by farmers will determine production results and is expected to maintain the environment in a sustainable manner. Based on these problems, researchers want to conduct a study on the effect of agroforestry and monoculture on ecological and economic aspects. The results of this study are expected to be useful for all parties with an interest in forest development, especially for KPH BatuTegi, Lampung, Indonesia.

#### **MATERIALS AND METHODS**

The research method used is secondary data, namely data that has been collected by other parties (Kuncoro, 2013). In this study, secondary data was obtained from various secondary sources (related institutions) and other data sources from internet network access such as journals, reports, and so on. The object of this research is agroforestry and monoculture. Therefore, the secondary data analysis



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research step is relatively "short." Secondary data analysis includes 2 main processes, namely collecting data and analyzing it (Katherine and Caston (2005),

### RESULTS

Changes in use are largely unavoidable during development implementation, and rapid population growth and increasing community often lead to conflicts of interest and mismatches between established plans (Khadiyanto, 2005). Given the importance of forests for the future, special attention needs to be paid to reducing forest areas converted to agricultural. Farmers management is expected to remain focused on economic aspects, such as planting types of plants with high economic value, while still focusing on ecological aspects, namely protecting areas and biodiversity that function as carbon stocks.

Based on studies from various literatures in research (Wulandari *et al.*, 2021) KPH BatuTegi in complex agroforestry has carbon stocks of 765.61 tons/ha, while in monoculture coffee fields the carbon stocks are only 13 tons C/ha on average (Hairiah and Rahayu, 2010). Large carbon stocks in agroforestry have the ability to absorb and store carbon stocks greater than the monoculture crop-based agricultural system, this is because agroforestry has a large number and types of trees so that its physical and dynamics resemble natural forests. The number and type of trees will affect the amount of plant biomass so that it will automatically affect the amount of carbon store (Danial *et al.*, 2019). In addition, tree diameter and height also affect the amount of carbon biomass (Insusanty *et al.*, 2017).

The application of agroforestry systems is considered ecologically better, especially in terms of sequestering and storing carbon stocks, because agroforestry combines various types of plants on a plot (Irawan *et al.*, 2012), so that it is similar to natural forest conditions that are able to maintain environmental conditions in a sustainable manner. through its ability to absorb carbon dioxide from the air (Sari, 2010) and preserve biodiversity. Carbon stocks calculated from plant biomass in systems are used as environmental indicators because they are closely related to ecological processes, because plant species produce litter of various qualities, soil fertility conditions, occurrences in surface and soil water systems in the soil and carbon cycle, an issue. in the era of climate change. The application of an agroforestry system that is applied relatively to combine crops because it is considered capable of providing sustainable income with the aim of increasing crop production (Alfatikha *et al.* 2020). Economically, agroforestry models offer higher yields than monocultures for annual crops.

There is a need for government policies in the context of managing forests that are used as agriculture, one of which is the application of the agroforestry system which is seen as necessary to be applied as a solution to harmonize the realization of sustainable agricultural development and sustainable forest management towards a prosperous society (Amrullah, 2008). Agroforestry is expected to be a bridge in overcoming the need for agriculture while maintaining forest and environmental functions such as global warming. Agroforestry is also projected to be a way to increase prosperity as well as to overcome global problems, such as environmental degradation, poverty, and global warming (Rianse and Abdi. 2010). Efforts to harmonize various aspects of interest while maintaining environmental sustainability are a challenge in realizing this. Seeing the complexity of the problems that occur in the agricultural sector, we need an agricultural model that can be applied to support the achievement of sustainable agriculture in Indonesia such as agroforestry (Fahruni. 2017).

### CONCLUSION

Estimation of carbon stocks in agroforestry systems has the ability to absorb and store greater carbon than agricultural systems based on seasonal crops or monocultures. This is due to the presence of trees that have high biomass and inputs of various quality litters and occur continuously, causing the carbon stock value in agroforestry to be higher than in monoculture.

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### A CRITIQUE OF K.S. PUTTASWAMY JUDGEMENT OF THE SUPREME COURT OF INDIA

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The post discusses the decision of the Hon'ble Apex Court in Justice K S Puttaswamy (Retd.), and another versus Union of India and Others, decided on 24 August, 2017.

#### Background

In *M.P. Sharma and Ors. vs. Satish Chandra, District Magistrate, Delhi and Ors.*, 1950 SCR 1077, an eight-Judge Constitution Bench held that a search or seizure does not infringe the constitutional right guaranteed by Article 20(3) of the Constitution.

In *Kharak Singh vs. The State of U.P. and Ors.*, 1962 (1) SCR 332, a six-Judge Constitution Bench held that the freedom to move freely throughout the territory of India, guaranteed by Article 19(1)(d) was not infringed by a midnight knock on the door of the petitioner since "his locomotion is not impeded or prejudiced in any manner. It further held Clause (b) of Regulation 236 which provided for domiciliary visits at night was violative of Article 21.

Justice K S Puttaswamy (Retd.), and another versus Union of India and Others -

Following aspects of privacy were discussed -

- (i) Whether there is a constitutionally protected right to privacy;
- (ii) If there is a constitutionally protected right, whether this has the character of an independent fundamental right or whether it arises from within the existing guarantees of protected rights such as life and personal liberty;
- (iii) the doctrinal foundations of the claim to privacy;
- (iv) the content of privacy; and
- (v) the nature of the regulatory power of the State.

Order of the Apex Court (Para T) -

The Nine Judge Bench comprised of CJI JS Khehar, Justice Chelameswar, Justice K Kaul, Justice D Chandrachud, Justice K Agrawal, Justice A Bobde, Justice A Nazeer, Justice DY Chandrachud, Justice AM Sapre. The Bench held as follows-

- (i) The decision in *M P Sharma* which holds that the right to privacy is not protected by the Constitution stands over-ruled;
- (ii) The decision in *Kharak Singh* to the extent that it holds that the right to privacy is not protected by the Constitution stands over-ruled;
- (iii) The right to privacy is protected as an intrinsic part of the right to life and personal liberty under Article 21 and as a part of the freedoms guaranteed by Part III of the Constitution.



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(iv) Decisions subsequent to Kharak Singh which have enunciated the position in (iii) above lay down the correct position in law.

Major Observations in the Judgment of Justice S. Abdul Nazeer -

The basic question whether privacy is a right protected under our Constitution requires an understanding of what privacy means. For it is when we understand what interests or entitlements privacy safeguards, that we can determine whether the Constitution protects privacy. The contents of privacy need to be analysed, not by providing an exhaustive enunciation or catalogue of what it includes but by indicating its broad contours. (Para 7)

Privacy postulates the reservation of a private space for the individual, described as the right to be left alone. The concept is founded on the autonomy of the individual. The ability of an individual to make choices lies at the core of the human personality. (Para 168)

Individual dignity and privacy are inextricably linked in a pattern woven out of a thread of diversity into the fabric of a plural culture. (Para 169)

Every individual in society irrespective of social class or economic status is entitled to the intimacy and autonomy which privacy protects. (Para 157)

It is privacy as an intrinsic and core feature of life and personal liberty which enables an individual to stand up against a programme of forced sterilization. Then again, it is privacy which is a powerful guarantee if the State were to introduce compulsory drug trials of non-consenting men or women. The sanctity of marriage, the liberty of procreation, the choice of a family life and the dignity of being are matters which concern every individual irrespective of social strata or economic well being. The pursuit of happiness is founded upon autonomy and dignity. Both are essential attributes of privacy which makes no distinction between the birth marks of individuals. (Para 157)

The emergence of new challenges is exemplified by this case, where the debate on privacy is being analysed in the context of a global information based society. In an age, where information technology governs virtually every aspect of our lives, the task before the Court is to impart constitutional meaning to individual liberty in an interconnected world. While we revisit the question whether our constitution protects privacy as an elemental principle, the Court has to be sensitive to the needs of and the opportunities and dangers posed to liberty in a digital world. (Para 2)

Technology, as we experience it today is far different from what it was in the lives of the generation which drafted the Constitution. Information technology together with the internet and the social media and all their attendant applications have rapidly altered the course of life in the last decade. Today's technology renders models of application of a few years ago obsolescent.

The Constitution's continued relevance lies precisely in its ability to allow succeeding generations to apply the principles on which it has been founded to find innovative solutions to intractable problems of their times. In doing so, we must equally understand that our solutions must continuously undergo a process of re-engineering. (Para 151)

Over the last four decades, our constitutional jurisprudence has recognised the inseparable relationship between protection of life and liberty with dignity. Dignity as a constitutional value finds expression in the Preamble. The individual is the focal point of the Constitution because it is in the realisation of individual rights that the collective well being of the community is determined. Human dignity is an integral part of the Constitution. Reflections of dignity are found in the guarantee against arbitrariness (Article 14), the lamps of freedom (Article 19) and in the right to life and personal liberty (Article 21). (Para 96)

The sanctity of privacy lies in its functional relationship with dignity. (Para 113)

To recognise the value of privacy as a constitutional entitlement and interest is not to fashion a new fundamental right by a process of amendment through judicial fiat. Neither are the judges nor is the process of judicial review entrusted with the constitutional responsibility to amend the Constitution. (Para 113)





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Constitutions which, like the Indian Constitution, contain entrenched rights place the dignity of the individual on a high pedestal. Despite cultural differences and disparate histories, a study of comparative law provides reassurance that the path which we have charted accords with a uniform respect for human values in the constitutional culture of the jurisdictions.

Why Privacy is paramount as a right -

(a) It enables each individual to take crucial decisions which find expression in the human personality. It enables individuals to preserve their beliefs, thoughts, expressions, ideas, ideologies, preferences and choices against societal demands of homogeneity. Privacy is an intrinsic recognition of heterogeneity, of the right of the individual to be different and to stand against the tide of conformity in creating a zone of solitude. Privacy protects the individual from the searching glare of publicity in matters which are personal to his or her life. Privacy attaches to the person and not to the place where it is associated. Privacy constitutes the foundation of all liberty because it is in privacy that the individual can decide how liberty is best exercised. (Para 168)

(b) The notion of privacy enables the individual to assert and control the human element which is inseparable from the personality of the individual. The inviolable nature of the human personality is manifested in the ability to make decisions on matters intimate to human life. The autonomy of the individual is associated over matters which can be kept private. These are concerns over which there is a legitimate expectation of privacy. The body and the mind are inseparable elements of the human personality. The integrity of the body and the sanctity of the mind can exist on the foundation that each individual possesses an inalienable ability and right to preserve a private space in which the human personality can develop. Without the ability to make choices, the inviolability of the personality would be in doubt. Recognizing a zone of privacy is but an acknowledgment that each individual must be entitled to chart and pursue the course of development of personality. Hence, privacy is a postulate of human dignity itself. (Para 168)

(c) Privacy represents the core of the human personality and recognizes the ability of each individual to make choices and to take decisions governing matters intimate and personal. (Para 169)

(d) Privacy ensures that a human being can lead a life of dignity by securing the inner recesses of the

human personality from unwanted intrusion. Privacy recognizes the autonomy of the individual and the right of every person to make essential choices which affect the course of life. In doing so, privacy recognizes that living a life of dignity is essential for a human being to fulfill the liberties and freedoms which are the cornerstone of the Constitution. (Para 113)

### **Evaluation**

The right to privacy is one of those rights that would be relevant for years to come. The Apex Court once again liberally interpreted Article 21 of the Constitution of India. The order is appreciable as it clearly and expressly over-ruled two previous judgments on the right to privacy. The decision has made it clear that human dignity and privacy are inter-related. The decision elaborated the various reasons as to significance of privacy for an individual.



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### ECONOMIC BENEFITS OF COMMUNITY FORESTRY GROUP MEMBERS FROM COFFEE-BASED AGROFORESTRY: A CASE STUDY IN THE JAYA MAKMUR GROUP (SUKA MAKMUR), WEST LAMPUNG, INDONESIA

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#### Abstract

Community forest or HKm is a State forest that is utilized in collaboration with the government and local communities as an effort to improve people's welfare and environmental balance (Permen LHK NO 9. of 2021) with a planting system using an agroforestry pattern. Agroforestry is managed by combining forest crops with agriculture, but in managing the forest in order to keep it running well there are several things that must be considered, one of them is the economic problem of the community. This research was conducted in the area of community forest (HKm) Jaya Makmur, located in West Lampung, which is close to Mount Pesagi which is one of the highest mountains in Lampung. The purpose of this research is to examine the benefit of agroforestry-based coffee that is produced by HKm community members. This research was conducted in March 2022 by looking for information that is a source of income and costs incurred by the community to manage HKm. Data collection uses interview, observation and literature study techniques, data analysis is carried out quantitatively and qualitatively descriptive by looking at the income of the community from the inputs produced (grown, community income for services) and output of community expenditures in managing and raising animals or cattle. Based on the results of the research on community planting patterns using a combination using agroforestry-based coffee that combined by MPTS (pete, guava, jengkol, Tangkil, jackfruit, coconut, longan, cloves) and agricultural crops (chili, banana, empon-empon, vegetables, Dutch eggplant) and woody plants (mahony and trembesi). The results of community income based on inputs (harvest income and service income) and output (costs for managing agricultural and livestock management), which are issued to manage, are Rp. 1,700.000 to Rp. 2,000,000 (below the Regency Minimum Wage).

**Keywords:** Economic, Community forestry group, Coffee-based

#### INTRODUCTION

Social Forestry (HKm) is a forest management system located in forest areas, either state forests or Forest Rights/Customary Forests implemented by Local Communities in collaboration with the government to improve community welfare (Permenhut P.88/Menhut-11/2014). The purpose of HKm is to improve the welfare of the community by utilizing natural resources in the forest, but the forest remains sustainable Kaskoyo et al. (2017). In the HKm land management system, namely with the agroforestry method, agroforestry is a combination of forestry and agricultural crops on one land simultaneously

Agroforestry is the right use of land for the short and long term. Agroforestry can improve the welfare of the community from economic functions that help to meet the needs of the community and ecological functions that maintain and stabilize the environment (Tamrin et al. 2017). On agroforestry land, the composition of the type of plant determines the level of income of the people, the more crops that are planted, the more value it is to get economic results.

HKm Jaya Makmur is located in West Lampung which is located adjacent to the foot of Mount Pesagi which is one of the highest mountains in Lampung, at first the Jaya Makmur group planted coffee plants on land with state forest status, there is an HKm policy of cooperation between the local community and the community government is allowed to manage coffee plants on the condition that they do not cut down trees, therefore this study aims to find out the income of farmers on HKm jaya makmur group



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### MATERIALS AND METHODS

This research was conducted in March 2022 by seeking information on sources of income (income from agroforestry systems and non-agroforestry income), the steps for research activities are as follows:

1. Thirty farmers as chosen respondent using Quota Sampling method in Suka Makmur Village
2. Collecting data using interview techniques using questionnaires, observation and literature study, data analysis was carried out in quantitative and qualitative descriptive
3. Descriptive data by looking at community income from inputs generated from agroforestry , and non-agroforestry in the form of (farm, traders or service income)
4. Data Collection and Tabulation using Ms. Excel
5. The income used is the income range, by looking at the lowest and highest income

### RESULTS

Based on the results of research on HKm Jaya makmur plants are grouped into three types, namely MPTS (Multi Purpose Tree Species) plants, this plant is a type of woody plant but not only produces wood, but also its leaves and fruits can be used for humans and livestock (Kartasubrata, 1991), MPTS plants are presented in the Table. 1

**Table 1.** Types of MPTS

No	Local name	Scientific Name
1	Tangkil	<i>Gnetum gnemon</i>
2	Cengkeh	<i>Syzygium aromaticum</i>
3	Durian	<i>Durio spp</i>
4	Mangga	<i>Mangifera spp</i>
5	Alpukat	<i>Persea Americana</i>
6	Jambu Biji	<i>Psidium guajava</i>
7	Petai	<i>Parkia speciosa</i>
8	Kayu Manis	<i>Cinnamomum spp</i>
9	Jengkol	<i>Archidendron pauciflorum</i>
10	Nangka	<i>Artocarpus heterophyllus</i>
11	Jambu Air	<i>Syzygium spp</i>
12	Aren	<i>Arenga pinnata</i>
13	Kelengkeng	<i>Dimocarpus longan</i>

Based on Table 1. There are thirteen types of MPTS planted by the HKm Jaya Makmur group namely tank plants, cloves, durian, mango, avocado, guava, petai, cinnamon, jengkol, jackfruit, water guava, palm and longan. Based on the results of interviews with the community, there are some MPTS plants that have existed for a long time, including durian, mango, avocado, guava, petai and jackfruit plants. Palm plants in HKm Jaya Makmur are plants that grow alone, no one has grown palm plants, this is because to grow palm plants requires special breeding techniques while the community does not know about palm planting techniques. Tree species on HKm Jaya Makmur are presented in Table 2.

**Table 2.** Tree Species

No	Local nama	Scientific Name
1	Trembesi/Ki Hujan	<i>Samanea saman</i>
2	Kayu afrika	<i>Maesopsis eminii</i>
3	Mahoni	<i>Swietenia macrophylla</i>



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Based on Table 2 types of tree species at HKM Jaya Makmur, there are three types of trembesi, African wood and mahogany plants. The number of woody plants is much less than MPTS, this is because woody plants are not like MPTS that have fruit or other parts that can be harvested so that they can add to the community's economy. Meanwhile, agricultural or plantation crops are presented in Table 3.

**Table 3.** Sources of income for the people of HKM Jaya Makmur

No	Local name	Scientific Name
1	Pisang	<i>Musa spp</i>
2	Kopi Robusta	<i>Coffea robusta</i>
3	Terong Belanda	<i>Solanum betaceum</i>
4	Cabai	<i>Capsicum spp</i>
5	Singkong	<i>Manihot esculenta</i>
6	Ubi Jalar	<i>Ipomoea batatas</i>
7	Jahe	<i>Zingiber spp</i>
8	Labu Siam	<i>Sechium edule</i>
9	Timun	<i>Cucumis sativus</i>
10	Gambas	<i>Luffa acutangula</i>
11	Daun Bawang	<i>Allium fistulosum</i>
12	Kunyit	<i>Curcuma longa</i>
13	Pare	<i>Momordica charantia</i>
14	Strawberry	<i>Fragaria × ananassa</i>
15	Jeruk	<i>Citrus spp</i>

Based on Table 3, the most community incomes from the agroforestry component (agriculture / plantations, forestry and MPTS crops) are taken from the lowest and highest income of Rp. 500,000,000-552,000,000, while the lowest income as a trader out of the 30 responses interviewed there is only one person who owns land with the HKM system but also as a trader. Meanwhile, community results from non-agroforestry service activities provide more results compared to animal husbandry. Income from services is Rp. 104,000,000-156,000,000, while from livestock rp. 3,400,000-4,000,000. The prosperous HKM jaya community does not all have livestock, and the existing livestock are in the form of chickens and goats.

### DISCUSSION

HKM Jaya Makmur is one of the HKM located in West Lampung Indonesia, this HKM has a total area of 900Ha with a Cultivation Zone of 750 Ha. In Indonesia, the HKM program has existed since the 2000s, but not all regions run HKM at the same time, this is because to become a partner of the government in the HKM program, the community must submit a proposal for an HKM permit to the government.

The application of HKM in Jaya Makmur has not been carried out optimally, there are several things that have caused the community to not optimally manage HKM jaya makmur including: (1).not all MPTS plants can produce fruit or other parts that can be harvested so that the community cannot sell, (2). There are some agricultural crops communities that only produce on a small scale to meet the needs of families only, (3). Not all crops can be harvested every month. Based on Table 1, MPTS plant types are much more than forestry plants, this is because MPTS plants are more liked by the community compared to woody plants because for the community MPTS plants provide more economic contributions to the community, for the mpts plant community, namely wood plants have many multipurpose benefits in terms of ecology and from an economic point of view, and produce wood and non-timber commodities (Indriyanto et al. , 2019). The agroforestry system on HKM land with community gardens is very different, in community gardens woody plants and MPTS plants so that they can increase people's income, while for HKM lands the community can use the plants in the HKM but



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cannot cut down trees. Privately owned fields or gardens with a larger composition of agricultural and forestry crops can be traded so that they can greatly increase people's income from agroforestry types (Winarni, 2016)

The economic income of the community (Table 3) economic income per household / per month, which is Rp. 1,700,000-2,000,000, this income is still very low, which is below the Minimum Wage (UMK) of West Lampung Regency. Based on the Decree of the Governor of Lampung Number: G / 657 / V.08 / HK / 2021 The minimum wage for the regency (UMK) of Lambar Regency in 2022 is set at IDR 2,536,682.38. This is different from the research of Puspasari et al, (2017) on HKm Tani Bina Wana (BW), Rigin Jaya II (RJ II) and Mitra Wana Lestari Sejahtera (MWLS) which are in the same district, the structure of farmers' income from agroforestry activities in the HKm work area of Rp. 24,815,000 / kk / year and from non-agroforestry activities of Rp. 13,026,975 / kk / year with agroforestry contributions and from the total income of farmers of 65.57%. The level of welfare of farmers, 93 % is in the category of prosperous. This is because not all plants in HKm Jaya makmur have been produced. This is in line with Hermawati's research (2016) the diversity of plant types produces more economic value than planting only one type of plant or monoculture.

### CONCLUSION

The results of the research on the types planted in HKm Jaya Makmur are: MPTS types, tree species, and agricultural crops. community income of Rp. 1,700,000 - Rp. 2,000,000 value below the District Minimum Wage

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### AZERBAIJAN (CAUCASUS-CENTRAL ASIA) TOURISM STRATEGY IN FOREIGN TRADE AND LOGISTICS

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#### Abstract

Central Asia is an important area for international trade. The wealth of energy and economic potential makes Central Asia attract the attention of the superpower countries and several regions around it. This is also supported by the strategic location of the region that connects the Asia Pacific and Europe regions as an alternative to sea transportation. One of the economic potentials of the Central Asia region is tourism. Kazakhstan is a Central Asian state that is the target of the world tourism market because it has the largest potential for outbound tourists. Seeing the huge potential of the tourism market, Azerbaijan, the Caucasus state, which has the largest tourism economic potential, is also very eyeing the Central Asian region, especially Kazakhstan, to become the target market for Azerbaijan tourism tourists. The tourism potential offered by this country is seasonal tourism, medical tourism, and cultural tourism. Azerbaijan tourism area is also a land transportation link between Central Asia and Europe as well as part of the Silk Road region, a very strategic area in the world of international trade. Therefore, Azerbaijan has formulated many tourism strategies to attract the Kazakh tourist market in international trade. This study aims to describe the strategy of the country of Azerbaijan to attract Kazakh tourists in international trade. This study uses a descriptive qualitative method with data collection techniques using a literature review on tourism strategies. The results show that Azerbaijan's tourism strategy is to make the target of international tourists into the long-term strategic agenda since 2020 including the development of medical tourism, cultural tourism, seasonal tourism, ecotourism, business tourism, and rural tourism; improving the quality and quantity of services; improvement of means of communication; simplification of procedures for entering and leaving the country; infrastructure improvements; increasing tourism awareness; and strengthening promotion and marketing.

**Keywords:** International Trade, Strategy, Tourism.

#### INTRODUCTION

Central Asia is an important region for international trade. Geographically, Central Asia is in the middle of the Asian continent that connects the East Asia region and Europe, the South Asia region, and Russia in the North Asian part, making this region a trade link between these countries, which is called the Silk Road (JICA, 2017). The strategic location of the region coupled with the wealth of economic and energy potential makes Central Asia attracts the attention of the superpower countries and the countries of the surrounding region. Some of the economic potentials of the Central Asia region include energy and mineral resources, trade, investment, and tourism.



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Figure 1: Central Asia Region Map

Source: JICA studi team

In the tourism economy sector, Kazakhstan is a country in Central Asia that has the largest outbound tourists compared to other countries in the region. The population and the high purchasing power of the people are the driving factors for the high number of tourists from Kazakhstan. Based on data on the number of tourists entering and leaving Central Asia by the World Bank (2014), the number of outbound tourists from Kazakhstan reached 10,230,000 people (M.A., 2016). This sizable amount is fitting for Kazakhstan to become the target of the international tourism market.

One of the countries that are also intensifying the tourism sector in international trade is Azerbaijan. Azerbaijan is a state in the South Caucasus region that is traversed by international trade routes or the Silk Road, so it is considered to have a very strategic location. The geographical location traversed by the Caucasus Mountains with its natural and cultural wealth makes Azerbaijan awarded abundant tourism including cultural tourism, seasonal tourism, business tourism, ecotourism, rural tourism, and medical tourism. Medical tourism in Azerbaijan combines enjoyable recreation and is physically and mentally healthy. Several types of medical tourism include Mount Mud tours, Gelaalti spring tours, Masalli spring tours, Duzdagh Cave tours, and internationally recognized Naftalan oil tours (Abulfat and Faig, 2022).

Around the 1950s and 1960s Azerbaijani tourism was at its lowest among the South Caucasus countries (Abulfat & Faig, 2022). As time goes by, the number of tourists who visit continues to increase but the magnitude of tourism potential is still underutilized. This is due to the lack of business support and accessibility to tourist sites, thus becoming a major obstacle to tourism development in Azerbaijan. In addition, the target market of Azerbaijan's tourism is still focused on countries in Europe. The head of the press service of the State Tourism Agency stated that Europe is one of Azerbaijan's priorities for attracting tourists. Propaganda activities have been carried out by establishing media hubs in Moscow and Dubai to attract Asian and European target markets (Report News Agency, 2019). Based on the statement, it appears that Azerbaijan is starting to look at the European and Asian tourism markets, but efforts to attract tourists from Kazakhstan in Central Asia have not become a priority. In the international trade sector, Kazakhstan is an ideal tourism market target for Azerbaijani tourism. Therefore, considering the huge potential of the tourism market in Central Asia and overcoming the existing tourism barriers, many strategies are needed to attract tourists to visit Azerbaijan.



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### OBJECTIVES

Given the above background, this study aims to describe the strategy of Azerbaijan to attract Kazakh tourists in the context of international trade (foreign trade and logistics).

### MATERIALS AND METHODS

This study uses descriptive qualitative methods with data collection techniques using literature studies on tourism strategies. The descriptive qualitative method is a research method that aims to provide meaning, definition or description, and an in-depth explanation of a phenomenon because this research method uses an interpretative approach. The literature used includes journals, government reports, books, and others.

### RESULTS

Azerbaijan is the only Muslim country in the South Caucasus region and lies on the ancient Silk Road linking Russia and Europe. This country with an area of 82,646 KM<sup>2</sup> has abundant tourism potential including cultural tourism, seasonal tourism, business tourism, ecotourism, rural tourism, and medical tourism.

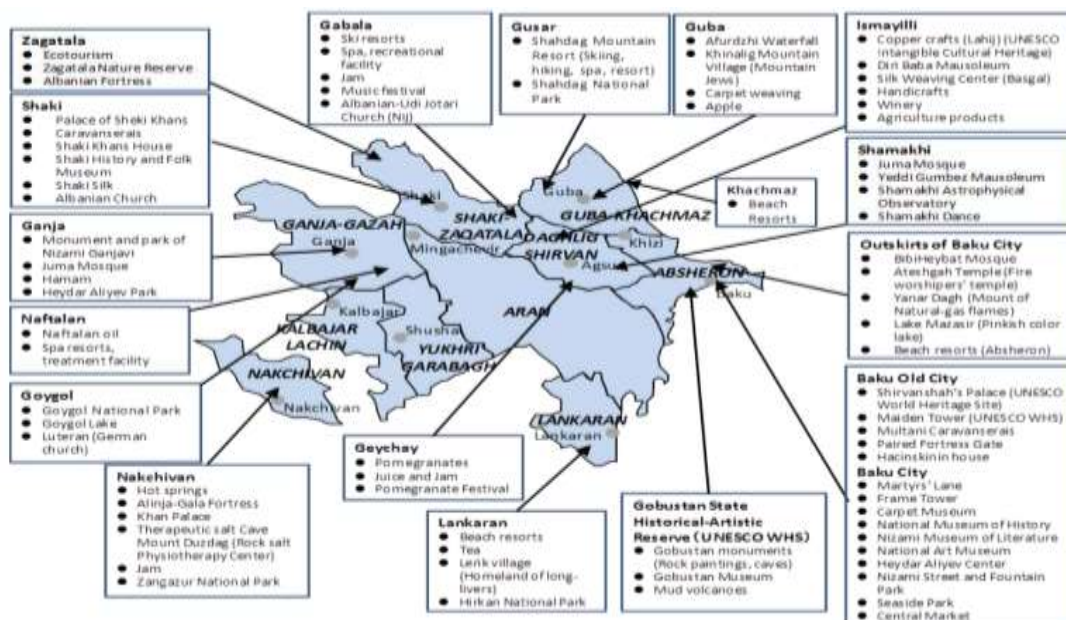


Figure 2: Tourism Potential of Azerbaijan

Source: JICA studi team

Azerbaijan's strategic location at an important point on the Silk Road makes this country unique in its culture from the intersection of orientation culture and western culture. This can be seen in the types of traditional dishes that are heavily influenced by Russia, Turkey, Iran, and Central Asia. In addition, Azerbaijan is also awarded 9 out of 11 world climate zones so seasonal tourism is one type of tourism that is offered to tourists.

Interestingly, Azerbaijan's geographical location, which is traversed by the Caucasus mountains, makes this country have huge oil and gas reserves so some areas have perennial sources of fire caused by the natural burning of land. One of the oil-producing areas in Azerbaijan is Naftalan. Based on historical sources, in the 13th century, Marco Polo referred to Naftalan as "On the Great Tartary" meaning the place where there was oil. In 1898, the Moscow Dermatological Society gave recognition to scientist A. Pospelov who had proven the efficacy of Naftalan oil for skin treatment and was proven to cure (Naftalan City, 2020). Naftalan oil has a special content to treat several skin diseases, rheumatism, and sprains. Residents used to use Naftalan oil as a natural treatment and now it has been produced in the form of packaged oil products.





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Since the beginning of the 19th century, the potential of Naftalan oil began to be in the spotlight of tourists to visit and get natural remedies (COMCEC Coordination Office, 2020). Seeing the huge potential and interest of tourists, the government began to look at this area as one of the targets for developing medical tourism in Azerbaijan. Medical tourism is a tourism innovation that offers two benefits at the same time, namely healthy and enjoyable mentally and physically. Many countries in the world may have similar tourism potential but have not been recognized as a country's tourism potential with great potential. The Azerbaijani state is quite observant in seeing the potential for medical tourism, especially in Naftalan oil tourism which has been recognized internationally. Increased attention to the use of tourism needs to be done by the government in the hope that the number of local and international tourists can continue to increase.

The Azerbaijani government to maximize tourism potential to attract the international tourism market has included tourism development in the government's long-term strategic agenda which has been implemented since 2020, the strategic agenda includes the development of medical tourism, cultural tourism, seasonal tourism, ecotourism, business tourism, and tourism. rural tourism, improving the quality and quantity of services, improving communication facilities, simplifying entry and exit procedures, improving infrastructure, increasing tourism awareness, and strengthening promotion and marketing (JICA, 2017).

The State Tourism Agency of Azerbaijan (STA) as the central executive body implementing state policies established on 20 April 2018 and The Azerbaijan Tourism Board (ATB) as a public legal entity under the STA which is authorized in tourism marketing affairs, have conducted a study on tourism strategy in Azerbaijan aimed at tourism development at local and international level. The Azerbaijan tourism strategy to attract tourists in international trade is divided into 9 parts (Azerbaijan Tourism Board, 2020):

1. Improvement of the institutional framework/tourism policy
2. Research and statistics
3. Innovation and technology
4. Legal framework and taxation
5. Strengthen infrastructure development
6. Public-private-partnership
7. Diversification of the tourism experience in Azerbaijan
8. Professionalizing the marketing and communication of Azerbaijan as a tourism destination
9. Ensure quality in tourism education and training facilities

Thus, Azerbaijan's tourism strategy in attracting local and international tourists is carried out by re-popularizing tourism potential and opportunities for local people to be directly involved in the tourism industry at the local level. Meanwhile, at the international level, the tourism strategy is directed at improving the accessibility and infrastructure of tourism according to world-class demands.

### CONCLUSION

Overall, Azerbaijani state tourism, including medical tourism, is experiencing the same problems with accessibility and business support. Therefore, it can be concluded that the government's strategy to overcome these problems and engage the international tourism market is to increase access to international sea, land, and air transportation, improve tourism infrastructure, promote quality tourism and strengthen local and international tourism institutions.

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### THE ASSESSMENT OF SUCCESSFUL INNOVATIVE PRODUCTS ON THE BASIS OF CROWD FUNDING

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#### **Abstract**

Crowdfunding enables business owners and innovators to obtain funds for their initiatives without the help of conventional financial middlemen thanks to the usage of the internet and a sizable number of relatively modest contributions from individuals. Thanks to crowdfunding, a lot of innovative business entrepreneurs can now raise money. This study aims to measure the impact of innovation through various crowdfunding received. The number of innovators is currently low, and people are more likely to take a job. People are not moving toward becoming entrepreneurs or interested in innovations because it is difficult to obtain seed money to start a business. Understanding how innovations and entrepreneurship affect people's lives and society is crucial. By using successful innovation and crowdfunding as well as successful entrepreneurs and crowd funding, the researcher is attempting to address this issue and identify the precise impact of entrepreneurship and innovation. The alternative hypothesis is that there is an association or correlation between successful innovation and crowdfunding received, contrary to the null hypothesis in this study, which states that there is no association or correlation. We use correlation and regression to analyze manually gathered data from 123 reward-based crowdfunding projects from publicly available data on the crowdfunding website Kickstarter.com, highlighting the characteristics that determine a project's success rate. For the success of crowdsourcing initiatives, we find statistically significant results for area, supporters, and category. Our studies also show how crowdsourcing is extremely beneficial for businesses in the hardware and technology sectors.

**Keywords:** crowdfunding; funding; success rate; innovations, entrepreneurship

#### **1. INTRODUCTION**

Without a doubt, obtaining funding before starting creative initiatives or entrepreneurial businesses is the most challenging endeavour. Due to a lack of connections with banks or venture capitalists or a lack of a solid financial track record or pledge, the creator may encounter difficulty or failure at times while trying to raise money. Crowdfunding in the context of entrepreneurship is defined differently by Agrawal et al. [9] and Mollick [10], who define it as "the efforts by entrepreneurial individuals and groups to fund their ventures by drawing on comparatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries." Although definitions of crowdfunding can vary, they frequently incorporate the following essential elements: I small-scale fund raising, (ii) a platform that connects many people, and (iii) the use of digital technologies [11].



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Aim of this study is to learn the effect of innovative products through different means of impact measurement. Currently, there are not many innovators around, and people are more prone to taking jobs. The mind-set of people is to have a fixed income instead of taking the risk involved in becoming an entrepreneur. Hence, receiving seed funding to become an entrepreneur is a tough task. Hence, people are not moving toward becoming entrepreneurs nor are they interested in innovations.

This paper describes, using a sample of 123 projects hosted by two platforms (Kickstarter.com & wefunder.com) that function digitally on a reward-based basis in the real world, what criteria contribute to the success or failure of a project, as well as which category, location, and supporters are chosen for crowd sourcing.

We will be assuming Null hypothesis H0-There is no association or correlation between the successful innovation and the crowdfunding received and Alternate hypothesis H1-There is an association or correlation between successful innovation and crowdfunding received. To reach our result, we applied the correlation and hypothesis testing methods. Both are explained further down.

### 1.1 STATISTICAL ANALYSIS

**1.1a Statistical hypothesis test:** A statistical hypothesis test is a method for determining if the available data sufficiently support a particular hypothesis. Through hypothesis testing, we can establish probabilistic statements about population parameters. When summarising the direct relationships between two variables, we utilise correlation to gauge how strongly two or more numerical variables are related. No mathematical formula is required. Positive correlation is shown by a correlation coefficient over zero. The correlation coefficient has a range of possible values between -1 and +1, with -1 denoting a fully linear negative correlation (sloping downward) and +1 denoting a perfectly linear positive correlation (sloping upward).

$$r = \frac{\text{Cov}(X, Y)}{\sqrt{s_x^2 s_y^2}} \quad \text{Cov}(X, Y) = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{n - 1}$$

Here Correlation Coefficient is r, Cov(X,Y) is the covariance, i.e., how far each observed (X,Y) pair is from the mean of X and the mean of Y, simultaneously, and  $s_x^2$  and  $s_y^2$  are the sample variances for X and Y.

**1.1b P-Value:** A P-value of 0.05 or less is considered statistically significant. Given that there is less than a 5% chance that the null hypothesis is true, it suggests significant evidence against it (and the results are random). As a result, we accept the alternative hypothesis and reject the null hypothesis.

$$nCr * (p)^r * (1-p)^{n-r}$$

Here, n = no. of trials = 10, r = no. of successes (heads), p = probability of a success = 1/2, and 1-p = probability of a failure = 1/2

**1.1c Scatter plot:** A scatter plot, which compares the dependent and independent variables, is used to determine whether or not there is a connection or relationship between two sets of data.

### 2. LITERATURE REVIEW

Mollick, E. (2014). Through the use of crowdsourcing, for-profit, creative, and cultural endeavours can raise money for their projects by enlisting the support of a sizable number of people who are willing to make small donations. The mechanics of crowdfunded venture success and failure are described in this research. It implies that the success of crowdfunding initiatives is correlated with personal networks and fundamental project excellence. [1]

Venslavienė, S., Stankevičienė, J., & Vaiciukevičiūtė, A. (2021). Choosing the best crowdfund project to invest in is a challenge for every investor. The objective and subjective components of criteria weighting can both be captured by the VASMA weighting methodology. A success element for



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crowdsourcing projects was thought to be the risk factor. The key findings show that the three risk categories' criteria have the largest weights. [2]

Bakker-Rakowska, J. (2014). In the case of co-development, proper funder engagement necessitates email gatekeeping, e-notifications, as well as personal communication. This thesis offers a quantitative, in-depth analysis of seven technologically innovative projects that were funded successfully. The analyses' findings provide some novel and intriguing new insights into the true nature of crowdsourcing. [3]

Borrero-Domínguez, C., Cordón-Lagares, E., & Hernández-Garrido, R. (2020). Crowdfunding projects are more likely to succeed if the people working on them have done similar things before. Based on our results, it seems that crowdfunding for social impact projects that use the ecological typology does not work well. We looked at data from 33,036 investments in 335 crowdfunding projects on the Spanish Goteo platform. [4]

Böckel, A., Hörisch, J., & Tenner, I. (2021) The field of crowdfunding and sustainability is still young, but there are already signs that it is getting more mature. Crowdfunding could be a way for sustainable businesses to gain legitimacy. This is something that needs to be looked into. It is suggested that future research should look at how crowdfunding projects affect staying within the limits of the planet. [5]

Haji Gholam Saryazdi, A., Rajabzadeh Ghatari, A., & Mashayekhi, A. (2019). Crowdfunding is a way to get money for business startups and creative projects that is based on Web 2.0 and social networks. The next part of this article is a full review of the literature about this method. The results of a systematic review of 60 articles written about Crowdfunding up until 2017 have been summed up. [6]

Oba, B., Atakan, S., & Kirezli, O. (2018). Crowdfunding makes it easier for a lot of people to give money to a project. We think that if a project is successful, it will come up with a good value proposition and communicate it well. It seems to show that a project's success is linked to the owners' reputation, the quality of the project, and their ability to be entrepreneurs. [7]

Hervé, F., & Schwienbacher, A. (2018). Crowdfunding could help entrepreneurs come up with new ideas by giving them new ways to get money. Crowdsourcing lets the crowd help the entrepreneur come up with new ideas by giving him or her feedback. This can be done in many ways, like giving suggestions on how to improve the product during and after the campaign (in the spirit of crowdsourcing). [8]

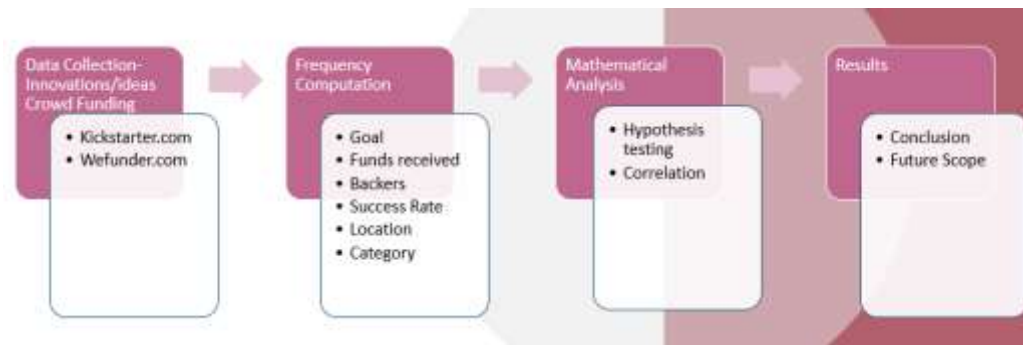
Agrawal, A.; Catalini, C.; Goldfarb, A. (2013). "Crowdfunding" connects artists who are also entrepreneurs with people who want to invest in their music projects. The average distance between artists and investors is about 3,000 miles, which suggests that proximity plays less of a role. Local investors tend to invest early in a single round of financing, and they pay less attention to what other investors do. [9]

Mollick, E. (2014). Crowdfunding lets the creators of for-profit, artistic, and cultural projects get the money they need by getting small donations from a large number of people over the internet. I've found that most founders seem to keep their promises to investors, but more than 75% of them deliver products later than expected. [10]

Jenik, I.; Lyman, T.; Nava, A. (2017) Crowdfunding lets the creators of for-profit, artistic, and cultural projects get the money they need by getting small donations from a large number of people over the internet. This paper talks about the underlying reasons why some crowdfunded projects succeed and others fail. [11]



## 3. METHODOLOGY

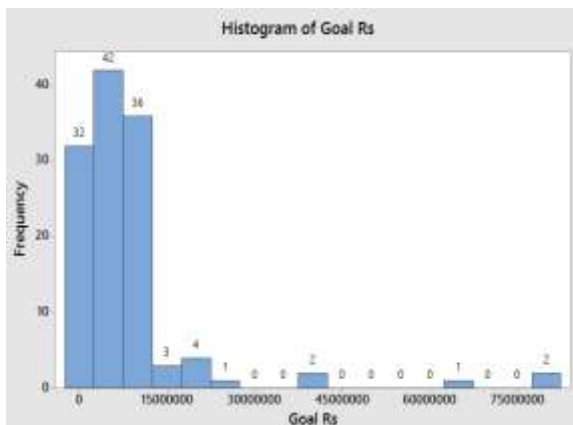


**Figure 1.** Methodology Process

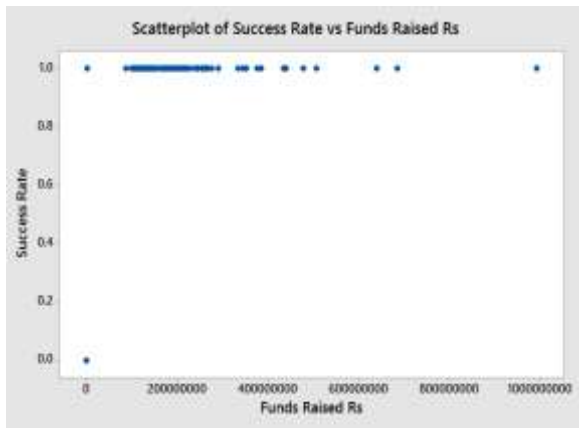
The present study has been conducted with the assistance of secondary information to assess the successful innovative products in regards to crowdfunding. We collected secondary data to assess the successful innovative products in regards to crowdfunding. We selected sample of 123 projects taken from Kickstarter and wefunder.com, the biggest and most popular crowdfunding website, because the purpose of this study is to offer the broadest perspective on crowdfunding. A reward or patronage model is used by Kickstarter. Kickstarter, then is most likely to be a generally beneficial model for assessing crowdfunding initiatives.

As per **Figure 1**. We collected data in the form of targeted Goal, Funds received, Backers, Success Rate, Location and Category from kick starter.com and we fudner.com. We computed data using Minitab software and did the statistical analysis using correlation and hypothesis testing methods. After studying the results we came up with the conclusion.

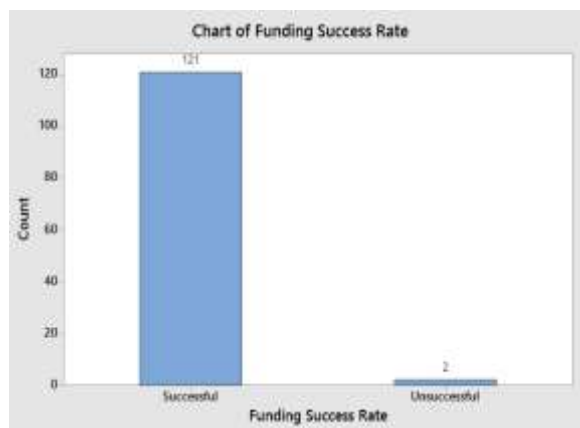
## 4. RESULTS



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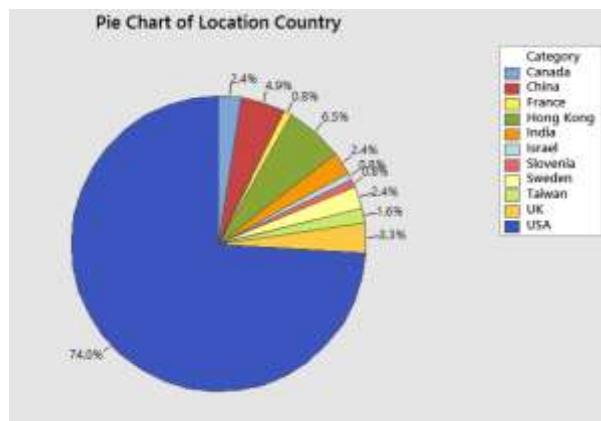


**Figure 4.** Success rate Vs funds raised



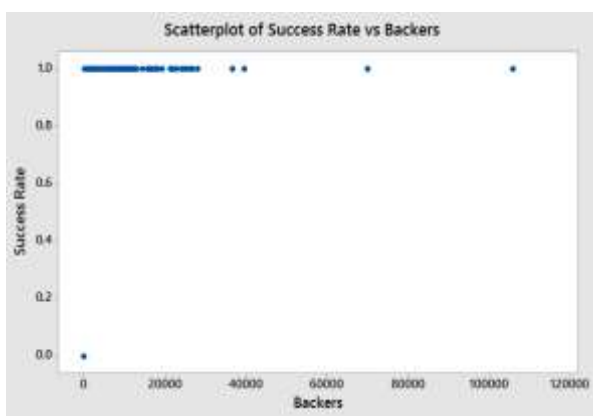
**Figure 5.** Successful vs Non-successful

In statistical analysis **Figure 4.** Scatter plot Success rate versus Funds raised shows that Correlation of Funds Raised Rs. and Success Rate. Pearson correlation of Funds Raised Rs. and Success Rate = 0.192. A correlation coefficient greater than zero indicates a positive relationship. And P-Value = 0.033. As p value is <0.05 H0 is incorrect and we accept the H1. Bar chart in **Figure 5** shows that out of 123, 121 projects were successfully funded and 2 were unsuccessful.

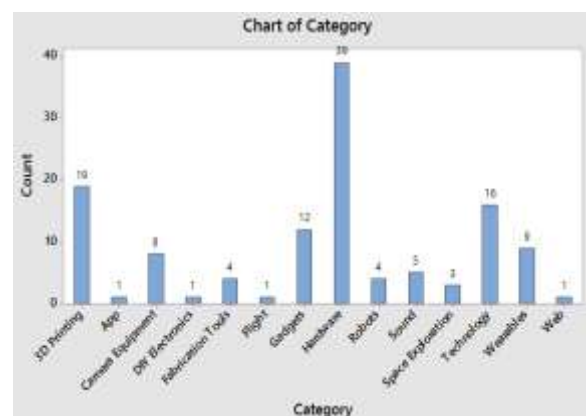


**Figure 6.** Location

The pie chart in **Figure 6. Location** shows the percentage of innovations in different countries supported by backers to raise funds. U.S.A. is by far the most popular option (74%), followed by Hong Kong (6.5 %) and China (4.9%). Approximately half of Hong Kong's innovations (3.3 %) are from the UK. Canada, Sweden, and India were the next most popular options, accounting for nearly 2.4% of respondents, respectively. Taiwan received funding by slightly more than that is 1.6%. Slovenia, Israel, and France were the least popular choices, chosen by less than 0.8% of people.



**Figure 7.** Success rate vs backers



**Figure 8.** Category



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The **Figure 7** scatter plot of backers informs us that a positive, strong, Linear graph shows a strong relation between the success rate of crowd funding and the number of backers.

The **Figure 8.** of the Category shows that what stands out is that 39 of the hardware category's innovations lead the way in terms of the backing by the supporters. Then, 19 3D printing and 16 technological innovations were supported. In comparison, only one DIY Electronics, APP, Flight, and Web project each were crowdfunded. Next, a sharp contrast can be seen between the Robots, sound and Space Exploration with 4, 5 and 3 innovations, respectively. 12, 9 and 8 innovations in Gadgets, Camera Equipment and Wearables were preferred.

### 5. CONCLUSION

This study analyzed the recent 123 projects on kickstarter.com and we funder.com for the assessment of successful innovative products. Crowdfunding has the ability to encourage innovation by providing new sources of money to innovation-driven companies and so lowering the funding gap for innovative entrepreneurs. For the success of crowdsourcing initiatives, we find statistically significant results for area, backers, and category. After applying hypothesis testing and correlation we found that alternative hypothesis is correct. H<sub>0</sub> says that there is an association or correlation between the successful innovation and crowdfunding received.

