

II. BRITISH CONGRESS

INTERDISCIPLINARY SCIENTIFIC RESEARCH & PRACTICES

January 24-26, 2025



London, UK
PROCEEDINGS BOOK

Editors

Dawid WORTLEY

Dr. Alina AMANZHOLOVA

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05.02.2025

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CONGRESS ID

TITLE OF CONGRESS

II. International BRITISH
Congress on Interdisciplinary Scientific Research & Practices

PARTICIPATION

Keynote & Invited

DATE - PLACE

January 24-26, 2025
London, UK

ORGANIZATION

İKSAD-Institute of Economic Development and Social Researches

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Digital Medicine

ORGANIZING COMMITTEE MEMBERS

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Pakistan
Dr. ZHI Huan - Minzu University
Seda HADZIBULIC - Northeastern Illinois University

PARTICIPATING COUNTRIES (24)

Türkiye, United Kingdom, Azerbaijan, TRNC, Kyrgyzstan,
Turkmenistan, Albania, Uzbekistan, USA, Georgia, Algeria, Malaysia,
Iraq, Moldova, Poland, Pakistan, India, Philippines, Georgia, Romania,
Bulgaria, Qatar, Italy, Jordan

TOTAL ABSTRACTS: 113

The number of abstracts from foreign countries: **70**

The number of abstracts from Türkiye: **43**

LANGUAGES

Turkish, English

II. International BRITISH Congress on Interdisciplinary Scientific Research & Practices

PHOTO GALLERY



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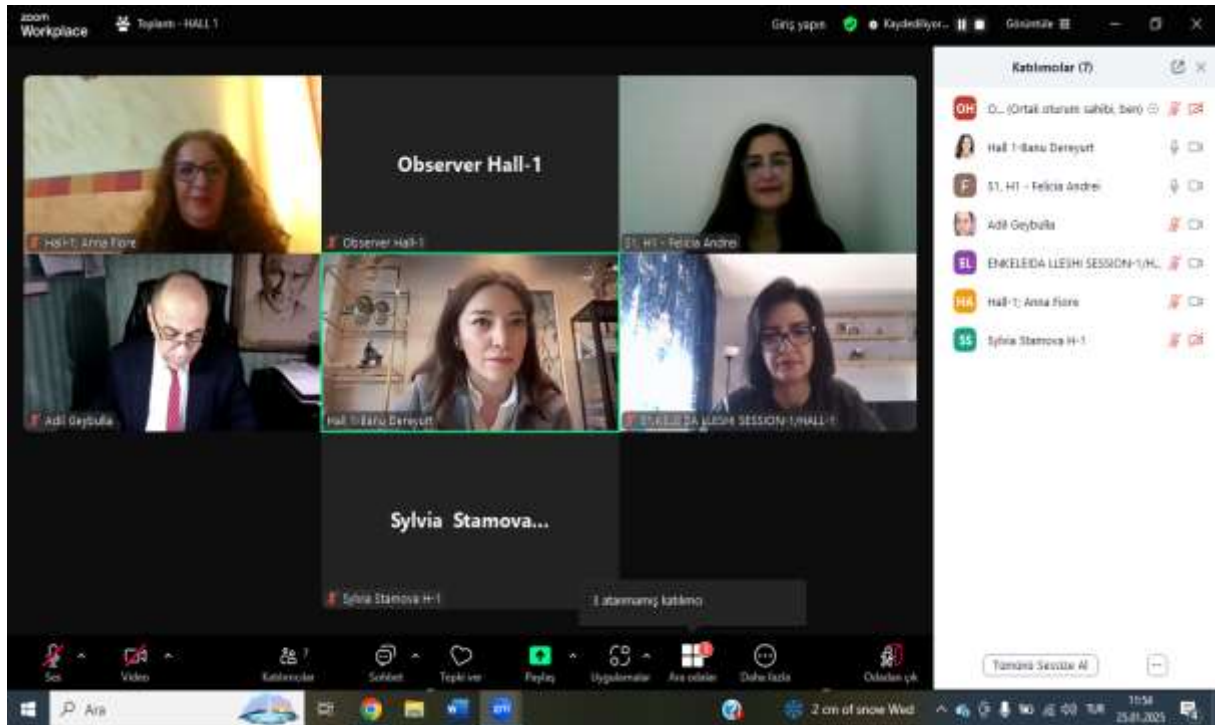


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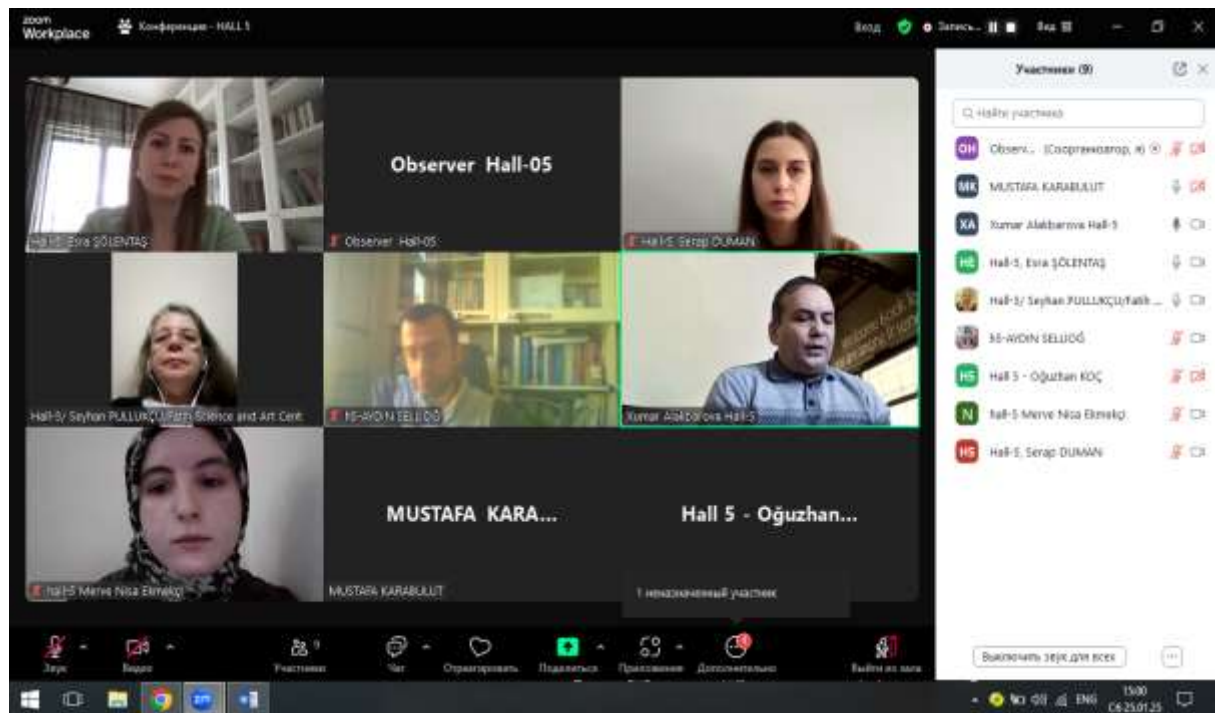
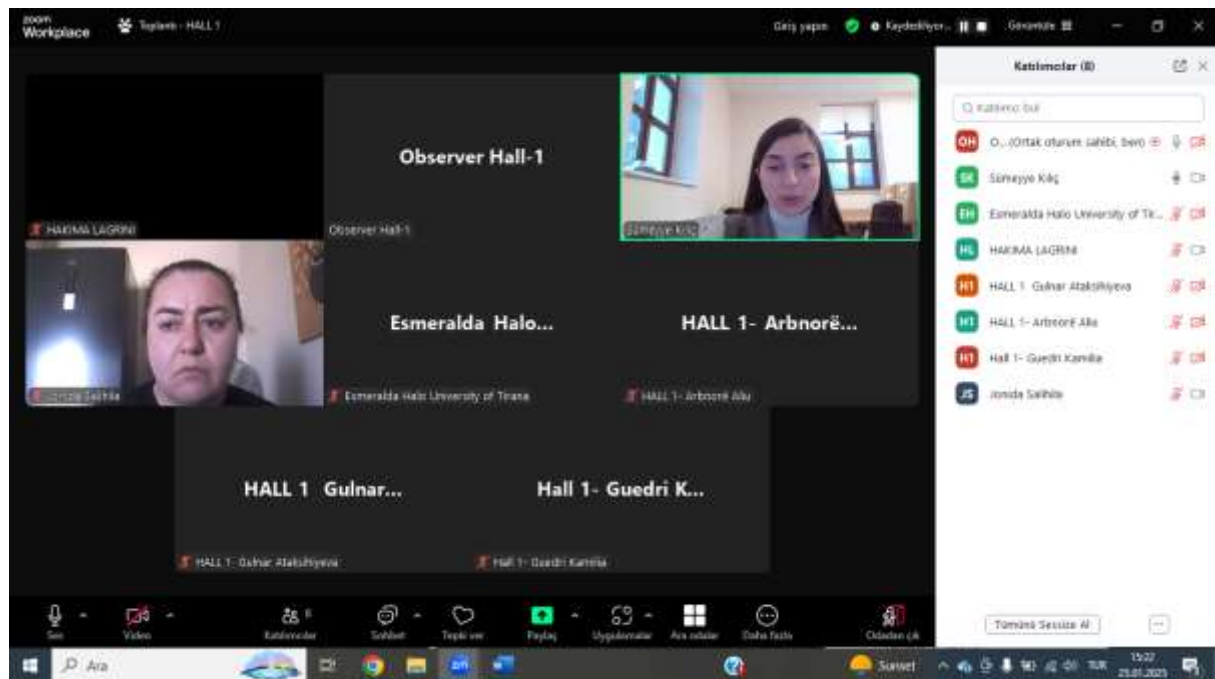


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II. International

BRITISH

Congress on Interdisciplinary Scientific Research & Practices

January 24-26, 2025

London, UK

CONGRESS PROGRAM

Meeting ID: 883 9498 5602

Passcode: 242424

<https://us02web.zoom.us/j/88394985602?pwd=buZvBCObK6cHSOIy8YtfOY7DwaRjoC.1>

PARTICIPANT COUNTRIES (24):

Türkiye, United Kingdom, Azerbaijan, TRNC, Kyrgyzstan, Turkmenistan, Albania, Uzbekistan, USA, Georgia, Algeria, Malaysia, Iraq, Moldova, Poland, Pakistan, India, Philippines, Georgia, Romania, Bulgaria, Qatar, Italy, Jordan

ÖNEMLİ, DİKKATLE OKUYUNUZ LÜTFEN / IMPORTANT, PLEASE READ CAREFULLY

Önemli, Dikkatle Okuyunuz Lütfen

- ✓ Kongremizde Yazım Kurallarına uygun gönderilmiş ve bilim kurulundan geçen bildiriler için online (video konferans sistemi üzerinden) sunum imkanı sağlanmıştır.
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- ✓ Tüm kongre katılımcıları canlı bağlanarak tüm oturumları dinleyebilir.
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- ✓ Moderator is responsible for the presentation and scientific discussion (question-answer) section of the session.

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- ✓ Make sure your computer has a microphone and is working.
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exp. Hall-1, Awais Khan**

Meeting ID: 883 9498 5602

Passcode: 242424

FACE TO FACE PRESENTATIONS



Venue: Supreme Court of United Kingdom

Address: Parliament Sq, London SW1P 3BD

24.01.2025

Time	Title	Author/Presenter	Affiliation
Moderator: David WORTLEY			
14:00	MOTIVATIONAL BARRIERS FACED BY LOW-MOTIVATED IMAM-HATIP MIDDLE SCHOOL STUDENTS TOWARD LEARNING ARABIC	Gizem DÜZGÜN Kerim AÇIK Kamil Arif KIRKIÇ	Istanbul Sabahattin Zaim University Istanbul 29 May University
14:15	IN VITRO INVESTIGATION OF FLAVOPIRIDOL, CINNAMIC ACID AND THEIR COMBINATIONS AS THERAPEUTIC AGENTS IN TRIPLE RECEPTOR NEGATIVE BREAST CANCER	Venhar CINAR Ahsen GULER Ayse Doga KARIPCIN Ersen GOKTURK Cagla CELIK Ismail OCSOY Zuhal HAMURCU Bulent OZPOLAT	University of Erciyes University of Hatay Mustafa Kemal University of Harran Houston Methodist Research Institute-Neal Cancer Center, Texas, USA
14:30	CRIMINOLOGICAL ASPECTS OF CORRUPTION CRIMINAL ACTS	Suela BELULI	European University of Tirana, Albania
14:45	INVESTIGATION OF THE EFFECT OF CELASTROL ON FOXM1	Ayşe Doga KARIPCIN Venhar ÇINAR Ahsen GULER Seda Nur CELIK Zuhal HAMURCU Bulent OZPOLAT	University of Erciyes, Kayseri, Türkiye. Houston Methodist Research Institute-Neal Cancer Center, Texas, USA
15:00	TURKEY'S PUBLIC RELATIONS EFFORTS FOR GAINING SUPPORT FOR THE KOREAN WAR	B. Pınar ÖZDEMİR	Ankara University
15:15	PROTECTIVE ROLE OF PROBIOTIC ON TESTICULAR GERM CELLS AGAINST EXPERIMENTAL TESTIS TOXICITY WITH 4-VINYLCYCLOHEXENE DIEPOXIDE	Erdoğan KOCAMAZ Rabia DURUŞMA Uğur ÖZTEMİZ Emine Müge KARAKAYALI Mehmet İbrahim TUĞLU	Manisa Celal Bayar University, Manisa-Türkiye Izmir Democracy University, İzmir-Türkiye
15:30	THE IMPACT OF AI ON CREATIVITY	David WORTLEY	Mr David John Wortley FRSA, 360in360 Immersive Experiences, Alderton, United Kingdom
15:45	THE ROLE AND PLACE OF ENGLISH LANGUAGE AS A LANGUAGE OF MODERN PROFESSIONAL COMMUNICATION	Dyikanbaeva Totukan Sabirova Venera Alimbaeva Seydanakhan Suleymanov Orunbay Mamasheva Oktom Miskichekova Zanfira Moldozhanov Ozgonbay Kalilova Karamat Kidiraliyeva Nurgul Kambarova Aisha	Osh State University, Osh, Kyrgyz Republic

16:00	OBESITY SURGERY AND THIAMINE DEFICIENCY: RISKS AND SYMPTOMS	Nur Efsan Şentürk Wida Simzari	Istanbul Nişantaşı University, Türkiye
16:15	LONGEVITY AND HEALTHY NUTRITION: AN EVALUATION IN THE LIGHT OF CURRENT RESEARCH	Aleyna Kalender Wida Simzari	Istanbul Nişantaşı University, Türkiye
16:30	POTENTIAL ROLE OF CURCUMIN IN POLYCYSTIC OVARY SYNDROME	Hazal Ceren AKKUŞ Wida SİMZARİ	İstanbul Nişantaşı University, Türkiye
16:45	EFFECTS OF NUTRITIONAL THERAPY IN POLYCYSTIC OVARY SYNDROME (PCOS) AND INSULIN RESISTANCE	Sena Çuhadar Wida Simzari	Istanbul Nişantaşı University, Türkiye
17:00	Refreshment Break & Networking		

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- IF YOU BRING NAIL CLIPPERS, LIGHTERS, DRILLING AND CUTTING TOOLS AND DEODORANT WITH YOU, YOU WILL NOT BE ALLOWED TO ENTER THE BUILDING
- OUR CONGRESS OFFICER WILL BE OUTSIDE THE BUILDING BETWEEN 13:30-13:40. ALL CONGRESS PARTICIPANTS SHOULD BE IN FRONT OF BUILDING AND MEET WITH OUR OFFICER AND ENTER IN AS A GROUP

Session -1 / Hall-1**25.01.2025****Moderator: Dr. Felicia ANDREI****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 10:00-12:00****Ankara Local Time: 12:00-14:00**

TITLE	AUTHOR(S)	AFFILIATION
THE MEDIATING ROLE OF OBSESSIVE SYMPTOMS IN THE RELATIONSHIP BETWEEN PARENTING ATTITUDES AND FEAR OF GROWTH IN INDIVIDUALS WITH EATING DISORDERS	Banu Dereyurt Bingül Harmancı Subaşı	Near East University, TRNC
BREWING, MORE THAN BEER PRODUCTION. USE OF BREWER'S SPENT GRAINS TO PRODUCESUSTAINABLE FUNCTIONAL FOODS	Anna Fiore Antonietta Baiano	University of Foggia, Italy
NEW ADVANCES IN THE TREATMENT OF NEUROTROPHIC DIABETIC FOOT ULCERS	Geybullla A.A. Musayeva A.M.	Azerbaijan Medical University, Baku Center for Integrative Medical Scientific Research of the International Academy of Sciences, Baku
ESSENTIAL OIL MIXTURES USED IN AROMATHERAPY PREVENT THE SWIMMING AND SWARMING MOTILITIES OF PSEUDOMONAS AERUGINOSA PAO1	Elif Burcu Bali	Gazi University, Türkiye
A REVIEW ON THE ANTICANCER POTENTIAL OF TERPENOID-BASED ESSENTIAL OILS	Sylvia Stamova Neli Ermenlieva Petar Stamov Gabriela Tsankova Emilia Georgieva	Medical University of Varna, Bulgaria
DIFFERENT METHODS OF TREATMENT ON SKIN WOUND HEALING	Nino Kuridze Luiza Gabunia Ketevan Ghambashidze Levan Ratiani Rima Beriashvili Nana Gorgaslidze Tekla Rtveladze Giorgi Varazi	Tbilisi State Medical University, Tbilisi, Georgia
PRESEASON BODY COMPOSITION ASSESSMENT IN ELITE FEMALE BASKETBALL PLAYERS	Enkeleida Lleshi Salvator Kurti	Sports University of Tirana, Albania
THE MECHANISMS USED BY PARENTS TO MANAGE CHILDREN'S CONFLICTS AT DIFFERENT STAGES OF DEVELOPMENT	Ornedi Gega Menada Petro	“Aleksander Moisiu” University, Durrës, Albania
ANALYSIS OF TIME-DOMAIN HEART RATE VARIABILITY PARAMETERS DEPENDING ON BLOOD PRESSURE LEVELS	I.T. Rasul, E.M. Hatamzada, D.I. Gakhramanova	Azerbaijan State Advanced Training Institute for Doctors named after A. Aliyev, Baku, Azerbaijan
KLOTHO: A FASCINATING PROTEIN WITH MULTIFACETED ROLES IN HEALTH AND DISEASE	Felicia ANDREI	University of Medicine and Pharmacy, Romania

All participants must join the conference 10 minutes before the session time.

Every presentation should last not longer than 10-12 minutes.

Kindly keep your cameras on till the end of the session.