USA (74%) innovators received the maximum crowdfunding with more successful projects followed by Hong Kong (65%) and China (49%). Our study also shows following categories of innovations were more supported by backers, the hardware (39), 3D Printing (19) and technology (16) sectors. It suggests that the type of project is connected with the success of crowdfunding campaigns, and that geographical considerations influence the nature and success of crowdsourcing. Using successful innovation and crowdfunding as well as successful entrepreneurs and crowd funding, the researcher aims to address this issue and determine the exact impact of entrepreneurship and innovation. The impact on society can get reflected by crowd funding received by the company.

### 6. FUTURE SCOPE

The proposed study will help in building a positive attitude toward crowd funding for innovation and entrepreneurship, which is needed for an hour. A more in-depth examination of the funding period and innovation success rate is possible. If we compare the successful innovation projects in different countries, India has only 2.4%. People in India are not aware of the crowdsourcing resources and are not using them to their full benefits. More research can be done to find ways to make people in India more aware of crowd funding.

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### EDİP CANSEVER'İN ŞİİRLERİNDE “KAÇIŞ” TEMASI THE THEME OF "ESCAPE" IN EDIP CANSEVER'S POEMS

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#### **Özet**

İnsanoğlu içinde bulunduğu bunalımlı ortamdan kurtulmak için çıkışlar, sığınaklar arar. Bu sığınakların arasında din, kadın, içki, hayali beldeler vb. olabilir. İnsan, düş aracılığıyla kendisine itibari bir dünya yaratarak orada yaşamaya çalışır. Fiziksel anlamda yaşadığı sınırları aşamamanın bunalımı içerisindedir. Bunalım anındaki birey kaçış psikolojisi içerisine girebilir. Kaçış, bireyin içinden çıkamadığı, bunaldığı ve depresyona girdiği durumlarda yöneldiği çıkış kapısı gibidir. Bireyin iç ve dış çatışmalarından oluşan ve gerçek dünyada çözemediği sorunlarını hayal dünyasında çözüp rahatlamaya çalışır. Kendisine ve dünyaya yabancılaşan insan, yıkılmış değerler dünyası ve iç çatışmalarıyla baş başa kalır. Psikolojik hastalıkların eşliğindeki birey, kendisinden ve toplumdaki kaçma yolunu tercih eder.

Edip Cansever'in şiirlerinde, kaçış teması önemli yer tutar. Şairin “Umutsuzlar Parkı” başlıklı şiirinde kaçış ve sığınak olarak “park” imgesi kullanılmıştır. Şiirde park imgesi, kent yaşamının kaotik yapısından kurtulmak için tasarlanmıştır. Birçok şiirinde alkole yer veren Cansever'in alkolü de bir kaçış nesnesi olarak algıladığı görülür. Edip Cansever “Sesli Harfler” adlı şiirinde, “sabaha kadar içelim” diyerek, içkiye bakışını belirtir. “Tragedyalar” adlı eserde alkol bir kaçış yolu olarak işlenir. Şair, yer yer içkiden övgüyle bahseder. Kitapta yer yer geçen “Ya alkol olmasaydı” sözü alkolün anlatıcının yaşamına hâkimiyetini anlatılır. Bu çalışmada amaç, Edip Cansever'in şiirlerinde “kaçış” temasının nasıl işlendiğini ortaya koymaktır.

**Anahtar Kelimeler:** Edip Cansever, şiir, kaçış teması.

#### **Abstract**

Human beings look for exits and shelters to get rid of the depressed environment they are in. Among these shelters, religion, women, alcohol, imaginary towns and so on. it could be. Man tries to live there by creating a nominal world for himself through dreams. He is in a crisis of not being able to cross the limits he lives in physically. The individual in a crisis may enter into the psychology of escape. Escape is like the exit door that the individual turns to when he cannot get out of it, when he is overwhelmed and depressed. He tries to relax by solving the problems of the individual, which consists of internal and external conflicts and cannot be solved in the real world, in the fantasy world. The person who is alienated from himself and the world is left alone with the world of destroyed values and inner conflicts.

The theme of escape has an important place in Edip Cansever's poems. In the poet's poem titled "Hopeless Park", the image of "park" is used as escape and shelter. The park image in the poem is designed to get rid of the chaotic structure of urban life. It is seen that Cansever, who includes alcohol in many of his poems, also perceives alcohol as an object of escape. Edip Cansever, in his poem "Sesli Harfler", expresses his view of drinking by saying "let's drink until the morning". In the work "Tragedies", alcohol is treated as an escape route. The poet speaks highly of the drink from time to time. The phrase "What if there were no alcohol" in the book describes the dominance of alcohol in the narrator's life. The aim of this study is to reveal how the "escape" theme is handled in Edip Cansever's poems.

**Keywords:** Edip Cansever, poem, the theme of escape.



### GİRİŞ

İnsanoğlu, yaşamı boyunca içinde bulunduğu kaotik ortamdan kurtulmak için sığınabileceği, kaçabileceği mekânlar ve varlıklar arar. Bu kaçış farklı boyutlarda olabilir. Birey genel olarak tabiata, farklı mekânlara, anneye, kadına, içkiye, çocukluğa, ölüme, hayal ülkelerine vb. kaçmak isteyebilir. “Aslında karmaşık bir psikolojiye sahip olan insanın, her gün yaşama sevinciyle dolu olduğunu kabul etsek bile sosyal hayat içerisinde onu derinden sarsacak etkilerden kendini koruması mümkün görünmemektedir. Gündelik yaşam içerisinde psikolojisini etkileyecek her türlü hadiseyle karşılaşması muhtemeldir.” (Yılmaz, 2006: 653).

Kişi, iç ve dış çatışmalarından oluşan ve gerçek dünyada çözemediği sorunlarını hayal dünyasında çözüp rahatlamaya çalışır. “Buna psikolojide hayal dünyasına kaçma (fantasy escape) denir. Kişi, hayal kurmayla bir süre de olsa rahatlayabilir. Hayal kurma ile kaçış izlekleri bireyin ruh dünyasında birbirini tetikleyici şekilde bulunur.” (Karabulut, 2013: 214).

Türk edebiyatında kaçış izleği denildiğinde belki de akla gelen en belirgin örnek Servet-i Fünun edebiyatıdır. Bu neslin birçok sanatçısı, “Önce Yeni Zelanda daha sonra da Manisa’nın Sarıçam ilçesi, bu hayalin mekânı olarak düşünülmüştür.” (Türk, 2014: 1499). Bu husus daha çok ütopyik mekân özlemi ile ilgilidir. Tefik Fikret’in “Yeşil Yurt” adlı şiiri ve Hüseyin Câhit Yalçın’ın “Hayât-ı Muhayyel” adlı öyküsü, kaçış ve ütopya olgusunun edebiyatımızdaki en önemli eserleri arasında yer alır.

İkinci Yeni’nin önemli şairlerinden Edip Cansever (1928-1986), *İkinci Üstü* (1947) ve *Dirlik Düzenlik* (1954) başlıklı kitaplarından sonra 1957 yılında yayımlanan *Yerçekimli Karanfil* ile kendi şiir tarzını bulur. Bu kitaptaki şiirler yeni bir şiir anlayışının ortaya çıktığını gösterir. Bu yeni şiir; diğer İkinci Yeni şairlerinin şiirlerinde de görülen geleneğe karşı çıkarak yeni bir şiir dili yaratmak, yansıtmacı gerçeklik anlayışından uzaklaşarak bilinç, bilinçaltı, düş ve sezgiye önem veren yeni bir gerçeklik anlayışı oluşturmak, alışılmış sözdizimini değiştirmek, imgeye ağırlık vermek, soyut ve kapalı bir anlam yaratmak gibi ortak unsurları içerir.” (Yılmaz, 2012: 3292-3293). Şair, *Yerçekimli Karanfil*’den sonra *Umutsuzlar Parkı* (1958), *Petrol* (1959), *Nerde Antigone* (1961), *Tragedyalar* (1964), *Çağrılmayan Yakup* (1969), *Kirli Ağustos* (1970), *Sonrası Kalır* (1974), *Ben Ruhi Bey Nasılım* (1976), *Sevda ile Sevgi* (1977), *Şairin Seyir Defteri* (1980), *Bezik Oynayan Kadınlar* (1982), *İlk yaz Şikâyetçileri* (1984) ve *Oteller Kenti* (1985) başlıklı şiir kitaplarını yayımlar.

Edip Cansever, şiirlerinde genel olarak modern insanın yalnızlığını, karamsarlığını, umutsuzluğunu, kaotik yapısını, trajedisini, aşklarını vb. dile getirir. “Cansever şiirlerinde; mevcut düzene karşı direnmeye çalışan bireyin ayakta kalma/tutunabilme umudunu, trajik dramını, düzenle özdeşleşen bireylerin yabancılaşmasını, yalnızlık sorunsallarını ele alır.” (Sevim, 2020: 146). Onun şiirlerindeki yalnızlık, bunalım, yabancılaşma ve terk edilmişlik temaları şairin kaçış nesnelere, mekânları ve sığınaklar aramasına vesile olur. “20. yüzyılın ortalarında dünyadaki kentleşme, toplumsal değişim ve sanayileşmenin oluşturduğu bunalım ve umutsuzluk hisleri, İkinci Yeni şairlerini ve dolayısıyla Edip Cansever’i de etkiler. Onun şiirlerindeki yalnızlık, bunalım, kötümserlik vb. duygularının temelinde tüm dünyada ve Türkiye’de etkili olan “varoluşçuluk felsefesi” yatmaktadır.” (Karabulut, 2013: 215).

İkinci Yeni şiir hareketi içinde özellikle “birey”i sorunsallaştırarak öne çıkarmasıyla dikkati çeken Edip Cansever, bütün eserlerinde bu tavrını sürdürmüş bir şairdir. (Kul, 2012: 45). Burada bunalımlı birey ağırlıklı olarak modern zamanların insanıdır. Modern dünyanın bunalımlı yapısı, Edip Cansever’in şiir dünyasına da yansır. “Cansever, modern kent yaşamının insanda yarattığı bunalımı ve iç çatışmaları ele almış, alışlagelen dil anlayışı ve söyleyiş tarzının dışına çıkarak gerçeküstücü şiir anlayışını tercih etmiştir.” (Balık, 2011: 11).

### Edip Cansever’in Şiirlerinde Kaçış

Cansever’in şiirlerinde kaçış genel olarak geniş mekânlara, alkole ve kadındır. Şair, bu kaçışlarla psikolojik rahatlama içerisine girer.

“**Umutsuzlar Parkı**” başlıklı şiirde kaçış ve sığınak mekânı olarak “park” imgesi yer alır. “Şairi zaman zaman sıkıntıya hatta bunalıma götüren yalnızlık”, (Yılmaz, 2011: 260) bu şiirde de kendini gösterir. Park, imgesel bakımdan kentin kaotik yapısından uzaklaşmak için şiire alınmıştır:

“Dağınık mavisikle gözlerinin



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*Sevgi vermez kadın uçlarıyla*

*Korkuya, sadece korkuya sığınmış olarak*

*Eskimiş, kurtlanmış ikonlarıyla kiliselerinin*

*Yalvaran bakışlarıyla - nasıl da sevimsiz -*

*En kötüsü, belki de en kötüsü*

*Bir duygu açlığıyla soluyarak*

*Parklara yerleşiyorlar, parkların*

*Onları çağıran köşelerine” (Cansever, 2008: 159).*

İnsanların kuşatılmışlığı, yalnızlığı, çıkışsızlığı ve çaresizliği onları parklara çağıran sebepler arasındadır. “Modern hayatın makineleştirdiği insanın duygu katmanındaki yıkılmalar onu hissizliğe, iletişimsizliğe sürükler. Bu, bireyin psikolojisinde olumsuzluklar ortaya çıkarır. “Şehre/dış çevreye ait ayrıntıların bireyin üzerindeki etkisi, modern dünyada varolmaya çalışan bireyin duygusal/lirik tepkileri olarak dile getirilir.” (Eliuz, 2001: 650). Parklar, açık mekân olarak kişinin içtenliğini ve kendiliğini yaşamasına zemin olan yerlerdir.

İşte, kişi bunaltılı zamanlarda sığınaklar arar. Bu şiirde öznenin sığınağı doğadır, parklardır. Şiirde, kent yalnızlık ve iletişimsizliğin; doğa/park ise huzurun, kaçışın ve sığınmanın simgesidir. “Kent ve modern zamanlardaki baskı alanlarının insan bilincinde meydana getirdiği kırılma, Edip Cansever şiirinin merkezinde duran bir olgudur. Bir tür bilinç yanılması olarak da adlandırabileceğimiz bu durum kendini en çok da modern bireyin yok saydığı ruhu üzerinde gösterir. Yalnızlık ve ‘sıkıntı’ şeklinde ortaya çıkan; kişisel anlam eksikliği nedeniyle her türden eğlenceyi ve hazzı talep eden bu bilinç, kenti de içine alarak tüm değerleri tüketilecek bir nesne olarak algılar.” (Tüzer, 2011: 410).

Kaçış izleği sadece mekânla ilgili değildir. Bazı kişiler bir sığınma nesnesi olarak alkole yönelirler. Gerçekte, alkol bağımlılığı; psikotik, anksiyete, cinsel işlev, uyku vb. bozukluklara yol açan ruhsal bir bozukluktur. (Karabulut, 2013: 216). Edip Cansever’in bazı şiirlerinde şiir karakterleri alkole sığınır.

Cansever “**Sesli Harfler**” adlı şiirinde, “*Biriyim, cesurum, var mısın ellerime / Bir başka sabaha kadar içelim.*” (Cansever, 2008: 212) diyerek içkiye bakışını belirtir.

*Tragedyalar*’da, alkol bir kaçış yolu olarak ele alınır. Şair, yer yer içkiden övgüyle bahseder. Kitapta yer yer geçen “*Ya alkol olmasaydı.*” sözü şairin kaçış ve sığınaklarından birinin alkol olduğunu ortaya koyar.

*“Ya alkol olmasaydı.*

*Bir uzun bardağlarımız vardı. Herkes*

*birbirinden artardı*

*Bulanık, bungun artardı*

*Kuru gök, kuru bir yağmur bırakırdı sesimize*

*Çok uzaklarda çok düşündüğümüz bir şey solar solar solardı*

*Meyhaneler biraz olsun solardı (Cansever, 2008: 307).*

Bu şiirde geçen “içkiler içerdik” ifadesinde, alkolün şiir karakterlerinin hayatlarının bir parçası haline geldiğini görürüz: (Karabulut, 2013: 218).

*“Biz bir de çok eski zamanlardan kalmış olurduk. Ve bir de*

*Sert içkiler içerdik - Bu tuhaf akşamları kim çizdi*

*Öyküsü tanrılardan ve açık denizlerden derlenen*

*Bu tuhaf akşamları kim çizdi*

*Güçlü bir soluk tarafından ve hırsla”*



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*Ve kirli*

*Ve büyük bir sirk çadırı gibi, uçsuz bucaksız*

*Bu tuhaf akşamları kim çizdi*

*Biz içkiler içerken.” (Cansever, 2008: 308).*

İlgili şiirin karakterlerinin yaşamlarında içkinin yeri o kadar büyüktür ki, onlar adeta dünyayı içkiyle algırlarlar:

*“Biz içkiler içerken cam kapılar yeryüzünü keserdi*

*Düşük organlarıyla kadınları keserdi*

*Biz içkiler içerken*

*Kesilince giderdi*

*Cam kapılar dönerdi, dünyacığımız kanardı*

*Cam kapılar dönerdi*

*Gökboyu giderlerdi bir saydamlığı akıtıp*

*Doğanın gizlerine ve bütün rahimlere*

*Gökboyu giderlerdi*

*Tezgâhlar bira çekerdi*

*Tezgâhlar bira çekerdi, çürük ot oralarda kokardı*

*Çürük ot, çürük ot..*

*Oralarda kokardı*

*Sonra hep eski zamanlardan kalmış olurduk, o tenha*

*Bahçelerde, tasvirlerde, bir garip kum sarılığında*

*Olmuş olurduk*

*Sonra birden çağımıza girerdik. O çılgın*

*Atlarımız, örtülerimiz alkolden*

*Anlarımız, içgüdülerimiz*

*Ve büyük çıplaklığımız alkolden*

*Alkolse biraz olsun alkolden yaratıldığımız*

*Tanrımız bilincimiz tanrımız*

*Çağımıza girerdik.” (Cansever, 2008: 308-309)*

Yukarıdaki dizelerde “Biz içkiler içerken cam kapılar yeryüzünü keserdi”, “Tezgâhlar bira çekerdi”, “Sonra birden çağımıza girerdik”, “Anlarımız, içgüdülerimiz”, “Ve büyük çıplaklığımız alkolden” ve “Alkolse biraz olsun alkolden yaratıldığımız” dizeleri öznenin alkol düşkünlüğünü ortaya koyar.

Edip Cansever’in şiirlerinde alkol, şiir karakterlerinin bir yaşama ve düşünme biçimi olmakla beraber, iç ve dış dünyalarının acı veren taraflarını unutturma vasıtası olarak da yer alır. (Karabulut, 2013: 219).

Cansever’in alkolü sığınak olarak algılar ve onu “örtüler”le somutlaştırır. “*Ve büyük çıplaklığımız alkolden*” ve “*Alkolse biraz olsun alkolden yaratıldığımız*” ifadeleri de bunaltılı kişinin alkol ile olan bağımlı gösterir. Bununla beraber alkole olan bağımlılık “Kaçış hâlindeki insanın bilinçli bir durumdan alkol sayesinde bilinçsiz bir duruma düşerek, nefret edilen yaşamın gerçekliğinden kurtulma arzusunun ortaya koyar.” (Macit Balık, 2011: 20).



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Alkolden en çok bahsettiği şiir kitabı olan *Tragedyalar*'da şiir anlatıcılarının alkol bağımlılığı dikkati çeker. Onlar, atılmışlık ve yalnızlık duygularını gidermek için içkiye sarılırlar. Stepan'ın Lusine söylediği, "*Ve diyebilirsin ki Lusine, soyu kalmamış hayvanlar gibi / Öyle bir buz çağını yaşıyorum da / İçkiyle aşyorum, içkiyle çözüyorum bu cehennemi*" (S.K.I, s.333) sözleri, içkinin şiir karakterlerinin yaşamlarındaki yerini ifade eder.

Cansever'in doğaya yabancılaşmanın öyküsü olarak tanımladığı "**Pesüs**" başlıklı şiir kişileri, varlık-yokluk problemlerini de ruh dünyalarında barındırırlar. Hiçlik duygusuna boğulmuş olan bu şahıslar, kendilerini "bir şey", "hiçbir şey" olarak niteler:

*"Hiçbir şeyin hiçbir şeyliği gibi bir şeydim."* (Cansever, 2008: 406)

Cansever'in şiirlerinde aşk ve kadın da önemli ölçüde ele alınır. "Kadın, Edip Cansever'in şiirinde diğer temaların yanı sıra çok baskın bir durumda değildir. Şairin zaman zaman müracaat ettiği kentli bir sığınaktır. Cemal Süreya ve İlhan Berk kadar olmamakla birlikte Cansever'in kadınla ilgili başucu anlatımlarında da cinsellik ön plandadır." (Özcan, 2011: 747).

*Bezik Oynayan Kadınlar* adlı şiir kitabında "Ester'in Söyledikleri" şiirlerinden "**Saplantı**"da, kaçış teması da işlenir:

*"Sözlerim kendim üstüne*

*Bir uzak yerlere gitmek üstüne*

*Sanki günler tek bir güne birikti*

*Bense çıkmazda kaldım, usandım*

*Çıkmazlarda üst üste*

*Birikmiş ufuklar kadar derindim*

*Ve dedim: elbette deneyeceğim"* (Cansever, 2008: 327).

"Ey" başlıklı şiirde şair kaçış ve sığınak olarak sevgiliye yönelir:

*"Sen usul, ben yavaş, kime yaraşır bu sessizlik*

*Kim biner bu gemiye insandan kıyıları yapılrken*

*Yetmez mi dalgası vursundu azıcık gözlerimize*

*Gözlerin gözlerime, siz bak ey!"*

*Şu sen de olmasan insan çıldırarak mı*

*Hiç yoktan bir yerlere mi gidecek belki*

*Olsun neresi olursa, git karanlık ama git*

*Gecemizde duranı sen kal şey!"* (Cansever, 2008: 194).

Yukarıdaki dizelerde şair, "*Şu sen de olmasan insan çıldırarak mı*" derken sevgiliyi bir kaçış ve sığınak olarak algılar.

### SONUÇ

İkinci Yeni'nin önemli şairlerinden Edip Cansever şiirlerinde genel olarak modern insanın karamsarlığını, kendisine ve topluma yabancılaşmasını, yalnızlığını, umutsuzluğunu, kaotik yapısını, aşklarını vb. irdeler. Onun şiirlerindeki pesimist izlekler, beraberinde kaçış ve sığınakları da getirir. Cansever'in şiirlerinde kaçış ağırlıklı olarak geniş mekânlara, alkole ve kadındır. "Umutsuzlar Parkı" adlı şiirde "park", kaçış ve sığınak mekânı olarak yer alır. Bu şiirde yalnızlık ve kaçış izlekleri iç içe işlenmiştir. Edip Cansever'in bazı şiirlerinde şiir karakterleri alkole sığınır. "Tragedyalar"da, alkol bir kaçış yolu olarak kullanılır. "Ya alkol olmasaydı." diyen şair, alkölü yaşamın merkezine yerleştirir.



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Onun bazı şiirlerinde kaçışın yönü kadına doğrudur. Bununla beraber, kadına sığınma baskın bir tema değildir.

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### AN EMPIRICAL STUDY ON THE IMPACT OF URBANIZATION ON ENVIRONMENTAL QUALITY IN TURKEY

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#### **Abstract**

The relationship between urbanization and the environment is one of the topics that have attracted the attention of researchers recently. In many countries, additional energy consumption caused by urbanization increases CO<sub>2</sub> emissions and leads to environmental pollution. This study aims to test the impact of urbanization on environmental quality in Turkey. For empirical analysis, the study employs Fourier ARDL (FARDL) bounds testing approach for 1965-2020. Findings from the FARDL analysis revealed a long-term cointegration relationship between the variables. Long-term coefficient estimation based on the FARDL model is applied to examine the effect of independent variables on CO<sub>2</sub> emissions in the long run. Estimation results show that economic growth and urbanization increase environmental pollution by increasing CO<sub>2</sub> emissions in Turkey. Discussions on the empirical findings and policy recommendations are presented in the conclusion section.

**Keywords:** Urbanization, Economic Growth, Fourier ARDL

**JEL codes:** F18, O1, O3

#### **INTRODUCTION**

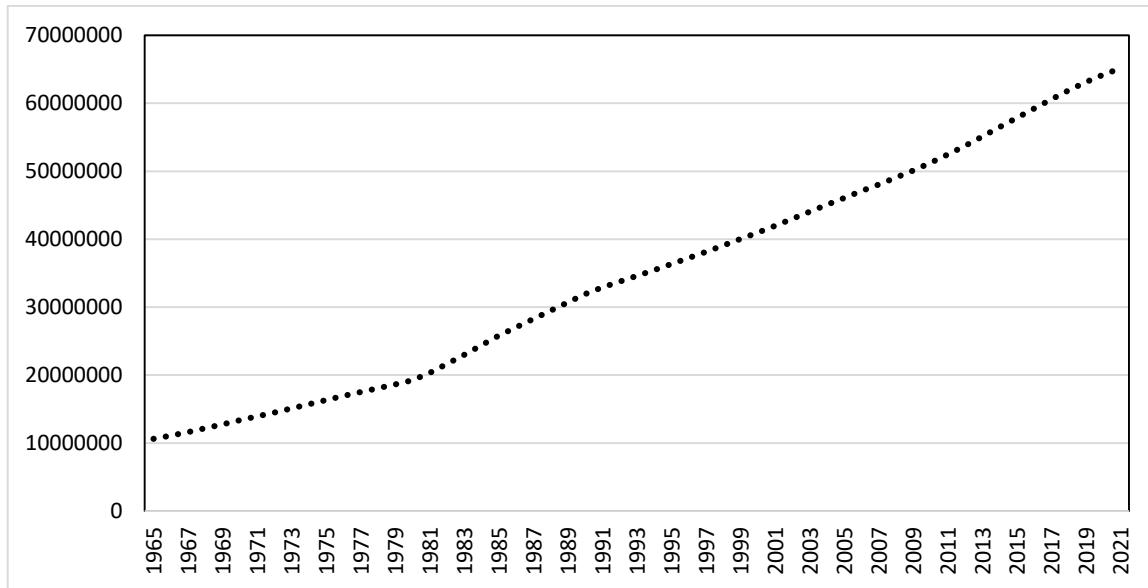
Urbanization is a worldwide fact and a large part of the world's population lives in urban areas. Urbanization is continuously increasing in developing countries as well as developed countries (Sadorsky, 2014). This mobility of population brings about economic, sociological and environmental problems. Ali et al. (2019) suggested that people migrated to cities for basically three reasons. These are explained as i) the expected wage rate in the urban area is higher than the rural wage rate, ii) better health care and iii) a better education system. However, resources are limited in terms of population and many problems arise because of increasing urban population. Most industries are located near urban areas, and these industries use fossil fuels such as coal and oil, which are generally harmful for the environment. In case this risk is not managed properly, environmental problems increase.

Kılıç et al. (2020) explained the urbanization fact for Turkey by reducing it to two different periods. According to this, the first period dates back to 1950. In this period, industrialization is weak and the rate of urbanization is quite low. After 1950s, industrialization accelerated with migration and mechanization, and as a result of this, urbanization rate increased rapidly. Figure 1 shows the urban population growth in Turkey over the years.





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Source: World Bank, 2022.

Figure 1: Development of Urban Population in Turkey (1965-2021)

As it seen in Figure 1, the urban population of Turkey has been increasing regularly since 1965. The urban population, which was approximately 10.6 million in 1965, increased approximately 6 times and reached 65 million by 2021. The reasons for this increase are as follows; there are more job opportunities in the cities, the cities are more developed in socio-economic terms and there are more living spaces (Uysal and Taş, 2016). Considering the economic growth as well as the urban population growth, it can be seen that there is a need of long-term strategies in the field of urban population and environmental policies in Turkey.

Şahin and Gökdemir (2019) explained the relationship among urbanization and environment on theoretical foundations in their study. According to their study, urbanization firstly creates an increasing effect on population and non-agricultural activities. Then, the demand for urban areas is increasing due to increasing population and energy consumption. After the increase of urban areas, land cover, vegetation and city morphology begin to change in these regions. Finally, the increase in anthropogenic greenhouse gas emissions in urban areas and the change in the surface properties of urban land, bring environmental problems in these areas.

The aim of this study is examining the effects of urbanization on the environment between 1965 and 2020 in Turkey. To this end, an empirical model consisting of CO<sub>2</sub> emissions, energy consumption, economic growth and urban population was estimated with the Fourier ARDL method. In the first part of the study, theoretical information about urbanization and environment interaction is given. In the second part, the findings of empirical studies which examining the effect of urbanization on the environment are given. In the third part of the study, the methodological information about the empirical analysis method and the results of the analysis are given. In the conclusion part, some policy proposals for Turkey are presented by discussing the empirical results.

### LITERATURE

Empirical studies which examining the relationship between urbanization and the environment have a common point, the general opinion reached in the literature is that urbanization reduces environmental quality by increasing CO<sub>2</sub> emissions. Because urbanization brings energy consumption along with it. Since a large part of the consumed energy consists of fossil fuels, this leads to an increase in environmental pollution. For instance, according to data from the International Energy Agency (2021), 76.2% of world energy consumption in 2021 is still provided by fossil fuels (48.5% oil, 14.1% natural gas and 13.6% coal). Table 1 contains empirical studies on this relationship. The studies listed in Table 1 are classified according to the method, sample and periods selected for the empirical analysis, and then the findings obtained from the empirical analysis are given.



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**Table 1:** Literature Review

Authors	Period	Countries	Method	Results
Şit et al. (2021)	1960-2018	Turkey	Hatemi-J Causality Test	Urbanization and financial development have an impact on economic growth.
Kangallı Uyar and Karahan (2020)	1995-2010	Different country groups defined in the Climate Change Convention	Quantile Regression with Nonadditive Fixed Effects	The relationship between urbanization and CO2 emissions differs according to country groups. While there is an increasing correlation for Annex II countries, there is a decreasing relationship for Non Annex countries.
Kılıç et al. (2020)	1960-2014	Turkey	ARDL Cointegration Test	Urbanization and industrialization increase CO2 emissions and cause environmental pollution.
Mahmood et al. (2020)	1968-2014	Saudi Arabia	ARDL and NARDL Cointegration Test	Both industrialization and urbanization have been found responsible for the environmental degradation through increased CO2 emissions.
Yurtkuran (2020)	1971-2014	Turkey	ARDL Cointegration Test	According to empirical findings, while clean energy consumption reduces CO2 emissions; income, imports, financial development, industrialization and urbanization increase CO2 emissions.
Altıntaş (2020)	1960-2014	Turkey	ARDL Cointegration Test	It has been stated that the Compact City theory is invalid and references are made for environmental problems in the Urban Transition theories.
Yıldız (2019)	1992-2014	E7 Countries	Panel Causality Test	There is a unidirectional causality relationship from urbanization to CO2 emissions, from energy consumption to urbanization, and from economic growth to urbanization.
Lee (2019)	1970-2017	Southeast Asian countries	Panel Data Analysis	There is a long-term relationship between exports, industrialization, urbanization and carbon footprint.
Ali et al. (2019)	1972-2014	Pakistan	ARDL Cointegration Test	It has been determined that urbanization increases CO2 emissions both in the long term and short term.
Şahin and Gökdemir (2019)	1995-2016	Turkey	Root Mean Square Error Method	Growth of urban population is the most important determinant of greenhouse gas emissions.
Pata (2018)	1974-2013	Turkey	ARDL Cointegration Test	Increase of GDP per capita, energy consumption per capita, financial development, urbanization and industrialization



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				increase CO <sub>2</sub> emissions per capita.
Niu and Lekse (2017)	2002-2013	China	Dynamic Spatial Durbin Panel Model	There is both short and long-term relationship between urbanization and environmental pollution.
Şimşek and Yiğit (2017)	1990-2015	BRICT Countries	Dumitrescu Hurlin (2012) Panel Causality Analysis	There is a one-way causality relationship from economic growth to urbanization, renewable energy, oil prices and CO <sub>2</sub> emissions.
Saidi and Mbrak (2016)		19 Developing Countries	Generalized Momentum System Model	Urbanization has a reducing effect on CO <sub>2</sub> emissions.
Doğan and Türkekul (2016)	1960-2010	USA	Granger Causality Test	There is a bidirectional causality relationship between economic growth, urbanization, energy consumption and CO <sub>2</sub> emissions.
Kang et al. (2016)	1997-2012	Provinces of China	Spatial Panel Data Approach	It has been determined that urbanization and coal burning are the main factors in the increase of CO <sub>2</sub> emissions.
Asif et al. (2015)	1980-2010	Gulf Arab Cooperation Council Countries	FMOLS Cointegration Test	Urbanization has a positive effect on CO <sub>2</sub> , energy consumption and economic growth.
Shahbaz et al. (2014)	1975-2011	United Arab Emirates	ARDL Cointegration Test with Structural Break	The rise in urbanization increases CO <sub>2</sub> emissions.
Kasman and Duman (2015)	1992-2010	15 Countries	Granger Causality	There is a unilateral causality from energy consumption, trade openness and urbanization to CO <sub>2</sub> emissions.
Sadorsky (2014)	1971-2009	Developing Countries	Stochastic Impacts by Regression on Population, Affluence and Technology (STIRPAT) Model	The effect of urbanization on CO <sub>2</sub> emissions is statistically insignificant.
Zu et al. (2012)	1992-2008	20 Developing Countries	Panel Data Analysis	Contrary to previous studies, the inverse U relationship between urbanization and CO <sub>2</sub> emissions is very weakly supported.
Martínez-Zarzoso and Maruotti (2011)	1975-2003	Developing Countries	STIRPAT Model	Urbanization has a differentiating effect on CO <sub>2</sub> emissions according to income groups. It should therefore be considered in future discussions of climate change policies.



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### MODEL AND DATA

In this study, the relationship between CO<sub>2</sub> emissions, economic growth, urban population and energy consumption between 1965 and 2020 for Turkey is shown in the model below.

$$LNCO_{2it} = \beta_1 LNGSYH_{it} + \beta_2 LNKENT + \beta_3 LNEN_{it} + \varepsilon_{it} \quad (1)$$

LNCO<sub>2</sub>, LNGSYH, LNKENT and LNEN represent carbon dioxide emissions, economic growth, urban population and energy consumption, respectively. CO<sub>2</sub> emissions and primary energy consumption data were obtained from Our World in Data database. Urban population and GDP data were obtained from the World Bank. Descriptive statistics for the variables used in the analysis are given in Table 2.

**Table 2:** Descriptive Statistics

	LNCO2	LNKENT	LNGSYH	LNEN
Mean	18.77681	17.21801	26.45822	35.65362
Median	18.92550	17.34661	26.45806	36.27543
Maximum	19.86837	17.97730	27.64623	38.11590
Minimum	17.12434	16.17647	25.19007	28.20064
Std. Dev.	0.790544	0.541927	0.702706	2.123355
Skewness	-0.390493	-0.387732	0.039164	-1.749306
Kurtosis	2.009563	1.862858	1.924641	5.874603
Jarque-Bera	3.712105	4.420351	2.712576	47.84179
Probability	0.156288	0.109681	0.257615	0.000000
Sum	1051.502	964.2085	1481.661	1996.603
Sum Sq. Dev.	34.37283	16.15268	27.15880	247.9749
Observations	56	56	56	56

The ARDL approach takes into account the F and t statistics. If the test statistic is greater than the critical upper bound values, there is no cointegration and the basic hypothesis is rejected. Equation (2) shows the ARDL model that created for empirical analysis.

$$\Delta LNCO_{2t} = \beta_0 + \beta_1 LNCO_{2t-1} + \beta_2 LNGSYH_{t-1} + \beta_3 LNKENT_{t-1} + \beta_4 LNEN_{t-1} + \sum_{i=1}^{\rho-1} \varphi_i' \Delta LNCO_{2t-i} + \sum_{i=1}^{\rho-1} \delta_i' \Delta LNGSYH_{t-i} + \sum_{i=1}^{\rho-1} \phi_i' \Delta LNKENT_{t-i} + \sum_{i=1}^{\rho-1} \vartheta_i' \Delta LNEN_{t-i} + e_t \quad (2)$$

$\Delta$  represents the first difference operator and  $\rho$  represents the lag length. Akaike Information Criteria determines the optimal lag length. Pesaran et al. (2001) uses F-test ( $F_A$ ) and t-test (t) to determine a cointegration relationship.

$$H_{0A}: \beta_1 = \beta_2 = \beta_3 = 0 \quad (3)$$

$$H_{0B}: \beta_1 = 0 \quad (4)$$

McNon et al. (2018) revised the equation (3) and developed an additional F-test ( $F_B$ ) which tests the main hypothesis.

$$H_{0C}: \beta_2 = \beta_3 = 0 \quad (5)$$

In order to confirm the cointegration relationship, all three main hypotheses in equations (3), (4) and (5) must be rejected. McNon et al. (2018) did not make any assumptions about the degree of integration of the variables. However, this approach gives more effective results than the standard ARDL approach. In addition, this approach takes into account structural changes through Fourier functions. Thus, there is no need to apply an additional structural change test. By the function that Yılancı et al. (2020) developed, structural changes in the model can be monitored through the Fourier function.

$$d(t) = \sum_{k=1}^n a_k \sin\left(\frac{2\pi kt}{T}\right) + \sum_{k=1}^n b_k \cos\left(\frac{2\pi kt}{T}\right) \quad (6)$$



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While  $n$  is the number of frequencies,  $k$  is the number of specific frequencies selected,  $t$  is the trend and  $T$  is the sample size. In the equation, the frequency value which suggested by Ludlow and Enders (2000) and Becker et al. (2006) was used.

$$d(t) = \gamma_1 \sin\left(\frac{2\pi kt}{T}\right) + \gamma_2 \cos\left(\frac{2\pi kt}{T}\right) \quad (7)$$

Equation (8) shows the FARDL model for this study.

$$\begin{aligned} \Delta LNCO_{2t} = & \beta_0 + \gamma_1 \sin\left(\frac{2\pi kt}{T}\right) + \gamma_2 \cos\left(\frac{2\pi kt}{T}\right) + \beta_1 LNCO_{2t-1} + \beta_2 LNGSYH_{t-1} + \beta_3 LNKENT_{t-1} + \\ & \beta_4 LNEN_{t-1} + \sum_{i=1}^{\rho-1} \varphi_i' \Delta LNCO_{2t-i} + \sum_{i=1}^{\rho-1} \delta_i' \Delta LNGSYH_{t-i} + \sum_{i=1}^{\rho-1} \phi_i' \Delta LNKENT_{t-i} + \\ & \sum_{i=1}^{\rho-1} \vartheta_i' \Delta LNEN_{t-i} + e_t \end{aligned} \quad (8)$$

### Empirical Results

First of all, fourier ADF unit root test was applied for empirical analysis. According to the Fourier ADF unit root test results, the trigonometric terms of the variables (LNCO2, LNGSYH AND LNKENT) were found to be meaningless. In cases where trigonometric terms are meaningless, Enders and Lee (2012) recommended using the traditional ADF unit root test. Table 3 shows both Fourier ADF and conventional ADF unit root test results.

**Table 3:** Fourier ADF (FADF) Unit Root Test

Variables	Frekans	FADF Test Values	F Constraint Test Values	ADF Test (level)	ADF Test ( $\Delta$ , first difference)
LNCO2	3	-3.77	1.75	-1.69	-6.71*
LNGSYH	1	-0.82	0.40	-3.20	-7.16*
LNKENT	2	-1.68	0.89	-0.75	-2.85
LNEN	1	-5.51	9.57**	-6.61*	-6.35*

Note: FADF critical values are %1, %5 and %10 for 12.21, 9.14 and 7.78 respectively.

According to the ADF unit root test findings, LNCO2, LNGSYH and LNKENT variables are not stationary at their level values, but are stationary at their first differences. The LNEN variable is stationary at both levels. Lastly, the LNKENT variable is not stationary at both levels. The prerequisite for making ARDL bounds test estimation is that the dependent variable is stationary at first difference I(1). Therefore, the obtained unit root test results allow cointegration estimation. FARDL bounds test method was used to test the cointegration relationship between the series.

**Table 4:** FARDL Test Results

Optimal Frequency	$F_A$	Bootstrap Critical Values			t	Bootstrap Critical Values			$F_B$	Bootstrap Critical Values		
		10%	%5	%1		10%	%5	%1		10%	%5	%1
3	4.62 <sup>b</sup>	3.12	3.98	5.69	-2.94 <sup>b</sup>	-2.56	-2.91	-3.62	3.88 <sup>c</sup>	3.61	4.54	6.99

Note: <sup>a,b,c</sup> show statistical significance at %1, %5 and %10 significance levels respectively.

Table 4 shows  $F_A$ ,  $t$  and  $F_B$  test statistics and Bootstrap critical values. According to this,  $F_A$  and  $t$  statistics is statistically significant are at the 5% significance level;  $F_B$  statistic is statistically significant 10% significance level. These findings show that there is a long-term cointegrated relationship between the variables. In other words, there is a long-term cointegration relationship between CO2 emissions, urbanization, economic growth and energy consumption during the 1965-2020 period in Turkey. After determining the long-term relationship between the variables, the long-term coefficient estimation was made. These results are shown in Table 5.



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**Table 4:** Long-Term Coefficient Estimation Results Based On The FARDL Model  
(LNCO2 dependent variable)

LNKENT	LNGSYH	LNEN
2.26 <sup>b</sup> (0.05)	0.90 <sup>b</sup> (0.05)	-0.01 (0.19)

Note: Numbers in parentheses indicate p-values. <sup>a</sup>, <sup>b</sup>, <sup>c</sup> show significance at the 1%, 5% and 10% levels, respectively.

According to Table 5, while LNGYSH and LNKENT variables were statistically significant and positive; LNEN variable is not statistically significant. These findings show that for the period 1965-2020 in Turkey, economic growth and urbanization decrease environmental quality by increasing CO2 emissions. Evaluations and discussions regarding the empirical findings are included in the conclusion section.

### RESULTS

In this study, the effect of urbanization on environmental quality in Turkey is investigated for the period of 1965-2020. For this purpose, FARDL cointegration and long-term coefficient estimators based on FARDL were used and economic growth and energy consumption variables were added to the model as control variables. Empirical findings revealed that there is a long-term cointegration relationship between variables. In addition to these findings it has been determined that economic growth and urbanization increase environmental pollution through increasing CO2 emissions in the long run.

The fact that both economic growth and urbanization increase environmental pollution indicates Turkey needs long-term environmental and urbanization policies. Therefore, in the long term, it is necessary to establish green society and economy transition model strategies. As it is known, Turkey's largest trade partner is the European Union. Therefore, the recent trade regulations for the environment in European Union should be followed carefully. For example, Carbon Border Adjustment Mechanism is mentioned within the scope of the European Green Deal prepared by the European Union. This practice will affect the international competitiveness of the European Union and its trade partners. The aim of the implementation is to bear the green costs that European companies bear alone, and the countries they trade with. The next step is to reduce the carbon intensities of imported products. For this purpose, the European Union tries to limit the carbon intensities of the imported products by applying mechanisms such as customs duties/carbon taxes on carbon-rich imports and tries to prevent carbon leakage. With this implementation, it is aimed to gain a kind of competitive advantage and to protect the competitiveness of European companies by ensuring that other countries endure the environmental standards and regulations that EU companies endure. In this case, there are both some risks and opportunities arise for Turkey. Accordingly, in case Turkey does not make the necessary arrangements for the transition to a greener economy model in the long term, Turkey faces a potential risk of market loss. However, if the necessary arrangements are made, there is a chance to maintain the market share and increase it as a result of losses arising from other countries. Therefore, Turkey's transition to a green economy in the long term is thought to be an opportunity, not a threat to the economy.

Taş and Doğan (2016), who reached similar findings about urbanization that increases economic growth in Turkey, primarily suggested that, the living population in cities should be informed about energy consumption and emissions, and low-carbon consumer goods, should be promoted in order to reduce environmental pollution. In addition to these, they recommended that urban expansion should take place systematically, taking into account environmental protection and planning.

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### DETERMINATION OF OPTIMUM CONDITIONS FOR BIOGAS PRODUCTION FROM DIFFERENT ANIMAL MANURES AND MAIZE SILAGE: BOX-BEHNKEN DESIGN

FARKLI HAYVAN GÜBRELERİ VE MISIR SİLAJINDAN BİYOGAZ ÜRETMEK İÇİN  
OPTİMUM ŞARTLARIN BELİRLENMESİ: BOX-BEHNKEN TASARIMI

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#### ABSTRACT

In this study, a statistical model was developed on the dependent variable volatile solids (VS) removal of cow manure, horse manure, camel manure and maize silage in anaerobic fermentation. Total solids (TS), mixture of substrates (MS) and wastewater treatment sludge (WTS) ratios were chosen as independent variables according to the 2<sup>3</sup> - factorial experimental design. Box-Behnken experimental design method was used to examine the effects of independent variables on VS removal. Statistical evaluation of the results obtained was provided with the program "Minitab-21.1.1.0". Using the developed model, the highest VS removal, TS (%), MS ratio and WTS (%) were obtained as 67% at 3, 1.87, and 17.68 values, respectively. As a result of analysis of variance (ANOVA), the R<sup>2</sup> value was 98.41%. Considering the experimental results, it has been seen that the response surface method can be used successfully in the co-fermentation of different animal manures and maize silage.

**Keywords:** Biogas, anaerobic fermentation, Box-Behnken experimental design method, animal manure, maize silage.

#### Acknowledgments

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#### ÖZET

Bu çalışmada inek gübresi, at gübresi, deve gübresi ve mısır silajının anaerobik fermantasyonda bağımlı değişken uçucu katı madde (UKM) giderimi üzerine bir istatistiki model geliştirilmiştir. Toplam katı madde (TKM), substratların karışımı (SK) ve atık su arıtma çamuru (AAÇ) oranları 2<sup>3</sup> - faktöriyel deneysel tasarımına göre bağımsız değişken olarak seçilmiştir. Bağımsız değişkenlerin UKM giderimi üzerine olan etkilerinin incelenmesinde Box-Behnken deneysel tasarım yöntemi kullanılmıştır. Elde edilen sonuçların istatistiksel değerlendirilmesi "Minitab-21.1.1.0" programı ile sağlanmıştır. Geliştirilen model kullanılarak en yüksek UKM giderimi, TKM (%), SK oranı ve AAÇ (%) sırasıyla 3, 1.87, 17.68 değerlerinde %67 olarak elde edilmiştir. Varyans analizinin (ANOVA) sonucunda R<sup>2</sup> değeri %98.41 olmuştur. Deney sonuçları dikkate alındığında, cevap yüzey yönteminin farklı hayvan gübreleri ile mısır silajının birlikte fermantasyonunda başarılı bir şekilde kullanılabileceği görülmüştür.

**Anahtar kelimeler:** Biyogaz, anaerobik fermantasyon, Box-Behnken deneysel tasarım yöntemi, hayvan gübresi, mısır silajı.

#### Teşekkür

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CHALLENGES IN HYBRID LEARNING IN THE PHILIPPINES

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#### **ABSTRACT**

The modality of learning in the Philippines became highly revolutionized during the start of the global pandemic that hit the entire economy and education sector, which has negative implications. Universities and Basic Education designed an alternative mode of learning that fits the regulations of the Inter-Agency Task Force on COVID-19. Most educational institutions have an alternative mode of learning like a module or an online learning approach. The New Normal is now starting because the educational sector is now preparing for the opening of classes with a hybrid type of educational approach. It is recommended dry-run the new policy and guidelines before they can be finalized and implemented at the start of the school year.

**Keywords:** Hybrid learning, New Normal, Challenges



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CHALLENGES OF ONLINE TEACHING AND SOME SOLUTIONS

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#### ABSTRACT

The coronavirus came into our lives suddenly and affected everyone working in many different fields, from education to engineering. There have been many different changes in every field, and of course the field of education has had its share of it. Due to the coronavirus, all people suddenly found themselves in an online life. Therefore, online teaching has become inevitable for teachers. A few teachers have been accustomed to online teaching for years, but most of the teachers have encountered this situation for the first time. Since March 2020, as teachers we have faced many challenges. Although the effects of the coronavirus have decreased these days, online life is always with us and this situation is not temporary, so online teaching will be in our lives at least as much as face-to-face teaching. We should perceive the difficulties of online teaching very well and deal with them comfortably so that it can be a part of our lives.

As teachers during coronavirus period, we sometimes felt hopeless and we tried to overcome many challenges that we have encountered alone and we needed some help. In this presentation, I will talk about the difficulties we have or may experience in online teaching and what solutions we can find for them. These solutions are a bit different from what you can find in books or on the internet because these are really experienced problems and solutions so they are practical rather than theoretical that can be really useful in real terms.

Union makes strength. How about finding the best solutions together by sharing and caring?

**Keywords:** Online teaching, virtual learning, challenges and solutions of online education,



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### DIGITAL STORYTELLING IN ENGLISH LANGUAGE TEACHING

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#### ABSTRACT

With the increasing use of technology in education recently, new teaching approaches and methods have emerged. It has become essential to use technology, mainly digital technologies in language classrooms since the computers were introduced and people soon discovered its educational benefits. These educational benefits doubled with the introduction of promising internet technologies. The implementation of technology in education is helpful in many ways; to improve the quality of materials and enhance learning, to motivate learners, to improve their language skills, and most importantly to grab their attention and help them build positive attitudes towards language learning. Thus, technology became the heart of language learning to meet the needs of "digital natives". The term digital natives refer to a new generation that was born and raised with technology during the digital age and is confident with all the technological components. From language teaching point of view, developing language skills is the most important and most challenging phase in the language learning process. To improve the language skills, new techniques related to technology and use of media are being presented every day due to the belief of ineffective learning processes. In this sense, digital storytelling is a new technique in language teaching that helps to improve four skills of learners as well as motivation towards language learning and encouragement of the oneself. Using digital storytelling in language classes enhance the media literacy of learners from various aspects and motivates learners to take part in activities. Visuals are better than words alone, so media interaction by using digital storytelling in language classes can be beneficial for learners. Therefore, digital storytelling proves itself as a valuable technique in language teaching. The purpose of this presentation is to explain the integration of digital storytelling into English language classes, display the types of digital storytelling and suggest various ways to involve it in language teaching.

**Keywords:** Digital storytelling, English language learning, motivation, technology integrated teaching



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### ACCORDING TO TEACHER'S PERCEPTIONS, THE SERVANT LEADERSHIP BEHAVIORS OF SCHOOL PRINCIPALS AND NEPOTISM IN SCHOOL ADMINISTRATION

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#### ABSTRACT

The purpose of this research is to determine the relationship between teachers' views on the servant leadership behaviors of school principals and their perceptions of nepotism in school management. In the study, the survey model, which is one of the quantitative research methods, was used. The sample of the research consists of 104 teachers working in kindergarten, primary and secondary schools in the central districts of Istanbul. The data obtained for the research were collected with the Servant Leadership Behaviors Scale of School Principals and the Nepotism Scale in School Management. The answers to the research problems were sought with the Mann Whitney-U test, Kruskal Wallis-H and Pearson Product-Moment Correlation analysis. In addition, demographic information for the sample group was analyzed with descriptive statistical methods. According to the research findings, there was a significant negative correlation between the teachers' views on the servant leadership behaviors of school principals and their perceptions of nepotism in school management. According to the union membership status of the teachers, a high level of significance was found between their servant leadership behaviors and their perceptions of nepotism in school management. Another finding of the study is that there was a significant difference in the servant leadership behaviors of school principals according to the gender variable of teachers. Teachers are of the opinion that nepotism decreases in an organization where servant leadership behaviors are exhibited at a high level. Planning trainings for the development of servant leadership behaviors of school administrators can reduce or eliminate nepotism in educational institutions.