Session -1 / Hall-2**25.01.2025****Moderator: Assoc. Prof. Dr. Cem YÜCETAŞ****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 10:00-12:00****Ankara Local Time: 12:00-14:00**

TITLE	AUTHOR(S)	AFFILIATION
BENEFIT VALUES ACCORDING TO SPINE COLLAPSE RATE IN OSTEOPOROTIC KYPHOPLASTY	Cem YÜCETAŞ Merdan BALKANSOY	Adıyaman University, Türkiye
EVALUATION OF THE IMPACT OF CAR WASTE ON SOIL BIOLOGICAL ACTIVITY	Fəridə Əli Atiga Abdullayeva Nigar Aliyeva	Azerbaijan Medical University, Azerbaijan
THE RELATIONSHIP BETWEEN EXERCISE AND STEM CELLS	Dr. Meral EKİM Dr. Hasan EKİM	Yozgat Bozok University, Türkiye
PULMONER HIPERTANSİYON	Dr. Meral EKİM Dr. Hasan EKİM	Yozgat Bozok University, Türkiye
NEBULIZER THERAPY IN CHILDREN: ACOUSTIC ENHANCEMENT	Betül Port Meltem Kürtüncü	Bülent Ecevit University, Türkiye
THE IMPORTANCE OF INTRAVENOUS IMMUNOGLOBULINS IN THE TREATMENT OF ARDS DUE TO INFLUENZA B VIRUS	Namazova Kamala Hasanov Fuad Muradov Nizami Abbasova Mahrux- Karimov Geys Amrahlı Gasım Askerova Gunel Musayeva Narmina Shirnova Nargiz	Scientific Center of Surgery named after Academician M.Topchubashov Azerbaijan Medical University, Baku, Azerbaijan
THE EFFECT OF VAGINAL INFECTIONS ON WOMEN'S DAILY LIVES	Zeynalova Khuraman Ismayilova Arzu Ismayilova Sevinj Ceferova Terlane Khudiyeva Ayten Hesenova Samira Gocayeva Aybeniz	Azerbaijan Medical University

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Session -1 / Hall-3**25.01.2025****Moderator: Tamaz Tchumburidze****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 10:00-12:00****Ankara Local Time: 12:00-14:00**

TITLE	AUTHOR(S)	AFFILIATION
ANALYSIS OF THE IMPACT OF DIETARY AWARENESS ON HEALTH-PROMOTING BEHAVIOURS OF YOUNG PEOPLE	Michalina Pasternak dr Sandra Trzcińska	The Maria Grzegorzewska University, Poland
VIRTUAL NURSING PRESENCE; A PARADIGM SHIFT IN CARING?	Zunaira Aziz, Dr.Rafat Jan, Dr.Salma Rattani, Dr. Rana Altaf Ahmad	The Aga Khan University, Pakistan Nishter Medical University, Pakistan
THE IMPACT OF THE MICA-129 DIMORPHISM ON THE PROGRESSION OF THE BREAST CANCER	Wassila ILIAS, Djabaria Naima MEROUFEL	Higher School of Biological Sciences of Oran (ESSBO), Algeria University of Science and Technology of Oran “Mohamed BOUDIAF” (USTOMB), Algeria
THE ROLE OF A CLINICAL PHARMACIST IN THE PHARMACOTHERAPY OF HERPES SIMPLEX VIRUS	Tamaz Tchumburidze Nino Nemsitsveridze Tamar Chikviladze Nino Sanikidze Lizi Tomadze Ioseb Tomadze	TSMU, Georgia
NUTRITIONAL APPROACH IN FAMILIAL MEDITERRANEAN FEVER	Ceyda Çelik Wida Simzari	Istanbul Nişantaşı University, Türkiye
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Session -1 / Hall-4

25.01.2025

Moderator: Lect. Türkan AYDOĞAN

Meeting ID: 883 9498 5602 / Passcode: 242424

London Local Time: 10:00-12:00

Ankara Local Time: 12:00-14:00

TITLE	AUTHOR(S)	AFFILIATION
MEDIA CONTROL and AGENDA FORMULATION	Türkan AYDOĞAN	Eurasia University, Türkiye
THE REPRESENTATION OF FAMILY IN MANSION SERIES FILMED IN THE SAME REGION AT DIFFERENT TIMES: A COMPARATIVE ANALYSIS OF ASMALI KONAK AND SİYAH KALP	Merve YILMAZ ÇELİK	İstanbul Beykent University, Türkiye
TRACES LEFT IN FINANCIAL HISTORY BY THE DUTCH DISEASE AND THE VENEZUELAN RESOURCE CURSE	Meltem KESKİN	Ankara Yıldırım Beyazıt University, Türkiye
CHARACTERISTICS OF THE LANKARAN-ASTARA TEA	Narmina Alasgarova	Azerbaijan State University of Economics, UNEC, Azerbaijan
THE IMPACT OF ChatGPT ON FASHION DESIGN: AN ETHICAL EVALUATION	Rukiye Zeynep Gencal Öztürk	Marmara University, Türkiye
CONTRIBUTION OF PUBLIC SPACES TO THE FORMATION OF SOCIAL RESILIENCE CAPACITY: THE CASE OF ÇAYIROVA	Selma BAYKARA Zeynep Deniz YAMAN GALANTINI	Gebze Technical University, Türkiye
THE WRITTEN AND ARCHAEOLOGICAL LEGACY OF MANICHAISM - THE TRANSFORMATIVE POWER OF CROSS-CULTURAL INTERACTION	Raziye SAYAR İsmail TAŞ	Selcuk University, Türkiye Necmettin Erbakan University, Türkiye
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Session -1 / Hall-5**25.01.2025****Moderator: Prof. Dr. Mustafa Karabulut****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 10:00-12:00****Ankara Local Time: 12:00-14:00**

TITLE	AUTHOR(S)	AFFILIATION
POLYSEMY OF PHRASEOLOGICAL UNITS IN TURKISH AND RUSSIAN LANGUAGES	Mammadova Aytan Jeyhun kızı	Sumgait State University, Azerbaijan
USAGE OF NOUNS IN CONSTRUCTIONS IN ARABIC AND HEBREW	Teymur Sadigov	Institute of Oriental Studies named after Academician Z.M. Bunyadov
EXAMINING THE COMMUNICATION SKILLS OF EDUCATION FACULTY STUDENTS ACCORDING TO VARIOUS FACTORS	Merve Nisa EKMEKÇİ Ayşe IŞIK ÖNER	Istanbul Sabahattin Zaim University, Türkiye
EXAMINING THE POTENTIAL FOR EMOTIONAL ABUSE OF PARENTS WITH PRESCHOOL CHILDREN	Serap DUMAN Gülümser GÜLTEKİN AKDUMAN	MEB Öğrt., Sincan Hayriye Andıçen Kindergarten, Ankara, Turkey Gazi University, Türkiye
THE EFFECT OF TEACHING METHODS ON ACADEMIC ACHIEVEMENT IN FORCE AND MOTION: A META-ANALYSIS STUDY	Aydın Sellioğ Sedat Kanadlı	Institute of Educational Sciences, Mersin, Türkiye
DIFFICULTIES WITH THE PREPOSITION 'C' IN TEACHING RUSSIAN AS A FOREIGN LANGUAGE TO TURKS	Esra ŞÖLENTAŞ	Ankara University, Türkiye
COLLAGE TECHNIQUE IN OĞUZ ATAY'S NOVEL "TUTUNAMAYANLAR"	Mustafa Karabulut	Adıyaman University, Türkiye
LEITMOTIVE TECHNIQUE IN OĞUZ ATAY'S NOVEL "TUTUNAMAYANLAR"	Mustafa Karabulut	Adıyaman University, Türkiye
ANALYSIS OF ZERO INTEREST LOAN CAMPAIGNS IN TERMS OF ISLAMIC LAW	Zeki YAKA Oğuzhan KOÇ	Akdeniz University, Türkiye
THE EFFECTS AND SUSTAINABILITY OF BRITISH SCHOOLS IN ISTANBUL IN THE 19TH CENTURY	Seyhan PULLUKÇU	Fatih İslam Secen Science and Art Center, Türkiye

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Session -1 / Hall-6**25.01.2025****Moderator: Asst. Prof. Ayça Aslan****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 10:00-12:00****Ankara Local Time: 12:00-14:00**

TITLE	AUTHOR(S)	AFFILIATION
THE IMPACT OF TASK DESIGN ON COLLABORATIVE DYNAMICS AND INDIVIDUAL GROWTH	Ayça Aslan	Yozgat Bozok University, Türkiye
UNRAVELING COMPLEXITY: EXPLORING SIMILARITIES BETWEEN LINGUISTICS AND REVERSE ENGINEERING	Engin Evrim Önem	Erciyes University, Türkiye
COMPARATIVE ANALYSIS OF SYNTACTIC STRUCTURES IN MOUNTAIN ENVIRONMENTS USING ENGLISH AND KYRGYZ LANGUAGES	Zhympargul Osmonbaeva Karaeva Zina Zheenbekova Gulmira Nazira Karaeva Saliya Koso-ogly	Osh State University, Osh city, Republic of Kyrgyzstan
THE IMPACT OF SOCIAL MEDIA ALGORITHMS ON PUBLIC OPINION FORMATION: A LITERATURE REVIEW	Sadjola XHELILI	European University of Tirana, Albania
DEVELOPMENT TENDENCY OF KYRGYZ POETRY BETWEEN 1960-1970	Koichumanova Gulzhan Kadyrovna Karazakova Zubaida Jamilovna Mamatova Altynkyz Batyrbekovna Aitibaeva Zhipargul Kalievna Zhenalieva Patila Mendirmanovna	Osh State University, Osh, Republic of Kyrgyzstan
GENDER STATISTICS OF A MARITIME INSTITUTION TOWARDS A SEX-DISAGGREGATED DATABASE ESTABLISHMENT AND GENDER-RELATED POLICY DEVELOPMENT	Evangeline De Guia, Victoria Paraggua, Ronalyn Acuavera, Ellen Luna, Leah Villavicencio	Philippine Merchant Marine Academy
THE IMPACT OF FLIPPED CLASSROOM AND E-LEARNING ON STUDENT PERFORMANCE IN PRIMARY SCHOOLS OF UAE	Aaesha Abdulla Mohammed Lehlaiw Alnaqbi Halizah Binti Awang	Universiti Tun Hussein Onn Malaysia
THE IMPORTANCE AND INDIVIDUAL INTEREST IN LEARNING SECOND LANGUAGES	Arsena SHKURTI	University "Aleksander Moisiu" Durres, Albania
PHILOSOPHICAL PROJECTION HUMAN DEGRADATION IN THE WORKS OF CH. AITMATOV	D.A. Asanova, K.J. Abdukaarov, V.K. Sabirova, A.T. Ismailova.	Osh State University Osh. Limited Liability, Company "Amazon Group"

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Session -2 / Hall-1**25.01.2025****Moderator: Prof. Dr. Skender Demaku****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 12:30-14:30****Ankara Local Time: 14:30-16:30**

TITLE	AUTHOR(S)	AFFILIATION
INVESTIGATION OF THE CHEMICAL, PHYSICAL-CHEMICAL, AND BIOLOGICAL CHARACTERISTICS OF THE WATER AT THE MIRUSHA WATERFALL IN LLAPCEVË, THE MUNICIPALITY OF MALISHEVA	Prof. Dr. Skender Demaku Ma.Arbnorë Aliu Ma. Donika Sylejmani Shkurtesa Krasniqi	University of Prishtina
THE TREND OF POLLUTION ON THE WATERS OF THE PORT OF DURRES	Esmeralda Halo, Bledar Murtaj, Aurel Nuro	University of Tirana, Albania
SYNTHESIS AND X-RAY STUDIES OF THE CORRESPONDING DICHLORODIAZADIENES BASED ON M-NITRO BENZOYL ALDEHYDE	PhD Gulnar Atakishiyeva PhD Sevinç Muhtarova Shukufa Eyvazova Naila Veysova Sima Musayeva Ilhama Hamdullayeva Namiq Shikhaliyev	Baku State University, Baku, Azerbaijan Azerbaijan Technical University, Baku, Azerbaijan Baku Engineering University, Baku, Azerbaijan
THE EFFECT OF NiO DOPING TO PCFC PERFORMANCE	Sümeyye Kılıç Osman Yağız Akduman Recep Akdeniz Ali Murat Soydan	Gebze Technical University, Türkiye Birmingham University, Birmingham, United Kingdom
CHEMICAL PROFILE OF SALVIA OFFICINALIS PLANTS FROM WILD POPULATION OF LESKOVİK AREA	Jonida Salihila Flora Qarri Aida Dama Kleva Shpati Aurora Napuce Aurel Nuro	Vlora University “Ismail Qemali” Albanian University
EXTRACTION OF HEMICELLULOSES FROM NANNOCHLOROPSIS GADITANA AND CHARACTERIZATION USING FT-IR SPECTROSCOPY	BABA HAMED Samia	Higher School of Biological Sciences in Oran, Algeria.
EPHEDRA ALATA ALENDA MITIGATE BRAN OXIDATIVE STRESS AND BEHAVIORAL DISORDERS INDUCED BY FENTHION IN RATS	Kamilia Guedri, Ilhem Djaalali, Amira Messaadia, Hakima Tayaa, Nawel Attoui	University Echahid Cheikh Larbi Tebessi, Algeria Mila university centre, Mila, Algeria Tahri Mohamed University, Algeria
SYNTHESIS AND CHARACTERIZATION OF NOVEL TiO ₂ NANOMATERIALS WITH HIERARCHICAL POROSITY BY SOL-GEL ROUTE, USING SODIUM ALGINATE AS SURFACTANT	Hakima Lagrini, Fouad Bentiss, Charafeddine Jama, Mohamed Bensitel, Abdelaziz Sahibed-Dine	University Chouaib Doukkali, Morocco University of Lille, France

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Session -2 / Hall-2**25.01.2025****Moderator: Lect. Irina-Ana DROBOT****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 12:30-14:30****Ankara Local Time: 14:30-16:30**

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THE STAGE AS A CLASSROOM: INTEGRATING DRAMA TECHNIQUES TO ENHANCE HOLISTIC EDUCATION	Msc. Sonja Llana	University "Aleksandër Moisiu"
STYLISTIC FUNCTION OF ADJECTIVES IN EXPRESSING HUMAN CHARACTERISTICS IN TURKMEN AND ENGLISH	Guncha Mametniyazova Jumegul Bavramova Rasul Hudtyyev	Seyitnazar Seydi Turkmen State Pedagogical Institute, Turkmenistan
THE SHORT STORY TOGETHER AND APART BY VIRGINIA WOOLF: AN ANALYSIS	Irina-Ana DROBOT	Technical University of Civil Engineering Bucharest, Bucharest, Romania
INTERNATIONAL PROTECTION OF TRADEMARKS AT THE INTERNATIONAL LEVEL: A COMPARISON BETWEEN THE UK AND TURKIYE	Sema GÜMÜŞ Gamze COŞKUN BAKIR	Trademark and Patent Attorney, Independent Researcher, Ankara, Türkiye Trademark Attorney, Independent Researcher, Doha, QATAR
PEACE DIPLOMACY: THE DYNAMICS OF TÜRKIYE'S MEDIATION ROLE BETWEEN ETHIOPIA AND SOMALIA	Murat Özay TAŞKIN Sümer Esin ŞENYURT	University of Wroclaw, Poland
EVOLVING IDEOLOGIES AND PERSONAL NARRATIVES: A JOURNEY THROUGH POLITICAL AND SOCIAL CHANGE THROUGH LITERATURE (BASED ON LEA YPI BOOK "FREE")	Assoc. Prof. Dr Valbona Karakaçi	University of Shkodra "Luigj Gurakuqi", Albania
POLITICAL FACTORS OF INVOLVING YOUTH INTO SCIENCE IN TURKMENISTAN	Leyli Shammayeva	Oguz han Engineering and Technology University, Turkmenistan
LEVERAGING ICT FOR EFFECTIVE FOOD SECURITY GOVERNANCE: EMPIRICAL INSIGHTS FROM THE NATIONAL FOOD SECURITY ACT, 2013	Mr. Abhishek Kumar Verma Mr. Jaswant Singh Rajput	Central University of Punjab, Bathinda, India
THE ROLE OF POLITICAL PARTIES IN NATIONAL INTEGRATION AND DEVELOPMENT IN NIGERIA	Osazee Edigin	University of Szczecin
REEXAMINATION OF CAVE OF SEVEN SLEEPERS. A UNIQUE CLASSICAL (ROMAN-BYZANTINE) CAVE IN SOUTHERN LEVANT (JORDAN)	Mohammed Waheeb Nivin Abu Shawish	The Hashemite University

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Session -2 / Hall-3**25.01.2025****Moderator: Assoc. Prof. Elton Noti****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 12:30-14:30****Ankara Local Time: 14:30-16:30**

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LEGAL REGIME OF CERTAIN SPECIAL LEASE RELATIONS UNDER THE LEGISLATION OF THE REPUBLIC OF MOLDOVA	EŞANU Oxana	University of Political and Economic Studies "Constantin Stere"
TAXPAYER ADVOCATE - AN ADDITIONAL GUARANTEE FOR THE PROTECTION OF TAXPAYER RIGHTS	Irena LAVDARI Valentina MEMINI	"European University of Tirana", Albania "Qiriazi" University College Faculty of Law/Lecturer, Albania
THE IMPACT OF SOCIAL MEDIA USAGE: A PERSEPCTIVE FROM THE UNIVERSITY STUDENTS	Dhurata Milori	University of Tirana, Albania
THE ROLE OF WORD-OF-MOUTH MARKETING IN ALBANIA'S SMALL BUSINESS SECTOR	Elton Noti	University "Aleksander Moisiu"
CROSS-CULTURAL COMPETENCIES OF EMPLOYEES IN BALKAN COUNTRIES	Vebina Resuli Dhurata Lamcja Juljana Bilbilaj	
THE ROLE OF GOVERNMENT PUBLIC RELATIONS IN MARKETING THE GRAND FAW PORT	Mohammed Abdul Hasan Al-Amri Ali Sadiq Al-Saadi	University of Baghdad
SEMANTIC PECULIARITIES OF PHRASEOLOGICAL UNITS DENOTING TIME IN ENGLISH AND TURKMEN LANGUAGES	Shahnoza Jumayeva, Toyly Allayev, Yyldyz Usmanova	Seyitnazar Seydi Turkmen State Pedagogical Institute, Turkmenistan
TEACHING VERBS IN ENGLISH CLASSES	Bahar Jumayeva, Mayagozel Kerimova, Hatya Taganova	Seyitnazar Seydi Turkmen State Pedagogical Institute, Turkmenistan
THE REGULATORY EFFECTS OF COMPETITION IN TRAVEL INDUSTRY – THE CASE OF AUSTRIAN AIRLINES IN ALBANIA	Leida Matja, Rezana Konomi	Albanian Competition Authority, Tirana, Albania

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25.01.2025

Moderator: Assoc. Prof. Dr. Serkan Öztürk

Meeting ID: 883 9498 5602 / Passcode: 242424

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TRACKED AUTONOMOUS BORDER SECURITY VEHICLE	Rıdvan Kar Kamil Gülsoy Ali KUŞ Neccar	Fırat University, Türkiye
SYNTHESIS OF A DI-CATIONIC SURFACTANT CONTAINING TWO PYRIDINIUM IONS AND ANTI- CORROSION EFFECT ON STEEL IN 1.0 M HCl	Serkan Öztürk Zafer Gültekin	Bursa Uludag University, Türkiye
NEW ENERGY FOR STELLAR RESEARCH: THORIUM REACTORS AS THE FUTURE OF SPACE STATIONS	Ismailzade Omar Ismail	National Aviation Academy
SYNTHESIS OF SILVER NANOPARTICLES FROM PICHIA KUDRIAVZEVII JD2 POSTBIOTIC	Gulsevrim ANAR Zehranur YUKSEKDAG Berat CINAR ACAR	Gazi University, Türkiye
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Session -2 / Hall-5**25.01.2025****Moderator: Anila Peposhi****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 12:30-14:30****Ankara Local Time: 14:30-16:30**

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A FREQUENCY-RECONFIGURABLE CIRCULAR MICROSTRIP ANTENNA WITH VARACTOR DIODES FOR MODERN COMMUNICATION APPLICATIONS	Khouloud Mohammed Belhadj Souheyla Ferouani Djalal Ziani Kerarti	University of Ain Temouchent, Algeria 3Institute of Telecommunications and ICT of Oran, Algeria
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ERGONOMIC JAR LID OPENING MACHINE DESIGN FOR ELDERLY AND DISABLED PEOPLE	Hassan Küçük Nurettin Selami	Fırat University, Türkiye
DESIGN AND MANUFACTURING OF JEWELRY MACHINE (JEWELPAL)	Muhib FATALOUN Cihad ALI Ali Seydi AGCA	Fırat University, Türkiye
MASING AT LIMIT CYCLE ARISING DUE TO THE STARK DYNAMICAL FREQUENCY SHIFT: TWO APPROACHES	Nathalie Fokina Maia Elizbarashvili	Institute "Talgha" of Georgian Technical University, Tbilisi, Georgia Vladimir Chavchanidze Institute of Cybernetics of Georgian Technical University, Georgia
DESIGN AND FABRICATION OF VAPOUR ABSORPTION AC USING ENGINE EXHAUST GAS	Aqib Mehmood Muhammad Naeem	University of Engineering and Technology, Pakistan
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ON ASYMPTOTIC BEHAVIOR OF SOLUTION FOR DELTA FRACTIONAL DIFFERENCES VIA MITTAG-LEFFLER FUNCTIONS	Pshtiwan Othman Mohammed Shokh Shwan Karim	University of Sulaimani, Sulaimani 46001, Kurdistan Region, Iraq
EVALUATING GRID-POINT SELECTION PROCESS FOR ACCURATE STANDARDIZED PRECIPITATION INDEX (SPI) CALCULATION	Ahmad Abu Arra, Eyüp Şişman	Yildiz Technical University, Türkiye
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Session -2 / Hall-6**25.01.2025****Moderator: Assoc. Professor Veronika Duci****Meeting ID: 883 9498 5602 / Passcode: 242424****London Local Time: 12:30-14:30****Ankara Local Time: 14:30-16:30**

TITLE	AUTHOR(S)	AFFILIATION
A COMPREHENSIVE REVIEW OF POLICE ADMINISTRATION EVOLUTION IN AFGHANISTAN: STRUCTURAL CHANGES, POLICY SHIFTS, LEADERSHIP, AND RESOURCE ALLOCATION	Mohammad Basir Karimi Rajbans Singh Gill	Punjabi University, Patiala, India
RE-CREATION of a TUYUQ GENRE of UZBEK CLASSIC POETRY in RUSSIAN and ENGLISH (On the basis of translations of tuyuq genre)	Gulnoz Sattorova Shukurova Zilola	The Academy of Sciences of Uzbekistan Samarkand State Institute of Foreign languages
EMERGING POWERS IN THE WESTERN BALKANS: CHALLENGES AND EXPECTATIONS THROUGH A NEOREALIST LENS	Besian Zogaj	European University of Tirana, Albania
ALBANIA AND EU-BETWEEN INTERNAL CHALLENGES AND EUROPIAN DILEMMAS	Iva Sulaj	Logos College University, Albania
A FAMILY-BASED APPROACH IN THE CARE ECONOMY	Veronika Duci	University of Tirana, Tirana, Albania
A FRAMEWORK FOR THE DEVELOPMENT OF A COMPREHENSIVE AND INTEGRATED FAMILY STRENGTHENING AND SUPPORT PROGRAMME IN UZBEKISTAN	Izela Tahsini	University of Tirana, Tirana, Albania
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CHILDREN'S MORAL UPBRINGING THROUGH FAIRY TALES	Miyassar Nurullayeva, Zulayha Jumayeva, Dilfuza Mirzoyeva	Seyitnazar Seydi Turkmen State Pedagogical Institute, Turkmenistan
EXAM THE EFFECT OF MINDFULNESS EXERCISES IN REDUCING ANXIETY	Bekir Yıldız Aybike Ace Sansar Elife Zehra Çelik Ayşe Betül Kolalı	Erdemli Science and Art Centre, Mersin, Turkey.