**Keywords:** Servant leadership, nepotism, teacher.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### TRANSITION METAL COMPLEXES OF DRUG BASED SCHIFF LIGAND: SYNTHESIS, CHARACTERIZATION AND IN VITRO BIOLOGICAL EVALUATION

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#### **ABSTRACT**

Synthesis of novel Schiff base ligand was done by the condensation of drug and aromatic. This Schiff base was further used to prepare a series of copper (II), cobalt (II), zinc (II), nickel (II), manganese (II), iron (II) complexes. The ligand and metal complexes were characterized by using different instruments like FT-IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR, Mass, Atomic absorption spectroscopy, Elemental analyzer, UV-visible Spectrophotometer, Evans balance and Conductivity meter. The synthesized ligand and transition metal complexes were tested against various bacteria and fungi. These studies demonstrated the enhanced activity of metal complexes against reported microbes when compared with free Schiff base ligand.

**Keywords:** Schiff base, metal complex, drug, aromatic aldehyde, Biological



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### THE ROLE OF SERIOUS GAMES AND GAMIFICATION IN ADDRESSING GLOBAL CHALLENGES

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#### **ABSTRACT**

The most challenging and high profile global challenges faced by the human race today are Public Health and Climate Change. Both challenges are strongly linked to human behaviours. In the case of health, both pandemics and Non-communicable diseases are largely influenced by lifestyle choices and the lack of incentives for personal health management. Climate Change and environmental pollution are also directly related to human consumption and economic activity.

Despite the efforts of a wide range of people across many sectors to raise awareness and deliver education to the general population, little progress seems to be made in either of these challenges. The presentation explores the potential of serious games and gamification technologies and strategies to impact our behaviours in a positive and sustainable way.

**Keywords:** Public Health, Climate Change, Global Challenges, Serious Games, Gamification



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CYTOTOXICITY ANALYSIS OF TWO DIFFERENT PORCINE DERMAL MATRICES

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#### **ABSTRACT**

**Aim:** The aim of the present study was to compare the direct and indirect cytotoxicity of a porcine dried acellular dermal matrix (PDADM) versus a porcine hydrated acellular dermal matrix (PHADM) in vitro. Both are used for periodontal and peri-implant soft tissue regeneration.

**Materials and methods:** Two standard direct cytotoxicity tests—namely, the Trypan exclusion method (TEM) and the reagent WST-1 test (4-3-[4-iodophenyl]-2-[4-nitrophenyl]-2H-[5-tetrazolio]-1,3-benzol-desulphonated)—were performed using human primary mesenchymal stem cells (HPMSCs) seeded directly onto a PDADM and PHADM after seven days. Two standard indirect cytotoxicity tests—namely, lactate dehydrogenase (LTT) and MTT (3-[4,5-dimethyl-2-thiazolyl]-2,5-diphenyl- 2H-tetrazoliumbromide)—were performed using HPMSCs cultivated in eluates from the matrices incubated for 0.16 h (10 min), 1 h, and 24 h in a serum-free cell culture medium.

**Results:** The WST and the TEM tests revealed significantly lower direct cytotoxicity values of HPMSCs on the PHADM compared with the PDADM. The indirect cytotoxicity levels were low for both the PHADM and PDADM, peaking in short-term eluates and decreasing with longer incubation times. However, they were lower for the PHADM with a statistically significant difference ( $p < 0.005$ ).

**Conclusions:** The results of the current study demonstrated a different biologic behaviour between the PHADM and the PDADM, with the hydrated form showing a lower direct and indirect cytotoxicity.

**Keywords:** cytotoxicity; cytocompatibility; acellular matrices; porcine dermal matrices; pre-hydrated matrix; dried form matrix.





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### DOES BIG DATA TRIGGER THE SIXTH KONDRATIEFF WAVES?

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#### ABSTRACT

In this study, the point reached by big data technology, which is predicted to contain a disruptive technology in recent years, to directly affect the financial sector and many other sectors, and which is expected to take the share of the public sector from these developments, was evaluated in the context of cities that are the living space of today's people and tried to be analyzed by using pest analysis in the vital case of city. In addition, this study will discuss the stage of data-based management of cities reached in the last century, and the possible problems of cities will be examined from the economic front and how to overcome possible problems with conjuncture theories. At this point, the theory of Kondratieff waves will be discussed in this study by placing it on the main context.

Life connected to big data to be lived around the world will bring about a great wave that will radically change living standards. However, this tsunami wave will have a severe effect that will destroy the bureaucracy of many countries. Today, in the reserve of economic conditions, the bureaucracies of the country resemble a heavy ship floating in complacency. Smart cities, which we call big cities, are no longer migration centers that receive employment for intensive labor power and are turning into megapoles where white-collar people live where big data is analyzed. Industry 4.0 and society 5.0 design an urban in this way.

#### Social Changes-Long Wave Theory

According to this theory, the world has experienced 4 Kondratieff waves since the 1800s. These are respectively *Early Mechanization, Steam Power/Railways, Electricity and Heavy Industry, Mass Production* waves. Today the world is experiencing the Fifth Wave. The transition of the theory of waves from the 1st wave to the 2nd wave theory coincides with the *transition from the agricultural society to the industrial society*. Today's 5th wave covers the *transition from industrial society to information society*. Will the 6th Wave accelerate the metaverse?

**Keywords:** Kondratieff Waves, Big Data, Smart Cities, Industry 4.0, Society 5.0



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### TURKISH EFL TEACHERS' PERCEPTIONS ABOUT THE EFFECT OF VIRTUAL REALITY ON L2 VOCABULARY TEACHING

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#### ABSTRACT

Mastery of vocabulary teaching is significant in language teaching in that it facilitates the teaching process for teachers on one hand and the learning process for learners on the other. Integrating such technological aids as virtual reality into the process of teaching provides a model that makes it possible to benefit the advantages of technology. With its growing function as motivational tool in language teaching, the use of VR is growing more important in L2 vocabulary teaching, as well. This study was built on examining the characteristic differences in L2 vocabulary learning through two learning sessions with each participant doing the same activities in VR-equipped and traditional classrooms both to evaluate what Turkish EFL teachers think and feel about using VR while teaching vocabulary and to explore the impacts of VR on Turkish young pupils learning vocabulary. A basic interpretive approach was adopted to investigate Turkish EFL teachers' perceptions of the effect of VR on their vocabulary teaching practices. In the study, modelled on the basic needs of the 21<sup>st</sup> century, semi-structured interviews applied to eight Turkish EFL teachers currently employed at a private school in Turkey were conducted to collect equivalent qualitative data. Open coding was used to find out the participants' common point of view, and the codes were reduced into categories. Three main themes were developed through the categorization of the data obtained. In order to triangulate the data, the participants were asked for the approval of the findings. The collected data were synthesized and presented as the answers to the research questions of the study. The results indicated that virtual reality has a positive effect on L2 vocabulary learning process, and the results of interviews demonstrated that VR-based language learning enhances learners' motivation.

**Keywords:** VR, vocabulary teaching, ELT, learner motivation



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### THE INFLUENCE OF BANK PERFORMANCE, MARKET CONDITION AND ECONOMIC GROWTH ON NON-PERFORMING LOANS

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#### ABSTRACT

This paper applies panel fixed effects and dynamic Generalised Method of Moments (GMM) estimations to a panel of 80 countries spread by all Continents, over the period 1999-2017 to analyse the evolution of the bank non-performing loans to total loans ratio (NPLs). It uses data sourced from the World Bank Global Financial Development database, considering three categories of explaining variables: bank performance indicators (bank credit to bank deposits ratio, bank cost to income ratio, bank net interest margin, bank noninterest income to total income, and bank return on assets), market conditions and financial structure indicators (bank concentration, Lerner index, bank Z-score, bank regulatory to risk-weighted assets, and bank crisis dummy), and economic growth indicator (natural logarithm of real Gross Domestic Product per capita). The paper compares the results obtained for the sub-set of High income countries with those obtained for the sub-set of Non-high income countries, as well as the results obtained for the countries that are members of the Organisation for Economic Cooperation and Development (OECD), with those obtained for the Non-OECD countries. The paper also analyses the results obtained for the whole period (1999-2017) with those obtained for the years after the global financial crisis (2009-2017). Overall, the results obtained confirm the relevance of the considered variables to explain the evolution of NPLs, concluding that there are no relevant differences in the behaviour of the countries explained by their level of income or their economic integration. In all situations, there is clear evidence that bank performance, in particular the increase of the return on assets, is important to prevent NPLs. Moreover, the results obtained clearly highlight the relevant role of the political and regulatory authorities in providing legislation and conditions assuring bank market competition and promoting bank market stability, as well as specific bank regulations, particularly after the onset of the last global crisis. Finally, the results obtained in all considered panels very clearly demonstrate the relevance of increasing economic growth to prevention of bank non-performing loans.

**Keywords:** Bank risk, non-performing loans, bank performance, bank market conditions, panel estimates.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### GENDER REPRESENTATION IN THE ESL PASHTOON CLASSROOM IN PAKISTAN: A CRITICAL PERSPECTIVE

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#### ABSTRACT

The debate on male and female roles and equilibrium in the sociocultural context has been in focus since the inception of the feminist theories. The students carry the concomitant social practices in the classroom as well and later on converge to the dominant practices. The current study focuses on the ESL Pashtoon classrooms in order to find out how the males and females are treated in the interactions and discourses collectively generated by the classroom participants. Hence, this study tries to contribute to gender representation in ESL Pashtoon classroom. A total of thirty participants were selected through convenience sampling and data were collected through questionnaires. The data were analyzed using Baxter's (2002) Feminist Post-structural Discourse Analysis henceforth FPDA. The analysis of the data revealed that treatments of girls in ESL Pashtoon classroom is quite different from their counterparts. A parochial mindset exists in the classroom practices where the girls have to collaborate with their male counterparts. However, the presence of females in the classroom is accepted by the social actors present in the ESL classrooms for a better positive face of society. For girls' education, it seemed quite hard in such societies; however, the research shows quite encouraging results girls' education. Due to less interaction of girls in social settings they damage their confidence level and valuable talks. Thus, it is incumbent upon the state machineries to focus more on such matters for even better result and social change.

**Keywords;** ESL classroom, Gender representation, Class room discourse.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### REMOVAL OF DYE ACID RED 1 FROM AQUEOUS SOLUTIONS USING CHITOSAN-ISO-VANILLIN SORBENT MATERIAL

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#### ABSTRACT

Sorption of Acid Red 1 (AR1) from aqueous solutions utilizing low-cost sorbent material; (chitosan-iso-vanillin) is studied under batch conditions. The remaining concentrations of the azo dye are measured at  $\lambda_{\text{max}} = 546 \text{ nm}$  by UV spectrophotometric method. Langmuir data reveal that the maximum removal capacity was 555.556 mg/g at pH 3. Freundlich isotherm represents the best fitting model on the removal of AR1 using chemically modified chitosan verifying the sorption takes place on heterogeneous surfaces with multilayer adsorption. Kinetic studies of the sorption process revealed that intraparticle diffusion is not only the rate-determining step but also a chemical reaction takes place as well. The results indicate that high sorption rapidness with almost 90% achieved within 90 min. Thermodynamic investigations suggest that the process favours an exothermic nature. The polymer utilized in the present study is being considered as a feasible sorbent material for the removal of AR1 from waste effluent.

**Keywords:** azo dye, chitosan-iso-vanillin, wastewater treatment, acid red 1, low-cost sorbent.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### DETERMINANTS OF COVID-19 VACCINE ACCEPTANCE AMONG STUDENTS: A WEB-BASED GLOBAL SURVEY

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#### ABSTRACT

##### Background

Acceptance of a COVID-19 vaccine is crucial to achieve sufficient immunization coverage to end the pandemic. After initially focusing on adults, the emphasis of vaccination is now geared towards the youth. To mandate vaccines in schools and attain widespread vaccine uptake, it is important to understand determinants influencing students' willingness to receive a COVID-19 vaccine. Hence, this study explored students' willingness to receive a vaccine, their concerns regarding vaccination, and additional factors influencing vaccine acceptance.

**Method:** Descriptive analytic cross-sectional study using snowball and convenience sample technique was conducted using social media such as Twitter, WhatsApp and Instagram. Data from the student populations receiving secondary and post-secondary education was collected from the Asia-Pacific, Middle East, Europe, and America. Descriptive statistics and Chi square tests were used. Multivariate logistic regression analysis was used to determine predictors for vaccine acceptance.

**Results:** 201 participants completed the questionnaire. A high willingness to take a COVID-19 vaccine was found in the sample, with the highest among students in the West, followed by the Asia-Pacific region, and then the Middle East. A statistically significant association was found between females and the willingness for vaccine receipt. Preserving health, understanding the importance of vaccination for COVID-19 protection, and worry about potential side effects were significant predictors for vaccine acceptance.

**Conclusion:** Majority of students were willing to get the COVID-19 vaccine to protect their health; but concerns about safety and side effects were observed. Greater understanding about the importance of the vaccine for protection against COVID-19 was predictive of willingness to receiving it. This study provided evidence for health authorities to provide clear information and design measures to address fears about vaccine side effects. Future qualitative studies should be directed towards understanding differences in students' perspectives in depth.

**Key words:** students; COVID-19 vaccine; pandemic; vaccine acceptability; young adults



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### A QUANTITATIVE APPROACH TO STUDENT ENGAGEMENT IN ONLINE EDUCATION<sup>1</sup>

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#### ABSTRACT

COVID-19 pandemic has led to many changes in our lives, especially in education since it has been carried to virtual environments. As it is named, online education has disclosed many concerns in the education field such as the quality of such education and the engagement levels of the students during this new-developed procedure. Furthermore, student engagement in online education has become a problem since it is related to every behavior of the students committed in the way of education. The aim of the study is to measure the engagement levels of the ELL students during online education. For this purpose, the study adopts a quantitative approach with an online questionnaire measuring student engagement on the basis of four engagement types: skills, emotional, participation/interaction, and performance, which addresses also motivation and satisfaction as well as several variables related to student engagement such as study habits and participation. In compliance with the convenience sampling technique, 186 students studying at the department of English Language and Literature at two state universities participated in the study. SPSS was used to analyze the data statistically. The data analysis has revealed that the students are engaged moderately in online education in terms of the four engagement types. Additionally, the results of the descriptive analysis of the variables have shown that student engagement has a positive relationship with motivation and satisfaction. The study suggests that students can keep their engagement level at an average point if necessary investments are made by both students and instructors.

**Keywords:** Engagement, Online Education, Participation.

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<sup>1</sup> This study has been retrieved from the master thesis of the researcher completed in 2021 at Karadeniz Technical University.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### THE EFFECT OF THE ARAB SPRING ON THE US-TURKIYE RELATIONS

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#### **ABSTRACT**

The “Arab Spring”, which started in Tunisia in December 2010, spread to almost all Arab countries, and has a special place in the history of the Middle East and North Africa countries, also had its impact on the US-Turkiye relations.

The Arab Spring brought new dynamics to US-Turkiye relations. Both countries supported the protests in Tunisia and accepted the transitional government. In the early days of the Arab Spring, a new page was opened in the concept of "Model Partnership" and a useful dialogue was created in the relations between the two countries. During this period, Turkish Prime Minister R.T.Erdoğan's visit to Tunisia and Egypt and his advice to them to "switch to a secular regime" were approved by the United States of America.

In 2012, the US and Turkiye participated together in the reconstruction period of Tunisia, Egypt, Libya and implemented a guiding policy. Barack Obama and Recep Tayyip Erdoğan met at the G-20 Summit in Mexico in March 2012, at the Nuclear Security Summit held in Seoul in June, and also held numerous telephone meetings in the same year. Although the full details of the meetings of the representatives of the two countries are not known, according to the information provided by the media, the main topics were the Syrian crisis, the fight against PKK terrorism, etc. Furthermore, in 2012, in an interview with "Time" magazine, B.Obama stated that one of the five leaders he trusts the most is Turkiye's Prime Minister R.T.Erdoğan.

However, we cannot say that the United States of America and Turkiye chose exactly the same political line during the Arab Spring. For instance, we see differences of opinion between the US and Turkiye regarding the events in Libya and Syria. Especially, in 2013, some consecutive events had a negative impact on US-Turkiye relations.

**Keywords:** the United States of America, Turkiye, Arab Spring





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### SUATAINABLE DEVELOPMENT AS DETERMINANT OF HUMAN FERTILITY IN AFRICA

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#### **ABSTRACT**

Human reproductive health effected by the development of social, economic, demographic, political and environmental aspects. the sustainable development gools aim to improve reproductive health and fertility through the population policies in the light of ICPD, WHO/UN guidelines to assure safe and effective regional policies .

This research discusses five aspects: quality of life, contraceptive use, fertility awareness program, Control of non-communicable diseases and the environmental impact as sustainable development objectives to improve reproductive health and sexual wellbeing of man and women.

The study focused on the importance of environmental, economic, and healthcare goals to improve reproductive health outcome in population, and the requirement for the development of homogeneous procedures for initiation of any fertility awareness campaign or instrument before hands-on application. Furthermore, the social, economic, environmental factors influence the quality of life and reproductive health and fertility. This study provided a baseline framework for the development and implementation of sustainable reproductive goals related to human reproductive health and fertility in Africa.

**Keywords:** Fertility, environmental, non-communicable diseases.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### WOMEN'S EXPERIENCE OF MISCARRIAGE: A QUALITATIVE STUDY AMONG MARRIED WOMEN IN RURAL AREA IN MOROCCO

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#### ABSTRACT

**Background:** For most women, the experience of pregnancy is profoundly emotional. Pregnancy represents the realization of a dream and a central stage in a woman's life. Sometimes, however, the plan turns into a nightmare when the pregnancy stops progressing and the embryo growing in the woman's womb dies. Neither the public nor health care professionals fully know the implications and significance of miscarriage to the woman who has lost the pregnancy. **Objective:** This study aimed to explore the experiences of women who have experienced miscarriage, focusing on their accounts of miscarriage. **Design:** Semi-structured in-depth interviews with eleven married women who had experienced miscarriages in the previous ten years and a thematic analysis was carried out. **Findings:** Results were grouped into the following themes: Occasional events around miscarriages, Miscarriage confused with metrorrhagia, Community intervention by practices and beliefs for dealing with miscarriage, and women's experiences of pain and bleeding. **Conclusion:** women living conditions and lack of acknowledgment of reproductive health were the primary keys to dealing with negative maternal health experiences in Morocco among women living in rural areas.

**Keywords:** Miscarriage, qualitative, Rural, Morocco.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CONTEMPORARY METHODS OF PRESENTATION OF CULTURAL ASSETS

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#### ABSTRACT

Cultural assets are a concrete part of the history that includes the cultural and social accumulation of the societies they belong to. It is important for the cultural continuity of societies to preserve the cultural assets that establish a dialogue between the past and the present and to preserve them with their original values. In this study, reconstruction applications, which are one of the conservation methods, are examined from the perspective of architecture, art and conservation disciplines. It is aimed to develop alternative perspectives.

It is not always possible to reconstruct or complete the building for cultural properties that have survived to the present day as a large part of their physical structure has been destroyed. In this case, it may be preferable to preserve the cultural property as it is instead of its reconstruction. At this point, the study focuses on the transfer of the intricate relationship between architecture and art to the conservation area as a contemporary alternative. "Wire mesh" applications are discussed together with the art of light. The use of this technique in the Basilica of Siponto, which is located in an archaeological site in Italy, shows that it can also be used in the field of reconstruction. By examining this example, in cases where reconstruction is not possible with traditional methods, in order not to destroy the cultural property values, it has been focused on alternative methods of preservation in a way that references the original of the building. In this context, suggestions have been made on "preserving and transferring the traditional with modern art", which is the main subject of the study.

**Keywords:** Cultural assets, preservation, reconstruction



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### OPTICAL DESIGN AND OPTICAL ANALYSIS OF ELECTROMAGNETIC COMPATIBLE BACK FOG LED MODULE

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#### ABSTRACT

With the developing technology in today's world, LEDs have become widely used lighting products both in domestic and industrial terms. In our study, the optical design and optical analysis of the Back Fog LED module used in electromagnetic compatible vehicle lighting systems were made and its compliance with the standards was investigated. At the optical design stage, the geometric viewing angle of the LED module is  $\pm 25^\circ$  horizontally and  $\pm 5^\circ$  vertically, the color value of the light emitted from the lamp must remain in the region between the points R1 (0.645,0.335), R2 (0.665,0.335), R3 (0.735,0.265), R4 (0.721,0.259), which are defined as "red" in the CIE 1931 color diagram. The features that the module should have in terms of optics, according to the ECE R38 international standard, has been determined that the light intensity should be at least 150 cd (candela) and a maximum of 300 cd along a line from  $-10^\circ$  to  $+10^\circ$  horizontally and from  $-5^\circ$  to  $+5^\circ$  vertically. In addition, the light intensity in the area inside the parallelogram created by joining the end points of these lines should be at least 75 cd and maximum 300 cd. As a result of the analysis, it was observed that the light intensity requirements of at least 150 cd < 195 cd along a line from  $-10^\circ$  to  $+10^\circ$  on the horizontal specified in ECE R38, and a line from  $-5^\circ$  to  $+5^\circ$  on the vertical were met. In addition, it was observed that the light intensity requirements of 75 cd < 97.5 cd < 300 cd were met in the area inside the parallelogram created by joining the end points of these lines.

**Keywords:** Optical design, optical analysis, LED module, electromagnetic compatible



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### INVESTIGATION OF THE MECHANICAL DESIGN AND VIBRATION ANALYSIS OF ELECTROMAGNETIC COMPATIBLE BACK-FOG-SHIFT LED MODULE

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#### **Abstract:**

In our study, the mechanical design of the Reverse Fog and Gear LED module used in electromagnetic compatible vehicle lighting systems, assembly optimization in design and vibration analysis were performed and examined. After the mechanical design of the reverse fog / gear module was done, 6 different components were assembled together and the product was finalized. During the assembly phase, clamp-shaped terminal connection, stud-type terminal connection and flush-type terminal connection works were carried out. Flush-type terminal connection has been preferred as assembly. With this mounting method, the risk of creating insulation for the cooler, which is a problem in other mounting methods, is removed. After the design and assembly processes, the changes in the structure of the module that will occur as a result of the vibration it is exposed to on the vehicle on which it is mounted were examined. In vibration analysis, 6 different frequency values were applied in x, y and z axes. The yield strength of lens material PMMA is 70 MPa. The stresses obtained as a result of the analysis are expected to be below 35% of the yield strength. The maximum stress occurring in the equivalent stresses obtained in the x, y and z axes as a result of the simulation is 0.001 MPa in the z axis and is below 24.5 MPa. There is no mechanical problem. The yield strength of the cooler material Aluminum is 280 MPa. As the equivalent stresses resulting from the analysis are very small, it has been determined that there will be no mechanical problems.

**Keywords:** Optical design, optical analysis, LED module, electromagnetic compatible



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### EFFICIENT CONVERSION OF AQUEOUS CARBON DIOXIDE TO FORMATE WITH SOLAR TO FUEL CONVERSION EFFICIENCY OF 1.48%

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#### ABSTRACT

Intense industrialization and emission of greenhouse gases continue to cause increase in concentration level of carbon dioxide (CO<sub>2</sub>) globally, which subsequently leads to increased global warming. Among various techniques proposed for the recovery of CO<sub>2</sub>, microbial electrosynthesis (MES) is a relatively newer approach. In such an approach, CO<sub>2</sub> is electrochemically reduced to value-added chemicals. The MES cell is a bioelectrochemical device involving the generation of O<sub>2</sub> at the anode via water splitting and the electroreduction of CO<sub>2</sub> to biochemicals using microbes at the cathode. Use of photo-effect in MES cell can reduce or eliminate the need of the externally applied potential. Here, we demonstrate the development of a MES device based on a novel z-scheme heterojunction formed between the nickel-cobalt tungstate (NCW) and graphitic carbon nitride (gCN) at photoanode, and the gCN-based biocathode, to electrochemically reduce CO<sub>2</sub> to formate. Both anode and cathode materials are supported over an activated carbon fabric (ACF).

Production of formate depends on various factors such as applied potential, choice of microbes and electrode material. To demonstrate the effect of applied potential, experiments were performed at three different external potentials: -0.4, -0.8 and -1.0 V at cathode. The prepared novel z-scheme-based NCW-gCN/ACF photoanode, with the low band gap energy of 2.66 eV and the gCN/ACF-based biocathode resulted in the efficient production of formate. The current study can be further explored for the production of relatively higher molecular weight acids and alcohols via CO<sub>2</sub> reduction.

**Keywords:** Carbon dioxide; Graphitic carbon nitride; Microbial electrosynthesis; Nickel-cobalt tungstate; Formate.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### USE OF INTERNET OF THINGS TECHNOLOGY IN HEALTHCARE

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#### **ABSTRACT**

Today, the continuous development of information and communication technologies in the digital transformation process leads to the emergence of new technologies. One of these technologies is the Internet of Things (IoT), which connects virtual and real world entities, thus enabling the connectivity of anything any time. Developments in artificial intelligence, cloud computing, cyber security and network technologies emerge as concepts that attract attention in almost every part of the society. Especially in recent years, thanks to the widespread use of the Internet and the increase of the Internet speed, the Internet of Things has an important role in enabling all devices to communicate with each other through a network. The Internet of Things has made its way into a variety of industries, including logistics, manufacturing, shipping, transportation and healthcare. IoT improves communication on the Internet not only between people, but also between objects. The IoT enables almost every electronic device, with its expandable Internet connection, to become a smart object. Health services, which start before the birth of individuals and continue throughout their lives, are one of the most essential needs of individuals. In healthcare, use of the IoT offers many advantages in the treatment of patients taking the necessary precautions by making early diagnosis. Thanks to the Internet of Objects, the data received from people outside hospitals, it becomes easier to immediately detect unexpected situations that may occur. Besides solving many problems, use of the IoT in the healthcare industry also helps analyze and even predict the health status of patients.

**Keywords:** Internet of Things, Digital Transformation, Health Services.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### TECHNICAL PROTECTION OF PERSONAL DATA FOR COMMERCIAL ORGANIZATIONS

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#### ABSTRACT

The author obtained the most significant scientific results, determined the novelty of the study, the unity and validity of the conclusions, the reliability of the results, confirmed the adequacy of the assessment of these positions in the conclusion. It has been established that scientific research allows identifying gaps and conflicts in the regulatory environment of the circulation of personal data and formulating a proposal to improve the current legislation regulating the circulation of personal data.

**Keywords:** Software, relevance of personal data protection (GDPR), principles of confidentiality, data access, control and security policy, IT development.

#### INTRODUCTION

Since more and more people make internet purchases and join social networking websites that require them to share personal data, the opportunities for hackers to get access to that data and use it for financial gains are greater than ever. Identity theft has been a major consumer concern for many years [1]. It is critically important for consumers to stick to a cyber security plan that includes the use of application control as well as system recovery technology.

The ease and convenience of internet purchases created a rapidly growing global e-commerce market. However, in every case where consumers offer their credit card information, they put their financial security at risk [2]. Hackers can get access to transactions as they happen to steal cardholders' details and make illegal charges using their information. Many companies now offer the ability to store payment records so that returning customers can quickly make purchases without the need to re-enter card numbers and billing addresses. These services provide a much easier online shopping experience, but they also create vulnerabilities where cybercriminals can break into a company's databases and steal that information.

With the introduction of the new regulation of the European Union, the General Data Protection Regulation (GDPR), which entered into force on May 25, 2018, as well as Law No. 94-V of May 21, 2013 On Personal Data and their Protection, as amended on January 2, 2021, the relevance of personal data protection increased still more.

The regulation of the Law of the Republic of Kazakhstan On Personal Data and their Protection does not set forth any precise conditions and does not limit the storage period to the exact time frame, but specifies the storage period by the date of achieving the goals of their collection and processing.

Every organization operating within the European Union is preparing to become GDPR compliant. The GDPR will enhance the rights of individuals to control their own data. The theoretical framework introduces the six GDPR principles of confidentiality. In addition, in accordance with the new provision, the rights of an individual were listed.

This research is conducted by means of a study of Headpower Oy, which provides cloud services. The company is constantly developing its products and services to meet the needs of customers and the industry. Currently, the corporation plans to develop its software products in accordance with the GDPR requirements. The company has a sample application with over 15 years of history which includes many customers and users. In addition, many programmers have worked on it. Most of the original developers of the application have changed their companies, which naturally results in information being lost when former employees left the company. This is why the development team now has been given the task of making the software GDPR compliant. The author of this study is a member of the development team.





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His role is a software developer whose responsibilities include designing, programming, testing, and releasing new versions.

### *Principles of personal data security*

The organization must know what personally identifiable information (PII) they process. Without this knowledge, it is difficult to be sure that an organization is handling PII in the manner required by the GDPR. Article 30 of the General Data Protection Regulation states, for example, that an organization must specify the purpose for each processing of PII and set time limits on how long the data will be kept in the warehouse. In addition, the controller and processor must be able to provide records to authorities and auditors upon request. The GDPR Article does not provide instructions on what an organization must do to make its data processing activities be compliant with the requirements. Data mapping can be a good technique for this kind of purpose.

Data mapping helps an organization identify the information stored within the organization and how it will be transferred from one location to another. The data display must include at least the following elements:

- Data elements (names, addresses, emails, etc.);
- Formats (for example, databases and files);
- Transfer methods (for example, API);
- Locations (for example, clouds, third parties or local servers);
- Who has access to the data.

The application dates back 15 years and many developers have worked on it. During the existence of the program, old functions were removed, and new ones were added. Some developers have also changed their company during the life of the application, and the technical documentation has probably not been updated. The development team faces a challenge with the GDPR and with bringing the application into compliance with regulatory requirements. The development team started their work with a meeting on planning data map. The team listed up possible places where the data could be stored. The original list was as follows:

- Work environment;
- Test and demo environments;
- Office space servers and other devices;
- Developer workstations;
- USB drives, external USB drives and other similar data storage devices.

The above locations may contain personally identifiable information (PII) in databases, files, logs, backups, and printed materials (for example, application screenshots). The development team must inspect each location and clear it of PII that has no legal basis for keeping it. All possible locations for personally identifiable information were documented so that the development team could plan what tasks they must perform, such as clearing data from unnecessary locations.

The next research question addresses the problem of how to ensure the GDPR compliance of software in the future. The company must realize that it is not possible for an organization or software to be always GDPR compliant after the implementation of processes, policies, and software functions. Amendments will be made to the laws and new software functions will be developed and implemented.

### 1) Monitoring of amendments to GDPR

An organization must act quickly when the government makes amendments to laws and before they go into effect. The authorities can impose fines, lawsuits or close down a business that does not comply with the rules. New laws can involve changes to existing procedures and policies while creation of new ones always requires some effort. In addition, employees need to be trained in their new roles and responsibilities. Business cannot escape laws and it is important to ensure business continuity.



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An organization must keep track of changes to the GDPR to ensure that the most recent regulatory updates are taken into account, for example, in the company policies and processes. Regulatory activity requires some general guidance on what companies must do with that regulating activity because regulating leaves a lot for interpretation, so it is important to keep track of changes in the laws and respond thereto.

### 2) Train employees on a regular basis

The very best security features and a firewall will not help an organization if, for example, a criminal obtains a password to a network or to confidential information systems through social engineering. A social engineering entity can call a company's help desk and pretend to be a colleague or partner in order to obtain confidential information. Apart from that, an employee can be tricked into clicking on a malicious link from an email or a fake social media source. An ill-intentioned person can simply enter an organization's premises and put malicious USB drives, steal assets, or even harm people.

Employees must receive regular training to prevent, for example, social engineering breaches, that is why the company has at least two different security and GDPR courses for its employees. In addition, the helpdesk instructions will be kept up-to-date, and when something new happens, training in those changes will be provided for 49 employees. It is also important to train the development team members in security policies, new technologies, security features and tools.

### 3) Internal audit

It is important to ensure that the information security and regulatory compliance are implemented correctly. Internal audit is a good tool to help organizations identify areas that might need improvement. It also exposes to possible dangers. Normally, the scope of internal audit includes monitoring, analyzing and evaluating, for example, the organization's risks. In addition, compliance with the laws may be reviewed. Recommendations are also the result of internal audits.

Laws will be changed and it is important to keep track of these changes so that the organization stays in line with them. The company must change its processes and policies as a result of changes in the laws, therefore the organization must regularly perform internal audits in order to remain, for example, GDPR compliant. Security policies and software development processes must be checked for the company to reduce the number of security breaches and maintain high performance.

### 4) Keep GDPR in mind when designing and implementing functions

Software development processes must include work stages to analyze the requirements personal data cyber security. Security requirements vary depending on the sector which the corporation is focused on. Technical implementations must be designed to track closely with the data risk level. It is important to include impact assessment in the software development process from the very beginning, for example, in order to correctly implement data security requirements. Improperly designed systems can be hardly convertible to be later compliant with data security requirements. It is also important to ensure that security features are properly implemented at the development stage and thereafter. Technical security measures can be, for example, access control and data encryption or anonymization.

When designing and implementing features in a sample application account must be taken of the GDPR and information security controls. Thus, the organization automatically creates applications that are GDPR compliant. The software development team is a Scrum team that develops application features in sprints. GDPR requirements can be taken into account before, during and after sprints. When a sprint begins, a sprint planning meeting is held and the team develops the objectives of user stories set for the upcoming sprint. The objective contains a description of how the function must be implemented. Therefore, the sprint planning meeting can be one of the events where you can check if the objectives require working with the GDPR. During the sprint, when the objective is achieved, the team members check and test the implementations. GDPR requirements can be reviewed and tested at the same time. After the sprint, there will be a retrospective meeting, and the team will have the opportunity to evaluate the processes, tools, implementations, and develop recommendations for future work. Thus, the requirements of the GDPR can be taken into account throughout the entire development life cycle of each software feature [103].



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### 5) Audit software features and data

The GDPR and other features implemented in the sample software and automatic cleanup processes must be tested and checked on a regular basis to make sure that they work properly. In addition, it is necessary to delete unnecessary data and files. The history of database cleanup jobs can be viewed in SQL Server Agent. Anyway, it is well worth, for example, an SQL script to check all necessary database tables, which may include personal data, so that there is no unnecessary data. The file cleanup service also needs to be automated to verify that all files marked as removable have been deleted. Without automation, it can be difficult to find files to delete. In such a way you can check that, for example, the operation of the database is fully functional. When a new feature is introduced or an existing one is changed, developers must change and test the automatic cleanup services so that they continue to do what they were designed for. The software must also be audited in terms of the GDPR so that all personal data has a legitimate purpose for processing and storing in a warehouse.

### Conclusion

The organization must look for information in documents published by the authorities; online sources can also be an option, and additional training in this matter is necessary as well. Materials offered by various consultants must be carefully analyzed because there is no single way to implement the GDPR. Then it would be possible to get a partner (lawyer) who specializes in GDPR and other data security laws. Furthermore, agreements should be signed with each customer and partner companies to ensure that responsibilities are understood and agreed between each organization.

The organization needs to know what data are processed in its systems, where it is located and where it will be transferred. This is a big problem, for example, when the software has a long history. Inventory and display of data will increase the organization's awareness of the data elements being processed, data formats, transmission methods, location and who has access to the data. Apart from that, when processing personal data it is necessary to comply with the GDPR principles of confidentiality.

It is important to understand that barely making changes to the GDPR for software does not guarantee that everything is done correctly and that the regulatory requirements will be complied with.

Furthermore, the organization must deny access to data without a good reason. In addition, for those who work in the help desk, instructions are necessary to prevent, for example, social engineering issues. Personnel must also be trained in the new requirements and instructions for data processing.

Automation helps to save time, and the organization can concentrate on its core processes, such as software development. Otherwise, manually reading or deleting data from multiple databases and files from thousands of folders could be a great challenge. The automatic database and file cleanup services still require monitoring to make sure that they work as planned. Planning of cleaning services also requires rigorous planning; for example, a database may contain several automated processes that may, for example, acquire locks on database tables. This can lead to a problem where reading or writing data from the database may end up in a failure and the cleanup or other automated process cannot complete its task. The database can also be used all the time when data is being written or read, for example through a web API or when the software has many users on the network.

Monitoring the GDPR and other changes in the laws is essential for the organization to comply with the requirements resulting from the aforementioned changes. In addition, in this way the organization can avoid costly fines that can be imposed by the authorities if things are not sorted out in a proper manner. If the organization implements changes in the laws well and makes efforts to ensure cybersecurity, this is also a positive sign for customers and partners.

Internal courses on security and GDPR are one of the solutions to acquaint people with the principles of personal data processing and security threats. Internal audit, and possibly external assistance, helps to verify, for example, that the organization's processes and policies are implemented properly and employees follow instructions. Apart from that, in case of change in the laws it may result in changes to the organization's processes and policies.

When an idea about a new software feature comes up, it is important to pay attention to what data will be processed. Furthermore, consideration should be given to what security measures must be



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implemented to ensure that legal requirements are properly taken into account. It is important to make sure that the software does not process or store information without legal basis (for example, special categories of personal information). In the sprint planning meeting, when the software development team starts planning the feature tasks, there must be definitions of the business logic, what data, and what security measures must be implemented. The team will then develop their objectives for technical purposes regarding how the feature will be implemented, tested, and released during the sprint. The team may not commit a feature in a sprint if there are ambiguities with the definitions. Sprint planning accounts for approximately four percent of the entire sprint workload. In a two-week sprint, the planning meeting lasts about four hours. The team may not develop poorly described features in a sprint planning meeting. If they do, they probably won't be able to develop anything in four hours.

Data is a valuable currency in this new world. While the GDPR actually creates problems and pain for us as companies, it also creates opportunities. Companies that demonstrate that they value human private life (beyond simple legal compliance), that are transparent about data usage, develop and implement new and improved ways to manage customer data throughout its lifecycle, increase confidence and retain more loyal customers. Protection of personal data is a very hot topic for many organizations, even if it still leaves a lot for interpretation. The most important outcome of this thesis is the steps that have been taken to make the example application GDPR compliant. In addition, the general GDPR model about what features must be developed and implemented by software developers, for example: for applications, to make them compliant with the requirements of the GDPR.

### **Conclusion**

Privacy protection is a very hot topic for many organizations, even if it still leaves a lot for interpretation. The most important outcome of this thesis is the steps that have been taken to bring the example application into compliance with the GDPR. In addition, the general model of the GDPR about what features should be developed and implemented by software developers, for example: for applications, so that they comply with the requirements of the GDPR.

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### SEPSIS AND MULTIORQAN FAILURE IN NEWBORNS WITH CRITICAL CONDITION

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**Introduction:** Neonatal sepsis is one of the life-threatening problems of newborns, the possibility of the baby contracting a bacterial infection during or after birth.

**Purpose of the study:** Neonatal sepsis is associated with significant morbidity and mortality in the neonatal period. Early manifestations of neonatal sepsis are usually nonspecific. This study aimed to reveal the transport characteristics of newborns in critical condition associated with neonatal sepsis.

**Method:** An observational study was conducted in the neonatal intensive care unit (NICU) of our hospital for a period of six months between 1/01/2021 and 31/06/2021. 272 referred newborns meeting the inclusion criteria were included in the study.

**Results:** Sepsis and multiorgan failure were the main reasons for referral in 32.3% of infants. 55.7% of the newborns were referred from outside the city, 44.3% from other state and private hospitals in the city. Most newborns in critical condition were associated with improperly organized transport and inadequate pre-transfer stabilization, lack of advice on care during transport, and poor communication. Hypothermia was found in 17% of the infants, 26.1% groaning and withdrawal of accessory respiratory muscles, 21.5% bradycardia, 19.3% peripheral circulatory disorder, 15.9% hypotension.

**Conclusion:** In a newborn to be transported, blood and CSF culture samples should be taken in early-onset neonatal sepsis, and urine culture samples should also be taken in late-onset neonatal sepsis. Appropriate fluid-electrolyte therapy should be applied to newborns with sepsis, acidosis and hypovolemia should be prevented, shock should be identified early, and fluid therapy should be added. Inotropic agents should be applied as an inotropic agent. Hypoxia should be corrected, and a respiratory device should be used if respiratory failure develops. The pathogenesis and course of neonatal sepsis should be closely followed and a patient-specific treatment plan should be developed to achieve a good outcome.

**Keywords:** newborn, neonatal sepsis, multiorgan failure



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### ON THE FACTORIZABLE SYSTEM, RECURSIVE TERMS AND THE STABLE RANK OF A STRING ALGEBRA

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#### ABSTRACT

String algebras are a class of tame representation type finite-dimensional algebras whose Auslander-Reiten (AR) quivers, i.e., the classification of their finite-dimensional representations and maps between them is completely known, thanks to Gelfand Ponomarev and Butler-Ringel, in terms of certain walks on the quivers known as “strings” and “bands”.

The bridge quiver associated with a string algebra comprises bands as vertices and some special strings called bridges as arrows and encodes useful information about certain algebraic invariants. Domestic string algebras are characterized by their acyclic bridge quivers and are well-studied, whereas there is a lot to explore on the non-domestic side.

After explaining the basics of string algebras in the talk, I will explain a new combinatorial technique of “terms” that helps to capture the geometry of the AR quiver. This technique allows us to connect graph-theoretic properties of the bridge quivers of non-domestic string algebras with the study of their category-theoretic radical.

**Keywords:** String algebra · Non-domestic · Auslander-Reiten quiver · Radical · Stable rank · Bridge quiver.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### THE DEGA PEOPLE'S GENOCIDE

*Y Bhim Nie*

*Dega people activist & Independent scholar*

#### ABSTRACT

This qualitative paper intends to explain and analyze in detail "HOW GENOCIDE AFFECTS DEGA PEOPLE IN THE CENTRAL HIGHLANDS OF VIETNAM." Nearly all parts of the world knew about the Vietnam War and were familiar with the features of genocide in Southeast Asia states, such as the Cambodian and East Timor genocide. But very few people understand that the land between North and South Vietnam, the Central Highlands of Vietnam, is one of the most protracted genocides in human history and ongoing genocide to the present.

The Rhade, we call ourselves Anak Dega or the children of Dega who are culturally, ethnically, geographically, linguistically, and religious, and speaking Rhade together with other Malayo-Polynesian lived in Vietnam's Central Highlands for many centuries or even thousands of years. Since the Central Highlands' annexation by ruler Ngo Dinh Diem to the Southern Republic of Vietnam, enduring heavy destruction of the Vietnam War and several decades under communist Vietnam rule, it has been the most terrible destruction Dega people.

Raphael Lemkin, a Jewish lawyer, coined the term from the Greek word "Geno." which means ethnic or race, and from Latin, "cide," or to kill. At the heart of genocide, he wrote, is the destruction of the essence of group life, from which the UN introduced article II on the prevention and punishment of crimes of genocide.

From the physical destruction, history, culture, identity, and language destroyed to systematic deprivation of ancestral land, enslavement, and forced assimilation. That neatly fits with Raphael Lemkin and the UN genocide definition. There is no word to describe the atrocities that occurred to the Dega people more than genocide. If not, what else?

The Dega people's rights to existence were denied, while the world communities repeatedly proclaimed and permanently reminded that this should not "Never happen again." The world community, particularly the United States, must acknowledge the atrocities that occurred and are ongoing to the Dega people as genocide. Intervention and protection of International Humanitarian is a simple solution for us to survive, a chance to restitution, and the maintenance of the remaining of our community.

The genocide that occurred against the Rhade (Dega) people must be held accountable to the UN member states both legally and by rehabilitation based on international human rights law.

**Keywords:** Dega people, Rhade language, Central Highlands, Genocide, Vietnam



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### AN EXPLORATORY STUDY TO ASSESS THE COMMUNICATION PATTERN, SKILLS, STYLE, AND PROBLEMS OF COMMUNICATION AMONG THE PROFESSIONAL NURSES

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#### **ABSTRACT**

##### **Background**

Effective communication is the key element in providing comprehensive high-quality nursing care to the patients.

##### **Aim**

The aim of the study was to explore the Pattern, Skills, and Style of communication and to assess the Problems faced by the Nurses during Communication.

##### **Methodology**

Exploratory Descriptive Design was used in this study. This study was done at selected hospitals of Saudi Arabia. Professional Nurses were the population of the study. Nurses from selected hospitals of Arar Province were the sample of the study with the sample size of 100. Proportionate Stratified Random Sampling Technique was used in this study. Ethical clearance and informed consent was obtained. The researcher collected the data from the subjects.

##### **Results**

Results of the study depicts that 38 percent of the subjects were belongs to 20-30 years and 78 percent of the samples were females. About 46 percent of the subjects were nationals of Saudi Arabia. Majority (79 percent) of the samples were B.Sc. Nursing Graduates. About 28 percent of the subjects were maintaining excellent pattern of communication but 19 percent of the Nurses were having excellent skill in communication. Around 57 percent of the Nurses were having very good style of communication. About 25 percent of the participants were facing the problems of incivility, whereas 22 percent of the participants were suffering from humiliation. Around 18 percent were the victims of bullying. Hypothesis of the study revealed that there was a significant correlation between socio-personal variables of the professional nurses, with pattern, skills, style, and problems of communication,  $P < 0.05^*$ .

##### **Conclusion**

This study recommends that effective communication improves productivity and promotes team-building among professional nurses.

**Keywords:** Exploratory Study; Pattern of Communication, Communication Skills, Style of Communication, and Problems of Communication





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CORRELATION INDICATORS OF EEG SPATIO-TEMPORAL ANALYSIS OF VARIOUS BRAIN FORMATIONS IN A CONDITION OF A "NON - SIGNAL" AND "SIGNAL" SITUATION

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**Relevance:** Among the current problems of modern medicine, one of the areas of increasing interest is the study of the central mechanisms of stress. Rapid scientific and technological progress, which complicates behavioral conditions, requires the processing of a wide variety of information related to human biological functions and social activity. According to the World Health Organization (WHO), 70% of cases of brain and heart damage (hypertension, myocardial infarction, stroke and etc.), development of neurotic conditions, inability of the human to adapt to normal social conditions as increasing pace, urbanization, overloading with information created by factors such as emotional tension. It has been established that the leading cause of the pathogenesis of a number of neuropsychiatric and cardiovascular diseases is the initial disturbances of brain function as a result of repeated emotional tension. While there is no denying that stress develops as a result of high levels of endocrine-biochemical changes, it should be noted that these changes are usually secondary reactions to the primary processes developed in the central nervous system. In this regard, issues directly related to the study of neural mechanisms of emotional stress. It is believed that a comprehensive analysis of EEG cross-correlation shifts in different structures of the brain, provides ample opportunities to track the dynamics of the formation of time-space-correlation disorders between the cortex and subcortical structures.

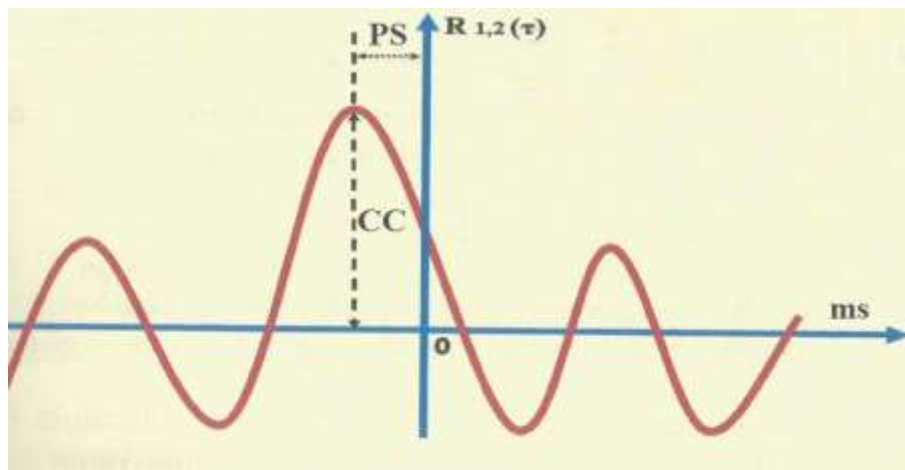
**Key words:** EEG, spatio-temporal analysis, emotional stress, functional systems of the body, mathematical analysis of brain waves, theta wave, cross-correlation phase shift, cross-correlation coefficient.

**Purpose:** To study the EEG oscillations of brain by cross-correlation phase shifts and coefficients in emotional stressful situations.

**Methods and materials:** A method for analyzing spatio-temporal patterns on the EEG was chosen. As we know biomedical signals such as electroencephalogram (EEG) are the time varying signal, and different position of electrodes give different time varying signals. There might be a correlation between these signals. Cross-correlation is generally used when measuring information between two different time series. The possible range for the correlation coefficient of the time series data is from -1.0 to +1.0. The closer the cross-correlation value is to 1, the more closely the sets are identical. Phase shift means that the two signals are at different points of their cycle at a given time.