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MOTIVATIONAL BARRIERS FACED BY LOW-MOTIVATED IMAM-HATIP MIDDLE SCHOOL STUDENTS TOWARD LEARNING ARABIC¹

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ABSTRACT

Developing affective traits is crucial in learning foreign languages. Motivation is one of the most critical ones among them. Motivation ensures students' engagement with the language taught and their continuous effort to know it. Motivation is the driving force behind initiating and maintaining the learning process of a foreign language. Given its importance, this study seeks to identify the obstacles students with low motivation at Imam Hatip Middle Schools face in their attempts to learn Arabic as a foreign language. It also aims to determine what kind of recommendations can overcome these challenges. The study was conducted using an explanatory sequential mixed research method. Imam Hatip Middle School students were asked to answer the items of the "Motivation Scale for Learning Arabic" to identify students with low motivation. Researchers conducted semi-structured interviews to explore the motivational barriers Imam Hatip Middle School students faced. The study involved 34 students with "negative" or "very negative" motivation levels out of 434 surveyed and 9 Arabic teachers who taught these low-motivated students. The analysis showed 14 unique motivational barriers classified as internal and external factors. The internal challenges shared by all low-motivated students are a lack of clear goals, low self-confidence, difficulties in language skills, negative attitudes towards the course and the language, and cognitive challenges. The external challenges encountered are related to negative teacher's behaviour, teacher's method inadequacy, low teacher competence, low family support and interest, coming to İHMS by force, not seeing the language as functional/active and having a different language structure. These results align with similar findings in the literature.

Keywords: Motivation in foreign language learning; Arabic learning motivation; motivational barriers; negative factors affecting motivation.

¹ This study has been created of the master thesis of Gizem DÜZGÜN supervised by Prof. Kerim AÇIK and Assoc. Prof. Kamil Arif KIRKIÇ.

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THE MEDIATING ROLE OF OBSESSIVE SYMPTOMS IN THE RELATIONSHIP BETWEEN PARENTING ATTITUDES AND FEAR OF GROWTH IN INDIVIDUALS WITH EATING DISORDERS

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ABSTRACT

The aim of this research is to investigate the mediating role of obsessive symptoms in the relationship between fear of growth and parental attitudes among individuals displaying symptoms of eating disorders. A total of 700 volunteers aged 18 and above were recruited through a random sampling method to participate in the study. According to the findings of the study, a partial mediating role of obsessive symptoms was found in the relationship between fear of growth and parental attitudes among individuals displaying symptoms of eating disorders. The relationship between eating disorders and fear of growth, parental attitude, as well as obsessive symptoms, was found to be significant and positively correlated. In the study, the data collection instruments utilized were a demographic information form, the Rezy Eating Disorder Scale, the Perceived Parental Attitude Scale, the Fear of Growth Scale, and the Padua Inventory. When reviewing studies on eating disorders, there is a limited amount of detailed research pertaining to the early childhood period. There is a much greater need for studies on the relationship between fear of growth, perceived parental attitudes, and symptoms of eating disorders. In clinical practice, it is recommended to incorporate family relationships and family-based psychoeducation into eating disorder intervention programs. During emerging adulthood, it is recommended to include skill development programs focused on taking responsibility to support individuals' processes.

Keywords: Obsessive-compulsive disorder, parental attitude, eating disorders, emerging adulthood, fear of growth

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INVESTIGATION OF THE CHEMICAL, PHYSICAL- CHEMICAL, AND BIOLOGICAL CHARACTERISTICS OF THE WATER AT THE MIRUSHA WATERFALL IN LLAPCEVË, THE MUNICIPALITY OF MALISHEVA

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ABSTRACT

Our study is primarily concerned with analyzing the chemical parameters of the spring-fed waters at the Mirusha waterfall and correlating the actual parameters with those permitted by EU criteria. For a thorough analysis, water samples were collected from three distinct locations, which we have designated as (M1, M2, M3). Additionally, the values of various parameters, including physico-chemical, toxic, and organoleptic, were examined, with a focus on the samples' electrical conductivity, pH, temperature, sulfates, nitrates, and heavy metal content. The findings demonstrate that the majority of the examined parameters, with the exception of lead metal, which surpasses legal limits and poses serious health hazards to people should it be consumed, are within acceptable ranges in accordance with EU regulations. additionally the primary risk of bioaccumulation in aquatic organisms, as well as a secondary risk if fish are consumed. To maintain the preservation of this environment, which has significant importance for our nation's biodiversity, recommendations have been made for ongoing monitoring, tourist limitations, and the use of this water for agricultural purposes.

Keywords: Water purity Mirusha Waterfall Physical-chemical analysis EU norms Heavy metals surveillance keeping the ecology intact

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INVESTIGATION OF THE EFFECT OF CELASTROL ON FOXM1

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ABSTRACT

Breast cancer is a type of malignant tumor that starts in the breast cells and by metastasis spread to other organs. It is also one of the most common types of cancer and it has the highest mortality rate in women. Since estrogen receptors, progesterone receptors, and human epidermal growth factor receptor 2 found in breast cancer, are not found in triple-negative breast cancer (TNBC), it represents the most aggressive type of breast cancer with high drug resistance, rapid progression, and poor prognosis. For this reason, it cannot be targeted therapeutically. Therefore, identifying novel molecular targets and developing alternative therapeutic strategies are urgently needed. FOXM1 is a protooncogenic transcription factor which plays a crucial role in promoting cancer cell proliferation, metastasis, progression, and tumorigenesis of TNBC. We previously demonstrated for the first time that *in vivo* targeting of FOXM1 suppresses TNBC tumor growth in mice. To identify potential inhibitors, utilizing *in silico* docking studies we screened the FDA-approved compounds and found that Celastrol interacts with FOXM1. In the study, MDA-MB-231 cell line was used. MTS analysis was performed to investigate the effect of Celastrol molecule on cell viability, clonogenic analysis was performed to investigate its effect on clone formation. Since cell death was observed by these analysis, Annexin-V analysis was performed to investigate the type of cell death, and western blot analysis was performed to investigate the effect on the expression of FOXM1 and its down targets. As a result of the experiments, it was determined that Celastrol reduces cell viability and colony formation, induced apoptosis. Also, expression of FOXM1 was inhibited in TNBC. Our results show that celastrol may important inhibitor for the suppression of the expression of FOXM1.

Keywords: Breast cancer, Triple-negative breast cancer, Celastrol, FOXM1

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IN VITRO INVESTIGATION OF FLAVOPIRIDOL, CINNAMIC ACID AND THEIR COMBINATIONS AS THERAPEUTIC AGENTS IN TRIPLE RECEPTOR NEGATIVE BREAST CANCER

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ABSTRACT

Breast cancer is the most common cancer type among women in the world, because of a high mortality rate and a high probability of recurrence. Triple receptor-negative breast cancer (TNBC), which represents the most aggressive type of breast cancer, is generally defined by the absence of three known receptors that are progesterone receptor, estrogen receptor, and human epidermal growth factor receptor. Because of lack of receptors TNBC can not be targeted easily, Existing chemotherapeutics are known to cause high toxicity and resistance in cancer. Many studies, especially for the treatment of cancer, have focused on replacing currently used chemotherapy drugs with natural compounds with fewer side effects and even on their combination studies. In this study, Flavopiridol (FP), a semi-synthetic flavonoid and cyclin-dependent kinase (CDK) inhibitor isolated from *Dysoxylum binectariferum* which is an Indian plant and cinnamic acid (CA, 3-phenyl-2-propenoic acid) that is a natural aromatic carboxylic acid found in many plants such as cinnamon, grape, tea, cocoa, spinach, celery, coffee bean, and olive, were used. The effects of FP, CA, and their combination therapy were investigated on viability/proliferation, clone formation, and wound healing in MDA-MB-231, BT-549, and BT-20 cell lines which are triple-negative breast cancer cell lines. MTS analysis used for viability/proliferation, clonogenic test for clone formation determination, and migration experiments for determination of cell migration ability were performed. As a result of these experiments, it was statistically shown that the combination treatment had more significant results than treatments with only FP and only CA. In conclusion, our studies show that flavopiridol and cinnamic acid are a promising combination for the treatment of TNBC.

Keywords: Flavopiridol, cinnamic acid, TNBC, combination, therapeutic agents.

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THE IMPORTANCE AND INDIVIDUAL INTEREST IN LEARNING SECOND LANGUAGES

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ABSTRACT

This article explores the significance of learning a second language (L2) in an increasingly interconnected world, emphasizing the individual motivations that drive language acquisition. We examine the cognitive, social, and economic benefits associated with bilingualism, including enhanced cognitive flexibility, improved academic performance, and greater employability. Through a review of existing literature and qualitative interviews, we identify key factors influencing individual interest in L2 learning, such as cultural exposure, personal goals, and intrinsic motivation. Our findings suggest that personalized approaches to language education, which align with learners' interests and aspirations, can significantly enhance engagement and retention. This research highlights the need for educational systems to adapt curricula that foster individual interests, thereby promoting more effective and meaningful language learning experiences.

Keywords: Second Language Acquisition, Bilingualism, Cognitive Benefits, Personal Motivation, Language Learning, Educational Strategies, Cultural Exposure, Engagement.

Introduction

In an era defined by globalization and technological advancement, the ability to communicate in multiple languages has become a crucial asset. Learning a second language (L2) not only enriches personal and professional lives but also fosters greater intercultural understanding and cooperation. As individuals navigate an increasingly interconnected world, the implications of bilingualism extend beyond mere linguistic competence; they encompass cognitive, social, and economic dimensions that significantly impact one's life trajectory.

Research highlights that bilingualism contributes to cognitive flexibility, which enhances problem-solving abilities and critical thinking skills (Bialystok, 2011). Moreover, bilingual individuals often experience improved academic performance, as the skills developed through language learning, such as enhanced memory and attentional control, transfer to other subjects (Costa et al., 2009). Economically, the demand for bilingual professionals continues to rise, as companies seek employees who can operate in diverse markets and communicate effectively with clients from various cultural backgrounds (Kagan & Friedman, 2012).

However, the motivations driving individuals to learn a second language can vary widely. Factors such as cultural exposure, personal aspirations, and intrinsic motivation play significant roles in shaping learners' interests and commitments. While traditional language education often adopts a one-size-fits-all approach, recent studies emphasize the importance of personalized learning experiences that align with individual goals and interests (Dörnyei, 2005).

This article seeks to explore the significance of learning a second language and the individual factors that influence language acquisition. We aim to address the following research questions:

1. What cognitive, social, and economic benefits are associated with bilingualism?

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2. How do personal motivations, including cultural exposure and intrinsic interest, affect individual engagement in language learning?
3. What educational strategies can be implemented to create personalized language learning experiences that cater to diverse learner needs?

To address these questions, we will conduct a comprehensive review of existing literature, complemented by qualitative interviews with language learners. Our findings will provide insights into effective educational practices that foster meaningful language acquisition, ultimately enhancing the overall learning experience.

The Cognitive Benefits of Learning a Second Language

Research consistently indicates that bilingualism enhances cognitive functions. Studies show that individuals who speak multiple languages exhibit greater cognitive flexibility, enabling them to switch between tasks more effectively (Bialystok, 2011). This cognitive advantage is linked to improved problem-solving skills, enhanced creativity, and greater overall academic performance (Costa et al., 2009).

Moreover, bilingual individuals often demonstrate better executive functions, such as working memory and attentional control. These cognitive benefits contribute to lifelong learning and adaptability in an ever-changing job market. Bilingualism has also been associated with delayed onset of dementia and Alzheimer's disease, emphasizing its long-term cognitive benefits (Bialystok et al., 2007).

Social and Economic Advantages of Bilingualism

Beyond cognitive benefits, learning a second language fosters social connections. Bilingual individuals can engage with diverse cultures, enriching their social experiences and promoting cross-cultural understanding. This social capital is invaluable in today's interconnected world, where collaboration and communication across borders are increasingly vital (Grosjean, 2010).

Economically, bilingualism can significantly enhance employability. Employers often seek candidates with language skills, as they can navigate international markets and communicate with clients from different backgrounds. Research has shown that bilingual employees tend to earn higher salaries and have better job prospects than their monolingual counterparts (Kagan & Friedman, 2012; Neeley, 2013). Furthermore, in a globalized job market, companies are more likely to hire bilingual individuals who can contribute to a diverse workplace and bring unique perspectives (Caldwell, 2018). Thus, the economic implications of bilingualism extend beyond mere salary differences to encompass broader career opportunities.

Factors Influencing Individual Interest in L2 Learning

While the benefits of learning a second language are clear, individual interest in language acquisition varies widely. Through a review of existing literature and qualitative interviews with learners, several key factors influencing interest in L2 learning have emerged:

Cultural Exposure

Exposure to different cultures plays a pivotal role in sparking interest in learning a second language. Experiences such as travel, intercultural exchanges, and friendships with speakers of other languages can ignite curiosity and motivation. As learners encounter new cultural contexts, they often feel a desire to understand and communicate within those frameworks (Kramsch, 1998).

Personal Goals

Individual aspirations significantly shape language learning motivation. Many learners pursue L2 acquisition for specific personal or professional goals, such as studying abroad, advancing in their

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careers, or connecting with heritage. Aligning language learning with these goals can enhance motivation and commitment (Gardner, 1985).

In particular, the relevance of the language to personal or career goals can significantly impact learners' dedication and persistence (Dörnyei, 2005). For instance, a student interested in international relations may find greater motivation to learn a language relevant to their field of study.

Intrinsic Motivation

Intrinsic motivation, or the internal desire to learn for personal satisfaction, is a powerful driver of language acquisition. Learners who engage with a language because they find it enjoyable or meaningful are more likely to persist in their studies (Deci & Ryan, 2000). Activities that promote intrinsic motivation, such as interactive learning experiences and creative language use, can lead to more profound engagement.

The Role of Personalized Educational Strategies

Our findings suggest that personalized approaches to language education, which align with learners' interests and aspirations, can significantly enhance engagement and retention. Educational systems must adapt curricula to reflect individual interests, making language learning more relevant and motivating.

Incorporating Learner Interests

Educators can incorporate learners' interests into language curricula through project-based learning, cultural immersion experiences, and technology-enhanced language tools. By fostering a learning environment that values personal goals and interests, educators can create meaningful language learning experiences that resonate with students (Schunk et al., 2014).

Technology in Language Learning

The integration of technology in language education offers unique opportunities for personalized learning. Language learning apps, online courses, and virtual exchange programs can cater to individual preferences, enabling learners to study at their own pace and pursue topics that intrigue them (Godwin-Jones, 2018). These digital tools can enhance engagement and provide learners with diverse resources to practice language skills in authentic contexts.

Conclusion

As our world becomes increasingly interconnected, the importance of learning a second language cannot be overstated. The cognitive, social, and economic benefits of bilingualism highlight the necessity for educational systems to prioritize language acquisition.

By understanding the individual motivations that drive language learning, educators can create personalized approaches that enhance engagement and retention. Adapting curricula to align with learners' interests will not only foster more effective language learning experiences but also empower individuals to navigate the complexities of a multicultural world.

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DIFFERENT METHODS OF TREATMENT ON SKIN WOUND HEALING

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ABSTRACT

Introduction: Skin wound healing is a complex process crucial for maintaining bodily integrity and function. However, factors such as chronic diseases, infections, advanced age, medications, and nutrient deficiencies can disrupt the normal wound healing process, leading to complications such as excessive scarring. Cytokines like IL-1 and IL-6 play essential roles in wound healing.

Materials and Methods: This study investigates the effects of different treatments on IL-1 and IL-6 levels during the wound healing process. Experiments were carried out on male white lab. Rats with the body weight range 200-250 g.

For modeling of skin wounds the rats were anesthetized with nembutal (50 ml/kg). After shaving and cleaning with 70% alcohol, excisional, full-thickness skin wounds were aseptically made on the dorsal skin. After, a surgical suture of 5 cm was placed on the skin at 1 cm interval. All animals were placed in 6 groups. Each group involved 10 rats.

The group I - intact healthy rats; The group II - control, untreated rats; The group III - rats treated with epicyn; The group IV - rats treated with dermatix ultra; The group V - rats treated with flosteron; The group VI - rats treated with contratubex;

Contractubex, dermatix ultra and epicin creams were applied to the wound surface as a thin layer 2-3 times a day for 4 weeks in the corresponding group animals. Flosteron (0.2 ml) was injected subcutaneously in the wound area once a week during 4 weeks.

Pro-inflammatory cytokines (IL-1, IL-6) were studied by ELISA. Blood samples for immunological investigations were collected and studied by the 7th, 14th, 21st and 28th days of experiment.

Results were analyzed statistically. Statistical significance was evaluated by using ANOVA or Mann-Whitney's U test. $p < 0.05$ was accepted as statistically significant.

Results showed that IL-1 levels were significantly increased on the 7th day of wound healing in the epicyn and dermatix ultra-treated group, followed by a gradual decrease to normal levels by the 21st day. Flosteron treatment also normalized IL-1 levels by the 28th day, albeit with a slight delay compared to epicyn. In contrast, IL-1 levels remained elevated in the control and contratubex-treated groups. Similarly, IL-6 levels remained stable on the 7th day but increased on the 14th day in the epicyn and dermatix ultra -treated group, returning to normal by the 28th day. Flosteron treatment normalized IL-6 levels only by the 28th day. Contratubex treatment showed no significant changes in IL-6 levels compared to the control. Overall, epicyn, dermatix ultra and flosteron treatments effectively modulated the inflammatory response, as evidenced by the normalization of IL-1 and IL-6 levels by the 28th day. In contrast, the control and contratubex-treated groups exhibited prolonged elevation of cytokine levels, suggesting impaired or delayed wound healing.

Conclusion: these findings underscore the importance of choosing appropriate therapeutic interventions in wound management. Epicyn and dermatix ultra show promise in promoting wound healing, while

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contratubex may have limited efficacy. By implementing a holistic approach to wound management that addresses the multifaceted aspects of wound healing, healthcare providers can optimize outcomes and improve the quality of life for patients with skin wounds. This study contributes to our understanding of wound healing dynamics and highlights the potential of specific treatments in promoting optimal wound healing outcomes.

Key words: Epicyn, dermatix ultra, flosteron, contratubex, IL-1, IL-6, skin wound healing.

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EXTRACTION OF HEMICELLULOSES FROM NANNOCHLOROPSIS GADITANA AND CHARACTERIZATION USING FT-IR SPECTROSCOPY

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ABSTRACT

Introduction: the extraction of hemicelluloses, a complex group of polysaccharides found in plant cell walls, was studied in the microalga *Nannochloropsis gaditana*. Few studies exist on hemicelluloses from microalgae compared to higher plants. This project aims to characterize the hemicellulose of this microalga. **Materials and Methods:** Hemicelluloses were extracted from holocellulose using 2% NaOH at 80°C for 2 hours, with the addition of sodium borohydride to prevent degradation. After centrifugation, the supernatant was neutralized with diluted acetic acid, and the hemicelluloses were precipitated with ethanol. The FT-IR spectrum was used to identify the functional groups present. **Results and Discussion** The FT-IR spectrum of the hemicellulose revealed characteristic bands similar to those of cellulose and polysaccharides, notably the vibrations of hydroxyl groups (3283 cm^{-1}) and carbonyl groups (1622 cm^{-1}). A specific band for arabinoxylan (1036 cm^{-1}) was also identified, indicating that the hemicellulose of *N. gaditana* is of the arabinoxylan type. Although its hemicellulose content is low (1.5% of dry weight), this compound may play an important structural role. **Conclusion:** This study provides new insights into the hemicellulose of *N. gaditana*, identified as arabinoxylan. These results contribute to a better understanding of the cell wall structure of microalgae and open the door to future research on their functional roles.

Keywords: Hemicelluloses, *Nannochloropsis gaditana*, Extraction , FT-IR Spectroscopy.

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THE IMPACT OF THE MICA-129 DIMORPHISM ON THE PROGRESSION OF THE BREAST CANCER

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ABSTRACT

MICA is a highly polymorphic non-classical human MHC class I molecule, with 570 MICA alleles described so far (IMGT/HLA). MICA polymorphisms are associated with several diseases related to NK cell activity, such as cancer. Cancer cells express stress molecules like MICA, which activate cytotoxicity by lymphocytes and NK cells through their NKG2D receptor as a mechanism of immunological defense. A polymorphic change from methionine (Met) to valine (Val) at amino acid position 129 categorizes MICA alleles into strong and weak binders for the NKG2D receptor and has been found in various immune-related disorders.

The aim of our study was to characterize patients with breast cancer and investigate the MICA-129 Met/Val polymorphism's role in the development of the disease. The secondary objective was to explore associations between different clinical and biological components of the disease and the described mutations.

We included 100 breast cancer patients followed at EHU of Oran and 105 age-matched control women. The demographic, clinical, and therapeutic characteristics were reported. Genotyping was used to identify the MICA-129 Met/Val mutation.

No studies have previously examined the association of these polymorphisms with breast cancer in the Algerian population. Our investigation aims to elucidate the role of these polymorphisms in our cohort. Preliminary results suggest that the MICA-129 Val allele may play a role in individual susceptibility to breast cancer development. Our study proposes certain hypotheses regarding the association between genetic markers and some characteristics of breast cancer.

Keywords: MICA, MICA-129 Met/Val, BREAST CANCER

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THE IMPACT OF FLIPPED CLASSROOM AND E-LEARNING ON STUDENT PERFORMANCE IN PRIMARY SCHOOLS OF UAE

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ABSTRACT

Today, adopting multiple learning strategies has changed the education process around the world and significantly improved student performance by helping them to use innovated learning methods such as flipped classroom and e-learning to acquire knowledge and ease learning complex scientific subjects. Despite that the United Arab Emirates (UAE) have passed a long way in developing learning methods in schools, the performance of students remains a big concern. While the effect of e-learning and flipped classroom methods on student performance has not been reported in UAE schools, the alignment of these methods and fit them into one framework is lacking in the literature. To that end, this study addresses these issues and gaps. The aim of this paper is to critically review the impact of e-learning and flipped classroom on the performance of students in UAE primary schools. This study applied quantitative methods. The population is the students in primary schools in the UAE. Data instrument is self-administrated questionnaire. The data collection has been conducted on a sample of 800 students. Simple random sampling technique has been applied in the survey procedure. SPSS software is deployed to conduct data analysis. Regression analysis is the principal approach used to conduct data analysis and test the hypothesis of this study. The outcome of this paper reveals that e-learning and flipped classroom methods have been found to significantly contribute to student performance. E-learning provides students with the opportunity to learn at their own pace and in their own time, allowing for a more personalized and flexible learning experience. This can greatly benefit students who may need additional time or support to grasp certain concepts, as they can revisit the material as many times as needed until they fully understand it. While the interactive nature of flipped classrooms encourages active learning and collaboration among students, leading to a deeper understanding of the subject matter. Based on this finding, both learning methods are necessary in modern schools and should be implemented in the curriculum to promote better student performance.

Keywords: E-learning, Flipped Classroom, Student Performance

1. Introduction

Adopting multiple learning strategies has changed the education process and significantly improved student performance by teaching them new and independent skills in a learning environment that helped them acquire knowledge and complex scientific subjects using sampling ways, which in turns improve student performance (Davronovich & Mansurjonovich, 2023). The use of technology in the classroom, such as e-learning, has allowed teachers to offer knowledge in a more interactive and engaging manner, while also giving students more control over their learning (Linardatos & Apostolou, 2023). E-learning and flipped classroom tactics have gained popularity in educational institutions due to their effectiveness and numerous reported results on their significant impact on student academic achievement (Zhang, 2023). These approaches have enabled more individualized and participatory learning experiences, allowing students to take charge of their education (Saputra, 2022). As technology advances, it is expected that these tactics will become much more common in schools around the world. While flipped classroom method has demonstrated encouraging outcomes in terms of boosting student performance and independence (Goedhart et al., 2019). As e-learning is now a widespread learning technology that

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supplements traditional learning approaches. Flipped classroom is not less important than e-learning. Today, education scholars are attempting to understand the factors that influence student performance and to examine the best learning practices that enhance independent learning skills. (Daily et al., 2019). Student performance is a measure of a student's academic achievement or advancement in a specific subject or course. It can be determined by administering tests, exams, assignments, and even little projects, as well as student involvement, motivation (Andres, 2020), study habits, attitude (Tus, 2020), and the quality of teaching and learning resources available to them are all factors that can affect their success (Yang & Lee, 2021).

Despite the fact that the UAE's population has high literacy rates and is fairly educated, and that enrollment in elementary and secondary schools has expanded in recent decades, there are a number of issues that must be addressed in the UAE's educational systems (IvyPanda, 2020). As education has an ultimate objective that is taxonomically characterized as the cognitive, psychomotor, and affective domains (Tasrif et al., 2023), achieving this goal in every school is difficult. A variety of new teaching methods, such as the flipped classroom, which effectively moves the lecture outside the classroom via technology while keeping homework and exercises with concepts inside the classroom via learning activities (Brunsell & Horejsi, 2011; Tucker, 2012), could assist students in developing potential skills. The flipped classroom technique, which is partially dependent on technology, is a realistic alternative because the UAE is a leader in the adoption of innovative philosophies and new technological tools in education. For example, using flipped classroom instruction to teach international standardized tests in UAE schools, such as the newly-redesigned SAT exam skills, may assist teachers in reducing lecture time and increasing time spent on improving students' critical thinking and problem-solving skills through collaboration with their colleagues (Jarrah & Diab, 2019). In terms of worldwide rankings, the UAE fell from 47th to 50th place in math while improving its score. In reading, it climbed two spots to 46th, while in science, it fell from 46th to 49th. The UAE Ministry of Education announced that by 2021, when the next cycle of examinations will be performed, it hopes to be among the top 20 countries in terms of PISA scores (Daniel, 2019). According to the OECD (2021) assessment, the UAE's general course during the last decade has been classed as stable, but remains in all three courses (reading, mathematics, and science). Despite that the UAE have passed a long way in using e-learning application, the impact of e-learning on academic performance of students remains a big concern regardless of lots of reports on the potential of e-learning for students at all ages. While the status of skills on using e-learning and engagement in flipped classroom in the UAE has not been reported yet. As a result, this study sought to fill these gaps by attempting to comprehend how multiple learning tactics based on e-learning and flipped classrooms could be the essential component in boosting student performance in UAE primary schools.

2. Literature review

2.1. Flipped classroom

The flipped classroom is a popular teaching technique in recent years. Students are first introduced to new concepts and information outside of the classroom using films or online resources in this approach (Tunggyshbay et al., 2023). Students are then prepared to participate in hands-on activities, discussions, and problem-solving exercises in class (Oudbier et al., 2022). Because students can receive individualized assistance and support from professors during class time, this strategy enables for more personalized and engaged learning experiences (Doan et al., 2023). The flipped classroom paradigm helps students to take control of their learning and develop crucial abilities including critical thinking and self-directed learning (Galindo-Dominguez, 2021). Students can learn at their own speed and revisit ideas as needed by watching instructional videos or using online resources outside of class. This learning

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flexibility also allows students to investigate additional resources and have a greater grasp of the subject (Hew et al., 2021). Researchers in educational situations should focus on the flipped classroom because it has received a lot of attention as a potential solution to some of the problems with traditional teaching methods (Torres-Martín et al., 2022). Because the flipped classroom approach involves students engaging with instructional content outside of class, typically through watching videos or reading materials, and using class time for active learning activities and collaborative discussions, researchers in education fields should pay more attention to this learning method (Ruiz-Jimenez et al., 2022; Turan, 2023). The flipped classroom approach has demonstrated encouraging outcomes in terms of increasing student engagement, enhancing conceptual knowledge, and developing critical thinking abilities. Furthermore, the flipped classroom paradigm allows students to learn at their own pace and return to topics as needed, resulting in a more individualized learning experience (Hoshang et al., 2021). Students can take ownership of their learning and acquire crucial skills such as problem-solving and communication by shifting the focus from passive listening to active involvement (Jia et al., 2023). Furthermore, because it provides for differentiated instruction and individualized support, the flipped classroom method can help to address kids' unique learning requirements. This learning approach has the ability to revolutionize education and prepare students for the challenges of the twenty-first century (Aydin & Demirel, 2022).

The flipped classroom paradigm clearly supports student autonomy and self-directed learning, as students are accountable for completing pre-class work and arriving to class prepared to engage in meaningful conversations (Nugraheni et al., 2022). This change in accountability allows students to take control of their education and develops critical and independent thinking (Sointu et al., 2023). In other words, because students can work at their own pace and review topics as needed, the flipped classroom paradigm provides for more individualized learning experiences (Shen & Chang, 2023). As a result, this novel approach to teaching fosters a more dynamic and enriching classroom atmosphere in which students can actively participate in their own learning path (Sudarmaji et al., 2021). In conclusion, flipped classrooms have been shown to significantly contribute to the development of autonomous learning skills and, as a result, increase student performance. The flipped classroom encourages students to take ownership of their own learning by moving the traditional model of in-class lectures to pre-recorded videos or online materials that students can access at home. This strategy encourages students to engage with the subject at their own pace, allowing them to revisit the topic as many times as necessary to completely grasp the concepts. As a result, pupils grow more self-reliant and develop the ability to seek for and acquire knowledge on their own. This not only improves their grasp of the subject matter, but it also encourages critical thinking and problem-solving skills. Overall, the flipped classroom approach has been shown to be extremely effective in increasing student engagement, improving retention rates, and preparing students for real-world difficulties.

2.2. E-learning

E-learning, also known as electronic learning, refers to the process of acquiring knowledge and skills through digital platforms and technologies. It involves the use of computers, the internet, and various multimedia tools to deliver educational content and facilitate learning experiences. E-learning enables individuals to access educational materials and resources remotely, at their own pace and convenience, without the constraints of traditional classroom settings. E-learning gives flexibility in terms of time and location, allowing students to learn at their own speed and from the comfort of their own homes. This is especially advantageous for those who may have other commitments, such as part-time work or family duties (Ritonga et al., 2021). It is apparent that e-learning has actually altered the way education is delivered, breaking down boundaries and making it more accessible to students from all walks of life.

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With the development of online learning platforms and tools, students no longer have to be constrained by geographical location or financial restraints (Kevin, 2023). They can now access high-quality education from renowned universities throughout the world, extending their horizons and opening up a world of opportunity (Zhenchenko et al., 2021). This has balanced the playing field, allowing students from underprivileged homes or rural places to have the same educational possibilities as their more fortunate classmates (Zandi et al., 2021). For example, a student from a rural region with limited access to educational resources can now enroll in online courses offered by top colleges and receive information equivalent to that earned by students studying on campus. This allows them the option to seek further education and obtain better professional possibilities, ending the cycle of poverty and building a more equal society. In schools, e-learning can have several benefits. Firstly, it enables for a more flexible and accessible learning experience, as students can access educational materials and resources anytime and anywhere (Azizi et al., 2022). This eliminates the limits of physical classrooms and enables students to learn at their own speed. To that aim, e-learning can give a more personalized learning experience as digital platforms can adjust to individual student requirements and preferences, giving individualized content and adaptable evaluations. This tailored strategy can considerably promote student engagement and motivation, leading to enhanced learning results (Bada & Jita, 2021).

It has been stated that e-learning breaks geographical barriers, giving access to education for students in remote places or those with physical impairments. This inclusion fosters equitable chances for all learners, producing a more inclusive and diverse learning environment. Finally, e-learning transforms the traditional classroom setting, making education a dynamic and accessible process for students all over the world (Khanahmadi & Nasiri, 2022). In an e-learning platform, for example, students can access and review course materials at their own leisure, giving them control over their learning path. They can go over difficult ideas again, jump ahead to more complex themes, or even look into resources outside of the curriculum. This adaptability helps students to take ownership of their education and to acquire self-discipline, time management, and critical thinking abilities, all of which are necessary for becoming independent learners (Murniati et al., 2022). According to Amer-Mestre et al. (2023), e-learning increases collaboration among students from diverse geographical areas. Students from all around the world can exchange ideas and learn from one another through online discussion forums and virtual group projects. This broadens their knowledge and viewpoints while also encouraging cultural awareness and global citizenship. As a result, e-learning facilitates continuous assessment and feedback, allowing students to monitor their progress and find areas for development in real time. This quick feedback loop assists students in remaining motivated and taking responsibility of their learning path. One of the most significant benefits of e-learning is its capacity to provide a dynamic and customizable learning environment. Unlike traditional classroom environments, e-learning systems can be tailored to individual students' requirements and learning styles (ALkhtaybeh, 2023). This adaptability empowers students to take charge of their education and personalize their learning experience to their specific needs. Furthermore, interactive components such as quizzes, simulations, and multimedia information are frequently included in e-learning platforms, which enhance the learning experience and make it more engaging for students (Kesuma et al., 2023). These interactive components not only make studying more pleasant, but they also assist students in better understanding and remembering the knowledge. In other words, e-learning platforms frequently provide immediate feedback and progress tracking, allowing students to evaluate their own learning and highlight areas that require additional attention (Hamad et al., 2022).

In conclusion, a study of the literature shows that e-learning provides a wide choice of resources and multimedia technologies that cater to diverse learning styles, making education more inclusive and accessible for all students (Kallas & Pedaste, 2022). E-learning has the ability to transform education

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by breaking down barriers and offering equal chances for all students, regardless of their circumstances. The adoption of e-learning platforms, according to researchers, can drastically cut expenditures connected with traditional classroom settings, such as textbooks and physical infrastructure. This enables schools to more efficiently manage resources and invest in other areas of education, such as technology improvements or teacher training (Purwantoro et al., 2021; Tangirov et al., 2021; El Omari et al., 2023). According to this study, e-learning allows students to learn at their own pace and revisit materials as many times as necessary, creating a deeper comprehension of the subject matter and helping students enhance their academic accomplishment. E-learning assists schools in establishing a robust learning environment as well as long-term independent learning and critical thinking skills, as students are frequently required to search online resources and problem-solve on their own, making their learning process more vigorous and dynamic.

2.3. E-learning in UAE schools

As technology advances, e-learning in the UAE has become increasingly significant in schools (Ali, 2013). Promoting e-learning in schools provides various benefits, including expanded access to educational resources, improved student engagement, and the capacity to personalize learning experiences (Damuri et al., 2021). To that aim, schools in the UAE should promote e-learning to increase students' academic attainment because it provides for tailored learning, fosters critical thinking and problem-solving abilities, and prepares students for the digital world they will enter after graduation. The UAE Ministry of Education acknowledged the importance of e-learning and its strong tools in improving student performance. The incorporation of e-learning technology in education has transformed the traditional classroom setting, allowing students in the UAE to have online access to a large array of educational resources and materials (AlHamad, 2020). This accessibility, along with the participatory aspect of e-learning, has proven to be especially advantageous for UAE students, leading to considerable gains in academic achievement. Furthermore, e-learning has given UAE students the freedom to learn at their own pace and in their desired environment. This tailored approach to teaching has allowed students to delve deeper into topics and participate in interactive activities that cater to their unique learning styles. As a result, students are more motivated and enthusiastic about their studies, which leads to greater academic performance and overall success in their educational journey (Wren, 2021).

As e-learning plays an important part in strengthening autonomous learning skills among UAE students. Students now have access to a multitude of information and educational materials at their fingertips because to technological advancements and the availability of online resources (Ali, 2021). This allows individuals to take control of their learning experience and investigate topics outside of the typical classroom. E-learning systems frequently feature dynamic and engaging content, allowing students to learn at their own pace and in a way that is appropriate for their different learning styles. This level of autonomy allows students to become self-directed learners who are capable of creating objectives, managing their time effectively, and taking responsibility for their own education (Almaiah et al., 2020). A review of studies on the topic of e-learning in the UAE revealed varied results. According to several research, e-learning in the UAE is quite efficient at improving students' academic performance and engagement. This research emphasized the convenience and adaptability of online learning platforms, which enabled students to access instructional resources at any time and from any location. Other research, however, found that e-learning in the UAE has limitations, such as technical concerns, a lack of internet connectivity in rural places, and difficulties adapting to a virtual learning environment. As a result, additional research is required to investigate the elements that contribute to the success or failure

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of e-learning deployment in the UAE. Table 1 provides a summary of recent studies on the importance of e-learning in UAE educational systems.

Table 1: The key findings on the role of e-learning in UAE schools

Authors	Methodology/ Sample	Objectives	Findings
Abudaqa et al., 2021	Quantitative/ Students	To examine the student perception about the online learning during the recent pandemic of COVID-19	The impact of Self-perception of own general skills, perception on the teacher's roll, and learning tools are showing their positive influence on the learning factor of the students from grade 1to grade 12
Abdelaziz et al., 2023	Quantitative/ Students	Professional development needs and challenges faced by K-12 teachers in delivering effective online education in the United Arab Emirates	Significant differences between the surveyed teachers' as they recognized their needs, the application of emerging trends in online education, and perceived challenges due to the teacher's grade levels (educational level)
Mohamed et al., 2022	Quantitative/ Students	To identify the impact of the use of the e-learning program on transition learning and athletics skills for primary school students	There are statistically significant differences between the two measurements of the experimental group and the control group in transitional movements and athletics skills for primary school students
Yousif et al., 2022	Quantitative/ Children	To examine the effect of distance education on the level of educational achievement of children during the Corona period in ten primary schools	The participation of students in the establishment of appropriate educational programs and applications for the transmission to distance learning have contributed to reducing the negative effects
Alnusairat, 2022	Quantitative/ Students	To identify the impact of self-learning	Students of the advanced stream have more confidence

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Authors	Methodology/ Sample	Objectives	Findings
		platforms on students' performance and motivation towards learning mathematics in cycle/3 schools	than students of the general stream in these educational platforms
Emara et al., 2023	Qualitative/ parents	To evaluate the Adaptive Learning Framework (Alef) platform and determine how parents perceive the implementation of such a program to support their children's learning	Improving the material covered in Alef lessons, for example, cutting down on some activities and coordinating between subjects
Abdallah, 2018	Quantitative/ Parents	To investigate parents understanding and perception of supporting, encouraging and adopting e-learning initiative	Parents' satisfaction was moderate with teacher computer competence whereas they are highly satisfied with student computer competence
Damuri et al., 2021	Literature review	To know how the e-learning system in the teaching and learning system at the public high school level	With e-learning media, general high school students can continue to learn even though the conditions of the pandemic

2.4. Flipped classroom in UAE education system

The use of the flipped classroom approach has been rapidly rising in the UAE over the last few years. This novel method to education has gained favor among both instructors and students, transforming the traditional classroom structure. The flipped classroom, with its emphasis on student-centered learning and active engagement, has proven to be an excellent way for improving critical thinking abilities and building a deeper comprehension of the subjects presented. However, an assessment of studies on this topic undertaken in the UAE reveals that there is currently minimal information accessible, particularly on student performance and independent learning skills. Farah (2014), for example, investigated the benefits of using a flipped classroom teaching method on the writing proficiency of twelfth grade female Emirati students at the Applied Technology High School in Abu Dhabi, UAE. Her study found statistically significant differences in average scores, with the experimental group of students outperforming the control group. Furthermore, the data revealed that the observed improvement in writing proficiency can be attributable primarily to the flipped education pedagogical style. The students' attitudes on the usage of flipped instruction were equivalent. However, this study did not discuss how flipped classrooms help students develop independent learning skills. In the same vein, Jarrah and Diab (2019) investigated the impact of the flipped classroom model on the academic performance of eleventh grade Emirati female students in Al Ain, UAE, specifically in the areas of algebra, problem solving and

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data analysis, and advanced math as measured by the new SAT 2016 mathematics skills. The primary goal of this study is to determine whether there is a statistically significant difference in the academic performance of grade 11 students in the new SAT mathematics skills when two distinct groups are compared. The results show a statistically significant difference between the experimental and control groups' pretest and posttest scores on the new SAT mathematics skills. Furthermore, the findings suggest that educators instructing mathematics, specifically focusing on standardized test skills such as the SAT, could use the flipped classroom approach to boost students' readiness and strengthen their cognitive abilities, emulating the skills required in the twenty-first century. Despite the valuable findings on boosting the cognitive abilities of participants after adopting the flipped classroom approach, this study did not describe how the flipped classroom strategy helped to independent learning capabilities.