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**Note:** The scheme of the general crosscorrelogram obtained after the computer analysis of the EEG waves recorded from two separate (R 1.2) structures of the brain:

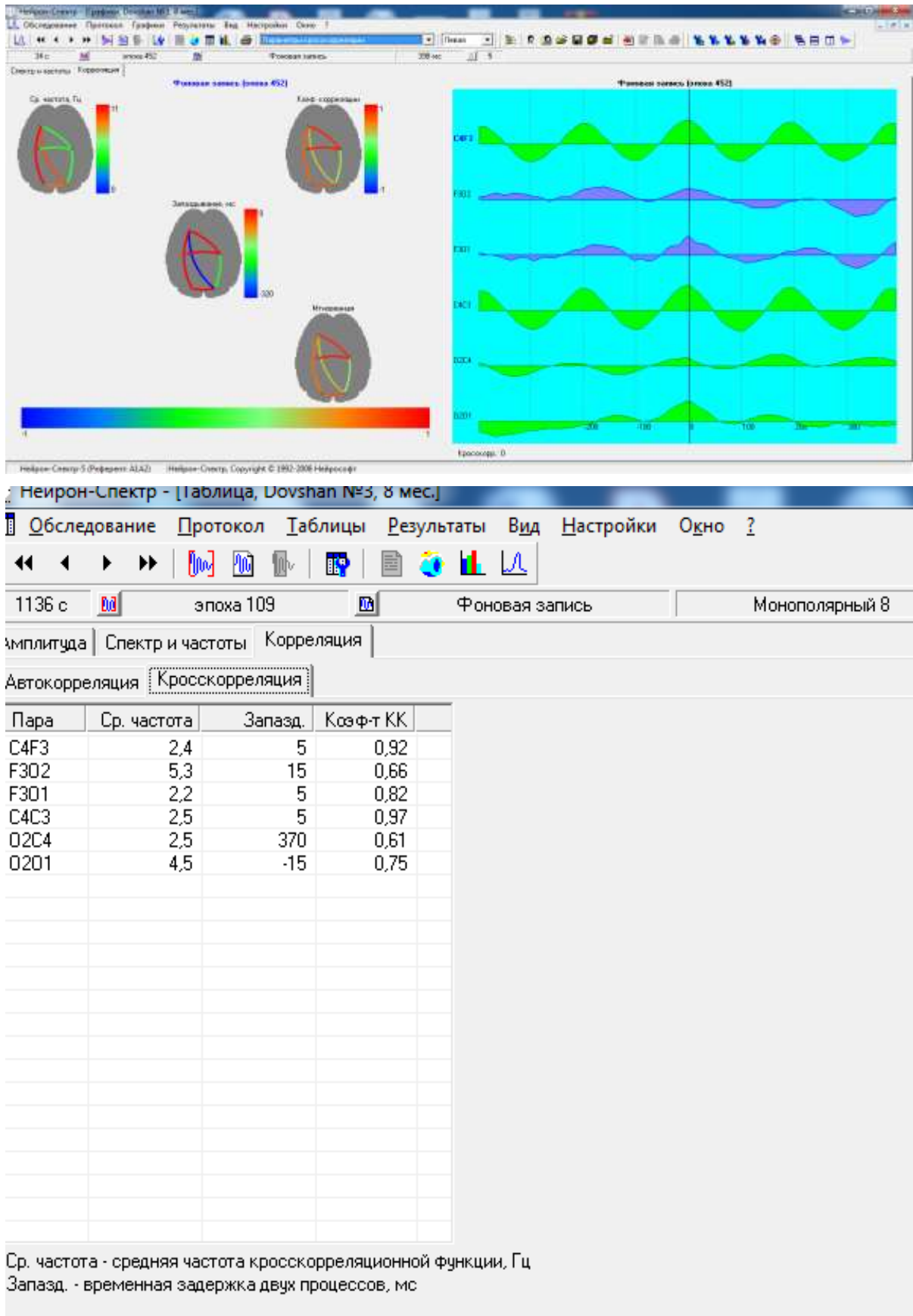
CC- correlation coefficient, PS - phase shifts (msec.)

The experiments were performed on rabbits, with chronically implanted electrodes into the posterior part of the hypothalamus, as well as into the projection zones of the cortex. EEG was recorded on multichannel electroencephalograph by further processing of the EEG using a cross-correlation analysis program on a computer. The rabbits were divided into 2 groups and the technique of repeated irregular in time (from 30 s to 3 min) and regular in time (every 10 min) electrocutaneous stimulations of the hind limb of immobilized rabbits was performed. The voltage varied between 10-20 volts.

**Results:** The correlation analysis program of each experiment was performed on 10-second EEG record sections. EEG sections were analyzed first in the background - before exposure to irritants, and then, during their exposure and in the intervals between them. Under the conditions of irregular in time stimulations, animals experienced a constant emotionally negative stress state, since under these conditions, they have a low probability (or complete lack of opportunity) to foresee the moment of application of emotionally unpleasant stimuli, a large deficit of "pragmatic information". At the same time, the animals with stimuli regular in time were comparatively calm in the intervals between stimuli, since they were able to foresee the time of stimulation. The data obtained on the both group of rabbits before the exposure to electrocutaneous stimuli, showed the slow fluctuations of the EEG potentials of the sensorimotor cortex and posterior hypothalamus which were mainly in synphase by 2,5 -5 ms phase shifts. The functional connections, determined by the cross-correlation coefficient between the hypothalamus (F3) and the sensorimotor cortex (C4) were in the average range of 0.87-0,92.



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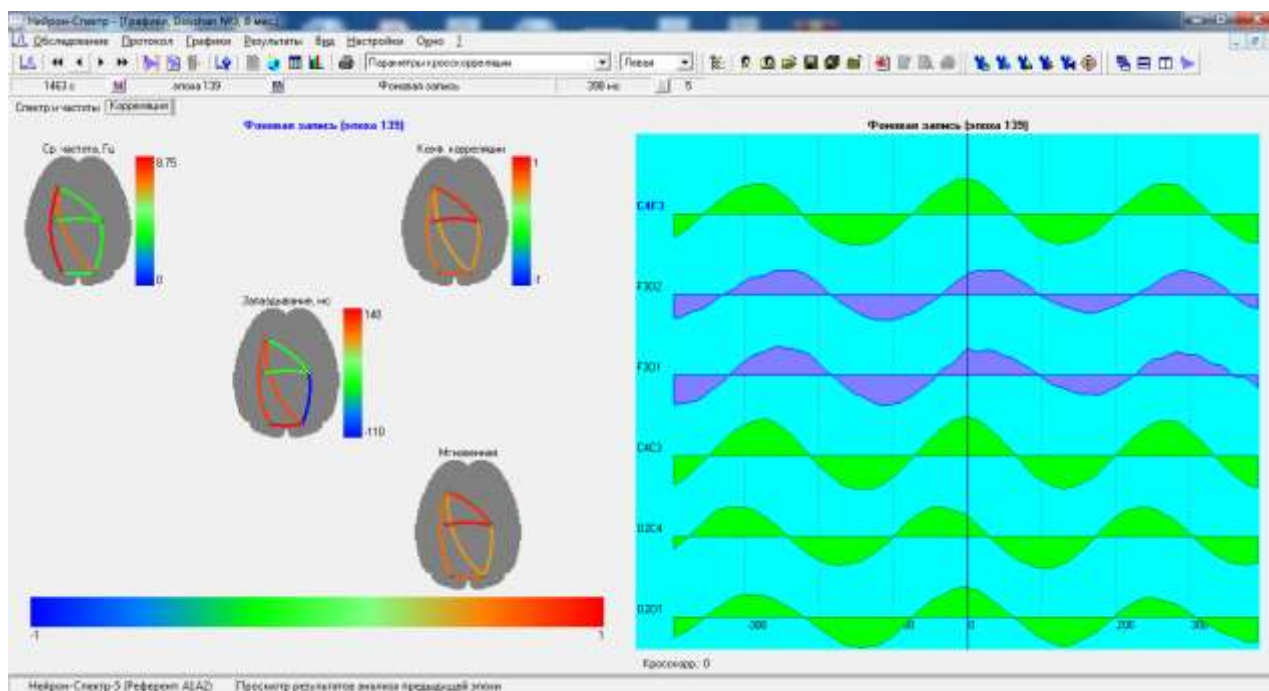


**Note:** Коэф-т КК – cross-correlation coefficient; Запазд.- lagging (phase shift); Пара - pair of analyzed structures.



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The use of electrocutaneous stimulation against this background disrupted the synphase between structures and caused, in relation to the electrical parts of the posterior hypothalamus, an increase in phase shifts in the rhythm of tension in projection zones of the cortex. The lagging obviously increased between posterior hypothalamus (F3) and sensorimotor cortex (C4) and lagging structure was sensorimotor cortex by 10-16 ms phase shifts. Cross-correlation coefficient decreased on average from 0,92 to 0,7. In the rabbits of the first group (irregular in time), these changes were observed throughout the entire experiment, especially in the intervals between stimulations, while in the rabbits of the second group, these changes manifested themselves only at the moment of exposure to electrocutaneous stimulation.





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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### PARASITES INFECTIONS OF PETS DOGS IN BELGRADE AREA DURING 2021

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#### ABSTRACT

Pets dogs play important role in life of modern people, especially in urban environments. The close cohabitation of dogs and humans induced to the constant contamination of public areas, especially streets and parks, with their feces. Dogs are carriers of numerous zoonotic parasites species and have important role in contamination of environments by excreting its eggs. From these reason parasitological control of public places and parks and dog feces has been carried out in Belgrade continuously since 1993. Here we present the results of the parasitological examination of 210 feces of dogs from the Belgrade area during 2021. All feces were from owner's dogs with clinical sign of infection (diarrhea, vomiting, inappetence, etc.) brought for examination to Veterinary clinics in the Belgrade. Samples were examined by a conventional flotation method and parasite eggs or oocysts were differentiated according to their morphologic characteristics. In faecal samples parasites eggs we established at 68,09% (143/210). *Ancylostomidae* spp. were found at 47,5% faeces, *Dipylidium caninum* at 35,6%, *Toxocara canis* at 34,5%, *Trichuris vulpis* at 11,25%, *Toxacaris leonina* at 8,75%, *Strongyloides stercoralis* at 7,21%, *Taenia* -type helminths at 6.6 %, *Capillaria* spp. at 3.7% and *Angiostrongylus vasorum* at 2.6%. From protozoa species *Giardia duodenalis* were established at 45.78%, *Amoeba* spp. at 23.7%, *Isospora* spp. at 12.4% and *Cryptosporidium* spp. at 9.3% samples. If we make comparisons with earlier research in the Belgrade area (from 2016 to 2020), it can be seen that the percentage of infected dogs remained approximately the same as in the past five years, when it amounted to 66.17%. These comparisons are possible because every year (since 1993) the same number of samples are examined from the same locations and in the same time period, using the same test methods. This also applies to dog feces and soil samples from public areas. Research results are published periodically, so that they are available for wider analysis. The conclusion is that the obtained results are within the global scope of the prevalence of parasitic species found in dogs and that they are a global epidemiological problem. These researches will continue in the future.

**Keywords:** dogs, helminths, protozoa, epidemiology, urban environment,



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CALCULATION OF LAMINATED PLATES AND MEMBRANES FOR BENDING

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#### **ABSTRACT**

We consider the problems of the strength of laminated plates and shells. For each category of the task, the solution is given in the general form. On this basis, uniform and three-layer plates and membranes are investigated. In most cases, the obtained solutions are compared with the exact solutions known in the literature. Comparisons with known experimental data are also made for some plates and shells. This allowed us to document the proposed theory and to confirm its high efficiency in solving different classes of problems, not only for thin, but also for medium-thick plates and shells, and thick uniform plates.

For some tasks, the influence of high-order factors on the stress-strain state of the structure, critical loads, and natural oscillation frequencies is investigated.

The possibility of membrane and plate analogy (with some limitations) when using the proposed theory was confirmed. Based on this, solutions for plates and cylindrical shells with different contour conditions are obtained.

**Keywords:** plates, shells, bending





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### TRANSFORMATION IN RELIGIOUS INSTITUTIONS IN THE MODERNIZATION PROCESS

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#### ABSTRACT

Institutions, public fountains, mosques and masjids related to sects have not only shaped religious life in the Islamic geography for centuries. They played an important role in the development of arts, crafts, science and social life. They became the center of many cultural events. However, as of the 17th century, an assimilation process began in the Turkish-Islamic society as well as in the rest. Especially madrasahs, dervish lodges, mausoleums and zawiyas became used for other purposes. In some foundation institutions, post fight and economic concerns took precedence over moral values. Many mosques and masjids were abandoned to their fate. In the face of this sad picture that emerged, people with political power or power made some savings. In fact, when you go before, II. It is understood that since the reign of Mehmet, some religious institutions began to fall into ruin under the name of endowment. During the time of the Committee of Union and Progress, which was a subcontractor of modern values, this issue was seriously dealt with and important legal regulations were made. When the defense of the homeland went beyond everything during the World War I and the National Struggle Period, the people living in religious institutions and the revolutionaries of the future met on a common ground. But after the proclamation of the Republic, the ranks became clear. The implementation of the principle of secularism and threats to this principle enabled different practices to come into play. In the times of Mustafa Kemal Atatürk, İsmet İnönü and Adnan Menderes, governments tried to find solutions by taking into account the sensitivities of the people on the one hand and the economic and financial conditions on the other. These places were put up for sale together with their lands, and they were even used as accommodation for soldiers. II. The harsh conditions brought about by World War II brought a different popularity to the issue. This critical issue, which somehow occupied the agenda in the 100-year period after the Second Constitutional Monarchy, still has aspects that await solution

**Keywords:** Sufism, Tombs, Modernity, Mosques, Atatürk



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### DEVELOPMENT OF TOILET TRAINING KNOWLEDGE AND ATTITUDE SCALE

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#### ABSTRACT

The purpose of this research is to develop the Toilet Training Knowledge and Attitude Scale and to conduct validity and reliability studies. The research has been carried out methodologically. For the Toilet Training Knowledge and Attitude Scale, by consulting expert opinions, an item pool and post application validity and reliability studies have been performed. The research has been carried out in the Pediatric Health and Diseases Polyclinics of two university hospitals between September 2020 and June 2021. The target population of the study was consisted of multiparous mothers (S=360) and children aged 1-3 (S=360) applying to the outpatient clinics of the relevant hospitals with any acute problem of children between January and April 2021. In the research, the whole target group has been studied without the sampling method. The data have been obtained via the Personal Information Form, the Toilet Training Knowledge and Attitude Scale and face-to-face interviews. Data have been evaluated through numbers, percentages, minimum and maximum values, mean and standard deviation, scale development, validity and reliability analysis. Ethic principles have been considered. Toilet Training Knowledge and Attitude Scale has been developed through features consisted of 29 articles which meet, acceptably and highly, the criteria of 5-point Likert Scale's validity (item total correlation values;  $r=.303-.761$ , Alpha coefficient=.916) and reliability (discrimination;  $p=.000<.000$ ). Toilet Training Knowledge and Attitude Scale can be used as a valid and reliable assessment tool in determining and improving mothers' knowledge and attitudes about toilet training in Turkish society and can be adapted to different cultures.

**Key Words:** Attitude, child, knowledge, nurse, toilet training.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CLASSIFICATION OF TRAINING METHODS AS A PROBLEM

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The learning process, which is rich in multifaceted components, manifests itself as the result of different types of activities of educators and learners. The most important concept that includes this activity with all its intricacies is the training method. There are many controversial issues about it; the definitions given to this concept are different in terms of content, training methods are classified on different bases, the concepts of method and principle (technique) are mixed, etc. Here only one of them - the problem of classification - is focused on.

Traditional teaching methods have been used in the educational system of Azerbaijan for many years. Teacher's word, students' independent work, work on the book, etc. these so-called methods are grouped according to the source of knowledge (M. Muradkhanov, N. Sorokin, etc.). The classification has been severely criticized. According to scientists, this classification does not reveal the processes that make up the inner essence of the method. Another classification is based on the source of knowledge and the nature of information perception (Y.Y. Golant, Y.I. Perovski). The authors focused on the following characteristic features and methods:

1. Passive perception - listening and observing (telling, lecturing, explaining, demonstrating).
2. Active perception - work with books, visual sources, laboratory method.

His opponents suggested that the internal and external relations between the activities of the teacher and the students were not taken into account in the classification.

Another classification (M.N.Skatkin, I.Y.Lerner) is based on the nature of students' cognitive activity. According to those who object to the classification, the authors do not take into account the external aspect that expresses the methods, while the teacher can control the student's activity only with the help of this aspect.

Since the late 1990s, the classification of methods belonging to active training forms applied in our country has also caused a serious disagreement. The grounds proposed by Z.Veysova for classification were not met unambiguously:

- Classification according to the objectives of the method.
- Classification by activity, which is the basis of the method.



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Also, many scholars do not agree that what is proposed (branching, Venn diagram, concept table, etc.) can be called a learning method of learning.

Serious flaws are also observed in foreign publications. Calling a certain pedagogical concept both a method and a technique (principle), considering an ordinary teaching activity as a method, and neglecting classification are of this type.

**Keywords:** method, training method, classification, active training.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### SEISMIC ISOLATION WITH KINEMATIC SUPPORTS

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#### ABSTRACT

Many variants of kinematic supports have been developed, but are rarely used in practice. The reason is that the performance of such systems under low-frequency seismic impacts is less studied. In such an earthquake, a building with kinematic supports may lose its stability and collapse.

Its use is recommended only in areas where high-frequency earthquakes are expected. In other cases, it will be necessary to carry out additional seismic protection measures. The manufacturing of spherical surface mounts requires great precision, as well as their installation. This increases the cost.

The disadvantages of this system are as follows: production of stands with spherical ends and unique high-strength contact surfaces requires high precision, which is more possible for mechanical engineering than for construction technology. In addition, during the deviation of the posts, significant local stresses develop, which require additional reinforcement, which leads to an increase in the cost of steel. All this and increased accuracy during installation lead to a significant increase in labour costs and costs.

The seismic isolation system for the construction with kinematic supports is characterized by more economy and ease of installation. The lower bases of the kinematic supports, which have a convex spherical surface, are placed in the spherical recesses of the foundation slab, and their upper floors are connected to the columns by means of self-centring collars.

**Keywords:** kinematic, earthquake, stresses.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### PREVENTION MEASURES FOR DIABETIC FOOT ULCERS

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We reviewed the results of observation of 175 diabetic foot patients aged 55-75 years. Patients are given special recommendations (in the form of a memo) for the prevention of complications of diabetic foot:

1. Daily foot check (for blisters on the soles, cuts and scratches between and around the toes, as well as ingrown nails, signs of inflammation).
2. Wearing suitable shoes (to avoid the formation of calluses, hyperkeratosis of the skin, in places of excessive stress).
3. Blood sugar level (it is recommended to use insulin preparations that help the body convert sugar into energy).
4. Weight correction (to avoid additional load on the foot).
5. Refusal of tobacco.

A 2-year follow-up showed that patients (there were 56 of them), ideally observing physical activity and a diet that maintains blood sugar levels within normal limits, as well as other recommendations listed above, never went to the doctor for emergency help. Complications were often observed in patients who did not follow a diet and thus did not maintain blood sugar levels, and also continued to smoke. Since smoking and tobacco smoke contain carcinogens and cause prolonged narrowing of arterial vessels. All diabetic patients were explained the dangers of smoking and were strongly recommended to quit this bad habit.



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### OXIDATIVE STRESS INDUCED THERAPEUTIC APPROACH FOR HEPATOCELLULAR CARCINOMA

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#### ABSTRACT

##### Background

Hepatocellular carcinoma (HCC), characterized by the uncontrolled proliferation of hepatocytes, is the most predominant type of primary liver cancer in the world. More than 815,000 people are diagnosed with HCC globally and approximately 800,000 deaths annually, making it the 3<sup>rd</sup> most common cause of cancer-related deaths. Pakistan is one of the many countries where HCC is highly endemic. The drastically rising incidence rate of HCC with an equally increasing rate of mortality is an area of great concern.

##### Purpose of Study

The aim of this study was to devise a better therapeutic strategy which is desperately required for HCC. The contentious role oxidative stress plays in the prognosis and treatment of various cancer have now become an area of increasing interest. The current study aimed to investigate the effect of induced oxidative stress via hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) on the proliferation of HCC Huh-7 cells.

##### Methodology

We examined the effect of H<sub>2</sub>O<sub>2</sub> on HCC Huh-7 cells to investigate the involvement of reactive oxygen species in cancer cell death. The role of oxidative stress on cell cycle arrest was studied using flow cytometry. Furthermore, proteomic studies were conducted to identify potential oxidative stress biomarkers.

##### Results

Our study demonstrated that the toxicity generated by H<sub>2</sub>O<sub>2</sub> produces anti-proliferative effects on HCC Huh-7 cells. The inhibition of cancer cell proliferation in H<sub>2</sub>O<sub>2</sub> treated Huh-7 cells has been observed by arresting the cell cycle at the G2 phase. We also found differential protein expression that would play a crucial role as potential biomarker/therapeutic target for the treatment of HCC.

##### Conclusion

It can be concluded that induction of oxidative stress has an important role in suppressing tumor cells and in future could be a potential therapeutic approach for HCC.

**Keywords:** Hepatocellular carcinoma, oxidative stress, cancer therapy, glutathione S-transferase, peroxiredoxin-2, cell cycle.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### THE EFFECTS OF MIRROR THERAPY ON HAND FUNCTIONS OF ADULTS WITH HEMIPLEGIC CEREBRAL PALSY

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#### ABSTRACT

The aim of our study was to determine the effect of mirror therapy on muscle tone, motor improvement and functional status in standard treatment in patients with hemiplegic cerebral palsy (CP). A total of 50 patients aged between 16-40 years were enrolled into the study. All patients continued their standard treatment for 8 weeks in a special training center for 2 days per week for 40 minutes. In the mirror group (n=25), 20 minutes of the 40-minute sessions, standard treatment and 20 minutes of mirror therapy were applied. Muscle tone in wrist and elbow flexor muscles were assessed by Modified Ashworth Scale (MAS), wrist and elbow joint range of motion (ROM) with goniometer, upper extremity motor recovery by Brunnstrom Motor Staging, gross manual dexterity by Box and Block Test (BBT), functional independence was evaluated by Functional Independence Measure (FIM). Evaluations were performed by the same physiotherapist before and after 8 weeks of treatment. Pre-treatment comparisons of groups revealed that mirror group's wrist extension ROM ( $p = 0.001$ ) and forearm pronation ROM ( $p = 0.017$ ) were significantly higher than the control group. Before and after within group comparisons revealed that BBT, upper extremity Brunnstrom and FIM scores increased significantly in both groups ( $p < 0.05$ ). Tonus reduction in wrist flexor muscles was significant in both groups ( $p < 0.05$ ). ROM increase in wrist extension ( $p=0.006$ ) and forearm supination ( $p = 0.008$ ) were significant only in the mirror group.

In this study, it was observed that mirror therapy in addition to standard rehabilitation program 20 minutes per day, 2 days a week, for 8 weeks was more effective than standard treatment alone in terms of gross manual dexterity in adult patients with hemiplegic CP.

**Key words:** Hemiplegia, Cerebral palsy, Spasticity, Hand Functions, Mirror Treatment, Rehabilitation





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### THE ABILITY OF THE PREBIOTIC EPS<sub>JD2</sub> AND POSTBIOTIC CFS<sub>JD2</sub> OF *PICHIA KUDRIAVZEII* JD2 TO FERMENT AND REGULATE THE GROWTH OF *LIGILACTOBACILLUS PLANTARUM* GD2 ATCC 20246 AND *SACCHAROMYCES CEREVISIAE* BD1 ATCC 25923 AND THEIR COMPARISON WITH COMMERCIAL INULIN

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#### ABSTRACT

The production of functional foods containing prebiotics is a dominant area in the food industry. EPSs of lactic acid bacteria have an important role in fermented milk products and are specially applied for the improvement of bakery products or gluten-free products. EPS produced by lactic acid bacteria strengthens the immune system by increasing T-lymphocyte proliferation, activating macrophages, and producing cytokines. In this study, *Ligilactobacillus plantarum* GD2 ATCC 20246 and *Saccharomyces cerevisiae* BD1 ATCC 25923 strains were used to examine the fermentation capacity of EPS<sub>JD2</sub> (prebiotics of *Pichia kudriavzevii* JD2 strain). After 48 hours of incubation, viability values were calculated for the cultures in cfu/mL. According to the results obtained, the viability of *L. plantarum* GD2 ATCC 20246 growing in MRS medium and *S. cerevisiae* BD1 ATCC 25923 growing in YPD medium were determined as 6.5 log cfu/mL and 7.6 log cfu/mL, respectively. By removing glucose from MRS and YPD media and adding EPS<sub>JD2</sub> at the same rate (2%), *L. plantarum* GD2 ATCC 20246 (6.4 log cfu/mL) and *S. cerevisiae* BD1 ATCC 25923 (7.6 log cfu/mL) yeasts. It was determined that there was no significant change in viability, but a decrease in their viability in the medium containing inulin (6.0 log cfu/mL and 6.8 log cfu/mL, respectively). In this study, the growth regulatory effect of postbiotic (CFS<sub>JD2</sub>) and prebiotic EPS<sub>JD2</sub> on *L. plantarum* GD2 ATCC 20246 and *S. cerevisiae* BD1 ATCC 25923 was also determined. Instead of glucose, CFS<sub>JD2</sub> and EPS<sub>JD2</sub> were added separately to the culture media at concentrations of 0.5, 1.0, 5.0, and 10 mg/mL. Accordingly, it was determined that the regulating effect of the postbiotic and prebiotic on the growth of *L. plantarum* GD2 ATCC 20246 and *S. cerevisiae* BD1 increased depending on the increasing concentration. The highest effect was determined with the addition of 10 mg/mL postbiotic (CFS<sub>JD2</sub>), with an increase of 8.0 log cfu/mL and 8.7 log-cfu/mL in bacteria and yeast, respectively. It has been determined that postbiotic and EPS have *L. plantarum* GD2 ATCC 20246 and *S. cerevisiae* BD1 growth regulatory effect (GRE) and this effect is better than commercial inulin. From the results obtained, it is believed that EPS<sub>JD2</sub> can be an alternative to commercial inulin.

**Keywords:** Prebiotic, Postbiotic, *P. kudriavzevii*, *L. plantarum*, *S. cerevisiae*



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### DESIGNING PUBLIC PARKS WITH FENG SHUI AND MATHEMATICS: A CASE STUDY

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#### ABSTRACT

Famous public parks in the World often create important highlights for cities. Each park carries in it a design depth from traditional to modern architectural philosophies. This article presents some design elements of Luu Huu Phuoc park, a famous place in the heart of Can Tho City (Vietnam), from the perspective of Feng Shui and Mathematics. The results of the study provide some quantitative and qualitative data to show the blend between traditional architectural views as Feng Shui and contemporary scientific styles.

**Key words:** Architecture, Feng Shui, Mathematics, Public parks, Can Tho City.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### ALTERNATIVE PROTEIN SOURCES FOR SUSTAINABILITY SÜRDÜRÜLEBİLİRLİK AÇISINDAN ALTERNATİF PROTEİN KAYNAKLARI

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#### ABSTRACT

Nutrition is one of the most basic requirements for people to develop in a healthy way and to maintain their vital functions. For the purpose of adequate and balanced nutrition, macronutrients such as carbohydrates, proteins, fats and micronutrients such as vitamins and minerals should be provided in the daily diet. Among these nutrients, protein is very important for metabolic activities. People generally meet their protein needs by consuming animal sources (such as meat, milk, eggs and their products) and vegetable sources (such as legumes, some grains and oilseeds). The use of these traditional sources for protein intake raises some concerns when viewed from a sustainability perspective. Along with the increase in food supply in parallel with the increasing population, the decrease in water and natural resources, the unconscious use of food resources, food waste, the amount of energy used for the production of traditional protein sources, the increase in greenhouse gas emissions and environmental pollution have led to the emergence of new policies on food and sustainable food systems. Sustainable food systems ensure food security and safety for future generations, protect ecosystems and natural resources, and promote social and economic welfare. In this context, alternative protein sources are needed since it is seen that traditional protein sources will be insufficient compared to the increasing population. As alternative protein sources today, artificial meat, which creates a question mark in the minds of many people in terms of ethics, culture and religion, edible insects that are traditionally consumed in the Far East, microalgae that are increasingly taking place in the literature, and vegetable proteins that are currently consumed around the world can be given as examples. In this study, consumers' perspectives against these alternative protein sources, production methods, nutritional values and protein content, advantages and disadvantages of these sources are discussed.

**Keywords:** Protein, Nutrition, Edible insect, Microalgae, Artificial Meat

#### ÖZET

Beslenme, bireylerin sağlıklı biçimde gelişmesi ve yaşamsal fonksiyonlarını sürdürebilmesi için en temel gereksinimlerden biridir. Yeterli ve dengeli beslenme amacıyla, günlük diyet içerisinde karbonhidrat, protein, yağ gibi makro besin öğeleri ve vitamin, mineral gibi mikro besin öğeleri temin edilmelidir. Bu besin öğeleri içerisinde protein, metabolik faaliyetler için oldukça önemlidir. İnsanlar protein ihtiyaçlarını genellikle hayvansal (et, süt, yumurta ve bunların ürünleri gibi) ve bitkisel (bakliyatlar, bazı tahıllar ve yağlı tohumlar gibi) kaynakları tüketerek gidermektedir. Protein alımı için bu geleneksel kaynakların kullanımı, sürdürülebilirlik açısından değerlendirildiğinde birtakım endişelere neden olmaktadır. Artan nüfusa paralel olarak gıda arzının artması ile birlikte su ve doğal kaynakların azalması, gıda kaynaklarının bilinçsiz bir şekilde kullanımı, gıda israfı, geleneksel protein



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kaynaklarının üretimi için kullanılan enerji miktarı, sera gazı emisyonu ve çevre kirliliğinin artması gıda konusunda yeni politikaların ve sürdürülebilir gıda sistemlerinin ortaya çıkmasını teşvik etmektedir. Sürdürülebilir gıda sistemleri; gelecek nesiller için gıda güvencesi ve güvenliğini sağlayan, ekosistem ve doğal kaynakları koruyarak zenginleştirilmesini de mümkün kılan, toplumsal ve ekonomik refahı teşvik eden sistemlerdir. Bu bağlamda artan nüfusla kıyaslandığında geleneksel protein kaynaklarının yetersiz olacağı görüldüğünden, alternatif protein kaynaklarına ihtiyaç duyulmaktadır. Günümüzde alternatif protein kaynakları olarak etik, kültürel ve dini açıdan birçok insanın aklında soru işareti oluşturan yapay et, özellikle Uzakdoğu'da geleneksel olarak tüketilen yenilebilir böcekler, literatürde gittikçe daha fazla yer alan mikroalgler ve hali hazırda dünya genelinde tüketilen bitkisel proteinler örnek verilebilir. Bu çalışmada söz konusu alternatif protein kaynaklarına karşı tüketicilerin bakış açısı, bu kaynakların üretim yöntemleri, besin değerleri ve protein içeriği, avantaj ve dezavantajları tartışılmıştır.

**Anahtar kelimeler:** Protein, Beslenme, Yenilebilir böcek, Mikroalg, Yapay et.



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### EFFECT of LEAF DAMAGE on PRODUCTION and QUALITY of PEANUT VARIETIES

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#### ABSTRACT

This study was carried out to determine the effects of leaf damage rates in different growth stages of peanut (*Arachis hypogaea* L.) in Osmaniye, located in Eastern Mediterranean of Türkiye, in main crop season. The study was conducted in completely randomized design in split-split-plots with three replications in 2020 and 2021. Varieties (NC-7 and Halisbey) were placed in main plots, growth stages (R1, R2 and R3) in sub-plots, and leaf damages (control, 25%, 50% and 75%) in sub-sub-plots, and various yield and quality parameters were examined. The highest pod weight per plant was obtained in variety Halisbey (41.88 g) and R3 period (39.19 g). For leaf damage applications, pod weight per plant were control (44.35 g), 50% LD (40.39 g), 25% LD (39.22 g), 75% LD (34.80 g). The highest value for 100 pod weight was obtained in variety Halisbey (192.73 g) and R1 (191.03 g). 100-pod weights for leaf damage were control (189.46 g) group and 50% LD (189.14 g) treatment. The highest pod yield was obtained in variety NC-7 (231.40 kg/da) and R1 (204.09 kg/da). The order of leaf damage applications in terms of pod yield was as control (253.56 kg/da), 25% LD (201.99 kg/da), 50% LD (190.59 kg/da), 75% LD (148.10 kg/da). As a result of the study, it was determined that the selection of varieties and integrated control with diseases and pests are important to reduce the effect of leaf damage on quality and yield of peanut grown in Osmaniye.

**Keywords:** Peanut, variety, leaf damage, application stage, pod yield.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### COBIAX SYSTEMS IN CONSTRUCTION

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#### ABSTRACT

The KobiAx system appeared in the construction industry in 1992 and is a reinforced concrete roof with voids. In this direction, the Swiss KobiAx technology is undoubtedly interesting, which is based on the "Bubbledeck" system (uses secondary polymer materials and plastic waste to make balls), which results the reduction of the weight of reinforced concrete constructions and the plastic waste intended for utilization is reused in new construction without harming the environment.

Based on the analysis of the results of theoretical and experimental researches, in the construction industry, there will be an opportunity to use the KobiAx systems of Georgian production in flat reinforced concrete inter-floor overlaps and other constructions, which would give the opportunity to the state to get a significant economy of concrete by unconditionally maintaining the bearing capacity of the product.

Combining and modifying existing polymers with other substances is the crucial method of obtaining new polymer materials

With KobiAx technology, it is possible to arrange monolithic reinforced concrete inter-floor roofs, entertainment and sports grounds, pedestrian crossings and ramps and military parade, as well as construction of large structures and others.

The implementation of the results of scientific research gives us opportunity to massively use the KobiAx systems of Georgian production in the inter-floor roofs of high-rise buildings, reduce the overall weight of the building, reduce the volume of the foundations, and ultimately achieve a significant economy of the precious building material - concrete, in particular, in the monolithic reinforced concrete roofs of high-rise buildings - from 20 to 40%.

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**Keywords:** polymer, composite, construction.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### STUDENT MIGRATION AND SUSTAINABLE DEVELOPMENT

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#### ABSTRACT

Nearly 90 thousand Kazakhstani young people and adolescents are international migrants as students, and this number continues to grow. In the globalized world, educational migration is an important area that experts should pay attention to. The migration trends should be analyzed through many factors, among which “sustainable development” as a theoretical approach is of great importance.

Education of young people is an important strategic priority and investment into the future. It is also important to understand the role of educational migrants as the main participants in the migration process, their contribution both to the host state through the results of labor and cultural aspects, and to the countries of origin through remittances, acquired skills and new knowledge.

This article explores the impact of the education of emigrant-students in the context of sustainable development of Kazakhstan. There is a study conducted of the experience of Kazakhstan in the sphere of organizing access of students to universities, ways and factors of educational emigration reacting their choice to study abroad, adaptation and learning environment, personal development and students' role in the society on their return. Any graduate experienced multicultural society will reflect changes in all spheres of life, in particular, the educational system. The article aims at determining how to regulate the growing number of students leaving for another country, opportunities of education abroad and its impact on sustaining the local education, social-economic and political development. Hence, educational migrants are key drivers to connecting bonds between the countries. The author analyzes the prospects for educational migration in the face of new and old global challenges and gives recommendations on the further developments.

**Key words:** international migration, right for education, sustainable development, student-emigrants' impact, educational achievements



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### GÖZ HAREKETLERİYLE DUYARSIZLAŞTIRMA VE YENİDEN İŞLEME (EMDR) TERAPİSİ KOMPLİKE BİR TRAVMAYI İYİLEŞTİREBİLİR Mİ?

CAN EMDR THERAPY CURE A COMPLEX TRAUMA?

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#### ÖZET

**Amaç:** Göz hareketleriyle duyarsızlaştırma ve yeniden işleme terapisi (EMDR), uyarlanabilir bilgi işleme modeline dayalı olarak yapılandırılmış bir dizi protokol ve prosedürden oluşmaktadır. Yapılan çalışmalarda EMDR terapisinin, travmanın tedavisine ilişkin etkili bir yöntem olduğu vurgulanmaktadır. Bu bağlamda çalışmanın iki amacı vardır: Birincisi, Travma Sonrası Stres Bozukluğu (aile içi şiddet, cinsel istismar, kendilik algısında değişimler, dissosiyatif amnezi ve depersonalizasyon, kalıcı disfori, kendini yaralama ve süregelen intihar düşünceleri) belirtileri taşıyan ve 35 yaşında olan danışanın travmasını iyileştirmesine yönelik EMDR terapisinin etkisini incelemektir. İkincisi ise, terapi öncesinde uygulanan MMPI klinik alt boyutları ve psikolojik belirtilerinin şiddetini azaltmada EMDR terapisinin etkisinin olup olmadığı araştırmaktır.

**Yöntem:** Çalışmada olgu sunumu yöntemi kullanılmıştır. 35 yaşında geçmişinde birden çok travmatik yaşantıya maruz kalmış, psikiyatrik olarak tanı olarak Anksiyete Bozukluğu tanı varlığı olan kadın danışan ile 12 seans EMDR seansı yapılmıştır. Diğer yandan danışana DSM-5 için Travma Sonrası Stres Bozukluğu Kontrol Listesi (PCL-5), MMPI ve SCL-90 ölçekleri uygulanmıştır.

**Bulgular:** Terapi öncesinde ve sonrası yapılan ölçümler kıyaslandığında, terapi sonrasında danışandaki DSM-5 için Travma Sonrası Stres Bozukluğu Kontrol Listesi (PCL-5), MMPI ve SCL-90 ölçekleri puanlarının şiddetinde önemli bir düşüş olduğu ve bu düşüşe bağlı olarak kayda değer miktarda iyileşme saptanmıştır. Örneğin, terapi öncesi TSSB puanı 54 iken terapi sonrası bu puan 24'e düşmüştür. SCL-90 genel semptom indexi 2.43 iken terapi sonrası bu puan 1,10 puana kadar düşmüştür. MMPI klinik alt boyutlarında terapi öncesinde puanlar Pt (75), Pd(75), Hs(67), D(68), Pa(77) ve Hy(82) iken terapi sonrasında bu puanlar Pt (65), Pd(60), Hs(62), D(56), Pa(58) ve Hy(60) şeklinde düşüş göstermiştir.

**Sonuç:** EMDR terapisi, komplike travmaları iyileştirmede ve MMPI klinik alt boyutlarında ve Psikolojik Belirtilerin azaltılmasında etkili olduğu söylenebilir. Bu açıdan ruh sağlığı uzmanları EMDR terapisini seanslarda kullanabilir.

**Anahtar Kelimeler:** Komplike Travma, EMDR, MMPI,SCL-90

#### Abstract

**Objective:** Eye movement desensitization and reprocessing therapy (EMDR) consists of a structured set of protocols and procedures based on an adaptive information processing model. Studies have emphasized that EMDR therapy is an effective method for the treatment of trauma. In this context, the study has two aims: First, it is aimed to heal the trauma of the 35-year-old client who has symptoms of Post Traumatic Stress Disorder (domestic violence, sexual abuse, changes in self-perception, dissociative amnesia and depersonalization, permanent dysphoria, self-mutilation and persistent suicidal thoughts). To examine the effect of EMDR therapy. The second is to investigate whether EMDR therapy has an effect on reducing the severity of MMPI clinical sub-dimensions and psychological symptoms applied before therapy.

**Method:** Case report method was used in the study. A 12-session EMDR session was conducted with a 35-year-old female client who had been exposed to multiple traumatic experiences in her past and had an anxiety disorder as a psychiatric diagnosis. On the other hand, the Post Traumatic Stress Disorder Checklist (PCL-5), MMPI and SCL-90 scales for DSM-5 were administered to the client.





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**Results:** When the measurements made before and after the therapy were compared, it was observed that there was a significant decrease in the severity of the scores of the Post-Traumatic Stress Disorder Checklist (PCL-5), MMPI and SCL-90 scales for the DSM-5 in the client after the therapy, and a significant improvement due to this decrease. detected. For example, while the PTSD score was 54 before therapy , this score decreased to 24 after therapy. SCL-90 general symptom While the index was 2.43, this score decreased to 1.10 points after therapy. In the MMPI clinical sub-dimensions , the scores were Pt (75), Pd(75), Hs (67), D(68), Pa (77) and Hy (82) before therapy , while these scores were Pt (65), Pd(60) after therapy. , Hs (62), D(56), Pa (58) and Hy (60).

**Conclusion: It can be said that** EMDR therapy is effective in healing complicated traumas and reducing MMPI clinical sub-dimensions and Psychological Symptoms. In this respect, mental health professionals can use EMDR therapy in sessions.

**Keywords:** Complicated Trauma, EMDR, MMPI,SCL -90



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CHINESE DEBT AND LAOS' LOSS OF SOVEREIGNTY

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#### **Abstract**

Chinese influence in Laos has grown manifold in the last few decades. Starting from the big Chinese infrastructure projects to small businesses run by Chinese immigrants, everything has affected Laos' socio-economic landscape gravely. Laos has taken billions of dollars from China to finance large-scale infrastructure projects in order to “revamp” its economy, which, scholars claim, might just turn out to be white elephants – not generating enough revenue. Increasing closeness with China has not only put Laos' economy in jeopardy but also Lao government's independence in danger. This paper studies the impacts of Chinese debt on the sovereignty of Laos. The study analyses primary and secondary data and uses deductive methods of research to derive inferences. Chinese projects and businesses, particularly the multibillion-dollar railway project and the Chinese banana plantations, have caused immense socio-economic and environmental damage in Laos. Chinese companies have taken control of the large tracts of forest land which has put Laos' wildlife and natural resources in danger. The projects have also displaced several ethnic Laotians. The enforcement of laws and accountability of the Chinese companies is very poor. Despite such issues, the government continues to court more foreign investment. Even the Laotians are concerned about the growing Chinese influence in the country. According to the World Bank, Laos' “macroeconomic situation is very challenging.” As of September 2022, Laos' total debt exposure to China is around 64.8% of its GDP, which is not safe at all. Even Moody's has lowered Laos' credit rating into a ‘non-investment grade.’ With an increasing burden of Chinese loans, the Laotian economy is struggling to keep inflation under control. The World Bank has warned that the fast rising prices put millions of Laotians at a risk of falling into poverty. Laos does not have enough foreign reserves to carry out international trade. Soon this loss of hold on the economy is going to take a huge toll on the sovereignty of Laos. Media reports and scholars have started comparing Laos to Sri Lanka, which ran out of forex reserves to service its foreign payments.

**Keywords:** Chinese debt, Laos' economy, sovereignty.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### THE ROLE OF PSYCHOLOGICAL RESILIENCE IN PREDICTING THE PERCEPTIONS OF PARENTAL SELF-EFFICIENCY OF PATIENTS APPLICATION TO BREAST POLYCLINIC

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#### ABSTRACT

Today, it is seen that studies based on the positive psychology approach are predominant in modern psychology research. The concept of "psychological resilience", which has an important place in the science of positive psychology, is defined as being able to maintain an internal balance in the face of challenging experiences and stressful events. In the formation and development of psychological resilience in individuals, individuals need to be exposed to risk factors and show positive adaptation. Self-efficacy, put forward by Bandura and found in the literature as a concept of social cognitive theory, is the belief that individuals have in themselves in coping with difficulties. In other words, it is the self-confidence of the individual to be able to organize and implement the behaviors that will be necessary to solve a problem and complete a responsibility. When an evaluation is made in this sense, it is important to examine the psychological resilience and parental self-efficacy perceptions of mothers who are in the family pattern, which is defined as the first social environment of children. The main purpose of the study is to examine the relationship between the psychological resilience of mothers (who have children aged 0-8 years) and their perceptions of parental self-efficacy, who applied to the breast polyclinic. The relational survey model was used in the study, which was designed in a quantitative design. 296 mothers (with children aged 0-8 years) who applied to Konya City Hospital Breast Polyclinic constitute the study group of the research. As data collection tools, "Personal Information Form" containing demographic information, "Resilience Scale for Adults" and "Revised Berkeley Parent Self-Efficacy Scale" were used. The data of the research were analyzed using SPSS and AMOS package programs. The results, which are in the evaluation phase, will be presented in detail in the text of the paper.

**Keywords:** Self-efficacy, resilience, parent, mother.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### OLD BLOOD PLASMA FACTORS INCREASE ANXIETY-LIKE BEHAVIOR IN YOUNG RATS

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#### ABSTRACT

According to research, young plasma factors have numerous healing effects at the tissue and organ levels in the elderly. Similarly, it was observed that plasma factors play a very effective role in the gut microbiome, which is also expressed as an extra organelle. It is quite remarkable that the plasma factors of elderly individuals have the opposite effect. However, understanding the effects of blood factors on behavior needs more research. In this study, the role of plasma exchange between young and old rats over 30 days on anxiety-like behavior was evaluated. The Sprague-Dawley rat was chosen as the model organism in the study. Blood plasma obtained from five-week-old rats was transferred to each animal at 0.5ml per day to 24-month-old rats (n = 7), and blood plasma from 24-month-old rats to five-week-old young rats (n = 7) was transferred at 0.25ml per day. At the end of the study, the elevated plus maze behavior test, which is preferred in the measurement of anxious behavior, was applied to the experimental and control groups. The results showed that old blood factors significantly increased anxiety-like behavior in young rats. Understanding which plasma factors cause such effects will play an important role in improving the quality of life of elderly individuals. This study was approved by the Saki Yenilli Experimental Animal Production and Practice Laboratory's Ethics Committee (permission number: 2021/03).

**Key words:** Plasma exchange, Anxiety-like behavior, Sprague-Dawley rat



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### BEARING FAULT DIAGNOSIS INVESTIGATION WITH THE USE OF DIFFERENT EMPIRICAL SIGNAL PROCESSING METHODS

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#### **ABSTRACT**

Bearing faults are responsible for 40% of mechanical transmission failures which are a major problem for most industries. Various measurement signals can be used for fault identification; however, vibration signals have proven to be the most appropriate due to the harmonic nature of these fault signatures. This work presents a method for bearing fault diagnosis based on empirical signal processing and an Adaptive Neural Fuzzy Inference System (ANFIS) which is a hybrid of two of the most widely used classification methods, namely neural network and fuzzy logic. At the present time, classical signal processing methods such as Fast Fourier transform (FFT) and wavelet transform (WT) are the most widely used, but they are still not able to handle these signals that could be non-linear in most cases with much precision. In recent years, the use of empirical methods has been presented as a solution, such as Empirical Mode Decomposition (EMD) and its derivatives, Empirical Ensemble Mode Decomposition (EEMD), Complete Ensemble Empirical Mode Decomposition (CEEMD) and Complete Ensemble Empirical Mode Decomposition with Adaptive Noise (CEEMDAN). The results of each empirical method with ANFIS are compared, these results are encouraging with a good classification up to 90% accuracy with a possibility of improvement especially in the area of defect decoupling.

**Keywords:** Bearing; fault detection; empirical signal processing; ANFIS.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### INTERSECTION OF MECHANOCHEMISTRY AND ENVIRONMENTAL MANAGEMENT: EVALUATION OF MECHANOCHEMISTRY APPLICATIONS IN WASTE MANAGEMENT

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#### ABSTRACT

The global need for cleaner and more sustainable chemical transformations to achieve the United Nations Goals for Sustainable Development (SDGs), together with the 12 principles of green chemistry and engineering, have propelled mechanochemistry from a mere curiosity to being named by the International Union of Pure and Applied Chemistry (IUPAC) as one of the ten innovations in chemistry that will change the world. Mechanochemistry is defined to describe the chemical and physicochemical transformation of substances during the aggregation caused by the mechanical energy. Mechanochemical technology has several advantages, such as simple process, ecological safety, and the possibility of obtaining a product in the metastable state. Mechanochemistry provides an environmentally sustainable approach to prepare and process molecules and materials and offers a new research space full of opportunities. Mechanochemistry plays a vital role in pollution remediation and waste management. Therefore, this work reviews mechanochemistry applications in waste management and the related aspects. We present applications of mechanochemistry in the transformation of waste plastics and rubbers to valued added products through mechanochemical technology

**Keywords:** Mechanochemistry, Remediation, Waste management, Cleaner Approach



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### EXPLORING CONVERSATIONAL IMPLICATURES IN CHINUA ACHEBE'S *THINGS FALL APART*: A PRAGMATIC PERSPECTIVE

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#### ABSTRACT

This study examines generalized and particularized implicatures in two excerpts from Achebe's *Things Fall Apart* from a pragmatic perspective. In truth, as stated by Yule (2010: 151) "Our understanding of what we read doesn't come directly from what words and sentences are on the page, but the interpretations we create, in our minds, of what we read". Indeed, our choice to carry out this investigation stemmed from the observation that the selected excerpts encompass conversations that contain a lot of non-explicit pragmatically enfolded messages that a simple reading is not sufficient to grasp. As a result, the study seeks to unveil the author's encoded messages therein under the spotlight of conversational implicatures theory for their fuller understanding. The discussion in the present study is limited to the following formulated questions. First, what are the different types of implicatures embedded in the selected excerpts? Second, what key messages have been encoded through them by the writer? The study is premised on the hypothesis that both generalized and particularized conversational implicatures have been used by the novelist to enfold important messages out of consideration of the readers' schemata and scripts of the scenes and events presented within, (Mey, 2001: 237). To attain the research objective, the study adopted a mixed-methods approach which allowed the collection, analysis and interpretation of data through its quantitative and qualitative components (Creswell, 2003). Findings of the investigation show that Chinua Achebe encoded tremendous messages in the studied texts via generalized and particularized implicatures. Among others, it is unveiled that African societies were well organized, regulated by established laws, and had their own equitable, non-corrupt legal proceedings systems run by a supernatural judicial power for peaceful, peaceable, and amicable conflicts settlements before colonialism. Uzowulu and Odukwu's prosecution before the Egwugwu uncovers domestic violence, unfaithfulness, bestiality, and treachery castigated by the writer. The study further reveals that justice in law courts in Africa especially in Nigeria needs to incorporate socio-cultural considerations to be more efficiently and impartially dispensed.