In a similar line, Al-Derbashi (2017) investigated the effects of using the flipped classroom technique in the instruction of "Laws of Motion" on eleventh grade students' grasp of physics fundamentals and attitudes toward physics. The study included 59 eleventh-grade students from Tonnb Secondary School in the United Arab Emirates. The students were split into two groups, with 30 assigned to the experimental group and 29 assigned to the control group. A pre-post scientific ideas test and a scale evaluating attitude toward physics were administered. The findings revealed statistically significant differences between the research groups, with the experimental group of students outperforming the control group on both study measures. The study stressed the importance of using a flipped classroom method to teach scientific principles. Shana and Alwaely (2021) conducted a study to investigate the impact of implementing the flipped classroom model on sixth-grade students' academic performance and perspectives in the setting of scientific education. A total of 39 individuals were randomly assigned to one of two groups: control, which received normal teaching, or experimental, which received flipped instruction. At the outset, the results show that there is no substantial difference between the two groups. Following a three-week interval, the post-test results in the field of science were evaluated once more in order to analyze the effects of various instructional interventions. According to the data, students were quite satisfied with the adoption of the flipped classroom approach. This finding confirmed the distinction between the control and experimental cohorts. The mean scores from both the flipped teaching group and the traditional instruction group offered additional evidence that flipped education had a substantial influence on students' learning outcomes and perspectives. Despite the fact that Shana and Alwaely's (2021) study assessed the influence of flipped classroom on primary school students, this conclusion could not be generalized due to the small sample size employed to measure the difference in effect between flipped classroom and traditional learning.

This study discovered that the issues of independent learning skills using flipped classrooms have not been examined on a large scale from the perspective of flipped classroom, this gap has not been addressed or reported in the past, especially in the UAE. The lack of empirical reports or evidence on this topic may generate possible issues and hurdles for teaching approaches. This research looks at why schools in the UAE should prioritize the flipped classroom concept. For starters, the UAE is noted for its varied student population, with students representing a wide range of cultural and linguistic origins. The flipped classroom approach accommodates various learning styles and allows students to interact with the subject at their own pace, ensuring that no student falls behind. Furthermore, the UAE is fast transitioning into a knowledge-based economy, with a premium on critical thinking and problem-solving abilities. The flipped classroom method encourages students to actively engage with the curriculum and apply their knowledge in collaborative activities, which helps to develop these skills. Additionally, the flipped classroom approach encourages student autonomy and responsibility for their own learning. Students in the UAE should be given the option to actively seek out tools and materials to complement their grasp of the curriculum. This not only improves their critical thinking and problem-solving

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abilities, but also prepares them for the demands of the future workforce, where self-directed learning is increasingly appreciated.

3. Theoretical background

The literature reveals various theories that explain the educational systems. Self-Determination Theory (SDT) is a psychological paradigm that examines human motivation and behavior in relation to a certain notion, such as the learning process. SDT serves as a foundation for a variety of educational approaches, including e-learning (Roca & Gagné, 2008), flipped classrooms (Zainuddin & Perera, 2019), autonomous learning skills (Field et al., 2024), and student performance (Taylor et al., 2014). SDT, which Edward and Richard created in the 1980s, contends that people have basic psychological needs for autonomy, competence, and relatedness. These expectations motivate people to seek out experiences and activities that suit their needs, resulting in better well-being and optimal performance. According to SDT (Deci & Ryan, 2012), individuals are more likely to be driven and involved in their interests when they feel autonomous (self-independent), or in control of their own actions and decisions. Furthermore, the principle of this theory emphasizes the significance of competence in a given field of life, or the sense of being capable and effective in doing specific activities, as motivators play a significant role in this scenario (Ryan & Deci, 2017). SDT provides a great lens for examining the influence of this educational method on student learning outcomes in the setting of flipped classrooms. The flipped classroom model aligns with the basic principles of SDT by empowering students to take control of their own learning, ultimately fostering greater motivation, self-regulation, and academic achievement. For example, Muir (2021) conducted a case study of a senior secondary mathematics class achievement based on SDT and flipped classroom. As a result, SDT is extremely useful in a flipped classroom scenario. In other words, this theory proposes that people are more motivated and engaged when they have a sense of autonomy, competence, and affiliation. For example, Hu et al. (2022) investigated the impact of a small private online course based on flipped classroom teaching on physical education students' learning motivation from the standpoint of SDT.

Furthermore, by implementing SDT principles into e-learning, educators can foster an environment in which students can become self-motivated, independent, and lifelong learners. For example, in a coding e-learning course, instructors can provide learners with a variety of learning options, such as video tutorials, interactive coding exercises, or text-based materials. This enables learners to select the learning path that best suits their learning style and increases their engagement. Then, instructors can design an immediate feedback system in which learners receive quick feedback on their coding tasks. This not only helps learners discover their strengths and areas for improvement, but it also reinforces their sense of competence and progress in specific abilities. For example, Darwin and Chaeruman (2022) investigated the use of SDT in e-learning to increase listening skills. Aldraiweesh and Alturki (2023) investigated factors impacting e-learning acceptance and students' cooperation skills in the same setting. Cognitive learning theory, according to Thayyibi and Ratnasari (2022), is recognized as a theory that is critical to the growth of educational theory. To maximize the learning process, many learning theories are produced that can later be utilized to understand and improve the student's learning process. There are several, but one of them is Jean Piaget's cognitive learning hypothesis. In this study, cognitive theory is utilized to describe how students achieve their academics based on cognitive skills. In general, the cognitive learning hypothesis investigates how people think. To understand how people learn knowledge, one must first understand how their brain operates. According to cognitive theory, both internal and external variables can have an impact on learners.

The most important part of learning, according to the cognitive perspective of learning, is not only the outcome or academic achievement, but also the learning process (Fadhila & Nirwana, 2021). Thus,

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cognitive learning theory lays a major emphasis on evaluating individual variances in order to aid in the interpretation of learning outcomes or academic accomplishment. Teachers that do not cover a large amount of material at once, adopt ways to reduce cognitive overload among pupils, and support the development of metacognitive abilities all benefit students (Fadhila & Nirwana, 2021). Furthermore, the cognitive learning theory describes how students may interpret their own ideas and build on previous experiences to acquire new knowledge. Teachers can help students in this process by asking basic and complicated questions, making mistakes and waiting for students to correct them, and thinking aloud. With the help of these approaches, children can learn new material quickly. Table 2 presents a summary of recent studies that applied cognitive theory in an educational setting.

Table 2: Cognitive learning theory in education

Authors	Objectives and context	Findings
Suryani et al., 2021	The Development of Problem-Based Learning Grounded from Cognitive Learning Theory: Improving Students' Creative Thinking Skills	The study discovered that developing problem-based learning based on cognitive learning theory could boost students' creative thinking abilities.
Manspeaker & Wix, 2021	Teaching dermatology using a cognitive learning theory approach: An educational technique	Creative instructional strategies based on Cognitive Learning Theory can give athletic training students with possibilities to develop abilities that will be required in clinical practice in a didactic setting.
Thayyibi & Ratnasari, 2022	The purpose of this study is to dissect the actual concept of cognitive learning theory in the perspective of Islamic education	The cognitive theory focuses on the process of conveying knowledge, and educators play a critical role in students' cognitive progress.
Hong & Ning, 2020	This study attempts to introduce some of the important cognitive learning theory and states how cognitive learning theory is applied in English teaching.	Learning helps to develop learners' intelligence potential since they learn how to change and organize knowledge as well as put forth their own exploratory mode to solve difficulties during the learning process.
Hul'ová & Molnárová, 2019	Applying cognitive learning theory in kindergartens	Implementing technical education in kindergartens helps youngsters acquire information.
Farr & Roth, 2021	Applying learning theory for effective educational videos	Adapting cognitive learning principles to virtual forms is

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		practical and may improve trainees' educational experience.
Akhavan & Walsh, 2020	Examining how cognitive learning theory can influence instruction that maintains the central role of teachers have in the classroom	In the early grades, instruction based on a lesson design that emphasizes cognitive apprenticeship improves pupils' ability to write.
Daramola, 2018	Evaluating the effects of large class of learners on transformative learning in engineering education through cognitive learning theory	The implementation of transformational learning in engineering education is beneficial due to the combination of cognitive learning theory and experiential learning.
Fadhila & Nirwana, 2012	Demonstrates the impact of cognitive view of learning on the effectiveness of the earning process	The cognitive perspective on learning holds that the most important aspect of learning is not just the outcome but also the process.

In conclusion, the cognitive learning theory is a learning theory that supports the educational process and places an emphasis on students' cognitive growth. The concepts of cognitive psychologists, who have a considerable influence on the development of the learning process, gave rise to cognitive theory. The goals of learning in primary schools are met by this theory since it is relevant to the fundamentals of instructing pupils of any age. The majority of studies in the literature demonstrate substantial results on the students after adopting this theory to evaluate student performance, which can help in the growth of learning in UAE schools even if not all cognitive ideas are suitable with the kind of education in the UAE. In terms of learning, the learning process, preparation, academic performance, and evaluation of learning outcomes.

4. Hypothesis development

41.1. Flipped classroom and student performance

The introduction of the flipped classroom paradigm has been related to better student performance in studies (Nakkam, 2022; Hussain et al., 2023; Stackpool et al., 2023). Adopting the flipped classroom technique can result in pedagogical breakthroughs, giving students a more individualized and interesting learning experience (Hussain et al., 2023). Students have the chance to connect with the information outside of the classroom with this teaching technique, allowing for more personalized learning experiences (Belango, 2022). Students can arrive to class with a good comprehension of the content if they watch pre-recorded lectures or complete readings at home, which allows for deeper discussions and more hands-on activities (Zupanec et al., 2022). Furthermore, the flipped classroom promotes active learning and critical thinking skills, which results in improved retention rates and, ultimately, better academic outcomes (Abosedo et al., 2022). Additionally, the flipped classroom concept encourages student autonomy and accountability. Students can take ownership of their education and personalize their learning experience to their particular needs and interests when they have the freedom to learn at their own speed (Koo et al., 2016). This not only promotes independence, but also encourages students to become active participants in their own learning path. As a result, kids are more likely to remain

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involved and motivated, which leads to greater academic success. Finally, the flipped classroom method not only improves students' subject matter learning but also provides them with useful skills that can be employed outside of the classroom (Boevé et al., 2017). Hashemi et al. (2022) examined 14 systematic reviews and meta-analyses (containing 699 studies from 2010 to 2022). Their research found that the flipped classroom had a positive impact on student learning activities such as academic performance. The flipped classroom paradigm has been shown to improve talented children's self-regulation skills and academic achievement (Nacarolu & Bektaş, 2023). According to Stackpool et al. (2023), implementing two evidence-based teaching approaches (the flipped classroom learning model in conjunction with the supplemental instruction faculty-facilitated learning enhancement tutoring) at the same time significantly improves student academic achievements and reduces academic equity gaps among various groups of students. The current study tested whether flipping an advanced pre-calculus class would result in a statistically significant gain in high school students' understanding of conic sections in the same way that Zeitoun et al. (2023) used a quasi-experiment with a pre-/post-test control group design. The post-test results revealed a statistically significant change in mean scores between the treatment and control groups, showing that the flipped instruction was effective. Participants were pleased with the intervention.

Furthermore, Nakkam (2022) wanted to look at the effect of the flipped classroom on students' grammatical ability. The data indicate that there are differences in favor of the treatment group, although the changes are not statistically significant. While the interviews revealed that students were pleased with the flipped classroom because it provided more opportunities for engagement with teachers and peers, it also empowered students to be autonomous and independent learners who were actively involved in classroom activities. The flipped classroom concept provides for more individualized and engaging learning experiences, which helps students improve their academic performance (Yarbrough & Lopez, 2023). Students in a traditional classroom setting frequently passively acquire knowledge from the teacher during lectures, which may not suit to their specific learning styles or paces. In a Flipped classroom, however, students can watch pre-recorded video lectures or complete readings before to class, allowing them to assimilate the material at their own pace. This allows them to examine and repeat concepts that they find difficult, ensuring a stronger knowledge of the material (Abosede et al., 2023). A flipped classroom can dramatically improve student performance by giving them the flexibility and autonomy to study in a way that meets their specific requirements. Students can interact with the subject at their own pace and in their own learning style if they have access to lecture materials prior to class (Riddle & Gier, 2019). This can result in a more thorough knowledge of the content and enhanced information retention. Furthermore, the ability to study and revisit concepts that are difficult for students might help them solidify their knowledge and overcome any barriers they may have (Reinoso et al., 2021). Finally, the Flipped Classroom concept encourages students to take ownership of their learning and actively participate in the learning process. Students can arrive to class prepared to ask questions, contribute to debates, and participate in hands-on activities if they prepare ahead of time. This change in responsibility encourages pupils to acquire critical thinking abilities and a higher degree of comprehension. Furthermore, the flipped classroom paradigm encourages peer cooperation by having students collaborate to solve challenges and share their thoughts (Strelan et al., 2020). Overall, the flipped classroom model empowers students to attain remarkable academic achievement and outstanding performance. Based on this assumption, as well as the findings in the literature and reported evidence from the previous studies, the following hypothesis statement will be test in UAE primary school.

Hypothesis (H1): "Flipped classroom has a significant effect on student performance"

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4.1.2. E-learning and student performance

Several research have found a link between e-learning and improved student performance (Tawafak et al., 2023). Students can engage in self-paced learning and revisit course contents as needed thanks to the flexibility and accessibility of e-learning platforms, which improves their knowledge and retention of content. Furthermore, interactive and multimedia features that cater to diverse learning styles are frequently used in e-learning, enhancing student engagement and motivation (Qiu et al., 2022). As a result, students who participate in e-learning have greater academic performance and grades than those who rely entirely on traditional classroom education (Rasheed et al., 2022). Furthermore, e-learning allows students to study at their own pace, allowing them to mix their education with other responsibilities such as employment or family. This flexibility also eliminates the need for students to commute, saving them both time and money. Furthermore, e-learning allows students to investigate numerous courses and fields of interest that may not be available in their local educational institutions (Rakic et al., 2019). To put it another way, e-learning is a comprehensive and successful alternative to traditional classroom training that benefits students in a variety of ways. To that purpose, e-learning is a revolutionary learning method that increases teaching flexibility and learning resource availability. As a result, digital materials on the e-learning platform have a significant impact on student success (Rakic et al., 2019). E-learning can help students enhance their academic performance for a variety of reasons. E-learning, for example, allows students to learn at their own pace, allowing them to completely understand and absorb subjects before moving on (Elfaki et al., 2019). This individualized approach to learning ensures that students have a strong foundation of information, which can improve their academic performance significantly. Furthermore, e-learning frequently integrates interactive and multimedia features, such as films, simulations, and quizzes, which can enhance the learning experience (Alam et al., 2021). These interactive features not only help students recall material better, but they also foster critical thinking and problem-solving skills, which are both necessary for success in today's fast-paced and ever-changing world (Andreevich, 2020). Furthermore, online courses frequently provide a variety of learning materials, such as discussion boards and virtual classrooms, allowing students to interact with their classmates and instructors remotely, boosting academic achievement (Alam et al., 2021). This promotes a sense of community and allows students to participate and receive feedback on their work, so improving their learning experience (Pandia, 2021). In other words, online education provides individuals with a flexible and easy way to reconcile their personal and professional lives while acquiring a quality education (Galy, 2011). Students can personalize their learning to their particular requirements and interests by having access to a plethora of resources and interactive technologies (Castillo-Merino & Serradell-López, 2014). This can lead to a better knowledge of the topic and enhanced information retention. It is obvious that students can study at their own pace and in their own time through e-learning, which is especially beneficial for those who may not have the opportunity to attend traditional classes; these benefits encourage students to improve their academic performance (Hempel et al., 2016; Saran et al., 2018). Based on this assumption, as well as the findings in the literature and reported evidence from the previous studies, the following hypothesis statement will be test in UAE primary school.

Hypothesis (H2): "E-learning has a significant effect on student performance"

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4.2. Research Methodology

This study applied quantitative methods to analyze the relationships between e-learning, flipped classroom, and student performance and validate the hypotheses. The population is the students in primary schools in the UAE. Data instrument is self-administrated questionnaire. The data collection has been conducted on a sample of 800 students. Simple random sampling technique has been applied in the survey procedure. SPSS software is deployed to conduct data analysis. Regression analysis is the principal approach used to conduct data analysis and test the hypothesis of this study.

4.3. Results and discussion

In the survey phase, the researcher has distributed questionnaires to a sample of students consists of 800 students in schools. Out of the 800 questionnaires distributed to the study sample, 715 completed questionnaires have been considered for data analysis. The demographic profiles include the statistics that explain the characteristics of study sample. Hence, this section demonstrates the population dynamics by investigating the main demographic data such as age, gender, academic level, work experience of the students as shown in Table 3. With respect to gender, the number of females is higher than males in UAE schools, while those from cycle 3 are the highest number of students (66%). While those enrolled in general Stream model is the highest group (48%).

Table 3: The demographic profile of the students

Demographics	Category	Frequency	Percentage (%)
Gender	Male	106	15
	Female	609	85
Level of study	Cycle 2	241	34
	Cycle 3	474	66
Stream	General	342	48
	Advance	206	29
	Elite	103	14
	Applied	64	9

The results of data analysis reveal the findings that answer research questions of this study. Testing the hypotheses should answer the research questions by providing evidence on existence of effects and the strength of such effect. This analysis is conducted in several steps, starting with path analysis to assess the significance of direct relationships between e-learning, flipped classroom, independent learning skills, and student performance within the proposed framework. To that end, the unstandardized coefficients are used to validate and accept the hypotheses, while standardized coefficients (Beta) are used to measure the strength interrelationships between the variable. Reading the output data in Table 4 reveals the scale and significance of relationships between e-learning, flipped classroom with student performance.

Table 4: Standardized regression coefficients and significance of relationships

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Hypothesis Statement	Directions of effects	Beta	C.R	Sig.	Result
H1: Flipped classroom has a significant effect on student performance.	Flipped classroom → student performance	0.28	4.21	0.00	Supported
H2: E-learning has a significant effect on student performance.	E-learning → student performance	0.41	6.09	0.00	Supported

To test the hypothesis, the p-value only tells how likely the data that have observed is to have occurred under the null hypothesis. If the p-value is below the threshold of significance (typically $p < 0.05$), then this study rejects the null hypothesis. In other words, the alternative hypothesis is true. To support the statements of hypotheses, the Critical Ration (C.R) is applied to evaluate the significance level of unstandardized regression coefficients (Hair et al., 2019). Two criteria are used to validate the hypotheses and fulfill research objectives: (1) if $C.R \geq 1.96$ for a specific relationship, then a hypothesis is accepted (i.e., $p < 0.05$), otherwise the hypothesis should be rejected, and (2) the estimate path coefficient for a relationship is significant at the 0.05 cut-off point.

To test the first hypothesis (H1) which states that “Flipped classroom has a significant effect on student performance” (Sig. = 0.00, $C.R = 4.21 \geq 1.96$). There have been numerous studies conducted to examine the impact of the flipped classroom model on student performance. One study found that students in a flipped classroom setting were able to engage more actively with the material and had higher levels of understanding compared to traditional classroom settings. Additionally, the flipped classroom model has been shown to increase student motivation and participation, leading to improved academic outcomes. Furthermore, students in flipped classrooms often have more opportunities for individualized instruction and support, which can also contribute to their overall success. In other words, the flipped classroom model has the potential to significantly enhance student performance and learning outcomes. By allowing students to learn at their own pace and review material as needed outside of class, the flipped classroom model empowers students to take control of their own learning. This approach also encourages students to take responsibility for their education and fosters a sense of independence and self-motivation. As a result, students are more likely to retain information and apply it in real-world situations, ultimately leading to a deeper understanding of the material. In conclusion, the flipped classroom model is a valuable tool for educators looking to enhance student engagement, motivation, and academic success.

To test the second hypothesis (H2) which states that “E-learning has a significant effect on student performance” (Sig. = 0.00, $C.R = 6.09 \geq 1.96$). This result shows that E-learning has become increasingly popular in recent years, with many educational institutions incorporating online learning platforms into their curriculum. The impact of e-learning on student performance has been a topic of much debate and research. Some studies suggest that e-learning can have a positive effect on student performance, as it allows for more personalized learning experiences and greater flexibility in how and when students engage with course material. However, other research has shown that the effectiveness of e-learning depends on various factors, such as the quality of the content, the level of engagement from students, and the support provided by instructors. Ultimately, the success of e-learning in improving student performance may vary depending on how well it is implemented and supported. Schools and educators must ensure that online learning platforms are used effectively, with engaging and high-quality content, active student participation, and regular support and feedback from instructors.

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By addressing these factors, e-learning has the potential to enhance student learning outcomes and provide a valuable supplement to traditional classroom instruction. It is clear that the future of education will likely involve a combination of in-person and online learning, making it essential for schools to continue exploring and refining their use of e-learning platforms.