**Key-words:** Analysis, implicature, meaning, pragmatics, schemata



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### REFORMS OF THE TANZIMAT PERIOD IN THE OTTOMAN EMPIRE: CONSTRUCTION OF THE NEW? OR CONTINUATION OF TRADITION?

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#### ABSTRACT

Along with the Tanzimat Period, many changes and transformations were made in the traditional social structure of the Ottoman Empire. This transformation is not a spontaneous process, but a reform movement initiated by the state, which is made necessary by the regression against the West. The Tanzimat reforms not only changed the military, administrative and financial fields, but also created changes in the traditional structure and mentality of the Ottoman society and revealed new forms of perception. Although some rights were given to the Ottoman subjects by legal regulations, this situation was not effective in changing their social life. Some of these attempts helped to solve some of the problems of the empire; however, some of them, even most of them, were met with public reaction and were not accepted. The main reason for this is that the reforms are prepared with a top-down logic and imposed on the society. While the Ottoman Empire tried to keep up with the innovations required by the new world conditions, it also tried to preserve its traditional structure. In other words, a conservative reform system was preferred. This contradiction, which is tried to be carried out at the same time, has made it difficult to adopt modern institutions and structures. Conservative parties think that the reform demands were an attack on the moral values of the society and believed the traditional structure should continue. With the Tanzimat, the necessity of change was accepted as undisputed, while the changes that could be contrary to traditional norms were limited by the central authority. Therefore, Ottoman reforms can be characterized as traditional/conservative. The state has preferred a conservative modernization and a relative innovation by preserving its traditional structure. For a society that has religious behavior patterns that have permeated all areas of society, it is not easy to liquidate these behavior patterns and values for the sake of modernization. The Ottoman reform movement can be called as a limited modernization movement, which is under the control of the state in many respects. The aim of this study is to reveal the traditional aspect of the reforms carried out in the Ottoman Empire.

**Keywords:** Tanzimat Period, Ottoman modernization, Ottoman society, reform, tradition.





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

**REMARKABLE CONTINUOUS BULLISH TREND IN TURKISH STOCK MARKET. PRICE  
BUBBLE OR FINANCIAL ILLUSION?**

**HOW SUSTAINABLE IS THE NEARLY 3-YEAR BULL MARKET IN BORSA ISTANBUL?**

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### **ABSTRACT**

When this study is recognized by you, a serious correction movement will probably begin in the Turkish Stock Market. Except for a few minor corrections in the last 3 years, Borsa İstanbul 100 National Index (Bist-100) has been in a continuous upward trend. The macro and micro determinants of the price movement of the stock market have been determined by numerous studies in the literature in this field. These are GDP growth rate (%), inflation, interest rate levels, CDS premiums, portfolio inflows, FDI inflows, political tension, regional and global developments etc. It is almost impossible to explain the continuous rise of Bist-100 in terms of these factors, because all these indicators provide negative signals and even alarms for Turkey. For this reason, the Turkish Lira has been already depreciating against the USD for about a decade. If we consider that the USD/TL rate was around 18 at the time this article was prepared and the rate was around 1.5 on average in 2011, it can be easily inferred that the economic conjuncture is not at all positive for Turkey. Moreover, during last two years, the whole world has been struggling with the Covid-19 global outbreak. Due to the Covid-19 epidemic, there was a first in the history of the world crisis and both the supply and demand sides of the supply chain were adversely affected by the Covid-19 shock. In addition to this, the increasing political uncertainty with the effect of the upcoming general elections in Turkey, the reason for the interest in stocks, which are defined as risky assets in the finance literature, is really interesting even confusing. Especially in 2021, Borsa İstanbul set a historical record both in terms of stock returns and the number of IPOs conducted. Despite all these negative factors, what are the underlying reasons for the last 3-year rally? In this study, the answers to this question will be investigated with an analytical approach.

**Keywords:** Price Bubbles, Stock Returns, Borsa İstanbul, Price Determinants

### **1. INTRODUCTION**

In portfolio management, financial assets are analyzed on the basis of cycles. For classical financial instruments such as stocks, bonds, foreign exchange and gold, bullish and bearish market trends are examined in the short, medium and long term. When there is a negative correlation between financial assets, it can be seen that they have opposite trends. For example, in many studies in the literature, it has been observed that there is a negative correlation between stocks and the foreign exchange market. For this reason, when there is an upward trend in stocks, a downward trend is observed in the foreign exchange market, and similarly, an upward trend can be seen in the foreign exchange market when there is a downward trend in stocks. However, it is rare for both markets to regularly have an uptrend or a downtrend at the same time. Such situations can generally be interpreted as a signal of sharp adjustment (reversal) movements in financial markets.

In this study, the bullish trend, which has been observed continuously during the last 3 years in Borsa İstanbul, has been examined. The aim of the study is to underline that one of the above-mentioned unusual situations is observed in Borsa İstanbul and to analytically underline the expected trend transformations and their economic and political consequences in the short-term for the stock market and the medium-term for the foreign exchange market. In the study, the extraordinary harmony observed between the stock market İstanbul and the foreign exchange markets, the stunning historical price



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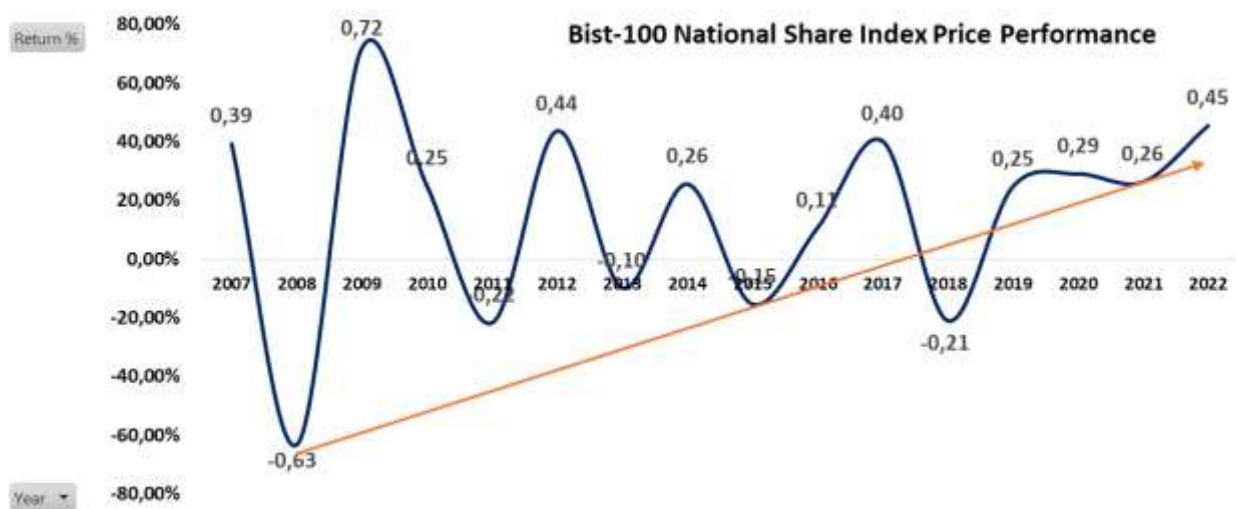
performance observed in the stock market istanbul despite the negative effects of all the macroeconomic and political factors and the economic and political consequences of reverse movement to be experienced in the medium-term in the foreign exchange market for the Turkish financial markets are discussed.

In the second part of the study, the price performance of Borsa Istanbul will be analyzed, in the third part the macro price determinants of Bist-100 will be examined, and in the fourth part, the economic and political consequences of the reversal movement in the foreign exchange market for Turkey will be discussed. In the last part, the findings will be discussed and the results will be interpreted.

### 2. BORSA ISTANBUL 100 (BIST-100) NATIONAL SHARES INDEX PERFORMANCE at a GLANCE (Exceptional Price Performance of Bist-100 National Equity Index)

The annual average return of the Bist-100 National Index for the 2007-2022 period is shown in Chart 1 below.

**Chart 1:** Annual Average Return of Bist-100 by Years



**Source:** [www.borsaistanbul.com](http://www.borsaistanbul.com)

Looking at the chart above, when investors follow a buy-and-hold investment strategy, their annual cumulative return in during 2007-2022 period will be negative for only 5 years. These years and their defining features can be analyzed in the Table 1 as follows:

**Table 1:** Milestones in the Global and Local Economy by Years

Year	Explanation
2008	Global Financial Crisis
2011	The cheap and weak USD for years started to gain value from the bottom levels against many local currencies, especially the Turkish Lira, and the escape from the stock markets started gradually.
2013	Loose Interest Policy Change (Signal of Transition to Tight Monetary Policy) announced by the FED, the US Federal Reserve.
2015	It was the first time that the matter of Justice and Development Party's inability to come to power alone was emerged in the general elections in Turkey.
2017-2018	Huge Price Movements and Volatility of USD and Cryptocurrencies

**Source:** Author's Own Statements

During last 4 years after 2018, (in the period of 2019 - 2022) Borsa Istanbul has been providing steady high positive returns for its investors. Stocks are considered as risky financial instruments by their nature. The demand for stocks is directly related to the risk appetite of the investors. There are micro and macro determinants such as relative price performance, national and international political











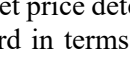


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uncertainty, and the macroeconomic conjuncture of the relevant country that affect the demand for the stock market.

In Table 2 all determinant factors are discussed as follows:

**Table 2: Stock Market Determinants at a Glance**

<b>Macroeconomic Indicators</b>		
<b>Indicators</b>	<b>Explanations</b>	
Unemployment	At historical peaks	
Inflation Rate	At historical peaks	
Interest Levels	At historical peaks	
GDP Growth %	Underperformance	
<b>Political and Economic Risk Indicators</b>		
<b>Indicators</b>	<b>Explanations</b>	
VIX	At historical peaks	
CDS - Turkey	At historical peaks	
<b>Relative Price Performance</b>		
<b>Indicators</b>	<b>Explanations</b>	
Stock Exchange Returns	At historical peaks	
Gold	At historical peaks	
Foreign Exchange	At historical peaks	
Cryptocurrency	Bear Market	
Interest	Upward Trend	

**Source:** Author's Own Statement

When Table 2 is analyzed, surprisingly, although all of the stock market price determinants are negative for the Turkish stock market, Borsa Istanbul broke a historical record in terms of price performance during last 3 years.

Although there are some factors are expected to effect Turkish Stok Market adversely such as Covid-19 pandemic, the Ukraine & Russia War erupted in 2022, and the expected general elections in Turkey in 2023 are dramatically increasing the financial and political uncertainty in the country, Borsa İstanbul still has ben pursuing its bullish market trend.

Normally, as risk perception increases at the national and international level, investors are expected to sail from risky assets to safer instruments. As a result of increased political and economic risk level nowadays global interest rates are in an increasing trend. Similar to interest levels, gold and foreign Exchange markets also have been experiencing upward trend. Under this economic circumstance, according to classical portfolio management it is expetected to observe a big fall in stock market. However, contrary to this expectation, a remarkable bullish market has been observed in Borsa İstanbul.

There is a bear market in the cryptocurrency market (The collapse of the cryptocurrency exchanges, profit realizations, the intervention of the SEC in the market, the escape to the USD etc.)

As stated above, there are many micro and macro determinants that affect the demand for the stock market. The main of these factors are the risk appetite of national and international investors, global uncertainty, macroeconomic outlook, political uncertainty, and return performance of alternative investment instruments. In Turkey, which is one of the developing countries, it is seen that Borsa Istanbul broke a historical record in terms of price performance, although many factors have negatively affected the demand for the stock market for the last 5 years. This situation also encouraged many non-



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public companies to become listed and as result, in 2021 38 companies performed their initial public offerings (IPOs) in Borsa Istanbul (<https://www.sabah.com.tr/ekonomi/2021/09/27/borsada-38>). - Company-IPO-record-broken). This number is the highest IPO wave observed in the last decades for the Turkish stock market. Both the high number of IPOs and the increasing returns of the stock market indicate that Borsa Istanbul has been a hot issues market during the last five years. While many factors that determine the demand of the stock market are negative, why has Borsa Istanbul's performance been consistently positive for the last 5 years? Why Borsa İstanbul stock market broke a historical record? The Answer: Loot Economy? In other words, the purchase of the shares of Turkish companies, whose dollar-based value is getting cheaper, by domestic and foreign investors? Were these acquisitions made strategically for the long term or simply for capital gains? Clear answers to all these questions will be obtained in the next 2-3 years.

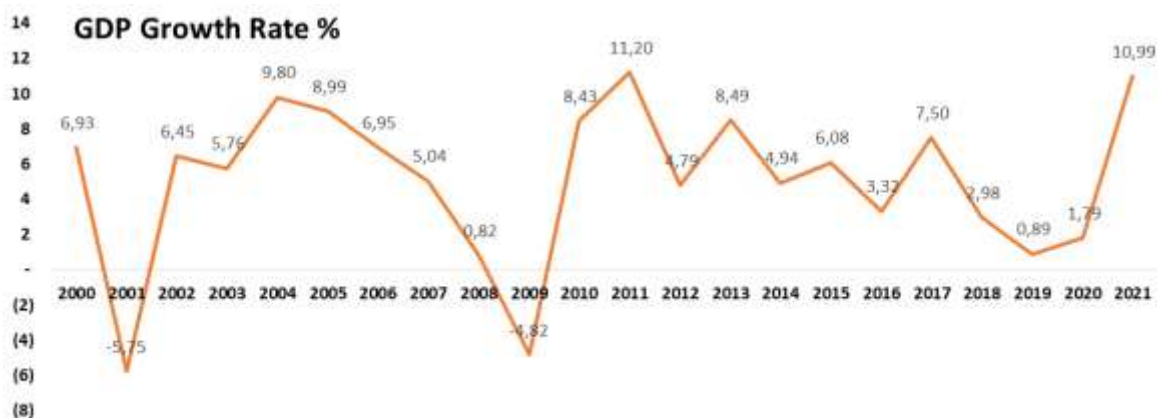
In the next part of the study, stock market macro price determinants will be analyzed one by one.

### 3. MACRO DETERMINANTS of the Bist-100 PRICE PERFORMANCE

In many studies in the finance literature, the relationship between stock price performance and macroeconomic indicators of countries has been examined. Huge volatility was observed in the stock markets of many developing countries, especially in the US and European stock markets. Many researchers have examined the relationship of these fluctuations with macroeconomic factors and therefore they have investigated factors such as money supply, inflation, interest rate, industrial production, gross national product, foreign trade balance, exchange rate and oil prices (Yılmaz, et.al, 1997).

In this part of the study, the most accepted indicators as macro price determinants of stocks in the literature will be examined.

**Chart 2: GDP Growth Rate in Turkey by Years**



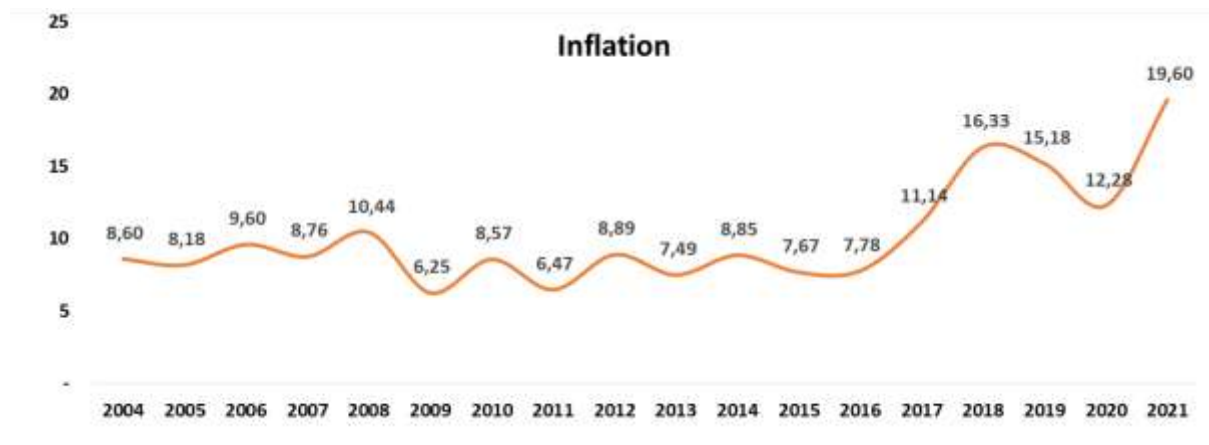
**Source:** <https://databank.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG/1ff4a498/Popular-Indicators#>

As a typical emerging country and a country with an import-led growth model, Turkey is one of the countries most affected by national and international crises. When we look at the three main bottom lines above, it shows that Turkey's economy shrank during the 2001 national banking crisis, 2008-2009 Global Financial Crisis erupted in the US Mortgage Market and 2019-2020 Covid-19 global epidemics. As a result, it is possible to define Turkey as a fragile economy affected by national and international developments.



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Chart 3: Inflation by Years



Source: <https://databank.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG/1ff4a498/Popular-Indicators#>

It can be said that there has been a serious inflation problem in Turkey in recent years. Except for the hyperinflation period experienced in the 2000 - 2003 period, it can be seen that the inflation increased continuously in the period from 2004 to 2022 and even reached its peak in the 2021 - 2022 period. Increasing inflation reduces the real purchasing power of the residents in the country and, in short, means the impoverishment of the people. In addition, as the cost of carrying money will increase in a high inflation environment, capital within the country will also increase. If interest rates are less than inflation, negative real interest yields can be seen in the country's money market. Turkey, where the official inflation is 35%-40% and the annual average interest rates are 25%, is among the countries where the real interest yield is negative. Of course, this situation accelerates the escape from the capital markets of the country.

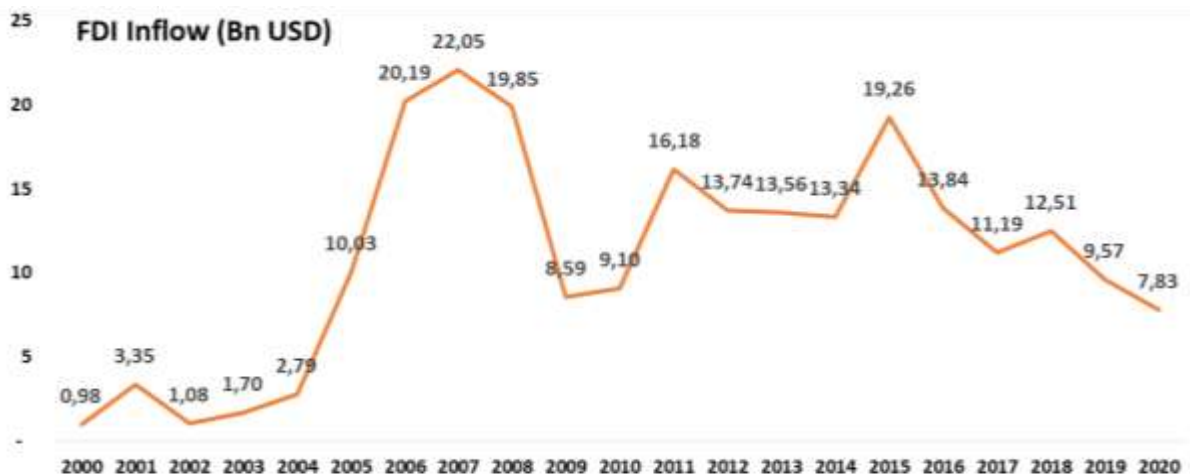
Since inflation indicates the loss of purchasing power of local currencies, it also means the depreciation of local currencies against other currencies. In a country with high inflation, shifts from local currencies to foreign exchange can be seen. In this case, it directly affects the stock markets. At this point, it is necessary to examine the interaction between foreign exchange markets and stock markets. There may be a positive or negative relationship from the foreign exchange market to the stock market, as well as a positive or negative relationship from the stock market to the foreign exchange market.

As a result of the depreciation of the domestic currency due to inflation, the exchange rate will rise and this loss of value allows foreign investors to acquire more stocks with their existing capital and may encourage foreign portfolio inflows. On the other hand, this situation may create a deterrent effect on stock investments by causing existing foreign investors to face exchange rate risk. Periods in which the domestic currency tends to depreciate may also cause domestic investors to turn to foreign currency denominated financial assets to avoid inflation, or to leave the stock market by turning to real assets (Karadağ and Sekmen, 2021). Many studies in the international literature, such as Dominguez and Tesar (2001), Koutmos and Martin (2003), Muller and Verschoor (2007), Pekkaya and Bayramoğlu (2008), Özmen (2007), Kaya, Çömlekçi and Kara (2013) have determined that there is an interaction between the foreign exchange market and the stock market and it has been determined that the volatility in the foreign exchange market has significant effect on the stock market.



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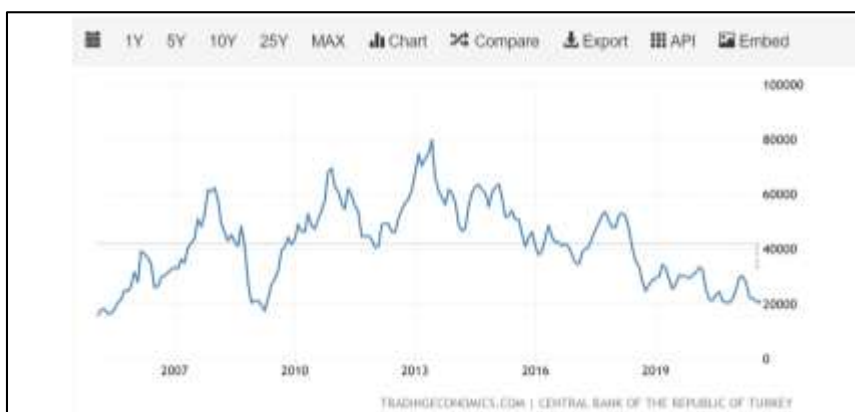
**Chart 4:** Foreign Direct Investments Inflow by Years



**Source:** <https://www.imf.org/en/Data>

FDI shows the direct capital investments made in a country in a financial year. This indicator is shown as dollar amount. When the chart above is examined, it is observed that the FDI indicator is approaching the lowest levels in the last 22 years of the country's history and has been in a continuous decline especially since 2015. This situation can be associated with increasing political uncertainty and regional wars and tensions.

**Chart 5:** Foreign Stock Investment in Borsa İstanbul by Years



**Source:** <https://tradingeconomics.com/turkey/foreign-stock-investment>

The chart above indicates the foreign investment trend in the Turkish stock market during the period of 2005 - 2021. It would be more meaningful to interpret the chart with the interest policy change trend of the US central bank FED. Although there are ups and downs in the 2007 - 2013 period, the main trend channel is in the upward direction.

It is possible to explain this with the increased global liquidity after the 2001 and 2008 global financial crises. The FED wanted to reduce the effects of the 2001 recession by following a loose monetary policy. For this reason, the policy has continuously reduced interest rates in the 2001-2004 period. As a result of the decrease in interest rates, financial institutions had a surplus of funds as their borrowing costs decreased (Erarslan and Bayraktar, 2013).

The FED implemented a similar loose monetary policy followed in 2001-2004, but in a much more diverse and high-volume manner during the 2008 financial crisis. The USA had to deal with one of the tough financial crisis in its history, which emerged at the end of 2007 and deepened in 2008. The crisis first emerged in the mortgage market and rapidly spread to all financial markets with the domino effect.



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In order to overcome this crisis, the US central bank FED since it thought that traditional monetary policy has lost its effect, it applied a variety of unconventional monetary policies, similar to the dot-com crisis but much larger amounts and variety of. In order to mitigate the effects of the global financial crisis, primarily interest rate cuts were made within the framework of the traditional monetary policy theory, but as the aforementioned measures were not sufficient, the FED turned to a quantitative easing policy (Emirkadi, 2017). The most basic feature of these practices, called unconventional monetary policy, is that they create an extraordinary liquidity in the markets (Serel and Bayır, 2020).

Over time, it has been seen that the monetary policies of the FED affected other countries as well as its own country. Especially falling interest rates caused capital flows towards developing countries, while their currencies appreciated against the US Dollar (Ağralıoğlu and Demirci, 2021). Due to the monetary policy implemented by the Fed in the form of low interest rates and issuing money, the global risk appetite and liquidity increased, and as a result, the interest of foreign investors in the bond markets of developing countries increased (Kangal, 2021). During 2008-2013 period, the US central bank FED issued 25 Billion USD monthly and directed all of it to the bond and stock markets of emerging countries. Turkey, a developing country, also got its share from this money flow and during this period, and as a result, USD/TRL exchange rate tested historical lows due to the increasing USD reserves. In the period of November 2011, one USD was traded at an average of 1.12 TL. Production inputs and processes in almost all industries in Turkey, from construction to energy, from fertilizer to petrochemistry, are based on imports, in other words to USD. Decreasing USD price will mean decreased production cost, that is, low cost inflation, which will mean increased purchasing power and welfare level within the country. During this period, decreasing credit costs (capital cost), low inflation, increasing economic activity and decreasing unemployment accelerated the economic development in the country. However, in May 2013, the FED announced that it would change its monetary policy, stop printing money and increase interest rates in the future. At the time of this announcement, although there had been no interest rate hikes or a decrease in the amount of money printed, even the expectation of international investors caused the USD to appreciate against to the local currencies all countries particularly to Turkey. Since then, the Turkish Lira has been depreciating against the Dollar for around a decade. This situation has caused national and international investors to turn to instruments such as bonds, gold and forex market which are safe havens, from the stock market.

It is possible to see this situation easily from the graph above. Foreign investment amounts in Borsa Istanbul, which is the Turkish stock market, have been in a continuous decline since 2013. As a result of this situation, the share of foreign investors in Borsa Istanbul has reached the lowest levels in its history (<https://www.borsamanset.com/borsa-istanbulda-yabanci-payi-hizla-eriyor-haber-111785>).

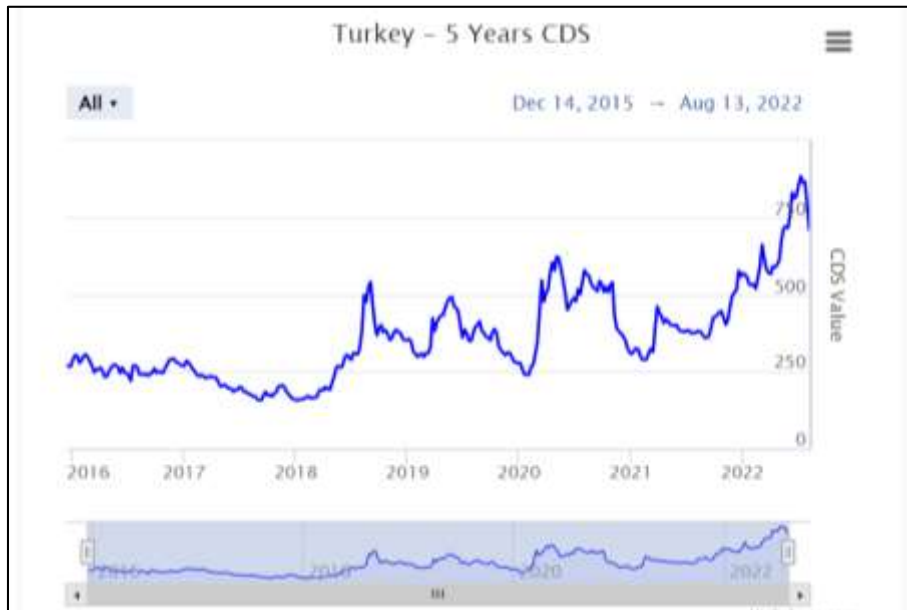
Portfolio investments decreased by 10.1% compared to the end of 2021 and amounted to USD 86.4 billion. While the stock stock of non-residents decreased by 18.1% compared to the end of 2021 to USD 15.1 billion, the stock of GDSS owned by non-residents decreased by 56.8% to USD 1.5 billion, the Treasury's bond amount (domestic market) after deducting the stock of bonds purchased by residents, it decreased by 1.9% to USD 44.5 billion. (<https://tcmb.gov.tr/wps/wcm/connect/tr/tcmb+tr/main+menu/istatistikler/odemeler+dengesi+ve+ilgili+istatistikler/uluslararası+yatırım+pozisyonu>).

How can we explain the fact that Borsa Istanbul has been on the rise especially since 2019, while the foreign share in the Turkish stock market is constantly decreasing?



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**Chart 6:** Turkey's 5 Year CDS by Years



**Source:** <http://www.worldgovernmentbonds.com/cds-historical-data/turkey/5-years/>

The CDS premium indicator is one of the most important indicators that gained popularity after the 2008 global financial crisis and shows the risk status of a country. The CDS indicator is the value used to detect the risk of non-repayment of a loan and to insure the loan against that risk. Turkey's CDS premium indicator approached its historical peak of 800 in 2022. During the 2008 global financial crisis, the country's CDS premium was at its historical peak with 904. The increase in CDS premiums causes a country to borrow at higher interest and cost due to its increased risk perception. In summary, it can be stated that Turkey is among the most risky countries in the world in terms of CDS premiums, except for countries such as Russia and Ukraine, which are in active warfare.

#### **4. THE FUTURE of THE US DOLLAR in THE MEDIUM and LONG TERM: IS THE TURKISH MONEY and CAPITAL MARKET PREPARING for a NEW ILLUSION?**

The Turkish Lira has been depreciating constantly against the US Dollar since May 2013, when the FED switched from a loose monetary policy to a tightened monetary policy. This is a negative situation for Turkey in terms of the international balance of payments because the country's imports are more than its exports. From this point of view, the current account deficit increases even in terms of the Turkish Lira equivalent just because of this foreign exchange price movement. But how sustainable is the high USD value for the US economy? The US economy is experiencing the highest inflation in history and is trying to keep up with the new normal after COVID-19. Due to high inflation in the US, interest rates naturally have to increase. This is the main reason why the FED has regularly increased interest rates in monetary policy, especially in the last 2 years.

Considering the factors such as new emergence of the effects of Covid-19, especially in the financial sense, the economic and political consequences of the Ukraine-Russia war, the tension between China and the US over Taiwan, the warming economic indicators in the US etc. the US will have has a tighter monetary policy for a while. It can be foreseen that it will continue its policy and for this purpose it will continue to use the interest rate instrument as the most effective monetary policy tool.

Especially from Turkey's point of view, the USD / TL exchange rate will continue to increase for a while and / or at least will not fall, due to factors such as the general elections to be held in the upcoming period, the regional tensions and wars in the geography where the country locate, and the economic recession that has been increasing in the country since 2015.





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As stated above, how sustainable is this situation? As a result, no any regression movements last forever. Every trend turns into a new trend with a adjusted reverse movement. In the USD / TL exchange rate, these trend transformations have been observed in the past for periods for each approximately 10 years. Therefore, the time for a new trend transformation in USD / TL rate is approaching. The current economic and political tensions will further accelerate the upward trend in the exchange rate, however the exchange rate will gradually begin to decrease after reaching the peak level. This expected fall will be performed by associating it with economic and political developments happened all around the world logically and at the right time.

As a result, very crucial correction movements is expected to begin in the exchange rate in the 2-3 years after 2023 in Turkey. This downward correction in the exchange rate will continue to increase over time and the exchange rate may reach the level of 5 or even below in the medium term. This expected decline in the exchange rate will also reduce the country's import costs and production costs based on foreign exchange. Thanks to various type of factors; such as increasing export volume and foreign exchange proceeds, increasing purchasing power parity thanks to decreasing cost inflation, decreasing capital and credit costs due to foreign currency inflows, an increase in production and exports will occur within the country. This will be followed by economic development and welfare increase, especially the increase in employment.

In summary, this expected shift in the global monetary policy of the US has vital importance for the political party that will take over the administration of the country for a period of four years after the election. The loose monetary policy of the US, which will reduce the value of the USD against other local currencies (especially developing countries) in the world, will again create an abundance of liquidity in the world that may last for a decade. Thanks to this abundance of liquidity, economic indicators returning to normal will provide confidence to real and legal persons in the market and will provide economic growth and prosperity with the multiplier effect of increasing economic activity. The society observing all these developments will perceive this as an economic victory of the elected ruling party. This must really be an illusion. Because the economic environment that has been improved as a result of the decisions taken and implemented by the US, should not be perceived as the political and economic capability of the government in Turkey.

### 5. CONCLUSION and DISCUSSION

In the portfolio theory of finance, it is recommended that investors apply a diversification strategy while creating a portfolio. When applying diversification, it is recommended to include assets with negative correlations, that is, with opposite price movements, into the portfolio. When we evaluate this situation in terms of classical financial instruments, foreign exchange and stocks are the best examples. In general, a rise in the foreign exchange market was followed by the outflow of money from stocks, that is, the depreciation of the stock markets. On the contrary, as the rise in the stock markets showed the increasing risk appetite of the investors, it showed the escape from the forex market, which has a lower relative risk level. Especially in countries like Turkey, which experienced hyperinflation for a period of time, investors can decide between foreign exchange and stock markets by analyzing the perceived risk level of that period. They consider foreign exchanges as value protection tool due to their low volatility and low inflation (this information is questionable due to the increasing US annual inflation for now) when they compared to stocks. However, this information is now questioned. Because when we look at the money and capital markets of Turkey, it has been observed that both the stock market and the USD/TL rate have been moving in a fully correlated way with each other for a long time, that is, both have been constantly increasing. It is possible to add Gold to this example. Gold is a precious metal that is used especially as a value protection tool against inflation and an effective risk management tool with low volatility compared to stocks. Gold, on the other hand, is a financial instrument that has constantly reached new heights as a result of the economic turbulence, especially after Covid-19, and has made its investors happy in terms of returns. In summary, it is seen that these 3 financial instruments (stock market, foreign exchange and gold) move together in terms of main trends and constantly rise, except for intermediate small waves. This abnormal situation will transform at some point and investors will leave these instruments with serious profit realizations and head towards new ports. The most important of these new ports may be cryptocurrencies that have been dealing with a bear market for a long time.



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Especially in the next 2-3 years, serious shifts to cryptocurrencies exchanges can be expected from these classical financial instruments.

While all these are happening in the global money and capital markets, it can be expected that the Turkish Lira will experience a loss against the Dollar for a while due to political and economic uncertainties in Turkey during the next 1-2 years. Especially, new shock peaks of Dollar can be observed in this period. However, thanks to the positive developments such as profit realizations following these peak levels, the change of monetary policy applied by US FED central bank (even signal will be enough), the post-election normalization period in Turkey, a serious liquidity abundance and improving economic indicators will be observed in the country. All these developments will be perceived by the voters in the country as the success of the ruling party that came to power as a result of the elections, and this party will ensure that the next election victory is already guaranteed, no matter who it is.

When we analyze all these developments in terms of investors, it is necessary for investors to obtain advantages from these expected peak movements of gold and dollar in the next 2-3 years. After these peak movements, stock markets, especially cryptocurrencies, can be seen as an alternative investment tool. Borsa İstanbul, which is the subject of this study, may be a suitable alternative for taking a position in every retracement, especially thanks to its increased liquidity and risk appetite. However, it is worth emphasizing again that the next 1-2 years will be a period of foreign exchange and gold, and these bull market rises must be evaluated first.

### Importance and Limitations of the Study and Suggestions for Further Studies

In this study, the unusual price movements observed in the Turkish stock market have been tried to be analyzed through analytical approach based on graphics. The main purpose of the study is draw an attention to undprecedented harmony observed between stocks and other conventional financial instruments. In the study it has been emphasized that contrary to the classical portfolio theory, Gold, Foreign Exchange and Stock markets, which are accepted to have a negative correlation between them, have continuously upward trend during the last 3 years in harmony with each other, and especially while all macroeconomic conditions are negative for the stock market, the outstanding upward trend has been observed in the stock market. This can be considered an anomaly and such price movements can be observed especially before major trend reversals. From this point of view, this study can be considered important in that it draws attention to the expected negative trend transformation that will occur in the short term in the stock market and in the medium term in the foreign exchange market. In the study, the graphical illustration and interpretation technique was applied, and a statistical analysis was not used. It is recommended to use statistical analyzes in order to confirm the findings obtained in this study.

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### SOKAK LEZZETLERİNİN MULTİDİSİPLİNER OLARAK DEĞERLENDİRİLMESİ MULTIDISCIPLINARY EVALUATION OF STREET FOODS

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#### ÖZET

Beslenme insan yaşamının devam ettirilmesi için zaruri ihtiyaçlarından biridir. Sokak lezzetleri/yemekleri, beslenme açısından sıklıkla başvurulmuş seçenekler arasında yer almaktadır. Sokak yemekleri genellikle sokak benzeri yerlerde satıcılar tarafından hazırlanan ve / veya satılan yiyecek ve içecekler olarak tanımlanmaktadır. Sokak yemekleri, değişik nedenlerle tüketiciler tarafından tercih edilmekte ve günümüz trendlerinden biri olarak değerlendirilmektedir. Seyyar satıcılardan, yiyecek kabinlerinden / arabalarından, büfelerden ya da tezgahdan satın alınabilen sokak yemeklerinin bir kısmı sadece satıldıkları yere özgü iken, bazıları ise bulunduğu yerin dışına da yayılmıştır. Bu bağlamda ülke, bölge, il ve ilçe adı ile tanınan sokak lezzetleri mevcuttur. Sokak yemekleri ana yemekler, aperatifler, içecekler, tatlılar ve meyveler olarak kategorize edilebilmektedir. Dünya genelinde Venezuela'da "arepa", Amerika'da "hot-dog", Türkiye'de "döner-kebab", Japonya'da "takoyaki", Hindistan'da "samosa" ve Meksika'da "taco" gibi değişik lezzetler sokak yemeklerine örnek olarak verilebilmektedir. Genel olarak sokak yemekleri ile ilgili hijyen sorunu söz konusudur. Sokak yemeklerinin hazırlanması, üretimi, işlenmesi, paketlenmesi ve satışa sunulması sırasında hijyen kurallarına uyulmadığı düşünüldüğünden bu konu ile ilgili yapılmış bir çok çalışma mevcuttur. Bu çalışmada sokak lezzetleri hakkında genel bilgi verilmiş, önemi ve çeşitlerine değinilmiştir. Ayrıca başta gıda güvenliği olmak üzere ekonomik, kültür, din, beslenme, gastronomi turizmi açısından sokak lezzetlerinin değerlendirilmesi yapılmıştır. Bunun yanı sıra sokak lezzetlerinin tercih edilme nedenleri, tüketicilerin sokak lezzetlerini seçim kriterleri, sokak satıcılarının avantaj ve dezavantajları, benzerlik gösterdiği beslenme akımlarına değinilmiş ve sokak lezzetlerinin iyileştirilmesi ve geliştirilmesi için çeşitli önerilerde bulunulmuştur.

**Anahtar kelimeler:** Sokak lezzetleri, gıda güvenliği, ekonomi, kültür, gastronomi turizmi.

#### Abstract

Nutrition is one of the essential needs for the continuation of human life. Street tastes / foods are among the frequently used options in terms of nutrition. Street food is generally defined as food and beverages prepared and/or sold by vendors in street-like places. Street food is preferred by consumers for various reasons and is considered as one of today's trends. Some of the street food that can be bought from peddlers, food stalls/food trucks, kiosks or over the counter is unique to the place where they are sold, while some have spread elsewhere. In this context, there are street foods known by the name of the country, region, province and district. Street food can be categorized as main courses, appetizers, drinks, desserts and fruits. Different tastes such as "arepa" in Venezuela, "hot-dog" in America, "doner-kebab" in Turkey, "takoyaki" in Japan, "samosa" in India and "taco" in Mexico can be given as examples of street food around the world. In general, there is a hygiene problem related



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to street food. Since it is thought that hygiene rules are not followed during the preparation, production, processing, packaging and sale of street food, there are many studies on this subject. In this study, general information about street foods is given, their importance and varieties are mentioned. In addition, street foods were evaluated in terms of economy, culture, religion, nutrition and gastronomy tourism, especially food safety. And also, the reasons for choosing street foods, the criteria for choosing street foods of consumers, the advantages and disadvantages of street vendors, the nutrition trends they are similar to are mentioned, and various suggestions have been made for the improvement and development of street foods.

**Anahtar kelimeler:** Street foods, food safety, economy, culture, gastronomy tourism.

### GİRİŞ

Sokak gıdalarının/lezzetlerinin/yemeklerinin ilk resmi tanımı, 1986'da Endonezya'da FAO (Birleşmiş Milletler Gıda ve Tarım Örgütü) Asya Sokak Yemekleri Bölgesel Çalıştayında yapılmıştır (Solunoğlu, 2018). Buna göre sokak yemekleri özellikle sokaklarda ve benzeri halka açık diğer yerlerde sabit ya da seyyar satıcılar tarafından hazırlanan ve/veya satılan yenilmeye hazır gıdalar olarak tanımlanmıştır (FAO, 2009). Türk toplumunun tarihinde hızlı hazır gıdaların uzun yıllardır yer aldığı bilinmektedir. Osmanlıdan bugüne dek sokak lezzetleri tüketim alışkanlığı mutfak kültürümüzün önemli bir parçası olmuştur. Özellikle restoran kültürünün bulunmadığı dönemlerde sokak lezzetleri alternatif bir seçenek olarak görülmüştür (Aydın, 2020).

Sokak yemekleri hazırlandığı yere göre; küçük işletmelerde, evlerde, pazar yeri vb yerlerde sokakta hazırlananlar olarak gruplandırılabilir. Aynı zamanda sokak yemekleri çeşitlerine göre de aperatif, ana yemek, içecek ve meyveler olarak sınıflandırılabilir (Latifoğlu, 2020). Dünyada sokak lezzetleri açısından dikkat çeken ülkeler arasında Tayvan, Endonezya, Çin, Peru, İtalya, Hindistan gibi ülkeler başta gelmektedir (Chang ve ark., 2011; Privitera ve Nesci, 2015; Evcil, 2017). Bunun dışında dünya genelinde Venezuela'da "arepa", Amerika'da "hot-dog", Türkiye'de "döner-kebab", Japonya'da "takoyaki", Hindistan'da "samosa" ve Meksika'da "taco" gibi değişik lezzetler sokak yemeklerine örnek olarak verilebilir. Türkiye'den sokak lezzetlerine verilen örnekler (Şekil 1) dürüm, lahmacun, tavuklu pilav; meyve olarak mevsim geçişlerinde piyasaya çıkan can erik ve çağla; içecek olarak gazoz gibi gazlı içecekler, ayran, kahve çeşitleri, boza ve salep olabilir. Bu örnekleri kebab, ciğer, şırdan, mumbar, kokoreç, Ayvalık tostu, çiğ köfte, kumru, turşu, turşu suyu, midye, mısır, boza, kestane, pamuk şekeri, hamur işi tatlıları, şekerlemeler, nohut-pilav çeşitleri ve dondurma gibi lezzetleri sayarak çoğaltmak mümkündür. Sokak lezzetleri bölgelere, hatta şehirlere özgü olarak da gruplandırılabilir.



Şekil 1. Türkiye Sokak Lezzetleri (Anon., 2022a)

Özellikle gelişmekte olan ülkeler için küçük yerleşim birimlerinden şehirlere göç ile nüfusun artması, büyük şehirlerde hızlı yaşama paralel olarak hareket kısıtlılığının ortaya çıkması tüketim alışkanlıklarında değişikliğe neden olmaktadır. Her ülkede yaşayan toplumun alışkanlıkları, hayat tarzı,



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damak tadı ve inançlarına göre beslenme durumları şekillenmektedir. Bu bağlamda sokak lezzetlerinin önemi gündeme gelmektedir.

Sokak yemeklerine talep gün geçtikçe artmaktadır. İnsanların beslenme ihtiyacının giderilmesi, lezzeti, özellikle sınırlı zamanı olan kişiler için hazırlanmasının hızlı olması ve pratik çözümler sunması, neredeyse her çeşit gıdaya ulaşımın sağlanması (özellikle işyeri yerleşim olarak restoran vb. yerlere uzak olan çalışan kesim için), maliyetlerinin genelde düşük ve satış fiyatlarının uygun olması, kadınların iş hayatında daha çok yer alması ve evde geçirilen zamanın azalması ile yemek ihtiyacının ev dışında giderilmesi gibi nedenler bu talebin nedeni olarak açıklanabilir (Buscemi ve ark., 2011; Kok ve Balkaran, 2014; Demir ve ark. 2018; Koua ve ark., 2020; FAO, 2022). FAO'nun verilerine göre sokak lezzetleri günde 2,5 milyar insan tarafından sıklıkla tüketilmektedir (Ballı, 2016).

Sokak lezzetleri ülkelerin yemek kültürünün bir parçası olmasının yanı sıra ekonomik açıdan da birçok kişinin gelir kaynağı olması bakımından oldukça önemlidir. Sokak lezzetleri satıcıları da yöresel yemek kültürünün korunması, yerel lezzetlerin tanıtılması ile gastronomi turizminin gelişmesine katkı sunmaktadır. Ancak çeşitli nedenlerden dolayı bazı zorluklar yaşamaktadırlar. Yaşadıkları zorluklara örnek olarak kötü hava koşullarından, mevsim değişikliklerinden ve fiziksel olumsuzluklardan etkilenmeleri, sabit bir gelirlerinin olmaması, az ücret kazanma kaygısı, çalışma saatlerinin belli olmaması ve genelde uzun çalışma saatlerine sahip olmaları ile zabıtalarla yaşadıkları zorluklar verilebilmektedir. Sokak satıcısı olmanın avantajlarına ise nakit alış veriş yapılması, satıcıların kendi çalışma saatlerini ve yerlerini belirleyebilmesi gibi özellikler örnek olarak verilebilir (Solunoğlu, 2018; Aydın, 2020; Bozkurt, 2021).

### Değişik Disiplinler Açısından Sokak Lezzetlerinin Değerlendirilmesi

Sokak yemekleri besleyicilik açısından tartışılrsa da, açlığın giderilmesine imkan sağladığı için insanların beslenme gereksinimini gidermektedir. Ana yemek yerine geçecek sokak lezzetleri olduğu gibi; aperatif, tatlı, içecek ya da meyve kategorilerinden birini tüketmek de mümkündür.

Ekonomik açıdan değerlendirildiğinde, sokak yemeklerinin kayıt dışı gıda sektörünü temsil ettiğini söylemek mümkündür. Sokak satıcılarının (Şekil 2) bağlı olduğu bir meslek kuruluşu, kayıt-onay ya da denetim kurulu olmadığından, resmi olarak istatistiki veriler çok fazla bulunmamaktadır. Ancak sokak satıcılarının ülke ekonomisine katkısı yadsınamaz. Sokak yemekleri alışveriş için nakit akışının sağlanması açısından ekonomik zincirin bir halkasıdır. Sokak yemekleri hazırlayanlar genelde küçük işletmelerdir. Bu işletmeler arasında çok fazla rekabet gözetilmediği için, gün sonunda elde edilen kazanç, gün içindeki müşteri sayısına bağlıdır. Yüksek sermaye yatırımı gerekmeden, düşük maliyetle yemek ortaya çıkarmak ve yüksek gelir elde edebilmek de mümkündür. Bu durum sokak satıcılarını cezbetmektedir. Bir başka açıdan değerlendirildiğinde, sokak satıcıları malzemelerinin çoğunu bulunduğu bölgenin çiftçi ve tedarikçilerinden satın almaktadır. Bu açıdan sokak satıcıları yerel ekonomiye ve tarımsal üretim ve ticarete destek olmaktadır (Solunoğlu, 2018).



Şekil 2. İstanbul'da bir simit satıcısı ve arabası (Anon., 2022b)

Sokak lezzetlerinin kültür açısından da önemi tartışılmazdır. Bir topluma ait olan kültür, o topluma ait bireylerin davranışları üzerinde etkilidir. Satın alma ve beslenme davranışları da bireysel ve toplumsal



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farklılıklara göre şekillenmektedir (Solunoğlu, 2018). Yemek kültürü, toplumun beslenme alışkanlıkları ile bağlantılıdır. Her bir bölgeye ve ülkeye ait gıda hazırlama, muhafaza ve tüketim şekilleri yemek kültürünü oluşturan etmenlerdendir. Dinsel ve etnik köken farklılıkları ve göçler sonucu gelen yeni toplulukların alışkanlıkları da diğer etmenlere örnek olarak verilebilir (Karaca ve Karacaoğlu, 2016). Sokak lezzetleri bulunduğu yerin ve yaşantının izlerini en doğal şekli ile sunmakta ve ülkenin yemek kültürüne dair bilgiler edinmede fayda sağlamaktadır. Sokak lezzetleri bulunduğu bölgenin mutfağını, tarih boyunca değişen geleneklerini ve rutin alışkanlıklar ile alakalı bilgileri öğrenmek için önemli bir fırsattır (Gönülgül ve Özkaya, 2017).

Din olgusu, hayatımızda önemli bir yere sahiptir ve toplumların yemek kültürünü şekillendirmektedir. Yemek yeme alışkanlıklarının birçoğunun dinsel kurallar sonucu ortaya çıktığı bilinmektedir. Yemekler dini günlerin, gecelerin, bayramların ve törenlerin vazgeçilmez unsurlarından biridir. Sokak yemekleri de dini unsurlardan etkilenmektedir. Hangi yiyeceğin, ne zaman yenileceği, yasaklanan ve yasaklanmayan gıdalar her dine göre değişebilmektedir (Karaca ve Karacaoğlu, 2016).