5. Conclusions

The literature review revealed explored the relationships between e-learning, flipped classroom, and student performance. Impact of e-learning on student performance in a flipped classroom setting has been cited widely in the literature. The analysis of literature review indicated that students who engaged in e-learning activities performed significantly better than those who did not. The same applies for flipped classroom method. These findings suggest that the success of a flipped classroom setting depends not only on the e-learning activities provided but also on the students' ability to take responsibility for their own learning. This highlights the importance of promoting and developing independent learning skills among students. By empowering students to become independent learners, the flipped classroom approach can be even more effective in promoting student achievement and engagement. Last this paper presented Self-Determination Theory which is a psychological framework that focuses on individuals' intrinsic motivation, autonomy, and competence in their pursuit of goals. When applied to e-learning and the flipped classroom setting, this theory becomes particularly relevant. This theory emphasizes the psychological needs of autonomy, competence, and relatedness, which are essential for student motivation and engagement. In an e-learning environment, students have the freedom to choose when and how they learn, giving them a sense of autonomy. In sum, e-learning and flipped classroom models have been found to significantly contribute to student performance in various ways. To that end, e-learning platforms often offer interactive and multimedia resources, such as videos, simulations, and quizzes, which can enhance student engagement and understanding. In addition, e-learning provides students with the opportunity to learn at their own pace and in their own time, allowing for a more personalized and flexible learning experience. This can greatly benefit students who may need additional time or support to grasp certain concepts, as they can revisit the material as many times as needed until they fully understand it. While the interactive nature of flipped classrooms encourages active learning and collaboration among students, leading to a deeper understanding of the subject matter. Furthermore, the ability to review pre-recorded lectures or instructional videos at any time allows students to revisit difficult topics and reinforce their learning. Therefore, both learning strategies are necessary in modern schools and together promote better student performance.

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THE TREND OF POLLUTION ON THE WATERS OF THE PORT OF DURRES

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ABSTRACT

Elevated activities in port areas are the main cause of water pollution, including organic and inorganic pollutants. The Port of Durres is the main port in Albania, processed by more than 80% of maritime transport for trade and passengers. In this study, we determined the concentrations of organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAH) in water samples from Durres Port, located in the Adriatic Sea, along the Albanian coastline. Water samples (12 stations inside and outside the port area) were analyzed for a three-year period (2022 – 2024) with a frequency of twice a year (March and July). Analyses of organic pollutants were performed using gas chromatography, GC/ECD/FID for qualitative/quantitative analysis, and GC/MS for qualitative data.

Organochlorine pesticides and their degradation products were detected in all the water samples during each sampling period. Their presence may be related to their previous use in agricultural areas near the port, new arrivals from terrestrial waters (Shkumbin, Erzen, Ishem Rivers), and the impact of water currents and/or punctual sources inside the port area (storage in the port area). PCBs and PAHs were found in almost all the analyzed samples. Higher levels were found at stations inside port areas. Their presence was due to anthropogenic factors (intense activity and ship transport) in these areas. Generally, higher levels of organic pollutants were observed in July. This could be related to the increase in activity in the port during this period and the stronger impact of water currents in March. Although there was a trend of decreasing pollution levels from year to year, some individuals were found to have values that did not match this fact. This could be mainly related to point sources. The study indicated that organic pollutants are present in the waters of the Port of Durres, so authorities should continue monitoring in the coming years.

Keywords: Durres port, OCP, PCB, PAH, Water analyse, GC and GC/MS

Introduction

The aims of this study were to determine the concentrations of organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAH) in water samples from the port of Durres. The port of Durres is the largest port of Albania. It is an artificial basin formed between two moles, and is located in the central part of the Adriatic Sea. It accounts for 77% of imports and 89% of Albanian exports, representing 78% of all cargo transferred nationwide. The main commodities handled at this port are general cargo, grains, minerals, containers, and ferry boats. From 2014, the port was ranked as the largest passenger port in Albania and one of the largest passenger ports in the Adriatic Sea. The port of Durres (in the northern part) is a fishing harbor. In addition (the hydrocarbon ports of Durres's port) are located 5 km north of Durres's port. In the near future, it is believed that the port area will be re-conceptualized and expanded as one of the largest ports of the Mediterranean Sea [3, 4]. Port operations can have environmental impacts on air, water, and land. Their operations can have a significant impact on water quality and the health of marine life [1, 2]. Waste from

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ships and other port activities can result in the loss or degradation of habitat and harm marine life. In many studies, the marine environment has been established as a primary site for the accumulation of PCBs, OCPs, and PAHs [2, 3, 4]. Water and sediment are likely to be the main means of assessing the degree of marine pollution. The main types of pollutants entering the aquatic environment and their origins are organic compounds, represented mainly by polycyclic aromatic hydrocarbons, pesticides, drugs, dioxins, chlorophenols, phthalates, or inorganic compounds, which can be represented by metal compounds, nitrogenous materials, and phosphorus. Monitoring of marine POPs is of great importance [1 – 6]. Organochlorine pesticides (OCPs) and polychlorinated biphenyls (PCBs) are among the most important persistent organic pollutants (POPs) and are well known for their chronic toxicity, persistence, and bioaccumulation [5 – 10]. Persistent organic pollutants have industrial, anthropogenic, and agricultural applications. For more than 50 years (after the Second World War to 90') organochlorine pesticides have been used widely in Albania for agricultural purposes. The main agricultural areas are located in the western part of the country near the Adriatic Sea. The use of pesticides in Albania decreased rapidly after 1990 owing to population migration [3, 4, 9, 19, 20]. PCBs were not used in Albania until 90'. They can be found only in some electrical transformers that were used in the early 1990s, but they have been reported in many water ecosystems in our country because of their atmospheric deposition [3, 19, 20]. PAHs and BTEX are pollutants generated by automobile transport and extracting/processing in the oil industry, coal mines, and other industries. These hydrocarbons can be found in marine water due to ship transport or accidental spills of hydrocarbons. Forest burning and their natural background make them very common in the environment [1, 3, 6].

Materials and Methods

Water sampling in Durres port

Water sampling was conducted twice a year (March and July) over a three-year period (2022–2024). In Durres Port, 12 water samples (eight samples inside the port area and four samples around it) were collected. These sampling periods were chosen as representative of normal (March) and intense activity (July) in the Port of Durres. In each sampling point, 2.5 L of sea water were collected in Teflon bottles, in the same manner as described in ISO 5667-3:201. Water samples were stored at +4°C and transported to the laboratory for further analysis using well-established techniques. The sampling stations for Durres port are shown in Figure 1.

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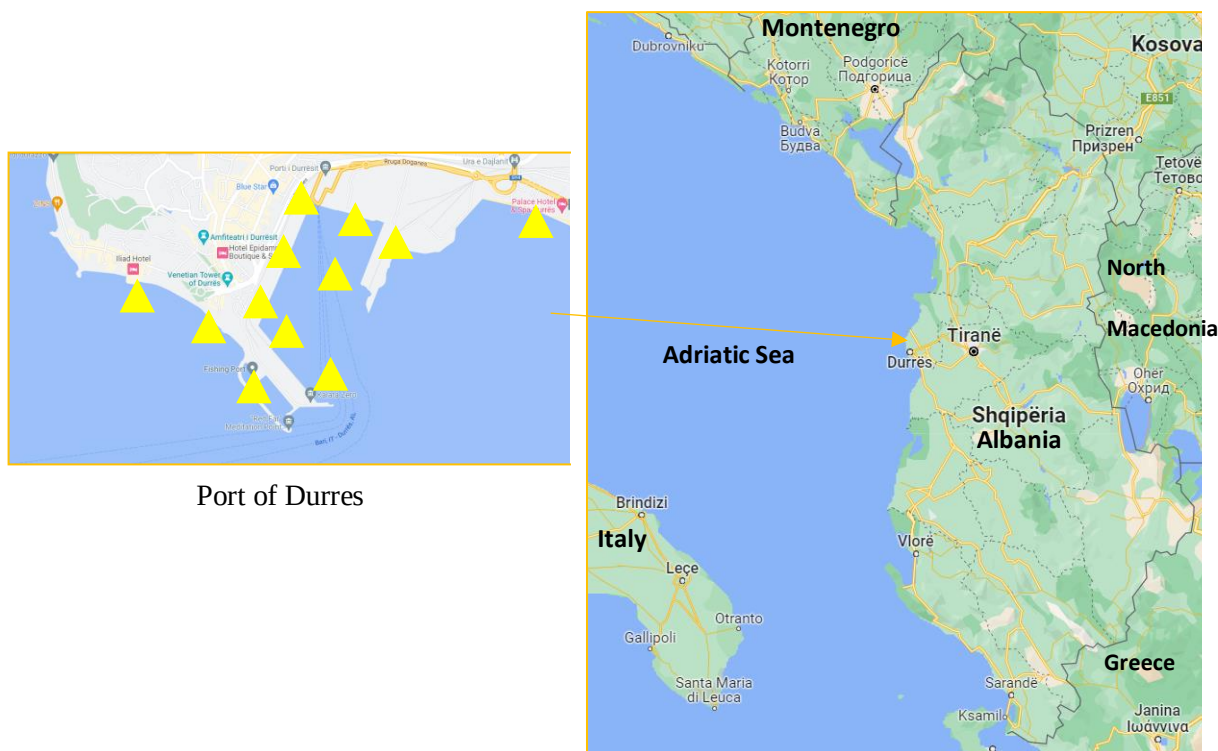


Figure 1. Map of sampling sites in Durres Port

Treatment of water samples for pesticides and PCB analyzes

Liquid-liquid extraction was used to determine the OCPs and PCBs in the water samples. One liter of water was extracted with n-hexane (50 ml) in a separatory funnel. After extraction, the organic phase was dried over anhydrous Na_2SO_4 (5 g) to remove water. A Florisil column was used for the sample cleanup. 20 ml n-hexane/dichloromethane (4/1) was used for elution. After concentrating to 1 ml hexane, the samples were injected into the GC/ECD [12, 14, 17, 18 – 21].

Treatment of water samples for PAH analyzes

Two-step liquid-liquid extraction (LLE) was used to extract PAHs from the water samples. One liter of water with 30 ml dichloromethane (first-step LLE) and 30 ml hexane (second-step LLE) as the extracting solvent was added to a separator funnel. After extraction, the organic phase was dried with 5 g of anhydrous Na_2SO_4 for water removal. The extracts were concentrated to 1 ml hexane using Kuderna-Danish and then injected into the GC/FID for qualification/quantification of PAHs [4, 16 – 18, 21].

GC/ECD analysis of organochlorine pollutants

Organochlorine pesticides and PCBs were analyzed simultaneously using capillary column type Rtx-5 (30 m long x 0.25 mm diameter x 0.25 μm film thickness) on a gas chromatograph (Varian 450 GC) with electron capture detection (ECD detector). Helium was used as the carrier gas (1 ml/min), whereas nitrogen was used as the makeup gas (24 ml/min). Manual injection was performed in the splitless mode at 280°C. The organochlorine pesticides detected were DDT-related chemicals (o,p-DDE, p,p-DDE, p,p-DDD, p,p-DDT), HCHs (a-, b-, γ - and d-isomers), Heptachlor's (Heptachlor and Heptachlorepoxyde); Aldrin's (Aldrine, Dieldrine and Endrin) and Endosulfanes (Endosulfan alpha, Endosulfan beta and Endosulfan sulfate). PCB analysis was based on determination of seven PCB

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markers (IUPAC Nos. 28, 52, 101, 118, 138, 153, and 180). The quantification of OCPs and PCBs was based on an external standard method [3, 14, 15, 20].

GC/FID analysis of PAHs in water samples

Gas chromatographic analyses of PAHs in the water samples were performed using a Varian 450 GC instrument equipped with a flame ionization detector and PTV injector. VF-1 ms capillary column (30 m x 0.33 mm x 0.25 μ m) was used for qualification and quantification of 13 PAHs according EPA 525 Method. Helium was used as carrier gas with 1 ml/min. The FID temperature was maintained at 280°C. Nitrogen was used as the make-up gas (25 ml/min). Hydrogen and air were the flame detector gases at 30 and 300 ml/min, respectively. The EPA 525 Standard Mixture was used for qualitative and quantitative analysis of PAHs. Acenaphthylene, Fluorene, Phenanthrene, Anthracene, Pyrene, Benzo [a] anthracene, Chrysene, Perylene, Benzo [b] fluoranthene, Benzo [k] fluoranthene, Indeno [1,2,3-cd] pyrene, Dibenzo [a, b] anthracene and Benzo [g, h, i] perylene were determined in seawater samples. PAH quantification was based on an external standard method [4, 16, 17, 21].

GC/MS qualitative analysis of pollutants in water samples

A Shimadzu gas chromatograph model Nexis GC2030 coupled with a GCMS-CP2020NX was used for qualitative determination of pesticides, PAHs and PCB markers in water, samples from Port of Durres. The instrument was equipped with a Shimadzu AOC-20i Plus autosampler and split/splitless injector. Rtx-5ms fused silica column, 30 m length x 0.25 mm i.d. x 0.25 μ m film thickness, was used. One microliter of the sample (water, sediment, and fish) was injected in the split mode at 280°C. The oven temperature program was 130°C for 2 min, raised to 280 °C at a rate of 5°C/min and held for 4 min. The MS detector was run in the scan mode (from 50 to 500 m/z). Compounds were identified by comparing the retention time and electronic library of the spectra [5, 9, 11-16].

Results and Discussion

The levels of 21 organochlorines and their related residues (according to EPA 8081 B), seven PCB markers, and 13 most toxic PAH (according to EPA 525) were investigated in the water samples of Durres's port, due to their high toxicity, environmental persistence, and consequent inclusion as priority substances in the Water Framework Directive 2000/60/EC (EC 2000). Organochlorine pesticides were detected in all the water samples analyzed from the Port of Durres (Figure 2). The total concentration of OCPs in water samples collected in the port of Durres ranged from 1.62 μ g/l (March 2022) to 15.68 μ g/l (March 2023). An increasing trend was observed for OCPs from 2022 to 2023 and a decreasing trend from 2023 to 2024. The presence of OCPs in Durres stations could be due to their previous uses in agricultural areas near the Durres port, new arrival especially by the Shkumbin, Erzen, and Ishem rivers (which can bring soil rinsing from other areas of Albania), geographical position of Durres and water currents inside and outside Durres Bay, punctual sources near the port, etc. The impact of waste from Porto Romano can't be ruled out as the leaching of contaminated soil can result in new arrivals. In addition, some warehouses in the Port of Durres have served to store imported pesticides. Waste can be emitted occasionally in port areas, including marine waters.

Figure 3 shows the distribution and profile of OCPs in the water samples analyzed over a 3 years period. The distribution of the pesticides was different for each sampling campaign. This was based on the high levels of some individuals. The OCP profile was built mainly from the degradation products of Aldrines, Endosulfanes and HCHs. It was also noted that their profiles depended directly on the individual levels of pesticides and their degradation products. This different profile in different study periods could be due to new arrivals from the rivers and the physicochemical properties of each pesticide (water solubility, persistence, degradation rate, ability to bind with suspended matter, etc.). Recent use of these pesticides and punctual sources of these contaminants are not excluded. The maximum levels of

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pesticides were found at the stations inside the port. This could be related to the water currents inside and outside the port of Durres.

Figure 4 shows the distribution and profiles of the pesticide classes taken in the analysis. During the different sampling campaigns, different classes were found to be at higher levels. Thus, HCHs were found at higher levels in July 2023 (5.2 ug/l) and at lower levels in March 2022 (0.2 ug/l). Total of Heptachlores ranged from not detected or lower than 0.05 ug/l (March 2022) to 1.4 ug/l (March 2022). The minimum of Chlordanes was found in March 2022 and March 2024 (0.2 ug/l) and the maximum was found for July 2023 (0.8 ug/l). In addition, for Aldrines, the minimum was found in March 2022 and July 2022 (0.6 ug/l), while the maximum was found in March 2023 (5.3 ug/l). DDT and related compounds ranged from 0.2 ug/l (March 2023) to 0.8 ug/l (July 2023). The minimum level of endosulfanes was found in March 2022 (0.1 ug/) and the maximum was found in March 2023 (5.1 ug/l). In general, the lowest levels were found in March 2022, and the maximum in March 2023. This indicates that the values found may also be related to momentary values and new inflows that come mainly from rivers or marine currents inside and outside the port.

In most of the samples analyzed, the levels of each pesticide class did not exceed the levels set for priority substances in the Water Framework Directive 2000/60/EC (EC 2000). In some of the stations located within the port of Durres, for the year 2023, high levels of HCHs, Aldrines and Endosulfanes were detected, which exceed their norms for surface and marine waters. This should be mainly related to the current levels of these pesticides from point sources near the port. This has also affected the disruption of the downward trend that we expected for pesticides in this area, which means that pesticide residues are continuously present in this area and are not only a consequence of their previous use. OCP concentrations in Durres water samples were in the same range as data reported in previous studies in the Adriatic Sea (Murtaf et al. 2014; Como et al. 2013, Nuro et al. 2017). The levels of individual pesticides were below the acceptable levels according to the Albanian and EU standards [11].

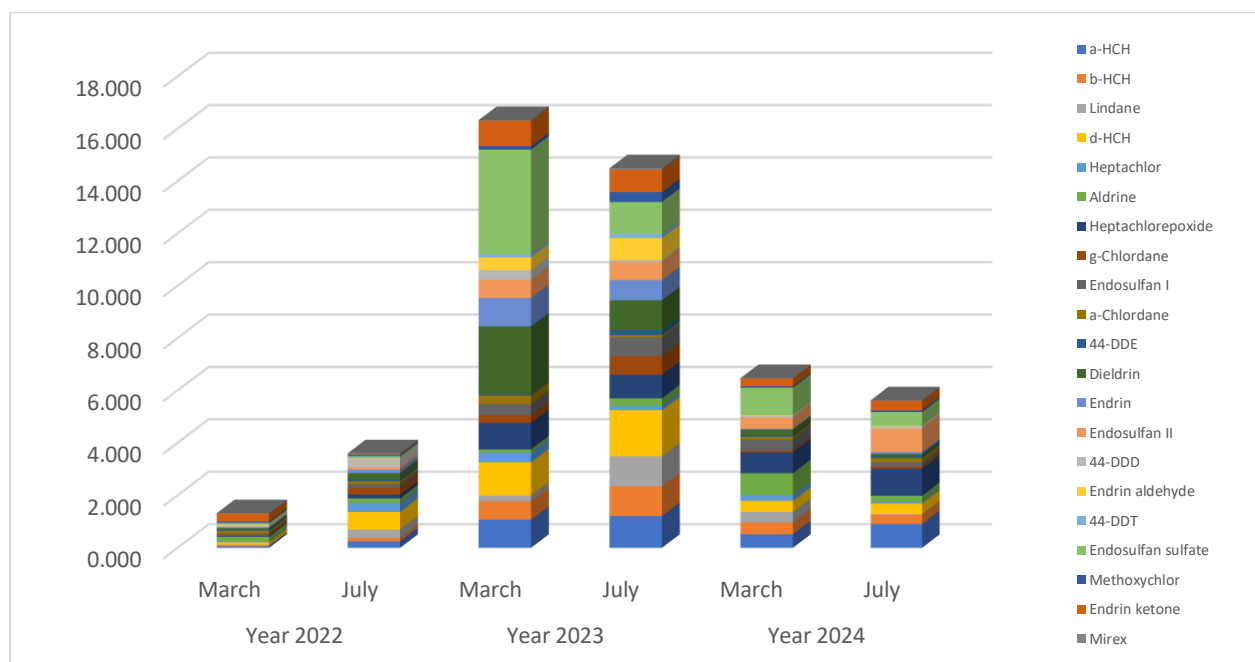


Figure 2. Total of OCPs (ug/l) in Durres port (2022 – 2024)

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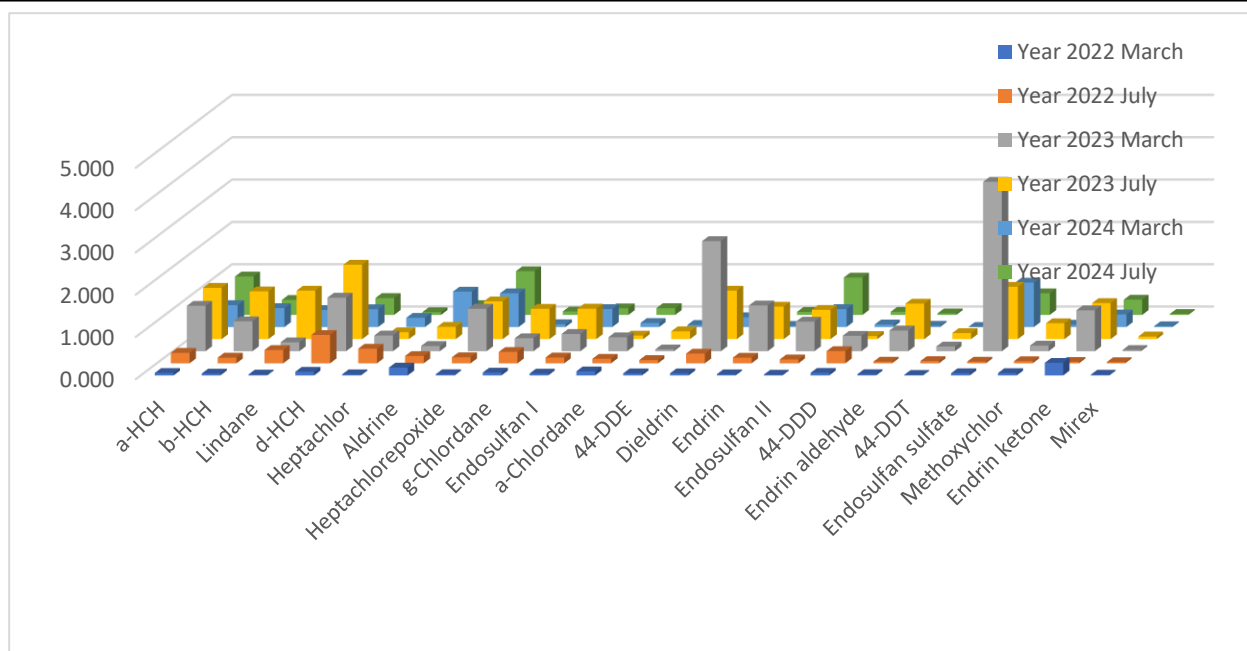