Gastronomi turizminde sokak lezzetlerinin katkısı da yadsınamaz. Mutfak kültürü açısından bazı bölgeler uzun bir geçmişe ve farklılıklara sahip olduğundan, ülkelerini gıda turizmi açısından cezbedici hale getirmektedir. Sokak lezzetleri de bu zenginliği birçok açıdan ortaya koymakta ve turistlere hitap etmektedir (İrigüler ve Öztürk, 2016). İnsanlar turizm faaliyetlerinde bulunurken de beslenmek durumundadır. Bu ihtiyaçlarını konakladıkları otel vb. yerlerde giderebilirken, sokak lezzetlerini de deneyimleyebilmektedirler. Gastroturistler yeni ve orijinal yiyecekleri keşfederek tatmak, değişik mutfak kültürlerini öğrenmek için seyahatler düzenlemektedir. Böylece sokak yemekleri ile basit, yerel ve otantik lezzetler ile tanışarak, yeni lezzetleri deneyimleme fırsatı bulmaktadırlar. Sokak lezzetleri sayesinde yerel mutfağa ilgi artmakta, turistler aynı bölgeye tekrar ziyaret planlayabilmekte ve yerel ekonominin gelişmesi mümkün olmaktadır (Bozkurt, 2021) Düzenlenen bağ bozumu, şarap tadımı, doğada mantar arayıcılığı gibi etkinliklere ve yerel festivallere katılım, yöresel pazar yerlerini ziyaret vb. etkinlikler gastronomi turizmi faaliyetlerine örnek olarak verilebilir (Bayram, 2020; Bozkurt, 2021)

Gastronominin gelişmesi ile birlikte bu konuda birçok çalışma da yapılmaya başlanmıştır. “Sokak Lezzetlerinin Gastronomik Değeri: İstanbul Sokak Lezzetleri” (Demir ve ark.,2018), “Sokak Satıcıları Yönünden Sokak Lezzetleri” (Bayraktar ve Zencer 2019), “Sokak Lezzetleri Tüketim Sıklığı” (Bektarım ve ark.,2018) gibi çalışmalar sadece birkaç örnek olup, bu örnekleri çoğaltmak mümkündür.

Sokak lezzetleri gıda güvenliği ve hijyen açısından değerlendirildiğinde, bazı tüketiciler bir sokak lezzetleri satıcısı seçerken hijyene önem verse de, tüketicilerin geneli sokakta satılan gıdaların sağlık tehlikelerinden habersizdir (FAO, 2022). Özellikle gelişmekte olan ülkelerde sokak gıdalarının güvenliği büyük bir endişe kaynağıdır. Gerçekten de, sokak gıdalarının hazırlanması, yetersiz pişirilmesi (yeterli merkez sıcaklığa ulaşılamaması) ve yanlış şekilde muhafazası, satışta sunum şekli çiğ ve işlenmiş gıdalarda çapraz kontaminasyona neden olabilir. Bu faaliyetlerin gıda güvenliğine uygun olarak yapılması, sokak satıcılarının, üretici ve tüketicilerin bilinçlenmesi, hijyen kontrollerinin yapılması ve tüm bunların etkili bir biçimde organize edilmelerine bağlıdır (Şahin ve Çoğun, 2001) Bunun yanı sıra hazırlayan personelin kişisel hijyen kurallarına uymaması gıda kaynaklı hastalıklara neden olan ana faktörlerden biridir (Buscemi, 2011; Kok, 2014; Koua ve ark., 2020). Üreticilerin eğitimi, sokak lezzetlerinin satışının gerçekleştirildiği alanlarının, çevresel şartlarının iyileştirilmesi ve sürekli kontrol edilmesi gereklidir (Rane,2011). Sokak gıdalarıyla bağlantılı ciddi gıda zehirlenmesi riski, dünyanın birçok yerinde bir tehdit olmaya devam etmektedir. Sokak yemekleri satıcılarının gıda kaynaklı hastalıkların nedenleri hakkında bilgi eksikliği önemli bir risk faktörüdür. Bu ürünlerin gıda güvenliği açısından en büyük riskleri mikrobiyal risklerdir. Risk teşkil eden en önemli mikroorganizmalar **E. coli**, **S. aureus**, **B. cereus**, **Salmonella**'dır. Aydın (2020), *Salmonella bakterisi bulunan gıdaları tüketen 1046 asker bulantı, kusma ve ishal şikâyetleri ile hastalanmış ve olayda ölüm meydana geldiğini belirtmiştir.* Salmonella bakterisinin bulaşma yollarının özellikle tavuk, içme suyu, yumurta ve süt olduğu bildirilmiştir.

Sokak lezzetlerinin gıda güvenliği açısından değerlendirilmesi ile ilgili birçok çalışma mevcuttur. Sokak satıcılarının el hijyeni ile ilgili yapılan bir çalışmada, satıcılarının ellerini yıkarken sabunlamadığı ve bazı durumlarda hiç yıkamadığı tespit edilmiştir. Bunun nedeni olarak satış alanlarında el yıkama bölgelerinin olmaması gösterilmiştir (Omemu ve Aderoju, 2008). Yapılan başka bir çalışmada et ve



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tavuk döner, köfte, balık ekmek, haşlanmış mısır, halka tatlısı, simit poğaçı, tavuklu pilav, midye dolma, Arnavut ciğeri, tantuni, ıslak hamburger, kokoreç, boza, sosisli sandviç, çiğ köfte, sahlepe, soğuk sandviç ve karışık tosttan oluşan 20 farklı sokak lezzetinden numuneler alınmış ve incelenmiştir. Alınan numunelerden 13 adedinde (%65) *S.aureus* (*Staphylococcus aureus*), 19 adedinde (%95) TMAB (toplam mezofilik aerobik bakteri), 5 adedinde (%25) *E. coli* (*Escherichia coli*), 2 adedinde (%10) *Salmonella* spp. ve 14 adedinde (% 70) *B. cereus* (*Bacillus cereus*) tespit edilmiştir. 10 adet sokak satıcısından alınan el yüzeyi örneğinin 9 adedinde (%90) *S.aureus*, 7 adetinde (%70) *E. Coli* - koliform tespit edilmiştir (Aydın,2020). Bu sonuçlar, sokak lezzetlerinde gıda güvenliğinin ne kadar önemli olduğunu göstermektedir.

Sokak lezzetleri ile ilgili olarak, gıda güvenliği dışında başka unsurlar da endişe oluşturmaktadır. Örneğin sokaklarda atık birikmesi ve atık su kanallarının tıkanması, şehirdeki trafik sıkışıklığı, yayalar tarafından (kaldırımların sokak satıcıları tarafından işgal edilmesi ve trafik kazaları) kamusal veya özel alanın yasadışı işgali ve sosyal sorunlar (çocuk işçiliği, resmi ticarete haksız rekabet vb.) gibi başka endişeler de söz konusudur (Bellia, 2022).

Sokak lezzetlerinin geliştirilmesi ve daha sağlıklı bir şekilde tüketicilere ulaşması için, sokak yemeklerinin tariflerinin yazılı hale getirilerek arşivlenmesi, sokak lezzetlerinin tanıtımına dair gezi turlarının düzenlenmesi, bölgesel sokak lezzetleri haritasının oluşturulması, medyada sokak lezzetlerine daha fazla yer ayrılması, sokak yemekleri ve sokak satıcıları ile ilgili yasal düzenlemelerin yapılması faydalı olacaktır (Altunbağ,2020).

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### VIOLENCE AGAINST WOMEN IN TIMES OF WAR AND ITS APPEARANCE IN THE LATEST RUSSIA-UKRAINE CONFLICT

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#### **Abstract**

As the first two decades of the 21<sup>st</sup> century are left behind, and issues such as women's rights and gender equality are advocated loudly on all occasions by modern societies, unfortunately, the violence that women face continues to increase day by day. In addition to all kinds of gender-based, physical and psychological acts of violence, which can now be accepted as a part of women's daily life, whose intensity can vary from mild to severe, many women from all over the world are also exposed to very severe physical violence and even lose their lives as a result of these violent acts.

While this is the case in peacetime, the extent of violence against women in wartime reaches even more serious levels. Wars are inherently have gender and have been since time immemorial. War's traditional structure is that men go to fight, while women stay at home and take care of the family. In addition to this, the battlefield itself is gendered: whilst men are killed, women are regarded as the spoils of war. Experiences until today have shown that; times of conflict and war increases the exposure of women and girls to gravest war crimes, especially all forms of gender-based violence, arbitrary killings, persecution, rape and trafficking.

The events that have taken place since the aggression that Russia started against Ukraine on February 24, 2022, once again reminded the cruel face of the war, especially against women and girls. Since the beginning of the war, Human Rights Watch has reported many heartbreaking incidents of violence against women. Moreover, the "toxic" masculinity prevailing in Russian culture and therefore in the Russian army, exacerbates the situation in question.

Both the Russian Federation and Ukraine are signatories of the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), as well as other key international human rights instruments. However, it is seen that, international law is not capable in preventing acts of violence by itself.

In this study, after examining the issue of sexual and gender-based violence against women in general, in the axis of international law, specific violence events will be discussed, especially within the framework of Russia-Ukraine Conflict.

**Keywords:** Violence Against Women, Sexual Violence, Gender-Based Violence, Wartime Violence, Russia-Ukraine Conflict.



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### EVALUATION OF SARIKAMIŞ WINTER SPORTS TOURISM CENTER IN TERMS OF SAFETY MEASURES

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#### ABSTRACT

In this study, it was determined the views of the participants regarding the safety of Sarıkamış Ski Center. The sample group of this study consisted of 151 visitors, 100 athletes, 74 coaches, 55 staff and 20 referees, in total 400 people. 297 of these participants were men and 103 were women. In this research the “Scale of safety of Ski Areas” which was developed by Mızrak (2011) was used as a data collection tool. The KAGO scale consisted of four subdimensions such as (1) ski center, (2) slopes, (3) personnel and (4) mechanical facilities and 23 items. In the analysis of the data, descriptive statistical methods such as frequency, standard deviation, mean and percentage were used. To compare the quantitative continuous data between more than two independent groups in KAGO one way Anova test was used to compare whether there was a significant difference according to the age of the participants, the year of doing winter sports, the way they learnt winter sports, the preferred winter sport, their educational background, the reason for being in the ski resort and their winter sports’ ski level. It has been determined that the general average of the security level of Sarıkamış ski center is 3.361, the perception of ski center security has an average of 3.490, the perception of piste security is 3.167, the perception of personnel safety is 3.305, and the perception of mechanical facilities security is 3.361 in terms of KAGO. As a result, it can be said that Sarıkamış Ski Center is a suitable, sufficient and at the same time safe center according to the results of the analysis in terms of ski center safety, slope safety, personnel safety and mechanical facility safety.

**Keywords:** Sarıkamış, Winter Sports, Security, Ski Centers, Ski Areas

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### EVALUATION OF MECHANICAL PROPERTIES OF ASTM 6082 ALUMINUM ALLOY AFTER ANGULAR EXTRUSION IN EQUAL CHANNELS IN THE MANUFACTURE OF PINS, BARS AND TUBS

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#### ABSTRACT

Pins, bars and tubes are common elements in the metalworking industry, which need strength to be able to overcome the demands imposed during their useful life. However, with the emergence of severe deformation methods (SPD), the same materials recommended for each utility, improve their mechanical characteristics, through large applied deformations that cause in submicrometer scale the grain refining that consequently promotes improvement in strength.

In the current study, the SPD method known as equal channel angular pressing (ECAP) was used as an alternative to obtain ASTM 6082 aluminum pins, bars and tubes with superior properties. Through ECAP the material is subjected to an axial force, which forces its passage through angular channels and as the processed sample does not have its initial dimensions altered, multiple passes can be used causing the accumulative deformation.

Part of the methodology was the preparation of samples in the states as received, annealed and processed by ECAP, which, through the mechanical tests performed, visual, numerical and graphic evidences were investigated that could prove the improvement in properties after the ECAP passes. The analyzed results showed significant evidence of increase in strength and hardness with the evolution in the number of ECAP passes applied, reaching in the eighth processing maximum strength limit values of 245.39 MPa, yield stress of 200.00 MPa and hardness of 70.8 HV.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### IMPLICATIONS OF ENERGY CRISIS IN EUROPE

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#### ABSTRACT

Russia's invasion of Ukraine is a grim geopolitical approach (realism theory) which had succeeded in Syria where the Eastern front was held. Russia is now protecting its national interests in Ukraine. The U.S. and its allies follow liberalism theory against Russia, The statements point to a long-term conflict, implying that the problem is more about a new map of East and West. This helps to understand the depth and structural reflections of the conflict.

The objective of this study is to discuss possible economic, political and social outcomes. Economic outcomes include economic sanctions, high inflation and food crisis; social outcomes include Ukrainian refugees and social resilience; political outcomes include suspension of energy supply, partition of Ukraine and spillover effects.

While supply and stock problems could not meet the increasing demand in Europe, the tension created by suspension of the northern flow paved the way for astronomical increases in gas prices. Following energy crisis, gas supply and price volatility have become uncertain in the European gas markets. Suspension of gas flow has put Europe's energy security at risk. Thus, alternative gas resources were needed and Germany signed a long term liquefied natural gas deal with Egypt and Israel. European countries are also expected to substitute the shortage of natural gas with coal and nuclear energy and subsidize high household energy costs. If gas shortage persists, economic recession will be inevitable. Consequently, social and economic welfare of European society will be diminished

The implications of energy crisis are that Europe has to return to using coal for heating and producers may have to stay pro-hydrocarbon for half a century. Furthermore, Russia disrupts the shift to new energy paradigm. The effect of the conflict on globalization could be well above and beyond what is perceived today.

**Keywords:** Energy crisis, Europe, Russia



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### DETERMINATION OF TRENDS OF RIVER FLOWS IN THE BÜYÜK MENDERES DISCHARGE

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#### ABSTRACT

The demand for water is increasing day by day due to changing climatic conditions and increasing population. For this reason, planning and projecting of water resources is of great importance. For the right project, it is necessary to know the trends of the sources. In this study, monthly and annual data obtained from 3 flow observation stations (Çine Çayı, Akçay and Büyük Menderes Nehri) located on the Büyük Menderes Discharge were tested with Mann-Kendall trend analysis and the trends of the region were tried to be determined. Trends have been identified on both a monthly and annual basis. When the results are examined, it has been determined that there is a decrease on an annual basis, while there is an increase trend in February and March at the Çine Çayı station, in March and April at the Akçay station, and in March at the Büyük Menderes station, while there is a decrease in all other months. Considering the 95% confidence interval in the analyzes, the presence of a trend is clearly seen at the Büyük Menderes station in June, July and August, at the Akçay station in July and August, and at the Çine Çayı station in June. All the results generated are summarized in tables and graphs in the study.

**Keywords:** Trend, Mann-Kendall, Büyük Menderes Discharge.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### GROUNDWATER SUSTAINABILITY ASSESSMENT: CATEGORIES, IMPORTANCE AND APPLICATION OF INDICATORS

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#### **highlights:**

- Presents a comprehensive review on groundwater sustainability assessment
- Highlights the sustainability concepts categories
- Highlights the methods for weighting and ranking indicators

#### **ABSTRACT**

**Purpose:** The purpose of writing this article was a comprehensive study of sustainability evaluation indicators for groundwater and a review of methods for ranking and weighting of indicators in the world.

**Design/methodology/approach:** For this purpose, authoritative articles and books on this matter were reviewed and summarized. It should be mentioned that these indicators are very numerous and varies, for this reason, it was enough to categorize them based on the concepts and principles of sustainability, and the most important indicators are mentioned for each category.

**Findings:** The indicators defined for policy makers and decision makers are often simple and understandable. But some scientific and specialized indicators that researchers have designed in their studies may be very complicated.

**Conclusion:** One of the most important concepts in sustainability assessment is the compilation of a composite index, which has different methods for defining and weighting its sub- indicators. Researchers have a long way to evaluate sustainability and this emerging knowledge will continue to expand.

**Keywords:** indicator, composite indicator, weighting methods



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### SYNTHESIS OF NEW INDOLIZINIC DERIVATIVES AS POTENTIAL ANTITUMOR AGENTS

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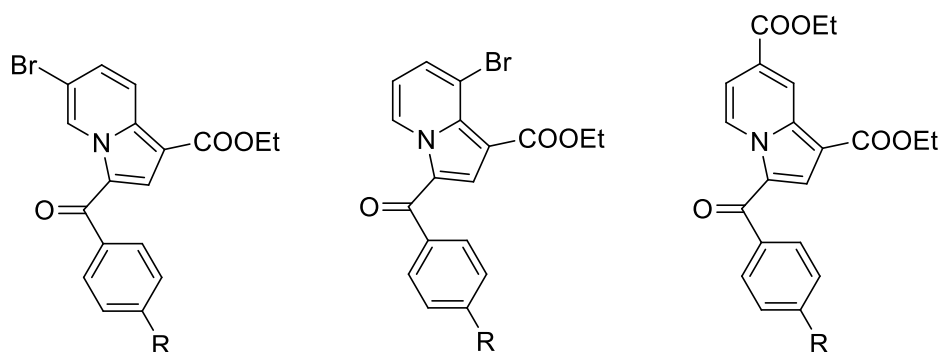
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#### ABSTRACT

Indolizine is a privileged nitrogen-containing heterocycle that show a variety of potential biological activities, anticancer including. In the same time, some indolizine derivatives that posses excellent fluorescence properties can even be used as organic fluorescent molecules for biological and material applications. Thus, indolizine scaffold became an important system for the development of potent new drug candidates in medicinal chemistry.<sup>1,2</sup>

Our group recently reported several indolizines with excellent anticancer activity and good tubulin polymerization inhibitory potency. Inspired by these results, the goal of this study was the synthesis of several new 6, 7 and 8-substituted indolizine derivatives to have deeper insights regarding their anticancer activity. Therefore, our study started with 3-bromopyridine and ethyl isonicotinate in order to obtain new indolizines to be tested for their anticancer activity.



The structures of the new compounds (monoquaternary salts and fused pyridines) were proved using spectral methods. All new derivatives will be evaluated for their anticancer properties.

**Keywords:** pyridinium salts, dipolar cycloaddition, indolizines, anticancer

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### THE EFFECT OF ATTITUDE TOWARDS SEXUALITY OF PREGNANT WOMEN ON SEXUAL FUNCTION

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#### ABSTRACT

This study was conducted to examine the effect of pregnant women's attitudes towards sexuality on sexual function. The sample of the study, which was descriptive and cross-sectional, included 288 pregnant women who applied to the obstetrics and pediatrics hospital pregnancy polyclinics of a training and research hospital in the Black Sea Region of Turkey for prenatal follow-up and agreed to participate in the study. The data of the study were collected with the Personal Information Form, Attitudes towards Sexuality during Pregnancy Scale, and Female Sexual Function Index (FSFI) between 23 December 2019 and 21 December 2020. The Attitudes towards Sexuality during Pregnancy Scale mean score of the pregnant women who participated in the study was found to be  $117.28 \pm 15.05$ . The mean FSFI score of the pregnant women who participated in the study was found to be  $16.77 \pm 10.87$ . It was determined that 76.4% of the pregnant women experienced sexual dysfunction according to the FSFI cut-off score, and the rates of sexual dysfunction according to trimesters were 85.7%, 41.8%, and 86.9%, respectively. It was found that 66.7% of the pregnant women had a positive attitude according to the Attitudes towards Sexuality during Pregnancy Scale cut-off score, rates of positive attitude towards sexuality during pregnancy according to trimesters were 57.1%, 82.1% and 62.1%, respectively. A positive and significant correlation was found between the Attitudes towards Sexuality during Pregnancy Scale and the FSFI scores. As a result, as the negative attitudes of pregnant women towards sexuality during pregnancy increased, sexual dysfunction increased.

**Keywords:** Pregnancy, Attitude to Sexuality, Sexual Function, Nursing

*This study was produced from the master thesis prepared by the first author under the supervision of the second author.*

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### DEVELOPMENT OF THE TONSILLITIS KNOWLEDGE ATTITUDE SCALE

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#### ABSTRACT

The study was carried out methodologically. For the Parent Tonsillitis Knowledge Attitude Scale, item pool study, expert opinions were obtained, and a validity-reliability study was performed after pre-application. The study was carried out between September 2019-June 2020 in the Child Health and Diseases, Ear-Nose-Throat polyclinics of a Ministry of Health Hospital. The universe included the parents (N=273) of the children in the 0-18 age group who were diagnosed with tonsillitis in the specified outpatient clinics of the relevant hospital and studied with the universe without going through the sampling method. The data were obtained by Personal Information Form and Parental Tonsillitis Knowledge Attitude Scale. Data were evaluated by descriptive statistics, scale development, validity and reliability analysis, chi-square test. Adhering to ethical principles.

**Results:** Parental Tonsillitis Knowledge Attitude Scale was developed, which has the sub-dimensions; Tonsil, Tonsillit, Findings, Treatment and Care, 40 items, a likert type of 5, acceptable and high level of validity (item total correlation values;  $r=.314-.620$ , Alpha coefficient  $=.927$ ) and reliability (discrimination;  $p=.000<.001$ ).

**Conclusion:** The Parent Tonsillitis Knowledge Attitude Scale can be used as a valid and reliable assessment tool in determining and developing tonsillitis knowledge and attitude of adults for children with tonsillitis findings, and adapted to different cultures.

**Keywords:** Attitude, child, knowledge, parent, tonsillitis



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### A PYTHON BASED OBJECT DETECTION BY YOLO V1

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#### **ABSTRACT**

We present YOLO, a new approach to object detection. Prior work on object detection repurposes classifiers to perform detection. Instead, we frame object detection as a regression problem to spatially separated bounding boxes and associated class probabilities. A single neural network predicts bounding boxes and class probabilities directly from full images in one evaluation. Since the whole detection pipeline is a single network, it can be optimized end-to-end directly on detection performance. Our unified architecture is extremely fast. Our base YOLO model processes images in real-time at 45 frames per second. A smaller version of the network, Fast YOLO, processes an astounding 155 frames per second while still achieving double the mAP of other real-time detectors. Compared to state-of-the-art detection systems, YOLO makes more localization errors but is less likely to predict false positives on background. Finally, YOLO learns very general representations of objects. It outperforms other detection methods, including DPM and R-CNN, when generalizing from natural image to other domains like artwork.

**Keywords:** PYTHON, YOLO V1, CNN.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### A SECURITY SYSTEM MAKING USE OF FACE IDENTIFICATION & VERIFICATION VIA FINGERPRINT RECOGNITION

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#### **ABSTRACT**

In recent days, security systems have taken a very important place in our lives. An automatic personal identification system based solely on fingerprints or faces is often not able to meet the system performance requirements. We have developed a prototype biometrics system which integrates faces and fingerprints. The system overcomes the limitations of face recognition systems as well as fingerprint verification systems. The integrated prototype system operates in the identification mode with an admissible response time. The identity established by the system is more reliable than the identity established by a face recognition system. In addition, the proposed decision fusion scheme enables performance improvement by integrating multiple cues with different confidence measures. The performance of the proposed system reaches a 100% verification rate for 100 face samples and their respective fingerprints. In addition, the system will also predict the age and sex of the person as an extended feature.

**Keywords:** Face recognition, Finger print identification, OpenCV, HAAR Cascade Algorithm, Image Orientation.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### A PYTHON BASED APPROACH TOWARDS COVID-19 A DATA ANALYSIS AND VISUALIZATION REPORT

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#### **ABSTRACT**

COVID 19 is an infectious disease caused by a novel coronavirus first seen in china at the end of 2019. It has now spread to more than 100 countries. In March 2020, WHO declared COVID-19 a pandemic. Till now over 78 million people have been affected by the disease, 1.73 million people have died, and 44.3 million people have been cured. This disease spreads through contact and is therefore very contagious. In India we have had a total of 10.1 million cases by now, with 147K deaths. In the Current Work using the Landscape of Python we will actually make deep inroads on the Data Analysis on the Record Available with us. We will Observe Several Reports that are indeed the

**Keywords:** COVID-19, PYTHON, MACHINE LEARNING



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### PYTHON BASED MOVIE RECOMMENDER SYSTEM

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#### **ABSTRACT**

In our daily lives when we go out to buy something, we are often forced to make a choice between things that we are looking for. Traditionally, we are recommended these items by people in our vicinity like our friends and family. But what happens when we browse for stuff online? Who gives us these recommendations? On what basis is the recommendation made? This is where recommender system comes into picture where the content providers recommend users the content according to the users' liking. This project is an attempt to make a movie recommendation system. Content-based filtering and Collaborative filtering has been used to build this movie recommender model.

**Keywords:** Content-Based Filtering, Collaborative Filtering, Python, Movie.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### USING STACKED LSTM PREDICTION OF INDEX PRICE

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#### **ABSTRACT**

Recent advances in Machine Learning Algorithms and Increased Computational Capabilities have proved to be More Efficient in Predicting Stock Prices. Still, Accurate Prediction of Stock Market Returns is a Challenging Task Due to the Volatile and Non-Linear Nature of the Financial Stock Markets. In this Work, Stacked Long Short Term Memory Network Techniques have been utilized to Predict and Forecast the Next Two Weeks Opening and Closing Prices for two Well-Known Indexes Nifty 50 and Sensex. Along with it, Daily Highs and Lows are predicted and All Data is represented in Candlestick Graph Patterns for Easy Analysis. The Financial Data: Open, High, Low and Close Prices of Indexes are used for Creating New Variables which are used as Inputs to the Model. The Models are Evaluated Using the Standard Strategic Indicator Root Mean Square Error (RMSE). The Low Values of This Indicator Show that the Models are Efficient in Predicting Stock Closing Prices. Our Model Aims to Assist Users in Taking Swing Trades for Short Intervals with the Maximum Profit Possible.

**Keywords:** Stock Price Analysis, Stacked Long Short Term Memory Network, Financial Stock Markets, Stock Market Index Price Prediction.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### APPLICATIONS OF PLASTIC WASTE MATERIALS IN BITUMINOUS MIXES PAVEMENT FOR INCREASING THE STRENGTHEN OF PAVEMENT MATERIALS

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#### ABSTRACT

The yearly production of plastic garbage is rising in the current environment as a result of the fast population rise. Recycling and reusing plastic trash is essential for sustainable development. The need of the hour is to utilize waste polythene for various supporting reasons since it is not biodegradable. These materials are made of polymers like polyethylene, polypropylene, and polystyrene. Due to the enhanced performance and elimination of the environmental issue, adding plastic waste to flexible pavement has emerged as a desirable choice. A composite material known as bituminous concrete (BC) is often utilized in construction projects such as road paving, airport terminals, stopover areas, etc. It includes mineral aggregate and black top or bitumen, which are combined, laid down in layers, and then compacted. The bituminous mixture in this research article was combined with plastic to use a chemical stabilizer. The ideal bitumen content is replaced by 0, 15, 27, and 36% plastic, as well as the bitumen's weight, stability, and Marshall values, to create hypothermal. A linear scale is used to compare the flow rates to the bituminous mixture. There have been several studies on the addition of trash to bituminous mixes, but this is focused on the use of plastic waste as a modification in a bitumen binder for flexible pavement. According to research, bituminous mixes containing up to 4 percent plastic waste are excellent for sustainable development.

**Keywords:** Plastics, Bituminous Concrete, Environmental Degradation, Pavements and Waste materials recycling.





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### SELF-MANAGEMENT AS A KEY COMPETENCE OF THE FUTURE SPECIALISTS

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Undoubtedly, in terms of the dynamic development of the current labor market and socio-economic instability, it is necessary to work purposefully to create certain conditions for developing students' career competencies starting from the first year of study. After completing their studies, specialists get their job, which can be very stressful. They often realize that an unregulated work process can be unprofitable regarding finances and time. Therefore, for future specialists' self-realization and career growth, knowledge of the basics of self-management is essential as it provides the ability to manage behaviors, thoughts, and emotions productively.

Self-management is a technique that can and needs to be learned and developed, and then a positive result will be obtained from work. Self-management skills are crucial to getting ahead both personally and professionally. In the current situation, researchers and experts in the field of management distinguish two directions of career management: *career management in the organization* and *career self-management*.

*Career self-management* is a technology of self-career planning, which makes it possible to fully and deeply diagnose an individual's career potential psychologically [1, p.102]. *Career self-management* involves the desire to develop oneself personally and work on developing one's career. This process happens thanks to specific courses, seminars, trainings, constant self-development, and analysis of one's goals for self-realization and planning. In our opinion, planning should be considered at the final stage of introspection, followed by implementation.

The technology of *career self-management* can be implemented both purely independently and in the mode of "coaching" - a modern direction of consulting, in which the coach asks his "protégé" questions in such a way that he independently makes the best decision.

A famous researcher in career self-management E. A. Mogilevkin points out *five stages* in *self-management* technology. The *first stage* determines the personal career location with the help of specific questions. The *second stage* is drafting an individual balance sheet of successes and failures. Working on the *third stage*, a specialist reveals the strengths and weaknesses of his or her personality, character, and professional qualities. The *fourth stage* includes an analysis of the means needed by a specialist to implement the set goals successfully. The final *fifth stage* is the process of compiling a list of one's failures and mistakes for further avoiding.

English management consultants M. Woodcock and D. Francis developed a list of successful managers' qualities [2]. They drew attention to the fact that the low level of self-development, the lack of a creative approach, the lack of leadership qualities, and the low level of learning skills and influence on others inhibit the development of both a manager and his and company's productivity.

Therefore, the use of self-management tools in the management of career processes allows employees to plan their career growth, adequately assess their strengths and weaknesses, analyze their successes and failures, set goals and determine the means of achieving goals, and manage the process of using working time.

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### MODEL OF BANKING AND FINTECH COLLABORATION IN INDONESIA: PRESENT AND FUTURE CHALLENGES

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#### ABSTRACT

Along with the current digital era where the banking industry and the influence of financial technology are rapidly growing, banking collaboration with FinTech and its current and future challenges have attracted the attention of banking practitioners, FinTech industry players, and academics. Problems arise when there is an assumption that there is a FinTech disruption, especially banking policy issues, which will be considered by banks in collaborating with FinTech. Thus, the policy in implementing the collaboration model of banks and FinTech is a challenge present and in the future for the banking sector and the FinTech industry, especially in Indonesia. The purpose of this descriptive study is to describe developing collaboration between banks and fintech in the present and future challenges in Indonesia. The research methodology uses a descriptive method with a survey study approach. This study requires a perception analysis by surveying 100 respondents, each representing the banking and FinTech sectors, who understand the collaboration problems related to the banking and FinTech industry. The problem of developing a collaborative model of banking and FinTech is described based on literature studies and field surveys. The results of this study reveal that the need for government policies, regulations, and laws regarding banking and FinTech collaboration is a challenge in the present and the future. Other results state that the Channelling model is still a collaboration model for banking and FinTech that is suitable to be applied in the present and the future. The results of this descriptive study will expect to contribute significantly to government policy and considerations in developing a suitable banking and FinTech collaboration model for the present and future in Indonesia.

**Keywords:** banking, collaboration, challenges, fintech, model



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### OPTIMIZING THE ROLE OF THE INVESTMENT GALLERY AS A MILLENNIAL INVESTOR'S LIFE STYLE TO INVEST IN SHARIA THROUGH DIGITAL LITERACY

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#### ABSTRACT

The Islamic capital market has grown rapidly and is increasingly attractive as an investment option, especially for millennial investors in Indonesia. The Investment Gallery is one of the means to introduce the capital market through the collaboration of the IDX, Universities and Securities Companies. This study aims to determine the optimization of the role of the Investment Gallery as a life style for millennial investors to invest in sharia through digital literacy of the sharia capital market at universities in South Sumatra. This study uses a mixed method approach, starting with data collection and quantitative analysis, then continued with data collection and qualitative analysis. Quantitative data using Structural Equation Model (SEM) Partial Least Square (PLS) as a tool to analyze primary data with 130 millennial investor respondents. The results of this study indicate that the millennial investor's life style has no effect on investment, the millennial investor's life style has a positive and significant impact on digital literacy, and the millennial investor's life style has a positive and significant effect on investment through digital literacy. While the results of qualitative research indicate that the role of investment galleries is not yet optimal in growing the life style of millennial investors to invest in sharia through digital literacy of the Islamic capital market.

**Key Words:** Digital Literacy, Investment Lifestyle, Islamic Capital Market, Millennial Investors



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### ISLAMIC FISCAL POLICY: STATE SUKUK IMPLEMENTATION IN INDONESIA

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#### ABSTRACT

This study aims to see the differences in the perspective of Islamic fiscal policy and conventional one and see whether fiscal policy in Indonesia has adopted an Islamic fiscal policy system. This study uses a qualitative approach with a descriptive method to describe the case of the issuance of state sukuk or state sharia securities issued by the Government through the Directorate of Sharia Financing, Ministry of Finance of the Republic of Indonesia. The data used in this study are primary data in the form of interviews and observations, while secondary data in this study are documentation and literature studies in the form of books, journals, articles and reports issued by relevant agencies. The results of the study indicate that the difference in perspective in conventional fiscal and Islamic fiscal is the element of ethics or morality that does not exist in the conventional system. In its implementation, the fiscal policy made by the Government in adopting the Islamic legal system began to appear since 2008 by including Sharia instruments in fulfilling the financing of the State Revenue and Expenditure Budget (APBN) deficit and accelerating national infrastructure development. Sukuk as an instrument of state budget financing shows its role in improving the welfare of the community.

**Keywords:** Fiscal Policy, State Expenditure Budget, Sukuk, Islamic economy



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### DIGITAL BUSINESS INNOVATIONS DEVELOPMENT FOR INDONESIA SMEs

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#### ABSTRACT

Nowadays, digital business innovation for SMEs had carried out to improve performance and generate many new business opportunities, especially for Indonesian SMEs in this study. "SepatuKU" is one of the Small and Medium Enterprises (SMEs) engaged in ordering services to make and sell shoes in Jakarta, Indonesia. Problems arise when SMEs find it to innovate digital business and determine the appropriate method for developing this digital business innovation. A common problem that occurs in SMEs in this study is that data on marketing and sales of shoes and other business processes still use conventional methods, so business performance is less than optimal. Thus, these SMEs need digital business innovation so that the data management of orders and transactions from customers and other business processes had carried out accurately. This research aims to develop digital business innovation based on an e-commerce system through a digital platform for SMEs, "SepatuKU." This digital business innovation study is applied research with an action research method approach. Business analysis is needed in conducting this digital business innovation at an early stage. The system development methodology in this e-commerce system development uses Rapid Application Development (RAD). Iterative development and prototype system which includes the RAD methodology were chosen in implementing the development of this system through various stages. The result of this study is an e-commerce system development for "SepatuKu" SMEs on a website and other digital platforms. The results of the E-commerce system in the SME "SepatuKu" provide a significant contribution to the effectiveness of the shoe marketing and shoe ordering business. The research for SMEs in digital business innovation related to ordering and selling shoes based on this e-commerce system and its development using the Rapid Application Development method is a novelty in this research.

**Keywords:** Business, Development, Digital, Innovation, SMEs



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### DIET AND HEALTH CONSULTATION SERVICES SYSTEM BASED ON A DIGITAL PLATFORM

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#### ABSTRACT

Diet and health are something that is needed once for someone as a healthy lifestyle pattern that is arranged in the present. This phenomenon had proven by the number of clinics that specifically provide diet and health consulting services handled by doctors or nutritionists. Problems that arise in general in this diet and health consulting service are when someone wants to do a diet and health consultation with a nutritionist or doctor at a clinic far from where he lives and must go through a consultation service process that takes a relatively long time. Furthermore, with these problems, the health and diet consulting service business took the initiative to develop digital business innovations through digital platforms. This study aims to develop a diet and health consulting service system based on a digital platform so that all users can access it via a website or smartphone. This study aims to develop diet and health consulting service with a digital platform. for SMEs, This research is for a case study of diet and health services called "KeyToHealth" in Indonesia. This research uses a descriptive analysis method with a qualitative approach. Data was collected for this research based on previous related studies and field surveys. The diet and health consultation services system based on a digital platform development uses various business analyses and Rapid Application Development. The results of this study present various business analyses and display the results of developing a digital platform-based system for 'KeyToHealth.' The results of this digital platform-based service system contribute to helping people who want to do diet and health consultations easily and quickly. In short, research related to digital business innovation for diet and health consulting services developed through analysis of business innovation and system development using Rapid Application Development is the novelty of this research.

**Keywords:** Consuktation, Development, Digital, Platform, Services, System



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### EFFECTS OF COVID-19 ON MARUTI SUZUKI

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#### **ABSTRACT**

Covid-19 affected every sector in both negative and positive way. Due to which some companies even were not able to survive. As we all know there are The Indian auto industry has been under tension since mid-2018. Starting with a slowdown in production, NBFC defaults worsened the crisis. This paper has a very specific research on a great MNC named Maruti Suzuki having the largest shareholding in the market. It is a comparative analysis of how Maruti Suzuki was surviving in the industrial world and after the covid-19 how it is defeating major players of the industry. The paper focuses on how the Maruti sales were growing and after Covid-19 hit India how that effected the sales. What changes were brought by Maruti Suzuki to overcome the impact of covid-19.

**Key words:** Covid-19, automobile industry, Maruti Suzuki, sales, share holdings





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### EXAMINING THE EFFECT OF CREATIVITY AND INNOVATION ON BUSINESS GROWTH

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#### ABSTRACT

The study focuses on examining the effect of creativity and innovation on Business Growth. Creativity and innovation are considered to be overlapping constructs between two stages of the creative process, both are necessary for successful enterprise (Martins & Terblanche, 2013). Creativity is the production of novel and useful ideas (Amabile et al., 2016) while innovation refers to the implementation or transformation of a new idea into a new product or service or an improvement in organization or process (Heye, 2016), The study explores ways in which creative and innovative can have positive effect on business growth. Data were collected by means of combination of qualitative and quantitative techniques using in-depth interviews and questionnaires. The questionnaires were administered to 200 participants of Glaxo Smithkline Consumer Nigeria Plc in Lagos Nigeria. A total of 193 were returned for analysis using descriptive and inferential statistics which was tested at 5% level of significance. The study revealed positive and significance relationship between incremental creativity and business growth ( $r = 723^{**}$ ,  $p < 0.05$ ). in the same vein, there is a positive and significance relationship between creativity process and business growth ( $r = 892^{**}$ ,  $p < 0.05$ ). it is therefore recommended that policy makers and appropriate authorities should formulate and implement policies and programmes that promotes entrepreneurship growth.

**Keywords:** Creativity, innovation entrepreneurial, business growth incremental creativity.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### LONELINESS AND PERCEIVED STRESS BETWEEN DAY SCHOLARS AND MIGRANT STUDENTS

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#### ABSTRACT

The Purpose of this study is twofold. The first aim of this study would be to investigate and measure the feelings of loneliness and perceived stress among university students including day scholars (local residential students of Lahore) and migrant students from the other areas of Pakistan excluding Lahore. Studies show that migration is a major cause of psychological stress, and social isolation because of different barriers including small social networks, cultural differences and homesickness (Emami, Toress, Lipson, and Khan, 2000). It has been observed that the social networks of those who migrate late in life tend to be very limited (Weeks and Cuellar, 1983). After intensive literature review following hypotheses have been formulated; 1). There would be a significant difference in feelings of loneliness and perceived stress among migrant students and day scholars (local residential students) studying in different colleges and universities of Lahore. 2). Feelings of loneliness would predict perceived stress among students (i.e. migrant students and day scholars) studying in different colleges and universities of Lahore. For this study, a total of one hundred participants including fifty migrant students and fifty day scholars studying in different colleges and universities of Lahore will be selected. For measuring the variables, a demographic form and other psychological measures like the revised UCLA Loneliness Scale by Russell, Peplau, and Cutrona, (1980) and Perceived Stress Scale (PSS) by Cohen, Kamarck, and Mermelstein, (1983) would be used. Results of the study would be calculated by applying descriptive and inferential statistics including t-test for measuring the differences and linear regression for measuring the prediction of a variable among a given population. At the end of the thesis, recommendations, suggestions, and implications of the study would be highlighted.

**Key words;** loneliness, perceived stress, social isolation, migrant students



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### HOW TO ACHIEVE FRUGAL INNOVATION APPROACH?: METHODS AND PLACES OF INNOVATION

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#### ABSTRACT

The diffusion of the concept of frugal innovation differs between the academic treatment of the concept and its application in different situations in countries that have benefited from this approach. The lack of methodological studies is the cause of this difference. Although the concept appears in some applications, it remains an application only through a coincidence of the objectives with the results obtained and their use is inconsistent. To fill this gap, we are working on the analysis of the concept of frugal innovation by focusing on frugality, analyzing the TRIZ method and the CK theory and orienting them towards frugality, highlighting the places where this approach can flourish, as well as defining the leaders who can guide and lead the approach towards success. Our study is made for the Moroccan context which is a favorable ground for the implementation of frugal innovation concept and is based on the claim that Morocco is a developing country. The research carried out showed that the proposed method, the places educated present a great opportunity for the success of this approach especially the Moroccan context. Moving to implementation through a model will be a big step towards the realization of the concept.

**Keywords:** Frugal Innovation, TRIZ Method, CK Theory, Innovation place, Morocco context.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CORPORATE GOVERNANCE AND PERFORMANCE OF QUOTED INSURANCE FIRMS IN NIGERIA

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#### ABSTRACT

Despite the crucial roles insurance activities play in any nation that believes that risks are part of life and when unpleasant occurrences do happen, there would be something to fall back on as compensations or indemnities, most businesses are not largely embracing insurance services in Nigeria compared to other countries of the world. The interests of both shareholders and creditors could be jeopardized in such a situation given the poor judicial system and the surrounding circumstances. With a population of 501 purposively selected from 19 quoted insurance firms as of December 2021, a sample size of 154 was arrived at using Smith (1984) formula. This study employs the descriptive approach using person-chi square inferential statistics to assess the effect of corporate governance on the performance of listed insurance firms in Nigeria. The study's findings revealed that board composition significantly affects insurance companies in Nigeria's total investment (ROA). It verified that corporate governance and insurance firm performance in Nigeria had a favorable association. Leverage as corporate governance was also shown to have considerably influenced the share capital of the insurance business in Nigeria, while board composition was also found to have a considerable impact on the reserves of insurance industries in Nigeria. The study, therefore, recommended that the Nigerian insurance regulatory authorities should increase their oversight of the country's insurance business activities by bolstering their inspection and enforcement divisions as this will guarantee that practitioners and other stakeholders strictly abide by the code of good corporate governance in insurance firms in Nigeria. Compliances with the code of good corporate governance would promote safe and sound insurance *practices and put the sector in a global perspective.*

**Keywords:** Return on Assets, Corporate Governance, Insurance Firms, Board Size, and Leverage



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### STRENGTHENING ISLAMIC MICRO-FINANCE INSTITUTIONS IN SOUTH SUMATRA

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#### ABSTRACT

**The purpose** of this study is to assess Islamic Microfinance Institutions from five variables, namely Sharia Compliance, Digitalization, Financial, Service Quality, and Social Impact. **Methodology** This study is used a mixed method research. The sample of this research is Islamic Microfinance Institutions which include Sharia Cooperatives, Baitul Maal and Micro Waqf Banks spread across 17 regencies/cities in South Sumatra. The analysis used in this study is the Importance-Performance Analysis (IPA) or the Analysis of the Level of Interest and Performance/Consumer Satisfaction. **The results** of the study show that from the Sharia Compliance reaches 79 point. Social Impact shows 87 point, Service Quality shows 94 point, financial has a score 60 point, and finally the digitalization shows 59 point. **The limitation** of this study is that it only assess institutions that have been well established, without assessing how the process of growth and subsequent development of the institution. The implication of this study is that the digitalization aspect of Islamic microfinance institutions in the province of South Sumatra needs to be improved. Utilization of communication technology, social media in providing information and services, Utilization of transaction digitization will provide a more effective transformation of institutional strengthening.

**Keywords;** LKMS, digitization, BMT, Micro Waqf Bank



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### ACCEPTANCE OF EDIBLE WATER ORBS: TECHNOLOGY STUDENT PERSPECTIVE IN NORTHERN MALAYSIA

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#### ABSTRACT

Today, scientific progress in the field of industry and technology acceptance makes it possible for new products to be marketed in different fields. One new concept emerging in recent years is the edible water orbs, made with biodegradable materials (seaweed) suited for the environment, as they are a viable alternative to bottles made of polyethylene terephthalate (PET) which take years to dissolve in the soil. Thus, edible water orbs are regarded as a cleaner and healthier alternative to existing bottles that cause environmental pollution and harm to wildlife. This innovation can provide insight on future trends in the technology acceptance model (TAM). The aim of this study was to examine user acceptance of edible water orb and to ensure that this alternative element is addressed in terms of seven TAM elements of halal quality, perceived usefulness, experience, perceived ease of use, attitude, behavioural intention, and user acceptance dimensions. A survey was performed by distributing online questionnaires (containing 23 statements items related to the seven TAM dimensions) to Technology Management students (minimum sample size of 119 from a population of 300) registered in School of Technology Management and Logistics (STML), Universiti Utara Malaysia (UUM). A total of 122 respondents participated in this study. The reliability test reported a Cronbach Alpha value of 0.931. The results revealed that user acceptance is highly correlated with experience and perceived usefulness, while moderately correlated with all other variables. This means that for this product to be accepted, more effort is needed to promote the product to the general public through hands-on roadshows (to increase experience) and to inform about the usefulness of this product. However, the other dimensions cannot be ignored, as they are also important in promoting greater exposure to the public for the sake of environmental sustainability.

**Keywords:** Technology Acceptance Model (TAM), Universiti Utara Malaysia (UUM), edible water orbs, environmental sustainability, biodegradable packaging, halal quality



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### MALAYSIAN TEACHERS' MOTIVATING AND DEMOTIVATING FACTORS OF ARTIFICIAL INTELIGENT (AI) BASED TEACHING SOLUTION

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#### ABSTRACT

This research aims to identify and rank the elements that influence the uptake of AI-based pedagogical solutions among Malaysian educators. There has been a recent uptick in educational institutions' use of AI-based pedagogical tools (Gupta and Bhaskar, 2020). Using AI in the classroom might allow for more individualized instruction. There is hope that AI might improve educators' comprehension of their students' knowledge, learning preferences, and development (Nazaretsky, Cukurova and Alexandron, 2022). Using structural equation modelling, you may determine how certain influential elements are in promoting and inhibiting the desired behaviour (SEM). We used a statistically significant sample of 218 Malaysian university professors to conduct pair-wise comparisons. While academics have looked at how well AI is received in other settings, such as retail and financial services (including e-commerce), they have not yet focused on how well AI is received in educational settings. Therefore, the study's focus on educators' use of AI-based teaching approaches has contributed considerably to existing literature. The adoption of AI-based education solutions is pushed forward by two main forces: institutional resistance and popular support. According to the study's findings, schools need to provide educators with the tools, support, and appreciation they need to embrace AI-based pedagogies. The results of this research may have significant implications for universities and companies that provide AI-based solutions for classroom needs. Higher education institutions (HEIs) need to provide their faculty members sufficient resources, including money and resources such as computers and other technological tools. Creators should prioritize making tools that are usable in classrooms as they are now.

**Keyword:** AI, Higher education institutions, Malaysian Teachers, Teaching Solution



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### STRUCTURAL PATH ANALYSIS OF CUSTOMERS PERSPECTIVE TOWARDS ARTIFICIAL INTELLIGENCE BASED SUGGESIONS

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#### ABSTRACT

With the advent of AI, consumer-brand interactions are undergoing a dramatic transformation (Priksat, Malik and Budhwar, 2021). The consumer experience that is aided by AI is not well studied. So, the purpose of this research is to examine how AI may be used to retail to enhance the purchasing experience for AI users. With the trust-commitment theory and the service quality model as our inspiration, we put out a theoretical framework. Customers who have used a YouTube service powered by artificial intelligence were sent an online survey. Partial least squares-structural equation modelling was used to analyze the data (n=301 replies). Trust and relationship commitment were shown to play a pivotal role in moderating the connections between customers' evaluations of service convenience, individualization, and quality. We also discover that trust is not one of the factors that has a substantial influence on relationship commitment, and that relationship commitment acts as a mediator between service quality and AI-enabled customer experiences. This research fills a gap in the literature by identifying the direct influence of perceived convenience, personalization, and service quality on AI-enabled customer experience as well as the intermediary effects of trust and relationship commitment. Further, the research has real-world consequences for businesses who want to apply AI in the services they provide to YouTube subscribers.

**Keyword:** AI Users, Customers Perspective, Trust, Commitment.





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CHALLENGES OF NATIONAL SAIS IN THE CONTEXT OF THE COMMON AGRICULTURAL POLICY 2023-2027

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#### ABSTRACT

The adoption by the European Council of the new common agricultural policy (CAP) for the period 2023-2027 formulates, along with the traditional objectives of blurring the rural-urban disparity, the improvement of agricultural productivity for farmers, the guarantee of reasonable stable incomes, new action directions of the operational programs, in the sense of increasing the contribution of agriculture to the EU's environmental and climate objectives, and offering better targeted support to smaller farms, as well as conferring greater flexibility for Member States in terms of adapting measures to local conditions. For non-reimbursable community funds, intended to support agriculture and rural development, Supreme Audit Institutions (SAIs) fulfill the role of certification body, certifying at the same time the accuracy and veracity of the data from the verified execution accounts in relation to the funds allocated from the national budget. In this context, the paper aims to highlight the way in which the national ISAs will integrate through the specific activities of the audit of operations/projects, the framework drawn by the challenges printed by the new CAP, in the sense of following the way in which the EU countries will implement the national strategic plans of the CAP, combining funding for income support, rural development and market measures, given that the CAP will benefit from funding of €270 billion for the period 2023-2027, and the seven approved plans represent a budget of over €120 billion, including over €34 billion dedicated exclusively to environmental and climate objectives and eco-schemes.