Figure 3. Profile of OCPs ($\mu\text{g/l}$) in Durres port (2022 – 2024)

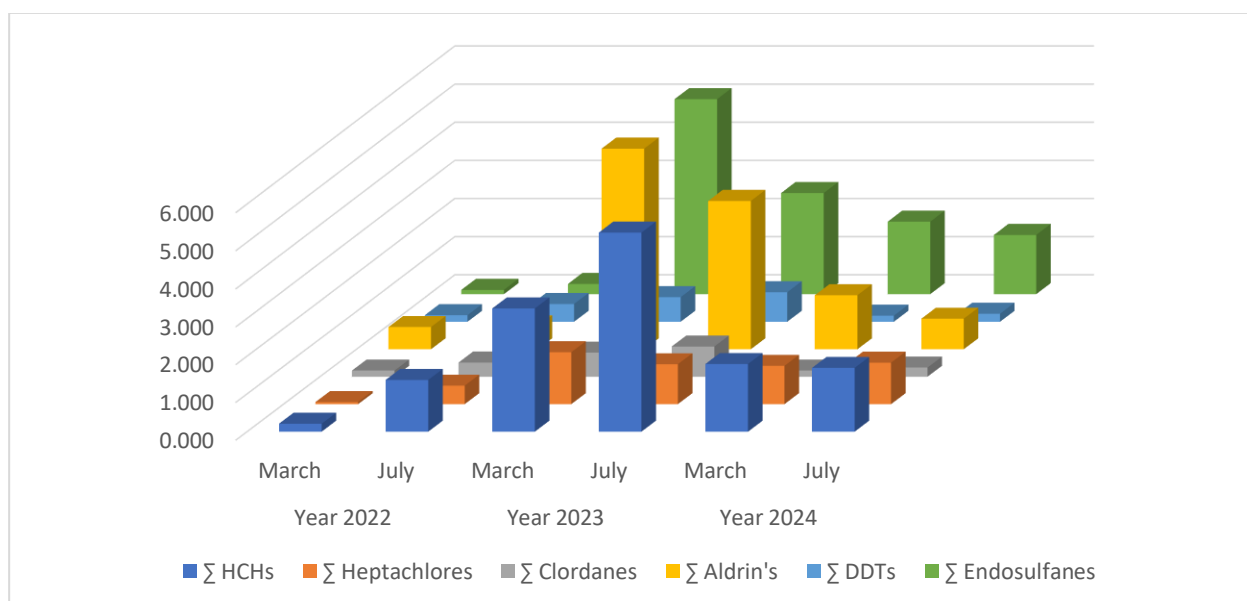


Figure 4. OCP classes (ug/l) in Durres port (2022 – 2024)

PCB markers were detected in all samples analyzed from Durres port (Figure 5). The total concentration of PCBs in Durres's port ranged from $1.7 \mu\text{g/l}$ (July 2022) to $15.1 \mu\text{g/l}$ (March 2023). In addition, for PCB markers, there was an increasing trend from 2022 to 2023 and a moderately decreasing trend from 2023 to 2024. Their presence in seawater samples can be related to shipping, industrial activity in the city of Durres, atmospheric deposition, water currents, new arrivals from the Shkumbin, Erzen, Ishem Rivers, and other effluents. Oil discharge from machinery operations and activities (in and out of the marine port area) are likely terrestrial sources of PCBs and hydrocarbons in seawater samples from Durres. The distribution of PCBs in the seawater samples was almost the same for all sampling

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campaigns (Figure 6). Again, the most polluted stations were inside the port area for all analyzed samples. This could be connected mainly to the high activity in this area. The PCB profile for the Port of Durres was almost the same for each year and sampling period. Their profile was: PCB 52 > PCB 28 > PCB 118 > PCB 138. Volatile PCBs (PCB 28 and PCB 52) were found at higher concentrations in all samples because of atmospheric deposition. High concentrations of PCB 118 were detected in water samples collected in July 2022 and March 2023. Its origin and some other heavy PCB markers (PCB 180, PCB 153, and PCB 138) are mainly terrestrial owing to industrial activity, mechanical businesses, ship and automobilist transportation, new arrivals from effluents, and urban waste. PCB levels were comparable to those reported in previous Adriatic Sea studies [3, 9, 19, 20]. Levels of PCB markers were lower than the permitted levels by the Albanian and EU standards [11].

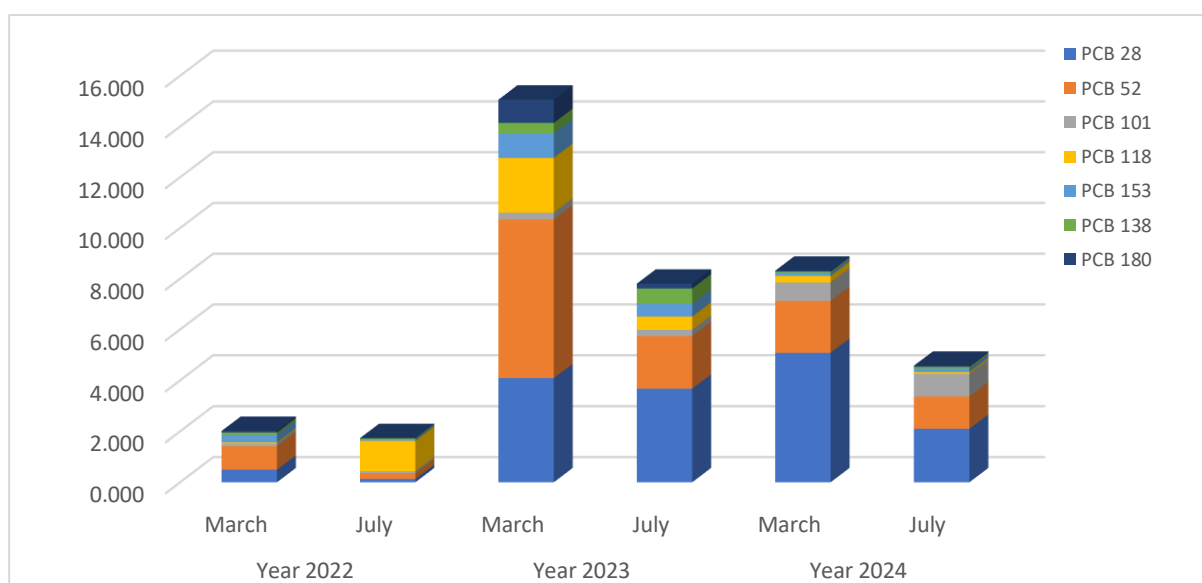


Figure 5. Total of PCBs (ug/l) in Durres port (2022 – 2024)

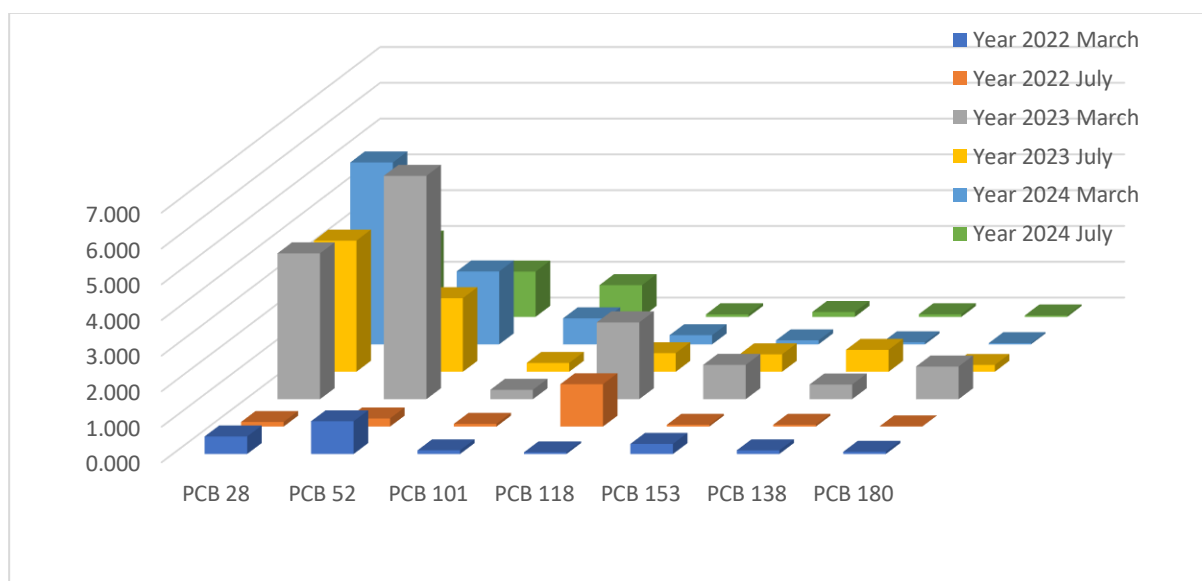


Figure 6. Profile of OCPs (ug/l) in Durres port (2022 – 2024)

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The total of 13 PAHs according to the EPA 525 standard for the Port of Durres (Figure 7) was between 1.1 ug/l (March 2022 and Mars 2024) and 4.6 $\mu\text{g/l}$ (July 2022). The main reason for the presence of PAHs could be the elevated ship transport in this area and the effect of hydrocarbon activities in the port of Durres, especially in Porto-Romano. Automobilist transport and any possible hydrocarbon accident (in or near the port areas) could be another source of PAH pollution in marine water samples from Durres' port. Mechanical activities near the port and arrivals from rivers and water currents could be other sources of hydrocarbons in marine water. The discharge of ship waste near and/or in the port could be another source of hydrocarbon pollution in seawater samples. A similar distribution of PAHs was observed in all sampling campaigns (Figure 8). In addition, the presence of PAHs was higher inside port stations. Elevated ship transport, mechanical processes near the port area, and water currents inside and outside of the port can influence this distribution. Note that the presence of some individual PAHs was at a higher level for some stations in some sampling periods. Anthracene, Chrysene, Acenaphthylene, Pyrene and Fluorene were most abundant PAHs in Durres stations. Their profile was a combination of non-pyrogenic PAHs (transport emission, spillage of hydrocarbons, mechanical activities, etc.) and pyrogenic PAHs (forest and urban waste burning, transport emission, industrial activities, etc.). The differences between years and sampling periods could be related mainly to the water currents and momentum values of PAHs in the analyzed samples. The momentum values of PAHs for the analyzed samples were not excluded. The PAH levels in seawater samples were in the same range or higher than the reported levels for other stations in the Adriatic Sea, Albania [3, 16 – 20]. The presence of PAH individuals (anthracene) at some stations was higher than the permitted level according to the Albanian and EU norms [11].

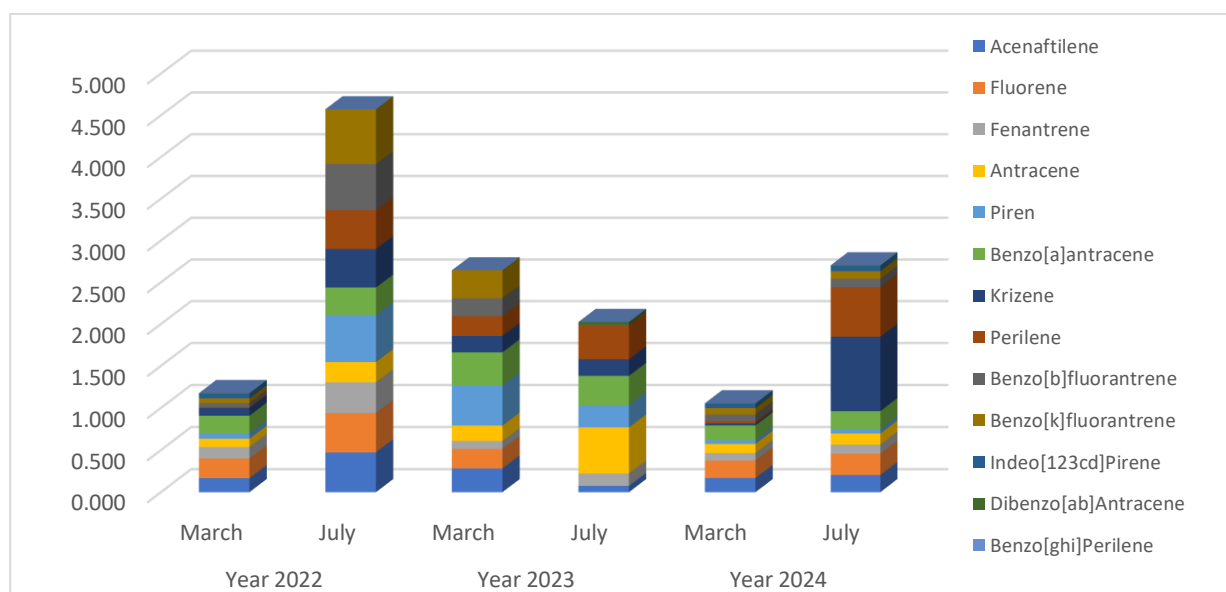


Figure 7. Total of PAHs (ug/l) in Durres port (2022 – 2024)

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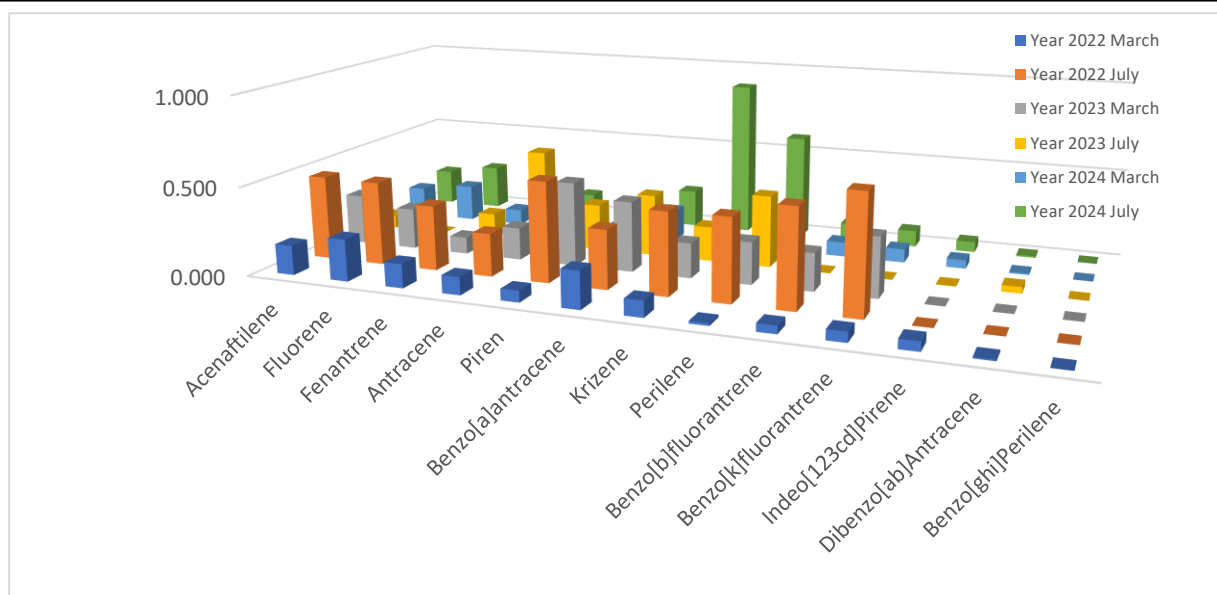


Figure 8. Profile of PAHs (ug/l) in Durres port (2022 – 2024)

Figure 9 shows a chromatogram of the water samples at station PD5 on March 2024. The presence of organic pollutants was also verified by analyzing the water samples using GC/MS. It should be noted that in addition to the presence of the above pollutants in the water samples, other pollutants were not included in this study, such as Benzene, Chlorobenzenes, chlorophenols, n-alkanes, etc.

This encourages our aim to analyze the waters of ports that are affected by pollution, and this should also be an incentive for institutions to keep these waters under continuous monitoring.

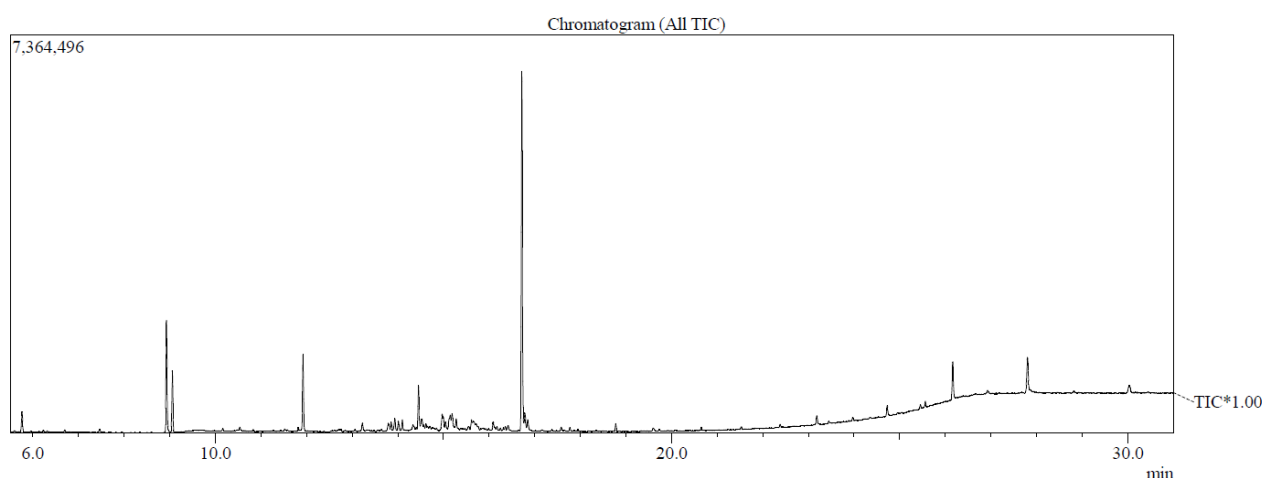


Figure 9. GC/MS chromatogram (scan mode) of water samples from the port of Durres

Conclusion

Pesticides, PCBs, and PAHs were detected in all water samples from Durres's port for the 2022 – 2024 study period, in two sampling campaigns in March and July of each year. The levels of these persistent pollutants were detected in all analyzed water samples from the Durres Port. Stations inside the port were the most polluted because of the elevated activity and water currents inside and outside the port, which favor the concentration of pollutants inside the port. Pesticides were found due to past use in agricultural areas near the port, new arrivals from the Shkumbin, Erzen, and Ishem rivers (and other effluents), water currents, and punctual sources near ports. Pesticide degradation products were found

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in high concentrations compared to their active products. High levels of OCPs were observed in March and July of 2023. The most commonly found pesticides are HCHs, Aldrines, and Endosulfanes. The presence of PCBs and PAHs can be related to ship and automobile transport, industrial activity, atmospheric deposition, and water currents. Mechanical activity may be a terrestrial source of PCBs and hydrocarbons in the seawater samples. Ship discharges and the impact of the Porto-Romano port could affect PAH contamination in the study area. The presence of organic pollutants was also verified by analyzing the water samples using GC/MS. It should be noted that in addition to the presence of the above pollutants, other pollutants such as Benzene, Chlorobenzenes, chlorophenols, and n-alkanes which are not part of this study, were also identified in the water samples. The levels of organochlorine pesticides, PCB markers, and PAHs in the water samples were generally lower than the permitted levels for surface waters according to EU Directive 2013/39 and Albanian norms. In some isolated cases, levels of HCHs, Aldrines, Endosulfanes and PCBs were higher than allowed levels, so the monitoring of organic pollutants in the waters of Durres's port should be ongoing, as these areas can be affected by many sources of pollution.

Acknowledgement

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THE IMPORTANCE AND INDIVIDUAL INTEREST IN LEARNING SECOND LANGUAGES

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ABSTRACT

This article explores the significance of learning a second language (L2) in an increasingly interconnected world, emphasizing the individual motivations that drive language acquisition. We examine the cognitive, social, and economic benefits associated with bilingualism, including enhanced cognitive flexibility, improved academic performance, and greater employability. Through a review of existing literature and qualitative interviews, we identify key factors influencing individual interest in L2 learning, such as cultural exposure, personal goals, and intrinsic motivation. Our findings suggest that personalized approaches to language education, which align with learners' interests and aspirations, can significantly enhance engagement and retention. This research highlights the need for educational systems to adapt curricula that foster individual interests, thereby promoting more effective and meaningful language learning experiences.