**Keywords:** common agricultural policy, supreme audit institutions, EU, rural development, audit of projects



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### HUMANISTIC CAPITALISM THE PATHWAY TO ECONOMIC SUSTAINABILITY IN NIGERIA: A CRITIC OF KARL MARX SOCIALISM

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#### ABSTRACT

There is no country in the world irrespective of their economic status that exists without an economy system. An economy system is a structure adopted by any country which dictate how such country's goods, services and resources are produced, distributed and allocated. It aims at specifying the best methods to answer basic economy problem of: "what to produce, how to produce, for whom to produce, and how growing is the economy" based on skills and available resources of a country. Basically, for growth, sustainability, and stability different countries of the world will adopt or tilt more towards any of the three major economic systems: capitalism or socialism or mixed economy. In today's world, most of the developed and successful developing countries adopt many elements of the capitalist or market-based system because of its many advantages over other systems. Yet capitalism has been severely criticized in Marx's philosophy largely because of its exploitative nature: labor power of employees are exchanged for less than the full value of the goods they produce. Leading to the multiplication of wealth for the capitalists, enslavement and dehumanizing of the employees. With humanistic capitalism attempt is made to harmonize between profit and human values/dignity while ensuring all the benefits of capitalism as government regulations are in place. This article with the aid of narrative method aims at explaining the major economic systems in modern societies with particular reference to capitalism and socialism, the advantages of capitalism over socialism in Nigeria with examples, how capitalism can be humanistic, why capitalism and capitalist policies are needed in Nigeria.

**Keywords:** Capitalism, Economy, Humanistic, Socialism, Sustainability



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### MAKING WESTERN BREAD TASTE BETTER WITH TROPICAL FLAVOUR

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#### ABSTRACT

The purpose of this project was to create a new type of bun with its fillings made from Bilimbi, a tropical fruit, as an alternative snack for the community. Bilimbi grows abundantly in the region but it is hardly consumed by the locals which causes the fruit to wither and rot as organic waste. In addition, majority of the low-income families were hit hard by the pandemic as many farmers, small business owners and employees lost their source of income and this resulted in extended deprivation of nutrients as many could no longer afford to buy food. Thus, this project aimed to create sauce out of this fruit and used it as fillings for buns since the locals are fond of eating staple like rice or bread with spicy sauce known as “sambal”. Bilimbi grow wildly across the country but it is rarely consumed by the community due to its lack of aesthetic appeal and its limited economic value. However, the plant can serve as main source of food that provides nutrients to the locals if they are introduced to a recipe on how it can be made into a snack that costs little. In fact, it can boost the local economy if the community taps into it as a new ingredient for food products that they sell. This research was conducted on a selected number of respondents who sampled the buns with Bilimbi sauce as the fillings and rate these samples based on several criteria including taste, aroma, texture, appearance and its nutritious content.

**Keywords:** bilimbi, sauce, buns, nutrients



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### CUSTOMERS PERCEPTION TOWARDS MOBILE BANKING

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#### ABSTRACT

Mobile Banking services provide more personal and near relationships. Mobile banking enables customers to access their bank account, check their balance or conduct financial transactions through a mobile device. The main aim of this empirical study is to examine the Customer Perception and Awareness in the Usage of mobile Banking among the customers of public and private sector banks. A total of 368 sample respondents from Chennai cities participated in the study (using purposive sampling method). The primary data collected were subjected to analysis using SPSS Version 23.0 and the statistical tools applied in this study are ANOVA, t test and frequency analysis.

**Keywords:** Mobile banking, internet banking, Money transfer, banking technology, Customer Perception, customer satisfaction

#### INTRODUCTION

India, a leading country in the telecommunication sector, has shown remarkable growth in prepaid mobile subscriptions through rigorous rural penetration. At the same time, the rate of monthly customer attrition is very high when compared with other countries across the globe. Customer churn is very aggressive, particularly in the prepaid segment, when compared with the postpaid segment. Hence, it is decidedly imperative for the mobile operators to comprehend the exact preferences of the customers to select the mobile operators based on prepaid mobile services attributes. (Rajeswari and Ravilochanan 2014) Mobile banking usage is increasing in recent days due to the easy to operate and convenient way of banking. (M P, D., and Hebbar, C, 2021) Mobile Banking provides a system for the user to access his bank account through his Mobile. The system also enables the user to pay his EB Bill, Telephone Bill through his mobile as well as pay for some other services, which he has availed. The Mobile banking system is not just for payment but a user of the system can also transfer money to another account holder through this system. He can receive from his bank or from his business associates or friend or other person who is also connected to the system. After Internet Banking, Mobile Banking or M-Banking has become the buzzword in the industry (Vinay, 2019)

#### REVIEW OF LITERATURE

Bagadia, P., and Bansal, A. (2016) Mobile banking enables customers to access their bank account, check their balance or conduct financial transactions through a mobile device. While the convenience of having access to banking information anytime and anywhere provided by mobile banking is empowering to the consumers on the one side, the possibility of loss, theft or exposure to malware of the stored personal financial information presents obvious risks on the other side. Although technology and applications for mobile services offer low costs, increase computational power and provide ease of use to consumers, the mobile banking service market is still in its infancy stage. Hence, it becomes necessary for bankers to study the factors that are suitable and adoptable for banking customers, which will also help them in designing mobile services. Islam, M., and Hossain, E. (2016) This study attempts to explore the effects of different key factors influencing the consumer acceptance of mobile banking, particularly those that affect the consumer's attitudes towards, and intention to use, this self-service banking technology in Bangladesh. The demographic, attitudinal, and behavioral characteristics of mobile bank users were examined. Consumer survey on 292 mobile bank users of different mobile network operators was undertaken where respondents completed questionnaires about their perceptions



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of mobile banking's ease of use, Infrastructural facility, self-control, social influence, perceived risk, perceived usefulness, and customer service with their lifestyle, and need for interaction with personnel.

Bhardwaj, L. K., and Sood, R. (2019) Banking today has changed into an innovative and customer inviting model with a focal point of comfort. Data Technologies likewise encourages the presentation of new conveyance channels – such as Automated Teller Machine, Net Banking, Mobile Banking, card instruments and the like. All however Information Technologies improves the banks in accomplishing higher customer fulfillment by broadening value added services. As of late, the banking industry in various nations has demonstrated their advantage in enhancing administration quality from conventional branches to electronic channels. Appropriately, huge numbers of them have would in general close or migrated their branches to be sited nearly to customers' places for customers' comforts, and they have depended more on electronic banking services with significant development in electronic offices, for example, Internet, PC, ATMs, phone and cell phones. AlSoufi, A.(2020) Mobile applications have been rapidly changing the way business organizations deliver their services to their customers and how customers can interact with their service providers in order to satisfy their needs. The use of mobile applications increases rapidly, and has been used in many segments including banking segment. This research aims at extending the Technology Adoption Model (TAM) to incorporate the role of factors in influencing customer's perception towards M-banking adoption. Furthermore, the extended TAM model was evaluated empirically to measure its impact on M-banking adoption in Bahrain. The model was evaluated using a sample survey of 372 customers. The results reveal that the intention to adopt mobile banking is mainly affected by specific factors which are: Perceived Usefulness and Ease of Use. On the other hand, some factors such as perceived cost and perceived risk did not show any effect on the users' intention to use mobile banking.

### RESEARCH METHODOLOGY

The study is based on the primary data collected from 368 respondents by using a structured questionnaire. Five point likert scales was used in questionnaire for obtaining responses. The statistical tools applied in this study are ANOVA, t test and frequency analysis. SPSS 20 was used to perform statistical analysis.

### Objectives of Research Study

The main objectives of this research are followings:

- ❖ To find out purpose of using mobile banking services.
- ❖ To analyses the usage level of mobile banking services.
- ❖ To study customer perception towards mobile banking.

### HYPOTHESIS (H0)

- ❖ There is no significant difference between gender and Customers Perception about mobile banking
- ❖ There is no significant difference between educational qualification and Customers Perception s about mobile banking

### DATA ANALYSIS AND INTERPRETATION

Table No: 1

Socio-Economic Profile of Respondents

Variables	Category	No. of Respondents	Percentage
Gender wise	Male	280	76.1



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Classification	Female	88	23.9
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Education wise Classification	Upto H.Sc	18	4.9
	Diploma/ITI	1	.3
	Degree	57	15.5
	P.G and above	292	79.3
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Age wise classification of the Respondents	21-30	120	32.6
	31-40	146	39.7
	41-50	48	13.0
	Above 51	54	14.7
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Monthly income (Rs.) wise classification of the Respondents	15001 - 25000	90	24.5
	25001 -35000	80	21.7
	Above 35000	112	30.4
	Below 15000	86	23.4
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Occupation wise classification of the Respondents	Business	40	10.9
	Employed	280	76.1
	Agriculture	7	1.9
	Student and housewife	41	11.1
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Type of bank	Public sector bank	218	59.2
	Private sector bank	150	40.8
	<b>Total</b>	<b>368</b>	<b>100.0</b>



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Type of the account	Savings bank account	360	97.8
	Current account	8	2.2
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Location of the bank	Urban	267	72.6
	Rural	101	27.4
	<b>Total</b>	<b>368</b>	<b>100.0</b>

Sources: collected and computed through Questionnaire

### Interpretation

- ❖ From the above table it is found that 76.1 % representation is obtained from male respondents and 23.9% female respondents involved in the Customer's Perception on Mobile Banking It shows that the sample unit is dominated by male respondents.
- ❖ The above table shows that 15.5 % of the respondents are under graduates, 79.3% are post graduates and above.
- ❖ The above table shows that 32.6% of the respondents are 21-30, 39.7% are 31-40 age groups, 13.0% of the respondents are 41-50 and 14.7% of the respondents are Above 51.
- ❖ The above table shows that 24.5% respondents family income lies between the scale of Rs. 15001 - 25000, 21.7% % respondents family income lies between the scale of More than Rs. 25001 - 35000, 30.4 % respondents family income of Above 35000, 23.4 % % respondents family income lies between the scale of Rs. Below 15000 .
- ❖ The above table shows that 76.1 % of the respondents are employed, 10.9% of the respondents are 10.9%, 1.9% of the respondents are Agriculture and 11.1% of the respondents are Student and housewife.
- ❖ The above table shows that 59.2 % of the respondents are Public sector bank, 40.8% of the respondents are Private sector bank.
- ❖ The above table shows that 97.8 % of the respondents are Savings bank account, 2.2% of the respondents are Current account.
- ❖ The above table shows that 72.6 % of the respondents are Urban, 27.4% of the respondents are Rural.



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**Table No: 2**

**Customer's Perception on Mobile Banking**

Variables	Category	No. of Respondents	Percentage
State your level of awareness about mobile banking:	Aware	328	89.1
	Partially aware	30	8.2
	Not aware	10	2.7
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Status of usage	Less than 1 year	104	28.3
	1 – 5 years	125	34.0
	5 – 10 years	62	16.8
	Above 10 years	77	20.9
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Factors affect you to open Mobile Bank account	Time Saving	329	89.4
	Cost Saving	39	10.6
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Mobile banking would make banking more convenient for you	Yes	331	89.9
	No	13	3.5
	Maybe	24	6.5
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Think about the Balance Enquiry Facility Provided by Mobile Banking System	Good	324	88.0
	Average	36	9.8
	Poor	8	2.2
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Bill payment services offered by Bank through Mobile Banking System	Good	284	77.2
	Average	83	22.6
	Poor	1	.3





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	<b>Total</b>	<b>368</b>	<b>100.0</b>
Money transfer facility offered by Mobile Banking system any Bank	Good	319	86.7
	Average	38	10.3
	Poor	11	3.0
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Mobile banking system is safe	Yes	171	46.5
	No	46	12.5
	Maybe	151	41.0
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Use mobile banking Services in your banking transactions	Sometimes	103	28.0
	Frequently	176	47.8
	Often	39	10.6
	Always	50	13.6
	<b>Total</b>	<b>368</b>	<b>100.0</b>
Overall satisfaction with Mobile Banking System of Bank	Highly Dissatisfactory	7	1.9
	Dissatisfactory	12	3.3
	Neither satisfied nor dissatisfied	69	18.8
	Satisfactory	137	37.2
	Highly Satisfactory	143	38.9
	<b>Total</b>	<b>368</b>	<b>100.0</b>

Sources: collected and computed through Questionnaire

### Interpretation

- ❖ From the analysis found that majority 89.1% of the respondents said that they level of awareness about mobile banking.
- ❖ From the analysis found that majority 34.0 % of the respondents said that they Status of usage mobile banking.
- ❖ From the analysis found that majority 89.4 % of the respondents said that they time saving of mobile banking.
- ❖ From the analysis found that majority 89.9 % of the respondents said that they Mobile banking would make banking more convenient.



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- ❖ From the analysis found that majority 88.0 % of the respondents said that they Balance Enquiry Facility Provided by Mobile Banking System are good.
- ❖ From the analysis found that majority 77.2 % of the respondents said that they Bill payment services offered by Bank through Mobile Banking System are good.
- ❖ From the analysis found that majority 86.7 % of the respondents said that they Money transfer facility offered by Mobile Banking system any Bank are good.
- ❖ From the analysis found that majority 46.5% of the respondents said that they Mobile banking system is safe.
- ❖ From the analysis found that majority 47.8% of the respondents said that they use mobile banking Services in banking transactions are frequently.
- ❖ From the analysis found that majority 38.9% of the respondents said that they overall satisfaction with mobile banking system of bank are highly satisfactory.

**Table No: 3**

**One-Sample Statistics on General awareness towards Mobile Banking**

General awareness	N	Mean	Std. Deviation	Std. Error Mean	t Value	P Value	Rank
State your level of awareness about mobile banking:	368	1.14	.415	.022	52.505	.000	3
Factors affect you to open Mobile Bank account	368	1.11	.308	.016	68.833	.000	2
Mobile banking would make banking more convenient for you	368	1.17	.519	.027	43.082	.000	1

Sources: collected and computed through Questionnaire

### **Interpretation**

From the above table it is found that the mean value range from 1.11 to 1.17, t value range from 43.082 to 68.833, Standard deviation ranges from .308 to .519, Standard error mean ranges from .016 to .027. This leads to the appropriate ranking analysis with respect to the mean value.



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**Table No: 4**

**One-Sample Statistics on Mobile Banking System**

General awareness	N	Mean	Std. Deviation	Std. Error Mean	t Value	P Value	Rank
Think about the Balance Enquiry Facility Provided by Mobile Banking System	368	1.14	.407	.021	53.856	.000	3
Think about the bill payment services offered by Bank through Mobile Banking System	368	1.23	.428	.022	55.117	.000	1
Think about the Money transfer facility offered by Mobile Banking system any Bank	368	1.16	.444	.023	50.296	.000	2

Sources: collected and computed through Questionnaire

### Interpretation

From the above table it is found that the mean value range from 1.14 to 1.23, t value range from 50.296 to 53.856, Standard deviation ranges from .407 to .444, Standard error mean ranges from .021 to .023. This leads to the appropriate ranking analysis with respect to the mean value.

**Table No: 5**

**One-Sample Statistics on Mobile Banking Product and Services**

General awareness	N	Mean	Std. Deviation	Std. Error Mean	t Value	P Value	Rank
Think mobile banking system is safe	368	1.95	.935	.049	39.914	.000	3
Mobile banking services in your banking transactions	368	2.10	.960	.050	41.905	.000	2
Rate the overall satisfaction with	368	4.08	.935	.049	83.701	.000	



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Mobile Banking System of Bank							1
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Sources: collected and computed through Questionnaire

### Interpretation

From the above table it is found that the mean value range from 1.95 to 4.08, t value range from 39.914 to 83.701, Standard deviation ranges from .935 to .960, Standard error mean ranges from .049 to .050. This leads to the appropriate ranking analysis with respect to the mean value.

		Sum of Squares	df	Mean Square	F	Sig.
Think about the Balance Enquiry Facility Provided by Mobile Banking System	Between Groups	1.667	1	1.667	10.344	.001
	Within Groups	58.985	366	.161		
	Total	60.652	367			
Think about the bill payment services offered by Bank through Mobile Banking System	Between Groups	.081	1	.081	.440	.508
	Within Groups	67.286	366	.184		
	Total	67.367	367			
Think about the Money transfer facility offered by Mobile Banking system any Bank	Between Groups	.041	1	.041	.207	.650
	Within Groups	72.177	366	.197		
	Total	72.217	367			
Think mobile banking would make banking more convenient for you	Between Groups	.648	1	.648	2.414	.121
	Within Groups	98.241	366	.268		
	Total	98.889	367			
Think mobile banking system is safe	Between Groups	11.528	1	11.528	13.638	.000
	Within Groups	309.385	366	.845		
	Total	320.913	367			

Sources: collected and computed through Questionnaire



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### Interpretation

From the above table it is found that the Gender of the Respondents on Balance Enquiry Facility Provided by Mobile Banking System (Mean = 1.667) and payment services offered by Bank through Mobile Banking System (Mean =.184), Money transfer facility offered by Mobile Banking system any Bank (Mean = .197) and mobile banking would make banking more convenient for you (Mean =.648) and mobile banking system is safe (Mean =.11.528).

<b>Table No: 7</b>						
<b>ANOVA for Education of the Respondents on Customer's Perception on Mobile Banking</b>						
		Sum of Squares	df	Mean Square	F	Sig.
State your level of awareness about mobile banking	Between Groups	5.754	3	1.918	12.152	.000
	Within Groups	57.452	364	.158		
	Total	63.207	367			
Factors affect you to open Mobile Bank account	Between Groups	.462	3	.154	1.629	.182
	Within Groups	34.405	364	.095		
	Total	34.867	367			
Think mobile banking would make banking more convenient for you	Between Groups	.223	3	.074	.275	.844
	Within Groups	98.665	364	.271		
	Total	98.889	367			
Think about the bill payment services offered by Bank through Mobile Banking System	Between Groups	4.155	3	1.385	7.976	.000
	Within Groups	63.212	364	.174		
	Total	67.367	367			
Think about the Balance Enquiry Facility Provided by Mobile Banking System	Between Groups	5.776	3	1.925	12.770	.000
	Within Groups	54.877	364	.151		
	Total	60.652	367			
Think about the Money transfer facility offered by Mobile Banking system any Bank	Between Groups	1.430	3	.477	2.450	.063
	Within Groups	70.788	364	.194		



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	Total	72.217	367			
Think mobile banking system is safe	Between Groups	9.179	3	3.060	3.573	.014
	Within Groups	311.734	364	.856		
	Total	320.913	367			

Sources: collected and computed through Questionnaire

### Interpretation

From the above table it is found that the Education of the Respondents on State your level of awareness about mobile banking (Mean = 1.918) and Factors affect you to open Mobile Bank account (Mean = .154), mobile banking would make banking more convenient (Mean = .271) and Think about the bill payment services offered by Bank through Mobile Banking System (Mean =1.385) and Think about the Balance Enquiry Facility Provided by Mobile Banking System (Mean =.1.925) think about the Money transfer facility offered by Mobile Banking system any Bank (Mean =.477) and think mobile banking system is safe (Mean =.3.060)

### CONCLUSION

The current study focused on customer's perception towards mobile banking services in Chennai city. M-Banking plays an essential part among banking customers. Mobile banking provides faster services, Mobile banking is easy to use, Mobile banking services are safe to use, Money transfer facility is reliable, time taken to learn mobile services is more, Bill payment services offered by bank through mobile banking is easy and quick, and easy to make a balance inquiry. From the analysis majority of the customers were positively opinioned, mobile banking is very easy to understand and navigate. This paper has established through empirical data that understanding customer's evaluation to the important areas that needs more innovative research attention.

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### A STUDY ON THE FACTORS INFLUENCING CONSUMER'S INTENTION TO ADOPT MOBILE WALLET IN INDIA

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#### ABSTRACT

In today – world, smart phone has become an essential part of one's daily life. Mobile users can nowadays use their Smartphones to make money transactions or payments by using applications installed in the phone. When smartphones can function as leather wallets, it is called "Digital Wallet" or widely known as "Mobile Wallet". The main aim of this empirical study is to examine the mobile wallets usage Consumer attitude and intention to adopt mobile wallet in Chennai city, India. The respondents were categorized on the basis of gender, age and occupation. The study is based on the primary data collected from 481 respondents by using a structured questionnaire. Five point likert scales was used in questionnaire for obtaining responses. The statistical tools applied in this study are ANOVA, Chi Square, Friedman Test, and frequency analysis. SPSS 20 was used to perform statistical analysis.

**Keywords:** Mobile wallet, Digital Wallet, Mobile Payment, cashless payment, online payment, smartphone users

#### INTRODUCTION

The technological advancement has made the smart phones as devices where the mobile users can make money transactions or payments by using an application installed in the phone. The rapidly growing mobile payment adoption has already started to reshape the payment practices.(Xu, Y., et al,2018) Mobile wallets have provided newer digital payment avenues to consumers while offering companies and marketers greater opportunities to market their products and services online. However, not much is reported about the adoption of mobile wallets in India.(Chawla, D.,and Joshi, H. ,2019)

The Indian Government's initiatives such as 'Digital India' and increased use of mobile and internet are the main reasons for the exponential growth in use of digital payment. Even though the thought of digitalization arose long years ago, it has taken a growth pace recently. This is because of lack of awareness and knowledge among people, fear of making online payment, security issues etc.(Mathiraj, D. S et al,2019)

#### REVIEW OF LITERATURE

Vandezande, N. (2013) in recent years, the number of mobile payments has risen rapidly. During that same timeframe, the methodology of mobile payments has shifted from being mere monetary transactions executed by means of an interconnected network environment – such as the Internet – toward highly diverse mobile wallet ecosystems that include different types of services aimed at improving the overall user experience and at fostering customer loyalty toward a specific ecosystem. Rathore, H. S. ( 2018) In today-world, smartphones have become an essential part of daily life. Due to technology, mobile users can nowadays use their smartphones to make money transactions or payment by using applications installed in the phone. When smartphones can function as leather wallets, it is called "Digital Wallet" or widely known as "Mobile Wallet". The present study tries to study the various factors that can affect a consumer's decision to adopt digital wallet as a mode of online payment. Apart from this, the study also attempts to find out the various risks and challenges faced by users of digital wallets.



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Agarwal, S et al (2018) Using mobile wallet and card transaction data from a leading Singapore bank, this paper studies the effect of a mobile wallet payment technology introduction in 2017 on business growth. We find the mobile wallet usage doubled after the new technology introduction, and the improved payment convenience generated a significant spillover effect. Small merchants experienced a monthly increase in debit and credit card sales amount (count) of 3.5 percent (3.4 percent) compared to large merchants. The payment technology promoted sales growth primarily for new businesses by facilitating customer acquisition. Singh, P., and Rajput, R.(2019) A Recent study by industry body ASSOCHAM suggests that the e-Commerce market in India might attain \$38 billion in 2016. In February 2016; a report by Counterpoint Research stated that India had achieved the second largest smartphone market in the world with 220 million smartphone users. Nowadays, digital wallet and mobile banking apps which allow fast transactions anywhere at any time play a significant role in digital transactions. This brings into focus the security issues related to these apps. Keeping these facts in view in the present study we investigate the security constraints of some digital wallet and mobile payment apps in India.

Das, A., et al (2019) Post demonetization in India, the popularity of digital wallets gains exponentially. There are many digital wallets which are currently active in India like Paytm, Freecharge, Jio Money, Airtel Money etc. The aim of this paper is to explore, in detail, about different digital wallets which are very much in use in India and what are their policies and what all measures they take regarding the security of the user data. Shree P.N, S et al (2020) The empirical research design was adopted by employing a survey method to collect responses from the target population through a convenience sampling method. The primary data collected were subjected to analysis using SPSS Version 23.0 and the statistical tools such as, percentage analysis, Correlation analysis, Factor analysis and multiple regression analysis. User friendliness and Users Awareness of Mobile Banking at large has to be thrust at every branch banking units to digitally promote awareness of Government Schemes such as, Jan Dhan Yojana, Digital India, Licensing Small Finance Banks/Payment Banks, Aadhaar Enrollment and etc. Tripathi, S (2020) The research has also found that factors such as saving time, cashback and discounts, convenience, detailed records, reduced theft risk, track your spendings, and creating a cashless economy influence consumer's attitudes towards mobile payment applications. The research also indicates some factors as barriers to the consumers towards mobile payment applications such as transaction charges, don't know how to use, Digital Payments are not accepted everywhere, transparency, habit, and trust. It is expected that this study will help in India to plan successful strategies for increasing the use of mobile payment applications and they can build better relations with consumers. F, S.(2020) In today – world, smartphones have become an essential part of one's daily life. Mobile users can nowadays use their Smartphones to make money transactions or payments by using applications installed in the phone. There are several mobile wallets which provide these services. Mobile wallets are digital versions of traditional wallets that someone would carry in their pocket. They offer payment services through which the individuals/business can receive /send money via mobile devices. The present paper throws light upon the customer satisfaction level towards the ewallet services provided by paytm. It focuses on the services provided by Paytm wallet and its satisfaction level.

Padiya, J., & Bantwa, A. (2021) This paper also throws light on ancillary issues like impact of demonetization decision on preference for online payments, impact of various demographic factors on usage of E-wallets, problems faced by people while using E-wallets etc. The study is based on 318 valid responses received through a structured questionnaire. Data collected was analyzed by using percentages, cross tabulation and statistical tools like ANOVA. Through this study we found that E-wallet users give a very high level of importance to attributes like security, privacy concerns and pricing (Fees). The major problems frequently encountered by the respondents while using E-wallet are long transaction time taken by E-wallet for processing the transaction, security breach and delayed payment. The Demonetization drive of the government of India has contributed immensely towards awareness, usage and acceptance of online payment.

### RESEARCH METHODOLOGY

The study is based on the primary data collected from 481 respondents by using a structured questionnaire. Five point likert scales was used in questionnaire for obtaining responses. The statistical





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tools applied in this study are ANOVA, Chi Square, Friedman Test, and frequency analysis. SPSS 20 was used to perform statistical analysis.

### Objectives of the study

1. To find out the impact of demographic factors on consumer preference towards mobile wallet
2. To study the factors that influence consumers in adoption of mobile wallet
3. To study the risk and challenges faced by consumers in use of mobile wallet
4. To analyze the growth of mobile wallets in India




### Hypothesis of the study

- ❖ There is no relationship between gender of the respondents and using mobile wallets of the respondents.
- ❖ There is no relationship between education of the respondents and using mobile wallets of the respondents.

### MOBILE WALLET

Unlike its counterpart like a physical wallet, a mobile wallet is a digital wallet in which one can add money through credit/debit cards and make payments from. It's basically an electronic prepaid account which can be used to pay anything. From groceries to bill payments to movie tickets, you can make all the transactions through mobile wallets. All you need to do is, download the app from play-store or app-store, and make an account with the mobile wallet provider. Such wallets are more convenient and provide more security than a traditional business. (<https://indialends.com/ifsc/mobile-wallet>)

**Figure 1: Types of Mobile wallets (PPI) in India**

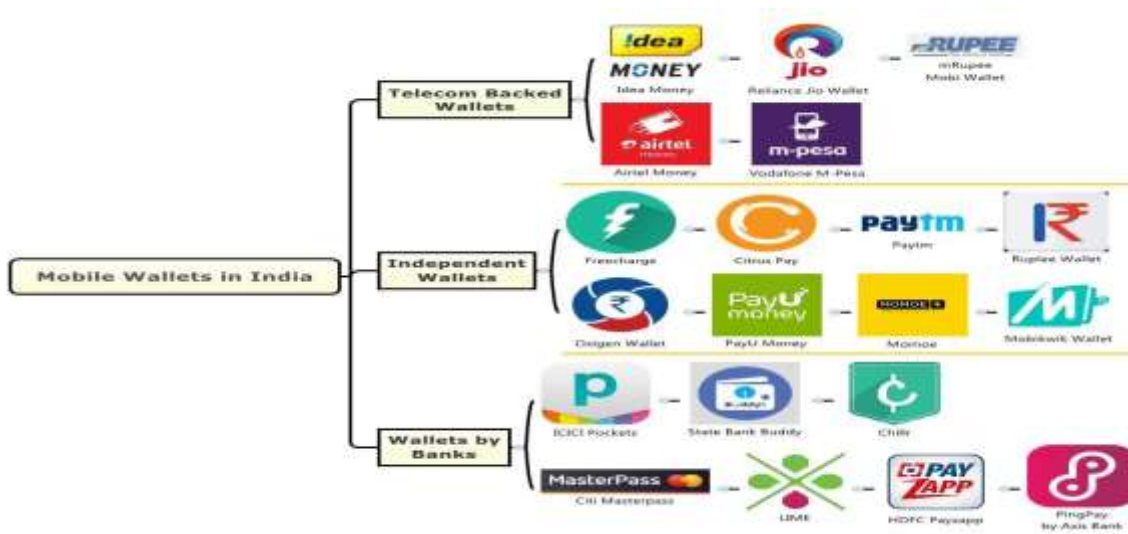
Closed	Semi Closed	Open
		
It is only for that company . Issued by the same company to buy their own products.	Can be used to buy goods and services from merchants that have a contract with the issuer to accept the payment.	Allow user to buy good and services, withdraw cash at ATM and transfer funds.
Money go to the issuing company account.	To escrow account	To bank account
Banks, NBFC (Non Banking Financial Companies) can operate .	Banks, NBFC can operate.	Banks only can operate
KYC is not required	KYC is not mandated	KYC is mandated
Maximum Rs 10,000 can be stored	Maximum Rs 50,000 can be stored by providing KYC	Maximum Rs 100,000 can be stored
Life style gift card, Metro card, flipkart wallet, make my trip wallet , etc...	Oxigen, Paytm, Mobikwik, etc.	Paytm payments bank, Vodafone M-pesa

Source: <https://blog.usejournal.com/product-adoption-life-cycle-for-mobile-wallets-in-india>



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**Figure 2: Mobile wallets in India**



Source: <https://www.techinasia.com/talk/mobile-wallet-wars-india>

### Digital wallet vs Mobile wallet

Mobile wallets	Digital wallets
Mobile wallets are payment apps housed on mobile devices, like smartphones and wearables.	Consumers using digital wallets may or may not interact with them on their smartphones.
Consumers mostly use a mobile wallet for in-person transactions.	Consumers mostly use a digital wallet for online shopping or purchases.
Some of the most popular mobile wallets are Apple pay, Samsung pay etc.	Some of the most popular digital wallets are Paytm, Paypal etc

Source: <https://indialends.com/ifsc/mobile-wallet>

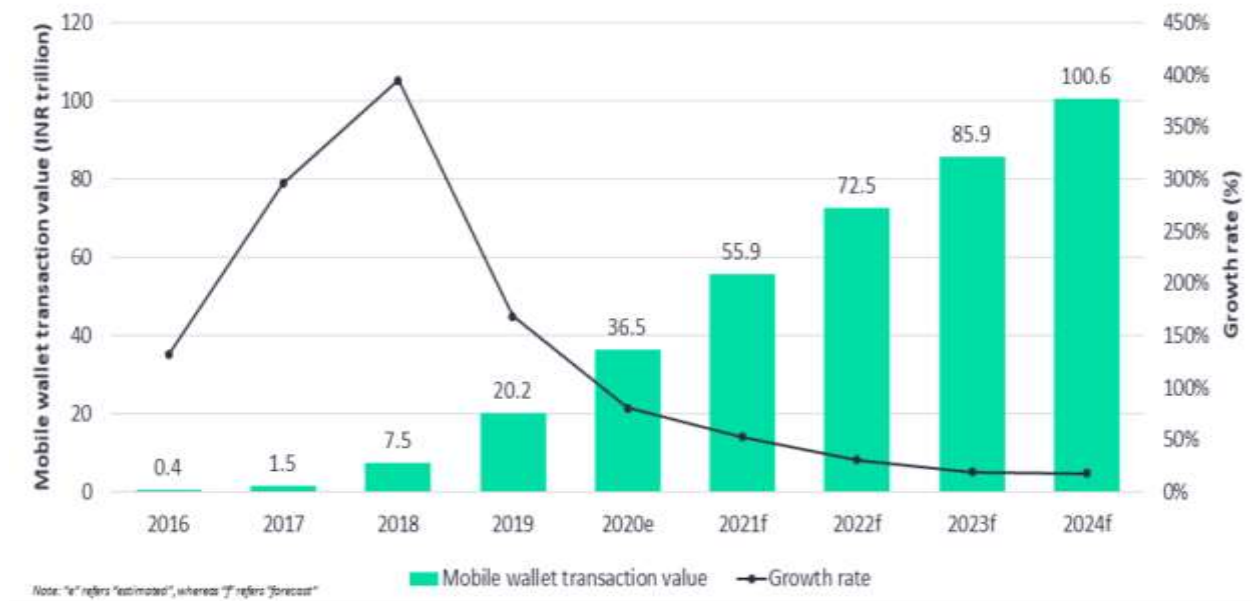
### India: Mobile wallet Transaction value (INR Trillion) 2016-2024

Mobile wallet adoption is hotting up and gradually displacing traditional payments forms such as cash and cards in India. This has become even more prevalent during the current COVID-19 crisis and as a result mobile wallet transactions are expected to surpass INR100 trillion (\$1.36 trillion) by 2024, according to Global Data. An analysis reveals that mobile wallet transactions in India were valued at INR384 billion (\$5.4 billion) in 2016. With consumers increasingly switching from cash to electronic payments, the value is expected to reach INR100.6 trillion (\$1.41 trillion) in 2024. In terms of transaction volume, an estimated 23.5 billion mobile wallet transactions will be carried out in 2020, which is expected to more than double to 54.7 billion in 2024. (<https://www.paymentscardsandmobile.com/mobile-wallet-transactions-in-india-to-exceed-1-36-trillion-by-2024/>)



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**Figure 3: India: Mobile wallet Transaction value (INR Trillion) - (2016-2024)**



Source: Global Banking and Payments Intelligence Center

### DATA ANALYSIS AND INTERPRETATION

**Table 1: Socio-Economic Profile of Respondents**

Variables	Category	No. of Respondents	Percentage
Gender	Male	321	66.7
	Female	160	33.3
	<b>Total</b>	<b>481</b>	<b>100.0</b>
Education	Upto H.Sc	7	1.5
	Diploma/ITI	3	.6
	Degree	37	7.7
	P.G and above	434	90.2
	<b>Total</b>	<b>481</b>	<b>100.0</b>
Age wise classification of the Respondents	21-30	176	36.6
	31-40	183	38.0
	Above 40	106	22.0



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	Upto 20	16	3.3
	<b>Total</b>	<b>481</b>	<b>100.0</b>
Monthly income (Rs.) wise classification of the Respondents	15001-25000	89	18.5
	25001-35000	73	15.2
	Above 35000	215	44.7
	Up to 15000	104	21.6
	<b>Total</b>	<b>481</b>	<b>100.0</b>
aware regarding the functionality of mobile wallets	Yes	428	89.0
	No	30	6.2
	Maybe	23	4.8
	<b>Total</b>	<b>481</b>	<b>100.0</b>
Information about mobile wallets	Social media	232	48.2
	Friends	191	39.7
	Television	33	6.9
	Newspaper	25	10.6
	<b>Total</b>	<b>481</b>	<b>100.0</b>

**Sources:** collected and computed through Questionnaire

### Inference

- ❖ The respondents of 66.7 percent of respondents are male and 33.3 percent of respondents are female. It is found that the majority of respondents are male.
- ❖ The table shows, out of 481 respondents, 7.7% respondents are from degree, 90.2% of respondents from PG and above and the rest seventeen 1.5% respondents are upto H.Sc. Thus majority of respondents' are from PG and above.
- ❖ The respondents of 36.6 percent of respondents are 21-30 years, 38.0 percent of respondents are 31-40 years, 22.0 percent of respondents are Above 40 years and 3.3 percent of respondents are Up to 20 years. It is found that the majority of respondents are 31-40 years age group.
- ❖ The respondents of 18.5 % are getting monthly income of 15001-25000, 15.2 % of the respondents getting 25001-35000, 44.7% of the respondents getting Above 35000, and 21.6% of the respondents getting Up to 15000. It is found that majority of the respondents getting monthly income Above 35000 of the respondents.



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- ❖ The respondents of 89.0% say yes, 6.2% of the respondents says no, 4.8% of the respondents says maybe. It is found that the majority of the respondents are says yes.
- ❖ The table 1 shows, out of 481 respondents got Information regarding wallet through, 39.7% respondents from friends and family; 10.6 % respondents from Newspaper, 48.2% respondents from social media. And the rest Television 6.91% respondents Thus, majority of the respondents' are known information through Social media.

### ONE WAY ANOVA

**Table 2: One Way ANOVA – Using mobile wallets and Gender**

Using mobile wallets and Gender	Sum of Squares	df	Mean Square	F	Sig.
aware regarding the functionality of mobile wallets					
Between Groups	.261	1	.261	1.140	.286
Within Groups	109.731	479	.229		
Total	109.992	480			
Using mobile wallet services is interesting.					
Between Groups	1.665	1	1.665	1.706	.192
Within Groups	467.333	479	.976		
Total	468.998	480			
Using mobile wallet services makes the handling of payments easier					
Between Groups	11.726	1	11.726	13.409	.000
Within Groups	418.889	479	.875		
Total	430.615	480			
Approximately how frequently do you use Mobile Payment Apps					
Between Groups	4.874	1	4.874	5.193	.023
Within Groups	449.567	479	.939		
Total	454.441	480			
How much money do you load in M-wallet on a monthly & basis					
Between Groups	15.565	1	15.565	8.054	.005
Within Groups	925.724	479	1.933		
Total	941.289	480			
Mobile wallet services allow for a faster usage of mobile applications. e.g., movie tickets, Train Tickets					
Between Groups	4.088	1	4.088	7.917	.005
Within Groups	247.318	479	.516		
Total	251.405	480			

**Sources:** collected and computed through Questionnaire

### Inference



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Table 2 Depicts results of ANOVA test conducted to examine association between Using mobile wallet and gender result shows that at 5% significance level there is significant association of Using mobile wallet and gender.

**Table 3: One Way ANOVA – Using mobile wallets and Education**

Using mobile wallets and Education		Sum of Squares	df	Mean Square	F	Sig.
Mobile wallet services allow for a faster usage of mobile applications. e.g., movie tickets, Train Tickets	Between Groups	26.894	3	8.965	19.046	.000
	Within Groups	224.512	477	.471		
	Total	251.405	480			
It is easy to become skilful at using mobile wallet services	Between Groups	33.859	3	11.286	11.533	.000
	Within Groups	466.819	477	.979		
	Total	500.678	480			
Rate the mobile wallet service that you have used?	Between Groups	45.606	3	15.202	24.181	.000
	Within Groups	299.878	477	.629		
	Total	345.484	480			
When using mobile wallet, I believe my information (bank / card details) is kept confidential	Between Groups	20.846	3	6.949	5.898	.001
	Within Groups	561.998	477	1.178		
	Total	582.844	480			
The internet access charges are high when using mobile wallet	Between Groups	7.409	3	2.470	2.277	.079
	Within Groups	517.265	477	1.084		
	Total	524.674	480			
any obstacles when you use mobile wallet	Between Groups	.270	3	.090	.142	.935
	Within Groups	302.533	477	.634		
	Total	302.802	480			

**Sources:** collected and computed through Questionnaire

### Inference

Table 3 Depicts results of ANOVA test conducted to examine association between Using mobile wallet and education Result shows that at 5% significance level there is significant association of Using mobile wallet and education.



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### FRIEDMAN TEST

**Table 4: Consumer Attitude and Intention Towards to Mobile Wallets**

Friedman	Mean Rank	Rank
Using mobile wallet services is interesting.	7.00	2
Using mobile wallet services makes the handling of payments easier	7.31	1
Mobile wallet services allow for a faster usage of mobile applications. e.g., movie tickets, Train Tickets	2.36	8
It is easy to become skillful at using mobile wallet services	6.59	3
When using mobile wallet, I believe my information (bank / card details) is kept confidential	6.32	4
The internet access charges are high when using mobile wallet	5.12	5
Using online payment / banking wallet services is cost burden to me	4.64	6
Are there any obstacles when you use mobile wallet	3.39	7
want to continue using mobile wallet	2.27	9

**Sources:** collected and computed through Questionnaire

#### **Inference**

Above from the table 3 Friedman rank test, it is ascertained that majority of the Consumer attitude and intention towards to mobile wallets. Using mobile wallet services makes the handling of payments very easier, Using mobile wallet services is interesting and It is easy to become skillful at using mobile wallet services.

#### **CONCLUSION**

After demonetization mobile wallet usage has become more popular. Internet problem and payment for two digit amount are the commonly issues faced by the respondents and also people are not willing to pay extra money. Whether it is a payment or transaction, mobile wallet is considered as a most convenient method. Financial literacy should be there in a country to adopt these kinds of changes. ( Praiseye and Florence John,2018)

The study reveals that the majority of the respondents are aware about mobile wallets and they are using the mobile wallets for making payments. As a result, out of 481 respondents got Information regarding wallet through 48.2% respondents from social media, aware regarding the mobile wallets it is found that the majority of the respondents are says yes. The findings also reveal how the influential factors affect the adoption of consumers. Security issues in transaction and privacy are the most concerned factors among users.

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## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### STUDY OF ACADEMIC INFORMATION SYSTEM SUCCESS MODELS

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#### ABSTRACT

Today's developments in information systems (IS) are crucial for a university to be able to compete and survive in the world of higher learning. Not only that, but Information Systems can also improve the efficiency and effectiveness of daily academic business by integrating business processes within universities. The Information Systems Success Model, created by Delone and Mclean in 1992, is one model that emphasizes organizational success in implementation. The formulation of the problem raised in this study is how to empirically analyze the success of the Perbanas Portal academic information system so that academic services to students are growing at Perbanas Institute Jakarta. The purpose of this study is to analyze empirically an academic system, where the case study is the Perbanas Portal Academic Information System. The main results of the empirical analysis of the Perbanas Portal Academic Information System are that the system quality, the information quality, and the service quality are several factors that can influence the success of the Perbanas Portal Academic Information System. The results of this empirical analysis contributed significantly to the management of the Perbanas Institute's academic field. The study by conducting an empirical analysis of the Success of the Academic Information System for Perbanas Institute-Jakarta with various academic feature services that refers to the Information System Success Model developed by DeLone & McLean, is an originality in this research for Perbanas Institute-Jakarta.

**Keywords:** Empirical Analysis; Success Model; Academic Information System



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### GEORGIAN WINE EXPORT IN GERMANY \_ SUPPLY CHAIN AND RISK MANAGEMENT

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#### **ABSTRACT**

Wine is one of Georgian agriculture's most traditional and special products. Winemaking tradition has a very long history in Georgia and this process involves many different phases: from grape cultivation to wine production, bottling and distribution.

Recently, the Georgian wine industry showed remarkable ability to satisfy a diversified demand-oriented toward the quality wine productions, more and more requested by foreign and local consumers. In addition, the wine supply chain performed well in terms of profitability and success on the national and international markets. However, as Georgian wine producers struggle with a range of human, financial-economic, and natural threats, supply chain risk management has become a necessity.

The paper presents an evaluation of the Georgian wine sector, qualifies the competitiveness of the industry, considering its performance in the domestic and the German markets, and also it continues to change in terms of industry structure and characteristics of supply chain management.

In particular, the analysis carried out that it is necessary to consider not only peculiarities of the German market of reference that are quite different for dimension, purchasing power, and culture, but also features of supply chain management.

**Keywords:** Supply chain management, risk management, Georgian wine export in Germany.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### ECONOMIC EFFICIENCY OF EXTENSIVE GROWING OF *PLEUROTUS OSTREATUS* ON STUMPS

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#### ABSTRACT

Stumps during deforestation occupy 10-15% of stem wood and do not find any use in the national economy. For the cultivation of *Pleurotus ostreatus* by the extensive method, low-grade, firewood or low-value wood of any species on which this fungus grows in nature is used. Stumps with a diameter of 30-70 cm of winter-spring logging are used, which reduces the risk of infection of stumps with spores of other fungi, which usually occurs in autumn.

At the Institute of Botany N.G. Cholodnogo Academy of Sciences of Ukraine proved the possibility and economic feasibility of growing *Pleurotus ostreatus* on wood affected by fungi that cause core rot (aspen with aspen tinder fungus, birch with birch sponge, beech with true tinder fungus). When growing *Pleurotus ostreatus* in garden plots, you can use the wood of the apple, pear, and walnut fruit trees. During the period of existence of the plantation, 1-3 kg of mushrooms can be collected from each stump. With the extensive method, the stumps are destroyed 3 times faster. At the same time, the period of their complete destruction is 6-7 years, and in natural conditions - 18-20 years. The profitability of growing is 25-30%, and the profitability index is 11-12.

When growing *Pleurotus ostreatus* on stumps, the development of autumn honey agaric, a dangerous pathogen of coniferous trees, is completely suppressed or inhibited. In addition, the destruction of stump wood during the growth of the fungus contributes to the enrichment of the soil with valuable organic and mineral elements. An extensive method of cultivation of *Pleurotus ostreatus* on stumps, in addition to obtaining a valuable mushroom food product, reduces labor and material costs for preparing areas for new forest plantations due to the destruction of stump wood, which eliminates uprooting operations.

**Keywords:** *Pleurotus ostreatus*, wood, economic efficiency, mushrooms.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### IMPACT OF DEVELOPMENT OF LOGISTICS ON THE DEVELOPMENT OF AGRICULTURAL ENTERPRISES

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#### ABSTRACT

As the study shows, today Ukraine is significantly inferior to the countries of Europe in terms of the level of development of the logistics of the agro-industrial complex, in the context of the complexity of services and their quality. The use of logistics tools can reduce production costs, increase labor productivity, improve customer service, and thus obtain significant specific advantages in the domestic and foreign markets.

Scientists note that if transport and storage costs in production are now up to 15%, and in trade - up to 25% of the total costs, then when applying the logistics approach to management, the costs can be a third, which can significantly increase the profit of the enterprise.

The development of logistics stimulates the need for manufacturers to quickly respond to market conditions, gives rise to the desire to adapt to new conditions in a short time. As a result, the logistics of the enterprise is created. But the main goals of logistics are being adjusted in connection with the development of integration actions in the global economic space. Space is being created for the introduction of international logistics systems, a characteristic feature of which is the movement of goods across state borders. Thus, the problem lies in the fact that in the practical activities of Ukrainian enterprises logistics approaches are given inadequate importance, therefore, the problem of finding ways to develop logistics at enterprises and in potentially competitive sectors of the national economy of Ukraine is of particular relevance, as a result, it should not only increase the export potential of domestic enterprises, but also to ensure a certain stability in the development of both individual industries and the economy as a whole, so these issues may become the subject of less research.

The main directions for improving the system and increasing the efficiency of the transport process in the transportation of agricultural products are: harmonization and optimization of the activities of all modes of transport in a single transport system of the country; rationalization of the transport process in the agro-industrial complex system, ensuring the rhythm, timeliness of delivery and storage of transported products; modernization of means of transportation and other areas of the transport system, expansion of the introduction of specialized transport by diverse transport companies; expansion and deepening of the network of combined transportation of agro-industrial products while maintaining its quality and environmental friendliness; optimization of the foreign economic activity of the agro-industrial complex, growth and increase in the efficiency of export transportation with security.

**Keywords:** Ukraine, logistics, efficiency.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### LOGISTICS IN THE AGRO-INDUSTRIAL COMPLEX

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#### ABSTRACT

Agricultural industry as a complex of interconnected productions cannot be imagined outside of the system approach, which is the basic principle of logistics.

From the point of view of logistics in the agro-industrial complex, specific factors should be noted based on the following provisions: its logistics structure should be considered as a complex system with a number of subsystems; each such agro-industrial complex subsystem has its own functional purpose, which reflects its internal interests; the functioning of the logistics system of the agricultural industry represents the process of interaction of these subsystems, the purpose of which is the optimal combination of the interests of individual subsystems and the system as a whole.

Logistics of agribusiness can be defined as the science and practice of managing economic flows in the spheres of production, distribution, exchange and consumption of agricultural products, including resource provision of agribusiness and sales of finished products. The purpose of the logistics complex is the most complete satisfaction of the needs of both the population and the national economy in agricultural raw materials and products of its processing.

Such a goal of the effective functioning of the logistics complex of the agricultural industry is achieved under the following conditions: when the economic interests of all participants in logistics chains and systems are combined; when integrating the efforts of all branches and divisions of the agricultural industry in achieving system-wide goals; while ensuring the priority of system-wide optimization over branch, regional and local sub-optimization.

Logistics of the agro-industrial complex is one of the main conditions for increasing the efficiency and effectiveness of the functioning of the complex. It solves a two-fold task: on the one hand, it contributes to the optimization and rationalization of resource provision of all branches of the agricultural industry; on the other hand, it guides product manufacturers in the formation of optimal channels for the circulation of finished products.

The efficiency of production and commercial activity is largely determined by the quality of decisions made every day by managers of various levels. In this regard, the task of improving logistics decision-making processes, which boils down to a detailed study of operations, becomes of great importance.

**Keywords:** agricultural industry, logistics, system, economic flows, production, efficiency.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### ANALYSIS OF PROSPECTS FOR THE DEVELOPMENT OF THE NETWORK OF HELICOPTER SERVICE POINTS BASED ON A LOGISTICS APPROACH

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#### ABSTRACT

In the economically developed regions of the world, function networks of take-off and landing points for helicopters. Among these points, foremost, it is necessary to highlight heliports that can provide the widest range of transport services. In contrast to them, other service points for servicing helicopters – heliports (special heliports) - are located on infrastructure facilities of the city (roofs of buildings and structures), which ensures the speed of delivery of cargo and passengers directly to the destination without using other types of transport.

Ukraine has all the necessary prerequisites for the development of helicopter communication, so there is a need to create a general network of helicopter service points. Its creation should be based on a logistic approach. At the initial stage, it is necessary to create a network of helicopter airstrips intended for the transportation of emergency services (air medical service, police, etc.). At the next stage, you can choose one of the following development paths. The first involves the development of the network according to the principle of its economic efficiency, with a preliminary analysis of the feasibility of creating each subsequent point. The second is the development of a network of the largest possible coverage of the country's territory, with the mission of creating attractiveness for the development of helicopter transportation. The last way requires significant investments, but will allow reducing the time for the implementation of this promising project as a whole.

The further functioning of the network of helicopter service points requires an analysis of the effectiveness of its functioning and forecasting of the level of income from possible changes in its structure.

Thus, the use of a logistic approach in the analysis and improvement of the network of helicopter service points will increase the efficiency of their operation.

**Keywords:** helicopters, transport services, service points, cargo delivery, passengers delivery.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### KAJIAN IMPLEMENTASI KEBIJAKAN RESTORASI GAMBUT DALAM UPAYA KONSERVASI LAHAN GAMBUT

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#### INTISARI

Lahan gambut umumnya diketahui sebagai ekosistem yang rentan akan kerusakan dan kebakaran yang menjadi tempat tumbuhnya berbagai tumbuhan dan satwa langka. Lahan gambut juga memainkan peran penting dalam memberikan jasa ekosistem, terutama menjaga fungsi hidrologis dan sebagai penyerap karbon. Namun, lahan gambut Indonesia menghadapi banyak tantangan terutama karena deforestasi dan degradasi hutan. Oleh karena itu, upaya restorasi perlu dilakukan dengan mempertimbangkan salah satunya dari aspek kebijakan seperti peraturan dan kelembagaan di tingkat nasional dan lokal. Implementasi kebijakan menempati persentase terbesar dalam menentukan keberhasilan kebijakan. Tujuan dari makalah ini adalah untuk mengkaji implementasi kebijakan restorasi gambut dalam upaya konservasi lahan gambut. Metode yang digunakan dalam penulisan ini adalah studi kepustakaan dengan menggunakan sumber dari beberapa referensi/literatur terkait. Upaya perbaikan tata kelola lahan gambut terus dilakukan oleh pemerintah Indonesia bersama para pemangku kepentingan terkait. Salah satu upaya tersebut adalah menyusun dan meratifikasi produk kebijakan tertentu terkait pengelolaan lahan gambut di tingkat primer dan sekunder. Strategi pengelolaan konservasi untuk restorasi gambut dapat dilakukan dengan melakukan pembasahan kembali pada lahan gambut. Hal tersebut dapat mempercepat pemulihan ekosistem gambut yang terdegradasi, disertai dengan kebijakan nasional yang berpihak pada masyarakat lokal. Pemerintah Indonesia memberlakukan moratorium 2 tahun untuk konversi hutan primer dan lahan gambut pada tahun 2011 dan moratorium diperpanjang untuk 2 tahun lagi pada tahun 2013. Di lain hal tersebut, Pemerintah Indonesia menangani deforestasi dan degradasi hutan primer dan lahan gambut, Kemanjuran kebijakan moratorium ini masih dipertanyakan. Misalnya, ada jutaan hektar hutan primer dan lahan gambut yang ditargetkan untuk moratorium yang telah ditetapkan sebagai situs konservasi dan perlindungan dan, kedua, area substansial dengan status non-hutan dan lahan gambut, yang memiliki tegakan hutan tinggi dan stok karbon gambut, telah dikeluarkan dari target moratorium.

**Kata kunci:** kebijakan, lahan gambut, implementasi, restorasi

#### ABSTRACT

Peatlands are generally known as ecosystems that are vulnerable to damage and fires, which are a place for various rare plants and animals to grow. Peatlands also play an important role in providing ecosystem services, maintaining hydrological functions and as carbon sinks. However, Indonesia's peatlands face many challenges mainly due to deforestation and forest degradation. Therefore, restoration efforts need to be carried out by considering one of them from policy aspects such as regulations and institutions at the national and local levels. Policy implementation occupies the largest position in determining the success of the policy. The purpose of this paper is to examine the implementation of peat restoration policies in peatland conservation efforts. The method used in this paper is a literature study using sources from several related references/literature. Efforts to improve peatland governance continue to be carried out by the Indonesian government together with relevant stakeholders. One of these efforts is to



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formulate and ratify certain policy products related to peatland management at the primary and secondary levels. The conservation management strategy for peat restoration can be carried out by rewetting peatlands. This can support the restoration of degraded peat ecosystems, accompanied by national policies that favor local communities. The Indonesian government imposed a 2-year moratorium on primary forest conversion and the moratorium was extended for another 2 years in 2013. The Indonesian government tackles deforestation and primary forest degradation and the policy moratorium. The efficacy of this policy is still questionable. For example, there is protection of hectares of primary forest and peatlands targeted for the moratorium that have been designated as conservation sites and, second, substantial areas of non-forest status and peatlands, which have high forest stands and peat carbon stocks, have been excluded from the moratorium targets.

**Keywords:** policy, peatland, implementation, restoration





## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### HUMAN CAPITAL DEVELOPMENT AND ECONOMIC GROWTH NEXUS IN NIGERIA

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#### ABSTRACT

This paper undertakes an analysis into the nexus between human capital development and economic growth in Nigeria which covers the periods 1990 – 2021. The study investigate the existence of co-integration among the variables - school enrolment, life expectancy rate, government expenditure: on health, education and economic growth and attempts to establish a long-run relationship among these variables using estimation of an error correction model (ECM) co-integration analysis . In order to examine the impact of human capital development on economic growth, I will disaggregate the human capital development and examine the variable(s) that contribute more to economic growth in Nigeria. The study builds a model on Hadir and Laurech (2015) which specified relationship between human capital development and economic growth. The principal method that employed to analyse the time series behaviuor of the data include unit root test, co-integration test, and the estimation of an error correction model (ECM). Specifically, the unit root test is necessary to detect the order of integration of the variables using the Dickey Fuller and Augmented Dickey Fuller (ADF) test by Dickey and Fuller. This is important because research has shown that non-stationary data leads to spurious regression.. The first step is to determine the order of integration of the variables before testing for co-integration. However, in this model, human capital development is disaggregated into: total government expenditure on education (TGEE), total government expenditure on health (TGEH); Life expectancy rate (LER), primary school enrolment (PSE), secondary school enrolment (SSE) and tertiary school enrolment (TSE). \*All variables are in their log form. The result showed that there is long run relationship (positive) among secondary school enrolment, public spending on education, life expectancy rate and economic growth. The result further showed that there is negative long-run relationship among primary school enrolment, tertiary school enrolment, public spending on health and economic growth. The policy recommendation is that government should provide enabling environment by making adequate provision for quality education at primary and tertiary level that will translate to meaningful economic growth.

**Key Words:** Nexus, Economic Growth, Human Capital Development, ECM .



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### PUBLIC PERCEPTION OF THE LEVEL OF AIR POLLUTION FROM BUFFALO FECES WASTE AT THE BOLU ANIMAL MARKET, NORTH TORAJA REGENCY, INDONESIA

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#### ABSTRACT

This study aims to determine the public's perception of the level of air pollution from buffalo feces in the sponge market, North Toraja Regency, Indonesia. This research was conducted from May 2022 to July 2022. The type of research used was descriptive research. Data collection methods used were observation and interviews. Analysis of the data used was descriptive analysis dengan persentase. The population is all the people around the Bolu Animal market, North Toraja Regency, Indonesia. The sample is the community around the sponge cake market with a certain distance of 1m-50 m and 51m-100 m totaling 22 people. The results of the study indicate that the public perception of air pollution from buffalo feces in the Bolu animal market is at a fairly disturbed level

**Keywords:** air pollution, perception, society, animal market, buffalo feces



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### EXCHANGE RATE VOLATILITY AND ECONOMIC GROWTH

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#### ABSTRACT

Theoretical studies confirmed that there is a positive relationship between exchange rate and economic growth. It is suggested that devaluation/depreciation strengthen the economic growth. But volatility in exchange rate has either positive or negative impact on economic growth depending on the imports and exports structure of the country. Thus, the main objective of this study is to explore the relationship between exchange rate volatility and economic growth of Pakistan. The researcher have found the impact of exchange rate uncertainty on the economic growth of Pakistan from year 1984 to 2020 both in long-run and in short run by using ARDL technique. The study found that exchange rate has positive and significant impact on the Pakistan's economy both in long run and short run. Also, exchange rate volatility have negative impact on economic growth.

**Keywords:** Exchange rate, exchange rate volatility, appreciation, ARDL, economic growth,



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### POST-COVID-19 SITUATION OF THE MOROCCAN AERONAUTICAL SECTOR

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#### ABSTRACT

With global air traffic growing at a rate of 4.2% in 2019 compared to 2018, the aeronautical sector is growing, despite the crisis of the crisis that has impacted the economy and forced most countries to close their borders to limit the spread of the pandemic. However, in 2021, the world air traffic will increase by 76.2% compared to 2021. On the other hand, the International Air Transport Association (IATA) said that the global aviation industry could take off in 2024 due to a recovery in global cargo trade, arguing that China could become the world's largest aviation market

largest aviation market in the world by 2035.

In Morocco, the aerospace industry includes 140 companies with nearly 20,000 skilled employees, a 20,000 qualified employees, a turnover of 2 billion dollars and an integration rate of nearly 40%. Morocco intends to capitalize on the opportunities for rebounding and restoring the industry's productivity by focusing on the quality of its human capital and its resources in renewable energies, which makes it one of

which makes it one of the most competitive destinations in the world.

In the same context, Morocco is not only interested in the development and the promotion of aeronautical production for export, but also in the used aircraft, including the remanufacturing of aeronautical parts. manufacturing of aeronautical parts of a useful aircraft and the management of the flows of reverse logistics through the disassembly process, developing a storage, deconstruction and recycling center for aircraft and aircraft parts, which could be extended to 54 ha, within the bonded area of the Oujda-Angeles

Oujda-Angads airport, in the north-east of the country.

To this end, our research work aims at analyzing and highlighting the situation of the Moroccan aeronautical sector after the health crisis, and this, based on bibliographic and empirical data (from the field).

We will adopt for this purpose, as regards the empirical data, a qualitative exploratory study

qualitative exploratory study, based on a single case study. In this sense, we have chosen a company of the Airbus group, leader of the aeronautical construction in Morocco.

**Keywords:** Aeronautical industry, SCM, Reverse logistics, Post-covid-19, Morocco.



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### INSTITUTIONAL POLICY RESPONSES AND ORGANIZATIONAL STRATEGIC CHOICES TO MANAGE INFLATION ON INTERNATIONAL TRADE CONTRACTS

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#### ABSTRACT

The Republic of Kosovo as a lower-middle-income country is facing the spark of prices in all goods and services. The latest figures show the average inflation rate has hit as high as 20%. As the country largely depends on Foreign Direct Investments (FDI) and high level of imports, COVID-19 restrictions followed by the unexpected inflation rate has caused severe issues and delays on capital investment projects in various sectors. The objective of this study is twofold: firstly, it investigates the impact that delays on international supply chain have caused at the public capital investments and secondly, analyse the institutional policies and organizational strategies initiated to mitigate the risk of these delays. The study employs a time-series analysis for the past two years (2020-2022) to consider the effects resulting from COVID-19 and the inflation rate. The latest reports of the Kosovo Agency of Statistics on the inflation rates and the Report of the Treasury of Kosovo for the six-months period of 2022 are taken into consideration to cluster the sectors that have been affected the most. Following the identification of the sectors, institutional measures and organisational policies to combat the risks are examined. The findings reveal three important trends; a) the delays on international supply chain have significantly affected construction sector, b) two important institutional policy responses have been implemented to mitigate the risks of these delays and c) increase of prices, requests for additional funds and withdrawal from contracts have been the most prevailing organizational strategies implemented by the organizations. The study is based on real-time data and contributes to the industry and policy-making level by proposing short-to-medium measures and strategies that institutions and business enterprises may design and implement to reduce and/or eliminate further negative impacts on capital investments.

**Key words:** Foreign Direct Investments, imports, inflation, policies, strategies.



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### SMART AGRICULTURE: INTERNET OF THINGS FOR FUTURE FARMING

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#### ABSTRACT

Agriculture is one of the significant hotspots for any of the biggest population nations like China, India and so on to earn cash and complete the livelihood. Farming contributes important role in the development of our nation. In India about 70 per cent of populace relies on cultivating and 33 per cent of the country's capital comes from cultivating. Issues concerning farming have been continuously frustrating the development of the country. The best solution for this issue is smart agriculture by modernizing the ongoing customary techniques for farming. IoT is the most progressive idea in the advanced internet era. It offers help to likely every one of the areas on the globe. Agriculture is one of such spaces, which utilizes the IoT for making the farming smart. Association of IoT and cloud computing in the agricultural area would bring about the improved production of yields by controlling the expense, maintenance and monitoring execution, in this way helping the farmers and the overall country.

**Keywords:** Agriculture, Internet of things, development



## 7. INTERNATIONAL CONFERENCE ON EVOLVING TRENDS IN INTERDISCIPLINARY RESEARCH & PRACTICES

### SENSITIVITY TO ANTIBIOTICS OF SECONDARY INFECTIONS DURING COVID-19 AMONG THE POPULATION OF BAKU

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#### ABSTRACT

Based on unified published materials 62 (8%) from 806 COVID-19 positive people faced with bacterial or mycos infections in stationar. Despite on the fact that not enough evidences of bacterial coinfection were explored, were determined huge usage of wide spectr antibiotics (72%). At the same time most of the COVID-19 positive people were dead from secondary bacterial pneumonia. Moreover, this issue makes “resistence” difinition more actual.

The aim of the study was to analyze the etiological structure of secondary infection associated with COVID-19 and antibiotic rational use.

The research was been conducted by modern bacteriological and statistical methods at some medical institutions in Baku under the laboratories allocated for the study of COVID-19. Culture samples included tracheal aspirate, sputum, throat swab, urine, blood, and pleural fluid. The total number of plantings was 444.

According to the results, the most widespread bacteria were *Acinetobacter spp* 42.3%, *Klebsiella pneumoniae* 26.8%, *Candida albicans* was been found in 12.6% of cultures. *Escherichia coli* - 0.8%, *Streptococcus agalactiae*, *Aspergillus spp.*, and *Stenotrophomonas maltophilia* bacteria developed at the same frequency 0.4%. *Pseudomonas aeruginosa*, which dominated many foreign studies, was 3.3% and *Mycoplasma pneumoniae* was 1.7%.

Only in 194 cases out of 444 plantings of the pathogen grew. So, this table clearly illustrates their sensitivity to antibiotics.



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Pathogen	Sensitivity to antibiotics		
	resistance	average sensitivity	high sensitivity
<i>Acinetobacter spp</i>	Ampicillin Amoxicillin		Geniş Spekterli Beta Laktamlar (GSBL)
<i>Klebsiella pneumoniae</i>	Ampicillin Amoxicillin		Ofloxacin Levofloxacin Moxifloxacin Ciprofloxacin Ertapenem İmipenem Meropenem Chloramphenikol
<i>Candida albicans</i>			Fluconazol
<i>Staphylococcus aureus</i>			Cefradin Cefaleksin Cefadroxil
<i>Enterococcus spp</i>	Ampicillin Amoxicillin Tikarcillin Cloxacillin		Vancomycin Linezolid Tigecycline Teicoplanin
<i>Pseudomonas aeruginosa</i>	Ampicillin Amoxicillin	Cefepime Ciprofloxacin Ceftazidime İmipenem Amikacin	Tobramycin Meropenem
<i>MRCoNS</i>		Trimethoprim	Vancomycin Linezolid Tetracycline Tigecycline Chloramphenikol Rifampicin
<i>Mycoplasma pneumoniae</i>		Doxycyclin Tetracycline Erythromycin Clarithromycin	Roxitromycin Azitromycin Clindamycin Ofloxacin Levofloxacin Moxifloxacin
<i>Haemophilus influenza</i>	Cefradin Cefaleksin Cefadroxil Ampicillin Cefaclor Trimoxazole	Amoxicillin Tetracycline Erythromycin	Ofloxacin Levofloxacin Moxifloxacin Ciprofloxacin Jozamicin Doxycyclin
<i>Escherichia coli</i>		Ticarcillin	Ertapenem İmipenem Amikacin Gentamicin Piperacillin Nitrofurantoin Trimethoprim Fosfomycin Ceftriaxone Cefepime Cefotaxime





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			Aztreonam
<i>Streptococcus agalactiae</i>		Ampicillin Amoxicillin	Ertapenem Imipenem Meropenem Ceftriaxone Cefepime Cefotaxime
<i>Aspergillus spp</i>			Fluconazol Variconazole
<i>Stenotrophomonas maltophilia</i>		Trimethoprim	Ticarcillin

In the process of analyzing the data in the table, it can be inferred that the majority of pathological microorganisms showed high sensitivity to  $\beta$ -lactate-containing antibiotics, and the most popular option for treatment was this medicaments. In case of average sensitivity to antibiotics of the first and second choice, this factor is very crucial, and cannot be considered positively.

**Key words:** COVID-19, microbiological examinations, secondary infections, sensitivity and resistance to antibiotics



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### ELEKTROMANYETİK EKLANLAMA UYGULAMALARI İÇİN FREKANS SEÇİCİ ÜLEKSİT: KIRPILMIŞ ELYAF KOMPOZİTLERİN ÜRETİMİ

PRODUCTION OF FREQUENCY SELECTIVE ULEXITE: CHOPPED STRANDS  
COMPOSITES FOR ELECTROMAGNETIC SHIELDING APPLICATIONS

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#### ÖZET

Bu çalışmada, oksitlerin karışımı tekniği kullanılarak üleksit: kırpılmış elyaf kompozitleri üretilmiştir. Tek fazlı  $\text{NaCaB}_5\text{O}_9 \cdot 8\text{H}_2\text{O}$  kimyasal denklemine sahip üleksit bileşiği, 600 °C' de 2 saat sinterlenme sonrası üretildi. Üleksit: kırpılmış elyaf kompozitleri yapısal analiz için farklı oranlarda oluşturulmuştur. Yapısal analiz için X-ışını kırınımı (XRD) yapıldı, bu da Üleksit yapısında ikinci fazın oluşmadığını gösterdi. Üleksit-kırpılmış elyaf kompozitleri, çeşitli ağırlıklarda Üleksit, kırpılmış elyaf ve epoksi kullanılarak sıcak presleme ile üretildi. Farklı ağırlıklarda oluşturulan Üleksit-kırpılmış elyaf kompozisyonları ve epoksi tozu, mikrodalga koruyucu etkili kompozitler üretmek için kullanıldı. Üleksit: kırpılmış elyaf kompozitlerin mikrodalga ekranlama performansları, PNA serisi ağ analizörü ile 6.5 – 17.5 GHz frekans aralığında ölçülmüştür. 1.4 mm kalınlığında 7.75 GHz' de minimum -45.68 dB ekranlama etkinliği performansı elde edilmiştir. Üleksit: kırpılmış elyaf kompozitlerin özellikleri ekranlama etkinliği için karakterize edilmiştir. Kompozit bileşenlerin içeriği, mikrodalga ekranlama etkinliğini ayarlamak için gerekli frekans bantları için değiştirilebilir.

**Anahtar Kelimeler:** Ekranlama Etkinliği, Üleksit, Kırpılmış Elyaf, Matris kompozitler

#### ABSTRACT

In this study, ulexite: chopped strands composites were manufactured by using mixed oxide technique. The single- phase compound with the chemical equation  $\text{NaCaB}_5\text{O}_9 \cdot 8\text{H}_2\text{O}$  was produced after sintering at 600 °C for 2 h. Ulexite:chopped strands composites were formed with different proportions for the structural analysis. X-ray diffraction (XRD) was carried out for the structural analysis, which indicated that second phase did not form in ulexite. The ulexite-chopped strands composites were fabricated by hot pressing using the compositions of ulexite, chopped strands in different weights, and epoxy. The ulexite-chopped strands compositions formed in various weights, and epoxy powder were used to produce microwave shielding effectiveness composites. The microwave shielding performances of ulexite: chopped strands composites were measured between 6.5– 17.5 GHz frequency with PNA series network analyzer. A minimum of -45.68 dB shielding effect performance was obtained in 7.75 GHz at the thickness of 1.4 mm. Features of ulexite: chopped strands composites were characterized for shielding effectiveness. The content of composites can be changed for the needed frequency bands to adjust the microwave shielding effectiveness.

**Keywords:** Shielding effect, Ulexite, Chopped Strands, Matrix composites.

#### 1. Giriş

Elektromanyetik kirlilik, sinyal bozulmasını, verilerin kaybını, sistem arızalarını tetiklemekte ve en önemlisi bilgi iletişim güvenliği ve insan sağlığı için ciddi tehdit oluşturmaktadır [1-3]. Elektromanyetik girişim (EMI), doğal olaylardan (güneş patlamaları, elektrostatik boşalma vb.) ve elektronik cihazlardan kaynaklanan bir tür çevre kirliliğidir [4-6]. Elektromanyetik cihazların kullanımının artması nedeniyle, elektromanyetik (EM) dalga radyasyonu ciddi bir endişe haline gelmiştir çünkü bu radyasyonlar sadece elektronik ekipmanlar için zarar verici değil aynı zamanda insan sağlığı içinde zarar vericidir [7]. Teknolojik gelişmelerle birlikte, insanların elekt-



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romanyetik alanlara maruz kalma oranı artmakta ve bu etkilenme kaçınılmaz hal almaktadır [8-9]. Pek çok araştırma elektromanyetik radyasyonun depresyon dahil olmak üzere nöropsikiyatrik bozukluklar, dikkat eksikliği bozukluğu, çocuklarda hiperaktivite gibi rahatsızlıklara neden olabileceğini vurgulamıştır [10-11].

Akıllı elektronik ve iletişim ekipmanlarının kullanımı, üretimlerinde yer alan teknolojiye bağlı olarak geniş bir frekans aralığında elektromanyetik radyasyon emisyonunu artırmıştır. Bu radyasyon, diğer elektronik cihazların hassasiyetini ve performansını da etkileyebilir ve günlük hayatın çeşitli sektörlerinde de etkilere neden olabilir. Elektromanyetik dalgalar fizyolojik indekslerde, genetik etkilerde, sağlıkta ve bağışıklık fonksiyonunda değişiklikler gibi çeşitli şekillerde hasara yol açmaktadır. [12-13]. Bu nedenle, bu radyasyondan korunabilecek kalkanlama etkisi sağlayacak çeşitli yeni malzemelerin geliştirilmesi gerekmektedir.

Bir malzemenin elektromanyetik girişim ekranlama, kalkanlama etkinliği (EMI SE), yansıma ve yutma mekanizması yoluyla gelen radyasyonu azaltma yeteneğine dayanmaktadır [14-16]. Elektromanyetik dalgalar, yüklü elektrik parçacıklarından yayıldıkları için elektromanyetik radyasyon olarak da bilinir. İletim hava, uzay veya başka herhangi bir madde yoluyla olabilir. Düşük frekanslı elektromanyetik dalgalar, elektromanyetik alanlar olarak ifade edilirken, yüksek frekanslı elektromanyetik dalgalar, elektromanyetik radyasyonlar olarak bilinmektedir [17-18].

Birçok araştırmacı, daha iyi elektromanyetik ekranlama etkinliği sağlayarak EMI etkisinin üstesinden gelmek için çeşitli materyaller sunmuştur. Gizli ekranlama özelliklerine sahip önceden var olan bazı malzemeler laboratuvarlarda üretilerek endüstriyel kullanım için uygulanmıştır. Elektromanyetik ekranlama olarak kullanılan en yaygın malzemeler metaller, karbon, demir, grafen ve polimerlerdir.

Elektromanyetik zararların üstesinden gelmek için endüstride çeşitli EMI ekranlama malzemeleri geliştirilmiş ve uygulanmıştır. EMI sorunuyla başa çıkmak için araştırmacılar, bazı malzeme kaplamalarının kullanıldığı ve bazılarının yeni kompozitler geliştirdiği farklı stratejiler benimsemiştir. Malzeme seçimi tercihleri, özellikleri daha derinlemesine araştırıldıkça değişmiştir. Nikel bazlı kompozitler, EMI korumasını artıran kaplamalar olarak ünlüydü. Bunun yanı sıra, cihazları ortam elektromanyetik parazitinden korumak için iyi bir bariyer oluşturdukları için bakır, gümüş ve grafit kaplamalar da kullanılmıştır [19].

Yüksek elektriksel iletkenlik, korozyona karşı direnç, esneklik, hafiflik ve seri üretim kabiliyetinin benzersiz bir kombinasyonu nedeniyle, iletken dolgu maddeleri içeren polimer matrislere dayalı kompozitler, ekranlama uygulamaları için en çekici malzemeler arasındadır. Ayrıca mevcut iletken inklüzyonların çeşitli türlerine gelince, karbon nanopartiküller (amorfor karbon, grafen, fullerenler, karbon nanotüpler, vb.), verimli elektromanyetik koruyucu materyaller geliştirmek için umut verici olarak kabul edilir [20-22].

Bir EM dalga bir malzemenin yüzeyine çarptığında, malzeme tarafından iletilebilir, yansıtılabilir ve/veya soğurulabilir. Bir ekranlama yada kalkanlama malzemesinin EM dalgalarını azaltma yeteneği, elektromanyetik girişim ekranlama etkinliği (EMI SE) ile tanımlanır. [23-25].

Cam fiberler (kırılmış elyaf veya cam elyaf fitilleri), yüksek performanslı kompozit imalat endüstrisinde en önemli takviyelerden birisidir [26]. Kırılmış elyaflar, kompozit malzemeler için elastik ve maliyeti düşük bir takviyedir. Korozyona karşı sağlamdır ve hafiftir. Kırılmış elyaflar ve matris reçineleri arasındaki arayüz bağlantısı, kompozitin kalitesini belirler [27]. Kırılmış elyafların mükemmel mukavemeti, nem direnci ve elektrik ve yangın yalıtımı özellikleri vardır. Kırılmış elyaflar denizcilik uygulamaları için potansiyel bir malzeme olarak ortaya çıkmaktadır. Kırılmış elyaflar, sürekli cam liflerden doğranır. Ayrıca üstün fiziksel ve kimyasal özelliklerinden dolayı, çoğunlukla otomobil, havacılık, rüzgar türbini ve betonarme endüstrileri de dahil olmak üzere teknik tekstillerin imalatında kullanılmaktadır [28].

Türkiye toplam dünya borunun ortalama olarak % 72 ' sini oluşturmaktadır, ticari açıdan en değerli bor mineralleri üleksit, kolemanit ve tinkaldir [29]. Bor mineralleri yapısında farklı oranlarda bor oksit içeren doğal bileşiklerdir. Değerli bor bileşiklerinden kolemanit, tinkal ve üleksit ( $\text{NaCaB}_5\text{O}_9 \cdot 8\text{H}_2\text{O}$ ) çeşitli kullanım alanlarına sahiptir. Bu bor bileşiklerinin tüketimi genellikle cam,



seramik ve nükleer sanayinin yanı sıra tarım, tekstil, temizlik ve ağartma ürünleri üzerinedir [30]. Ayrıca, roket motorları için birçok malzeme üretiminde ve yakıtta alev geciktirici olarak yaygın olarak tercih edilebilirler.

Literatürde bor bileşiklerinin değerlendirilmesi ile ilgili önemli çalışmalar bulunmaktadır. Mineralce zengin bir bor türü olan üleksit, ısı ve ses yalıtımında, cam, seramik ve gübre sektörlerinde, boraks ve borik asit üretiminde önemli rol oynar [31]. Olağandışı optik özelliklerinden dolayı üleksit oldukça yaygın boratlardan biridir ve kernit, boraks ve kolemanit ile birlikte dünya çapında kullanılan boratların kabaca %90'ını oluşturur [32]. Ayrıca boratlar ve bor bazlı malzemeler ısıya dayanıklı pireks ve diğer düşük ısı genleşmeli camlarda, çamaşır ağartıcılarında ve deterjanlarda, gübrelerde mikro besin olarak, bazı alaşımlarda da kullanım alanları bulmaktadır [33-34]. Bir diğer özellik olarak özellikle, yüksek B<sub>2</sub>O<sub>3</sub> içeriğine sahip, nispeten düşük maliyetli ve doğada iyi bir bolluğa sahip boratlar (örneğin, kernit, kolemanit, üleksit), radyasyon koruyucu malzemelerde hafif agregalar olarak kullanım potansiyeli bulmuştur [35].

Daha önceki araştırmalarda, Colemanite / Pani / SiO<sub>2</sub> kompoziti, 1.5 mm'lik bir numune kalınlığında 16.09 GHz frekansında -41.1 dB'lik bir maksimum elektromanyetik ekranlama etkisine değeri göstermiştir [36]. Diğer bir çalışmada sert poliüretan ile kaplanmış ahşap kompozitlerin elektromanyetik kalkanlama özellikleri incelenmiştir [37]. Başka bir ölçümde, maksimum elektromanyetik ekranlama etkinliği, ağırlıkça % 0.25 MWCNT kompozitleri için 1.6 GHz'de -39 dB olarak hesaplanmıştır [38]. Bir başka çalışmada ZnNb<sub>2</sub>O<sub>6</sub>:chopped strands kompozitlerin 6.75 GHz frekansında -51.32 dB ekranlama etkinliği değeri verdiği anlaşılmıştır [39].

Ekranlama etkinliği performans değeri, gelen elektromanyetik dalganın malzemeden ne kadar geçtiğine bağlıdır. -10 dB ekranlama etkisi değeri ile gelen elektromanyetik dalganın malzemeden geçerken yüzde 90 oranında azaldığı ve yüzde 10'unun karşı tarafa geçtiği anlaşılmaktadır [40-41].

Bu çalışmada, ilk kez bor minerali türü olan doğal üleksit alınarak, üleksit:kırpılmış elyaf kompozitleri belirli parametrelere göre farklı miktarlarda hazırlanmış ve belirli frekans aralıklarında ekranlama etkinliği değerleri ölçülmüştür. Epoksi toz kullanılarak farklı oranlarda alınan yeni üleksit:kırpılmış elyaf kompozitleri üretilmiş ve sıcaklıklı hidrolik presleme ile farklı oranlarda üleksit:kırpılmış elyaf kompoziti elde edilmiştir. Kompozit bileşenlerinin fazlarının belirlenmesi için XRD (Bruker / Alpha -T) cihazı kullanılmıştır. N 5230 A PNA seri marka-Agilent Teknoloji Ağ analizör (Network Analyzer- NA) cihazı ile üleksit:kırpılmış elyaf kompozitlerinin geniş frekans aralığında belirli radar frekans bantları dahil olmak üzere (6.5-17.5 GHz) mikrodalga ekranlama etkinliği ölçülmüştür.

## 2. Deneysel Kısım

### 2.1. Üleksitin Hazırlanışı

Bor minerali türü olan doğal üleksit minerali tozu ve cam fiberler yada diğer adıyla kırpılmış elyaflar, oksitlerin karışımı tekniği kullanılarak bir araya getirilerek kompozit haline getirilerek üretilmiştir. Doğal üleksit Eti Maden işletmeleri genel müdürlüğünde konsantre hale getirildikten sonra kırma ve öğütme işlemi sonrası toz halde ticari ürün olarak yaklaşık özgül ağırlığı 2 gr/ cm<sup>3</sup> olacak şekilde satışa hazır hale getirilmiştir. Diğer kompozit bileşeni olan kırpılmış elyaflar ise sürekli cam fiberlerden kesilerek 6 mm uzunlukta tasarlanarak bir çok firma tarafından yığın yoğunluğu 635 kg/ m<sup>3</sup> olacak şekilde üretilip satışa sunulmaktadır.

Elde edilen doğal üleksit tozları buharlaşma ile ağırlık kayıplarını önlemek için kapalı alümina pota içinde 400 °C'de 4 saat kalsine edildiler. Kalsinasyon öncesi ve sonrası bu tozların ağırlıkları kontrol edildi. Kalsine tozlar akik havanda öğütülerek 2 MPa basınç altında hidrolik preste 10 mm çapında ve 1-2 mm kalınlığında peletler haline getirilmiştir. Bu peletler, uçucu türlerin kaybını en aşağı seviyeye çekmek için üleksit tozları içerisine gömüldükten sonra 600 °C ' de 4 saat boyunca fırında sinterlenmişlerdir.



Sinterlenmiş peletlerdeki fazlar,  $2\theta:10 - 70^\circ$  arasında Cu-K $\alpha$  radyasyonlu ( $\lambda = 1.5406\text{\AA}$ ) ve  $1^\circ /$  dakika tarama hızında X-ışını difraktometrisi (XRD- D2 Phaser Bruker AXS) ile karakterize edilmiştir. Belirlenen fazların üleksit yapısı ile uyumlu olduğu yani ana yapının üleksit olduğu X-ışını toz difraktometrisi ile belirlendi. Üleksit: kırılmış elyaf kompozit malzemelerin mikrodalga kalkanlama etkinliği ölçümleri, agilent PNA Serili ağ analizör (NA) cihazı ile 6.5 -17.5 GHz frekans aralığında yapılmıştır.

### 2.2. Üleksit/ Kırılmış Elyaf Kompozitlerin Hazırlanışı

Bir akik havanda ezilen kırılmış elyaflar ile sinterlenmiş doğal üleksit tozları stokiyometrik oranlarda karıştırılmıştır. Daha sonra sinterlenmiş üleksit tozu ile kırılmış elyaflar sırasıyla ağırlıkça % 80-20 ve % 60-40 oranında ayarlanarak plastik bir kap içinde zirkonya bilyeler ile etanol içinde 20 saat boyunca dönmeli değirmende karıştırılmıştır.

Elde edilen bulamaç şeklindeki karışım 20 saat boyunca  $100^\circ\text{C}$ 'de etüvde bekletilerek kurutulmuştur. Daha sonra bu karışım tozları deiyonize su ve etanol ile yıkanıp süzülerek 24 saat süreyle  $60^\circ\text{C}$  sıcaklık altında vakumda bekletildi. Çeşitli oranlarda alınan kırılmış elyaf- üleksit (sırasıyla ağırlıkça yüzde 80-20 ve ağırlıkça yüzde 60-40) karışım tozları sıcaklıklı hidrolik pres altında 1.5 saat bekletilerek belirli şekilde kalıplanarak elektromanyetik ekranlama etkinliği ölçümleri için üretildi.

### 2.3. Epoksi-( Kırılmış Elyaf/ Üleksit) Kompozitlerin Hazırlanışı

Kırılmış elyaf / sinterlenmiş üleksit bileşimi ve epoksi tozu karışımı kalıplanarak kompozit malzemeler hazır hale getirilmiştir. Bileşim numune tozunun epoksiye karışım oranı ağırlıkça 5:1 alınmıştır. Kalıplama sıcaklıklı hidrolik preste 5 MPa basınç altında  $150^\circ\text{C}$ ' de 1 saat bekletilerek gerçekleştirilmiştir. Ekranlama etkinliği ölçümleri için 1.4 mm kalınlığında dikdörtgen şeklinde peletler yapılmıştır. Yeni kırılmış elyaf: üleksit kompozitler, geniş frekans aralığında mikrodalga ekranlama etkinliği ölçümleri için epoksi tozu kullanılarak hazırlanmıştır.

## 3. Araştırma Sonuçları ve Tartışma

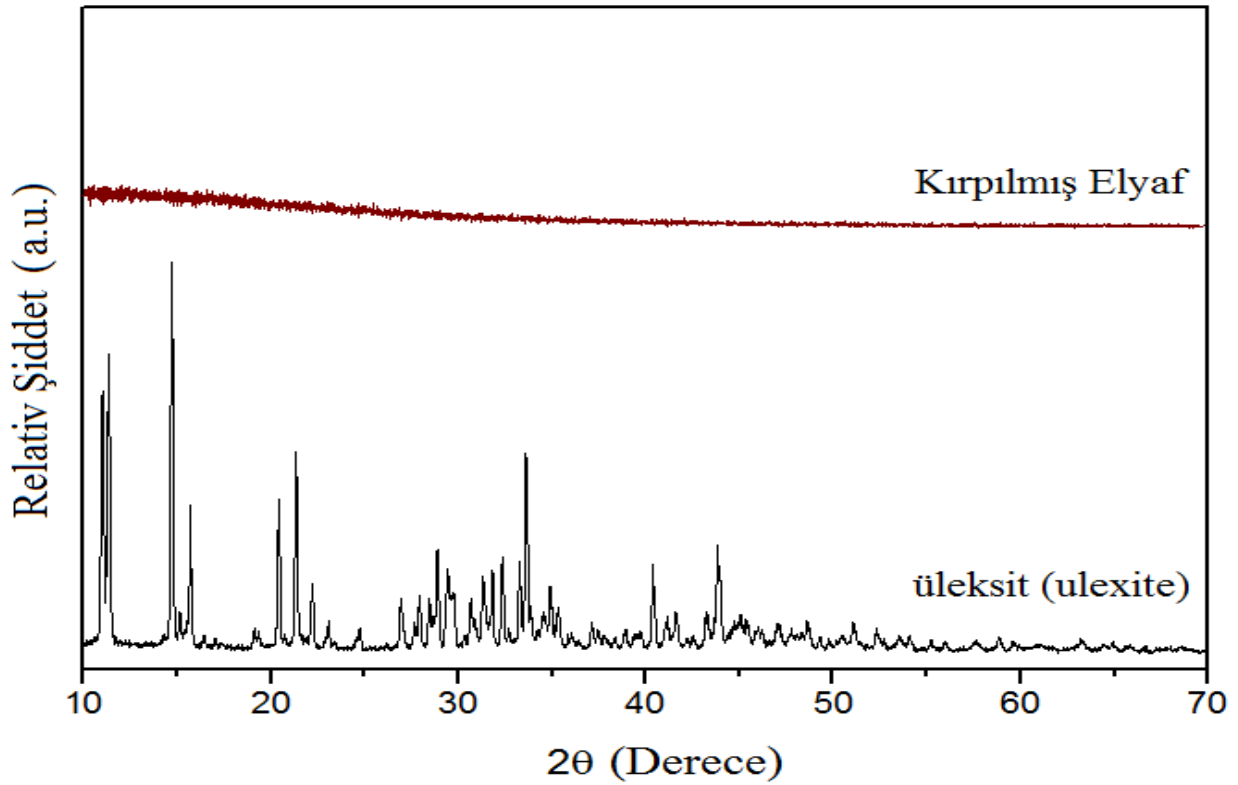
### a. Üleksit / Kırılmış Elyaf XRD Analizi

Üleksit:kırılmış elyafların yapısal analizi için x-ışınları kırınım (XRD) spektroskopisi yapıldı. XRD cihazı kullanılarak  $600^\circ\text{C}$ 'de 4 saat sinterlenen numunedeki kırınım piklerinin ana faz ile uyumlu olduğu ve tek fazlı üleksit (ulexite) yapısı olduğu belirlenmiştir (Şekil 1).

Geleneksel oksitlerin karışımı yöntemi ile üleksit 'in tek fazlı yapısı belirlenen kalsinasyon sıcaklığı ile ortaya çıkabilecek olası ara fazların ortadan kaldırılması ve sinterleme sıcaklığı ile sağlanmıştır. XRD paternlerinin de görüldüğü gibi ana faz üleksit (Şekil 1.) (PDF Kart No: 01-083-2421) olarak tespit edilmiştir.

XRD analizi ile sinterlenmiş üleksit yapısında ikincil faz olmadığı anlaşılmıştır. Bazen tek fazlı üleksit üretmek için yüksek sıcaklıklar kullanılır.





Şekil 1. Üleksit (ulexite) ve kırpılmış elyaf için XRD paterni (4 saat boyunca 600 °C 'de sinterlenmiş tek fazlı üleksit )

#### b. Üleksit/Kırpılmış Elyaf Kompozitlerin EMI Ekranlama Etkinliği (SE) Ölçümleri

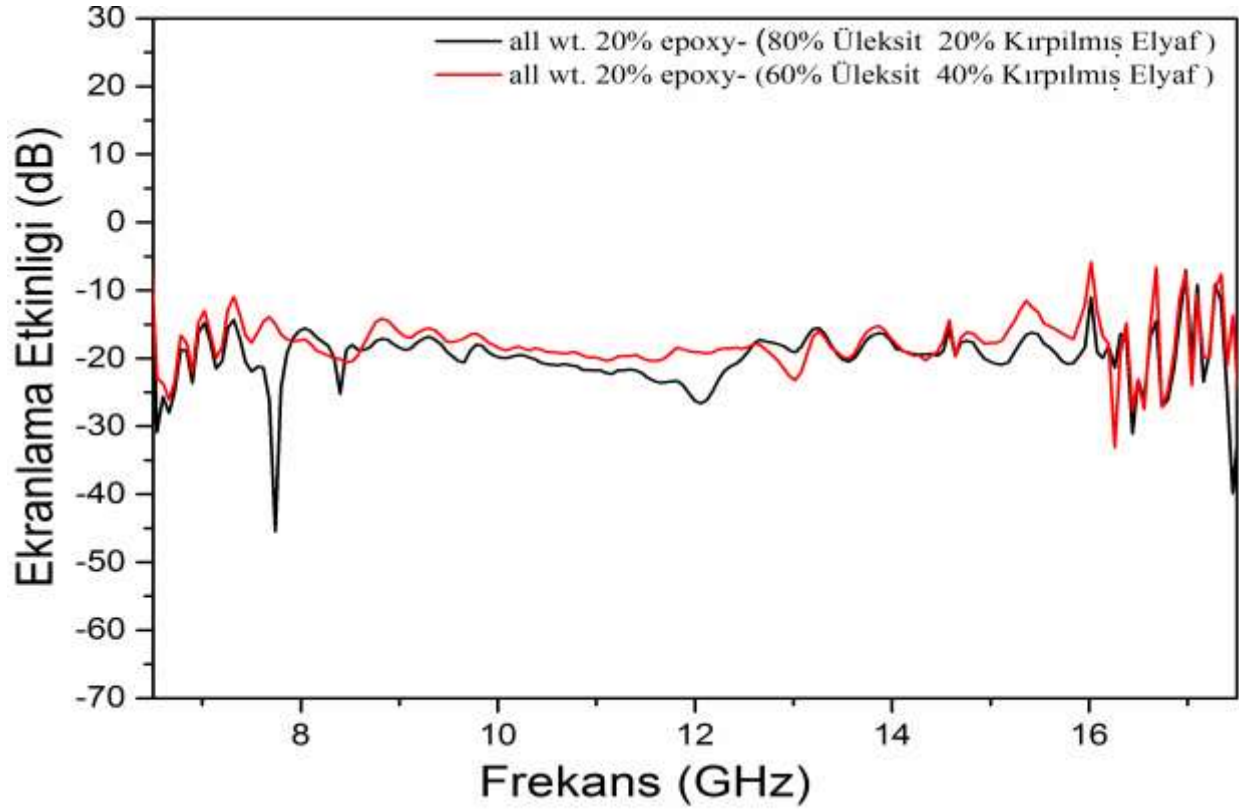
Şekil 2, 6.5-17.5 GHz frekans bandında üleksit/kırpılmış elyaf kompozitlerinin kalkanlama etkinliği SE ( shielding effectiveness) değerlerinin frekansa bağlı değişimini göstermektedir.

Ekranlama yada perdeleme etkinliği ölçümleri için N 5230A PNA serisi ağ analizör cihazı kullanılmıştır. Kompozit malzemenin ölçülen SE performansları malzemenin geometrisine ve kalınlığına bağlı olarak değişim göstermektedir. SE ölçümleri ile bu kompozit malzemeye gelen elektromanyetik dalganın malzemeden ne kadar geçtiğine bakmaktayız, kompozit malzemeden geçemeyen elektromanyetik dalga ya malzeme tarafından yutulacaktır yada geri yansiyacaktır veya hem yansıma hem yutulmaya maruz kalacaktır, genellikle metal içerikli malzemelerde geri yansımalar çok fazla olmaktadır. Ekranlama etkinliği araya girme kaybı olarakta betimlenmektedir.

Üleksit/kırpılmış elyaf kompozitleri arasında üleksit-kırpılmış elyaf ( sırasıyla ağırlıkça % 80-20) kompozitlerinin mikrodalga kalkanlama etkinliği performansı, üleksit -kırpılmış elyaf ( sırasıyla ağırlıkça % 60-40 ) kompozitlerine göre daha üstün etki göstermektedir. Üleksit :kırpılmış elyaf (ağırlıkça % 60-40 ) kompoziti en düşük 16.26 GHz frekansında -33.35 dB değeri vermiştir.

Bu kompozit malzeme sırası ile 6.65 GHz, 8.48 GHz, 13.01 GHz, 16.26 GHz, 16.75 GHz frekanslarında -26.18 dB, -20.8 dB, -23.49 dB, -33.35 dB, -27.30 dB ekranlama etkinliği değerlerine ulaşmıştır.





Şekil 2. (Üleksit /kırpılmış elyaf ( Üleksit / Chopped strands))-epoksi (epoxy) kompozitlerin ekranlama etkinliği: Üleksit-kırpılmış elyaf (ağırlıkça % 80-20) kompozitler, Üleksit -kırpılmış elyaf (ağırlıkça % 60-40 ) kompozitler.

Bunun yanısıra geniş bant aralığı olarak 6.5 GHz ile 15.96 GHz'e kadar - 10 dB 'den daha az ekranlama etkinliği değeri göstermiştir.

Üleksit miktarı arttığında ve kırpılmış elyaf oranı azaldığında yani üleksit-kırpılmış elyaf ( ağırlıkça % 80-20 ) kompozitlerinin ekranlama etkinliği en düşük -45.68 dB değerini 7.74 GHz fekansında vermiştir. Bu kompozit malzeme sırası ile 6.54 GHz , 7.74 GHz, 8.39 GHz, 12.05 GHz, 16.45 GHz frekanslarında , -30.90 dB , -45.68 dB , -25.51 dB, -26.62 dB, - 31.10 dB, - ekranlama etkinliği değerlerine ulaşmıştır.

Geniş bant aralığı olarak incelendiğinde bu kompozit malzeme 6.5 GHz ile 16.92 GHz frekans aralığında -10 dB 'in altında değer göstermiştir. Ayrıca 6.5 ile 6.74 GHz ve 10.36 ve 12.43 GHz frekans aralıklarında daha iyi bir değer olan -20 dB altında ekranlama etkinliği değeri vermiştir.

Mikrodalga ekranlama korumasının etkinliği, aynı zamanda ışınlamanın empedansının malzeme yüzeyiyle uyumlu olmasına bağlıdır. Kırpılmış elyaflar kompozit malzemeyi oluşturan bileşenler arasındaki iletimlerde eşleşen empedansını geliştirir.

Üleksit :kırpılmış elyaf kompozitleri, geniş frekans aralığı bölgesinde belirli radar çalışma frekans aralıklarında elektromanyetik dalgalar için güçlü ekranlama etkinliği gösterir ve yeni oluşturulan bu kompozitlerin mikrodalga perdeleme etkisi, kompozitin bileşenlerinin içerik oranları değiştirilerek kontrol edilebilir. Yeni üleksit:kırpılmış elyaf kompozitlerin elektromanyetik dalgalar için belirlenmiş geniş frekans bandında iyi perdeleme, ekranlama etkinliği gösterdiği anlaşılmıştır.

#### 4. Sonuç

Üleksit:kırpılmış elyaf tozları (sırasıyla ağırlıkça % 80-20 ve ağırlıkça % 60-40 ) oksitlerin karışımı tekniği ile üretildi. Bu kompozitlerin bilinen geniş frekans aralığındaki ilk ekranlama etkinliği ölçümüdür.



Üleksit ve kırılmış elyaf toz içeriği kontrol edilerek istenilen frekans bantlarında elektromanyetik ekranlama etkinliği değeri kolayca modüle edilebilir.

Ekranlama etkinliği değeri en düşük değerini üleksit:kırılmış elyaf ( ağırlıkça % 80-20 )- epoksi kompozitinde -45.68 dB olarak 7.74 GHz fekansında 1.4 mm kalınlıkta vermiştir.

Üleksit:kırılmış elyaf kompozitlerin mikrodalga ekranlama etkinliğinin farklı değerler vermesi belirli frekansları seçmesi kırılmış elyafların miktarına bağlı olarakta değişiklik göstermektedir.

Ekranlama etkinliği değerleri özellikle X-band radarlarında da kullanan teknoloji uygulamalarında bu tür kompozitlerin çekiciliğini göstermiştir.

Geniş bant aralığı olarak incelendiğinde en iyi değeri üleksit:kırılmış elyaf ( ağırlıkça % 80-20'de) kompozit malzeme 6.5 ile 16.92 GHz frekans aralığında -10 dB 'in altında değer vererek göstermiştir.

Üleksit:kırılmış elyaf ( ağırlıkça % 60-40'de) kompozit bileşimi ise ikinci en iyi değeri geniş frekans aralığı olarak 6.5 GHz frekansından 15.96 GHz'e kadar - 10 dB 'den daha az ekranlama etkinliği vererek göstermiştir.

Yapılan ölçümler bu kompozitlerin belirlenen gigahertz frekans seviyesinde sinyallerin geçmesini önleyen elektromanyetik koruyucu malzemeler gibi davranma potansiyelini göstermiştir.

Yapılacak çalışmalarda, üleksit: kırılmış elyaf kompozit bileşimleri değişik türde katkı malzemeleri veya farklı polimerler ile katkılanarak daha kapsamlı incelenebilir, istenilen diğer radar frekans bantlarında ve daha yüksek frekanslarda, bu kompozitin nasıl elektromanyetik koruma sağladığı, ilgili radar frekanslarında görülmemesi, ekranlama etkinliği ve yansıma kaybı testleri gerçekleştirilebilir.

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