Keywords: Second Language Acquisition, Bilingualism, Cognitive Benefits, Personal Motivation, Language Learning, Educational Strategies, Cultural Exposure, Engagement.

Introduction

In an era defined by globalization and technological advancement, the ability to communicate in multiple languages has become a crucial asset. Learning a second language (L2) not only enriches personal and professional lives but also fosters greater intercultural understanding and cooperation. As individuals navigate an increasingly interconnected world, the implications of bilingualism extend beyond mere linguistic competence; they encompass cognitive, social, and economic dimensions that significantly impact one's life trajectory.

Research highlights that bilingualism contributes to cognitive flexibility, which enhances problem-solving abilities and critical thinking skills (Bialystok, 2011). Moreover, bilingual individuals often experience improved academic performance, as the skills developed through language learning, such as enhanced memory and attentional control, transfer to other subjects (Costa et al., 2009). Economically, the demand for bilingual professionals continues to rise, as companies seek employees who can operate in diverse markets and communicate effectively with clients from various cultural backgrounds (Kagan & Friedman, 2012).

However, the motivations driving individuals to learn a second language can vary widely. Factors such as cultural exposure, personal aspirations, and intrinsic motivation play significant roles in shaping learners' interests and commitments. While traditional language education often adopts a one-size-fits-all approach, recent studies emphasize the importance of personalized learning experiences that align with individual goals and interests (Dörnyei, 2005).

This article seeks to explore the significance of learning a second language and the individual factors that influence language acquisition. We aim to address the following research questions:

4. What cognitive, social, and economic benefits are associated with bilingualism?
5. How do personal motivations, including cultural exposure and intrinsic interest, affect individual engagement in language learning?

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6. What educational strategies can be implemented to create personalized language learning experiences that cater to diverse learner needs?

To address these questions, we will conduct a comprehensive review of existing literature, complemented by qualitative interviews with language learners. Our findings will provide insights into effective educational practices that foster meaningful language acquisition, ultimately enhancing the overall learning experience.

The Cognitive Benefits of Learning a Second Language

Research consistently indicates that bilingualism enhances cognitive functions. Studies show that individuals who speak multiple languages exhibit greater cognitive flexibility, enabling them to switch between tasks more effectively (Bialystok, 2011). This cognitive advantage is linked to improved problem-solving skills, enhanced creativity, and greater overall academic performance (Costa et al., 2009).

Moreover, bilingual individuals often demonstrate better executive functions, such as working memory and attentional control. These cognitive benefits contribute to lifelong learning and adaptability in an ever-changing job market. Bilingualism has also been associated with delayed onset of dementia and Alzheimer's disease, emphasizing its long-term cognitive benefits (Bialystok et al., 2007).

Social and Economic Advantages of Bilingualism

Beyond cognitive benefits, learning a second language fosters social connections. Bilingual individuals can engage with diverse cultures, enriching their social experiences and promoting cross-cultural understanding. This social capital is invaluable in today's interconnected world, where collaboration and communication across borders are increasingly vital (Grosjean, 2010).

Economically, bilingualism can significantly enhance employability. Employers often seek candidates with language skills, as they can navigate international markets and communicate with clients from different backgrounds. Research has shown that bilingual employees tend to earn higher salaries and have better job prospects than their monolingual counterparts (Kagan & Friedman, 2012; Neeley, 2013).

Furthermore, in a globalized job market, companies are more likely to hire bilingual individuals who can contribute to a diverse workplace and bring unique perspectives (Caldwell, 2018). Thus, the economic implications of bilingualism extend beyond mere salary differences to encompass broader career opportunities.

Factors Influencing Individual Interest in L2 Learning

While the benefits of learning a second language are clear, individual interest in language acquisition varies widely. Through a review of existing literature and qualitative interviews with learners, several key factors influencing interest in L2 learning have emerged:

Cultural Exposure

Exposure to different cultures plays a pivotal role in sparking interest in learning a second language. Experiences such as travel, intercultural exchanges, and friendships with speakers of other languages can ignite curiosity and motivation. As learners encounter new cultural contexts, they often feel a desire to understand and communicate within those frameworks (Kramsch, 1998).

Personal Goals

Individual aspirations significantly shape language learning motivation. Many learners pursue L2 acquisition for specific personal or professional goals, such as studying abroad, advancing in their careers, or connecting with heritage. Aligning language learning with these goals can enhance motivation and commitment (Gardner, 1985).

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In particular, the relevance of the language to personal or career goals can significantly impact learners' dedication and persistence (Dörnyei, 2005). For instance, a student interested in international relations may find greater motivation to learn a language relevant to their field of study.

Intrinsic Motivation

Intrinsic motivation, or the internal desire to learn for personal satisfaction, is a powerful driver of language acquisition. Learners who engage with a language because they find it enjoyable or meaningful are more likely to persist in their studies (Deci & Ryan, 2000). Activities that promote intrinsic motivation, such as interactive learning experiences and creative language use, can lead to more profound engagement.

The Role of Personalized Educational Strategies

Our findings suggest that personalized approaches to language education, which align with learners' interests and aspirations, can significantly enhance engagement and retention. Educational systems must adapt curricula to reflect individual interests, making language learning more relevant and motivating.

Incorporating Learner Interests

Educators can incorporate learners' interests into language curricula through project-based learning, cultural immersion experiences, and technology-enhanced language tools. By fostering a learning environment that values personal goals and interests, educators can create meaningful language learning experiences that resonate with students (Schunk et al., 2014).

Technology in Language Learning

The integration of technology in language education offers unique opportunities for personalized learning. Language learning apps, online courses, and virtual exchange programs can cater to individual preferences, enabling learners to study at their own pace and pursue topics that intrigue them (Godwin-Jones, 2018). These digital tools can enhance engagement and provide learners with diverse resources to practice language skills in authentic contexts.

Conclusion

As our world becomes increasingly interconnected, the importance of learning a second language cannot be overstated. The cognitive, social, and economic benefits of bilingualism highlight the necessity for educational systems to prioritize language acquisition.

By understanding the individual motivations that drive language learning, educators can create personalized approaches that enhance engagement and retention. Adapting curricula to align with learners' interests will not only foster more effective language learning experiences but also empower individuals to navigate the complexities of a multicultural world.

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ON ASYMPTOTIC BEHAVIOR OF SOLUTION FOR DELTA FRACTIONAL DIFFERENCES VIA MITTAG-LEFFLER FUNCTIONS

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ABSTRACT

In this template, a general idea of Mittag-Leffler function using discrete fractional of delta-type in the setting of Riemann-Liouville is initiated. Asymptotic behavior of solutions associated with the Riemann-Liouville fractional difference is proposed herein to complement its corresponding Mittag-Leffler solution related to comparison theorems. Illustrative examples are presented to support the assertions of the theoretical results.

Keywords: Mittag-Leffler function; asymptotic behavior; Delta difference operator.

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THE LEGAL REGIME OF SPECIAL LEASE RELATIONSHIPS ACCORDING TO THE LEGISLATION OF THE REPUBLIC OF MOLDOVA

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ABSTRACT

The speciality of certain lease relationships is determined by the category and purpose of the leased goods, as well as the status of the contractual parties. Therefore, this article aims to examine the following aspects: the specificity of housing fund leases, periodic accommodation contracts, housing during studies or work activities, leases of specially designated housing, rental of special purpose housing; rental of maneuvering dwellings, and so on. This analysis intends to show the distinction between special lease relationships and the various forms of leasing (e.g., rent, leasing) that are often confused by the legislation and legal doctrine of many European countries. Moreover, each time, civil-legal analysis doctrine attributes these categories of relationships to lease varieties, a practice that impacts the understanding and practical application of different lease categories. However, the methods of concluding and executing such contracts are established by specific rules contained in special laws and normative acts.

Keywords: Lease contract, periodic accommodation, housing fund, rent, leasing, tenancy, lease varieties, maneuver housing.

Introduction

Given the specific nature of certain goods for which lease contracts are concluded, the status of the subjects who are engaged in the lease report, the purpose of the leased goods, or the social necessity prompting the use of leasing, these lease relationships are deemed special. This compels us to examine them in a separate chapter, called "Special Lease Relationships."

As previously mentioned, the particularity of lease relationships is determined by the category and purpose of the leased goods, as well as the status of the contractual parties. This section will examine the specifics of housing fund leases, leases of public domain properties, specially designated housing leases, leases within employment relationships, and more. However, it will not cover lease varieties such as rent, leasing, or concessions, which were discussed in the previous section. Often, civil-legal analysis doctrine mistakenly attributes these categories of relationships to lease varieties.

In this context, it is essential to clarify that housing space leases are often categorized as lease varieties by legal doctrine—a view we do not endorse. We believe that housing space leases are not a variety of leasing but rather a special lease relationship dictated solely by the purpose of the goods and minor nuances that do not affect the fundamental nature of leasing.

When we refer to lease relationships established under special conditions, we mean specific clauses and procedures for concluding a contract that deviate from general contract formation rules. The methods for concluding and executing such lease contracts are governed by special norms contained in laws and normative acts.

For example, social housing leases are established under special conditions for allocating contracts to specific categories of individuals (e.g., families registered as needing assistance, whose monthly income

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per family member does not exceed the minimum subsistence level established nationwide). Consequently, such lease relationships are no longer governed by general civil law but rather by special regulations.

Study Objectives

The study aims to achieve the following objectives:

- Identification of the particularities of the legal regime governing each special category of leasing.
- Highlighting issues affecting the applicability of civil norms in the process of concluding and executing lease contracts with specific objects.
- Presentation of scientific and legislative solutions to harmonize Moldovan legislation with international standards.
- Identification of new research directions addressing the legal regime of special lease relationships.

Research Methods

To achieve the predetermined goals, various research methods will be applied, including:

- Analytical method
- Synthesis method
- Deductive method
- Historical method
- Comparative method
- Systemic method
- Empirical method

Housing Fund Leases

Varieties of Private Housing Leases

Since the field of housing leases is widespread not only in our country but worldwide, we will begin by analyzing this subject. It is essential to note that private housing leases do not present significant peculiarities or deviations from the general legislative framework regarding leasing, whether in terms of forming the lease relationship or fulfilling contract conditions. Moreover, our legislator does not allocate a separate compartment to the regulation of the lease relationships formed for renting housing, as, for instance, the Romanian legislator does.

Nevertheless, in this section, we will separately discuss specific aspects of private housing leases, including housing managed by public authorities that belong to the private domain.

Over time, it has become evident that among all needs prompting individuals to resort to leasing, the need for housing takes precedence, particularly since not everyone can afford to purchase a home. As a result, lease relationships formed for housing purposes have expanded globally, especially as people increasingly abandon sedentary lifestyles, seeking to travel, migrate for work, and establish business connections beyond their local activity areas.

In these conditions, legislators have been compelled to diversify housing lease regulations, expanding the regulatory scope to encompass all relationships formed for housing purposes, from permanent housing to occasional, service-related, maneuver, and periodic accommodation leases.

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Periodic Accommodation Contracts

A novelty in lease relationships was introduced on March 1, 2019, through Article 1618 of the Civil Code, which regulates periodic accommodation contracts in a section distinct from traditional lease provisions. From this perspective, it may appear that this relationship concerns lodging services rather than leasing. However, we argue that it constitutes a special lease relationship governed by a periodic accommodation contract.

So, according to Article 1618 of the Civil Code, a periodic accommodation contract is an agreement in which a professional commits to granting a consumer the right to use a dwelling or another accommodation unit overnight periodically for a term exceeding 12 months, and the consumer agrees to pay a total price.

Thus, as noted, this lease relationship is special because one of the parties, the lessee, must be a professional, and the relationships are formed within entrepreneurial activities. Additionally, the lease's object is restricted to accommodation only during specific periods (overnight) with a minimum term of 12 months.

The necessity for such leases often arises during vacations, with these contracts being regulated under Chapter XIX (Packages of Travel Services and Vacation Products), Section 2 (Certain Vacation Products and Their Intermediation) of the Civil Code. As the legislator states in Article 1618, paragraph 2, this consumer right can also take the following forms:

- A fractional share in common ownership, specifying the respective usage method, or a share of periodic ownership;
- An usufruct right, habitation, or another real right;
- A lease right or other claim rights;
- A right derived from membership in a legal entity or civil society.

This type of lease is also special because it provides the consumer with the option to select the accommodation unit from a group made available by the professional.

Also, the specialty of periodic leases lies in the extension of lease rights to movable goods in accordance with the purpose of the accommodation unit. At first glance, periodic leases might seem to overlap with contracts for providing tourist services, where a contractual clause could obligate the provider to secure lodging for the consumer. However, in essence, this is a distinct contract with special conditions for using residential space—periodically (overnight) and for a term exceeding 12 months. Civil law treats it as a separate contract (Periodic Accommodation Contract) rather than a clause in contracts for tourist or vacation services.

Specifics of Dormitory Leases During Studies or Work Activities

In the national legislation, dormitory leases emerge as a special lease relationship, primarily for students during their studies. This type of lease is special because it applies only to a specific category of tenants—students or employees of enterprises. Furthermore, in the case of student dormitories managed by state-funded educational institutions, the landlords are also specialized subjects. Additionally, the living conditions in dormitories are uniformly regulated for all tenants under strict rules established by normative acts and special internal regulations.

Given the prevalence of dormitory leases in the Republic of Moldova, this section focuses on the specifics of this category of legal relationships, particularly considering that such contractual relationships also extend to private legal entities. According to Article 25(3) of Law No. 75/2015, dormitories belong to public and private legal entities and cannot be alienated if they were built or

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purchased using state or local budget funds. The owner or the managing authority determines the categories of persons entitled to reside in these dormitories.

Regarding the provision in Article 25(3) that prohibits the alienation of dormitories owned by public and private legal entities, we have a minor reservation. Specifically, the current decline in the student population in the Republic of Moldova, which intensifies yearly, has led universities to merge. Consequently, the demand for dormitory accommodation has diminished, leaving surplus capacity. Therefore, the financial burden of maintaining these facilities necessitates revising the concept that prohibits their alienation, allowing the owning authorities to dispose of them if they can demonstrate a lack of necessity.

Nevertheless, it is essential to consider that over time, the country's situation could change due to various factors, such as demographic growth, attracting international students, or the return of Moldovan citizens. In such cases, instead of permitting the permanent alienation of dormitories, an optimal solution could be allowing their conditional alienation with a buy-back option. The resulting sale-purchase relationship would be established under Articles 1136-1141 of the Civil Code.

Another solution would involve allowing dormitories to be leased to tenants other than students, thereby removing this relationship from the scope of special lease relationships. Here again, the adopted strategy depends on the public authority owning these dormitories, whether to alienate them with a buy-back option or lease them to other categories of tenants. Therefore, we suggest amending the text of Article 25(3) of Law No. 75/2015 to provide owners with more alternatives. One proposed alternative, allowing dormitories to be leased to other individuals, is already reflected in the analyzed provision, which states that the owner or managing authority determines the categories of persons entitled to reside in them.

Thus, the object of the lease relationships discussed here is the dormitory as a residential structure with distinct infrastructure. Law No. 75/2015 defines it as a building intended for housing individuals during work or study periods. According to Article 25(1) of the law, individuals gain the right to access dormitory accommodation during their studies or work activities based on lease agreements and within available space limits.

The aforementioned factors make a dormitory lease agreement special. Another factor is that tenants can enter such agreements (for publicly owned dormitories) only after registering as individuals requiring dormitory accommodation. The management and usage conditions for dormitories are established by regulations approved by the Government.

Furthermore, the living space is regulated, with Article 26 of the law stipulating that dormitory living space, regardless of category, is set at 6 square meters per person. Additionally, individuals of different genders over the age of 9, except spouses, cannot share the same room.

Particularities of Maneuver Housing Rentals

The particularity of certain lease agreements may arise from circumstances beyond the tenant's control. This refers to cases where tenants must be temporarily relocated for repairs or restoration work on their properties due to significant damage caused by ordinary wear or natural disasters. According to Article 4 of Law No. 75/2015, maneuver housing is defined as housing intended for temporary accommodation of persons whose homes undergo major repairs or reconstruction that cannot be completed without evacuating the tenants. It is also designated for individuals left homeless due to natural calamities or those evicted from social housing.

Although the meaning of this provision seems clear at first glance, there remain ambiguities regarding the specific situations in which maneuver housing lease agreements are concluded. The cause of natural disasters justifying the lease of such housing is restrictive. These relationships should also apply to other

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individuals in exceptional circumstances, such as those internally displaced during states of emergency, siege, or war.

The issue of internal displacement is broader. First, no legal framework outlines the procedures and social guarantees for internally displaced individuals. Second, despite the issue being recognized during the Nistru conflict of 1992—which displaced approximately 51,300 individuals, including 28,746 children—no legislative measures were taken. Currently, the recurrence of similar circumstances appears increasingly imminent. Furthermore, the need for internal displacement could also arise from industrial disasters, with the primary action being damage prevention, including relocating individuals at risk of harm.

Given this necessity, preparing legislative frameworks to protect potential internally displaced individuals is crucial, alongside revising all related normative acts. Law No. 75/2015 should explicitly provide displaced persons the right to maneuver housing. For this reason, we propose revising Article 4 to expand the category of beneficiaries to include individuals displaced due to emergency, siege, or war.

The revised provision could read:

"Maneuver housing is housing intended for the temporary accommodation of persons whose homes are undergoing major repairs or reconstruction, which cannot be performed without evacuating tenants. It is also designated for individuals internally displaced during states of emergency, siege, or war, as well as for those evicted from social housing."

Continuing the analysis of this lease relationship, Article 23(2) of the Housing Law stipulates that during their stay in maneuver housing, tenants must pay rent and utility fees under the terms of the lease agreement concluded for this period.

Such relationships are special as they operate under specific rules outlined in special norms and conditions. According to Article 23(1) of Law No. 75/2015, maneuver housing must have a minimum living space of 6 square meters per person. Additionally, the allocation and use conditions of maneuver housing are determined by local public authorities.

In conclusion, we believe the legislator must adopt a more robust approach to regulating special lease relationships, considering the increasing prevalence of displacement caused by natural and industrial disasters. The need to provide housing for an ever-growing number of applicants can only be addressed by expanding the regulatory scope to include new categories of relationships under the lease institution.

Conclusions and Recommendations

Based on the analysis conducted, it is evident that the legislative framework governing special lease relationships in the Republic of Moldova requires substantial amendments to address the evolving social, economic, and environmental challenges. The need for maneuver housing is increasing, driven by demographic changes, natural disasters, and industrial developments. To ensure the effective application of these regulations, the following measures are recommended:

1. **Expanding the Scope of Maneuver Housing:** The definition and beneficiaries of maneuver housing should include individuals affected by states of emergency, war, or other extraordinary circumstances beyond natural disasters.
2. **Clarifying Contractual Obligations:** Specific provisions must detail the rights and responsibilities of both landlords and tenants during temporary accommodations.
3. **Establishing Comprehensive Support Frameworks:** A dedicated legal framework for internally displaced persons should be developed, offering clear guidelines and guarantees for housing and relocation support.

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4. **Harmonizing with International Standards:** Moldovan legislation must align with global principles, such as the UN Guiding Principles on Internal Displacement, to ensure compliance with best practices.

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ANALYZING THE PROGRESS OF PRIMARY LEVEL STUDENTS IN MATHEMATICS TAUGHT BY PROBLEM SOLVING METHOD

Sabika Alisher , Dr. Rabia Abdul Karim , Dr. Anila Fatima Shakil

ABSTRACT

Many researches have been carried out to examine the comparative efficiency of applied methods in teaching Mathematics at primary level but no research has been concluded in finding the best method to improve the potential of learner and removing the fear of Mathematics. This is a quasi experimental research aims to analyze the progress of primary level students in Mathematics taught by Problem Solving Method The population consists of all students of Public Schools studying at Primary Level. Sample is selected on the basis of purposive sampling. Out of 27 students 14 students are kept in Experimental group (EP) and 13 students in Control group (CP). Results of post test (PoT) revealed that null hypothesis is not accepted and alternative hypothesis is accepted. Hence there is a clear change seen in the achievement numbers of grade 4 students taught concerned method. Proper utilization of this method is recommended at primary level.

Key words:Mathematics, Problem Solving, Primary level, Experimental Group (EG), Control Group (CG), Pre Test (PrT), Post Test (PoT)

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BENEFIT VALUES ACCORDING TO SPINE COLLAPSE RATE IN OSTEOPOROTIC KYPHOPLASTY

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ABSTRACT

Objective:

To reveal the effects of patient selection and utilization according to the severity of spinal fracture when planning kyphoplasty

Methods:

Patients were divided into 3 groups, group one with up to 25% collapse. Group 2 had 25-50% collapse and group 3 had 50-75% collapse. Surgical treatment was performed and the results after 2 years were evaluated.

Results:

Patients in all 3 groups were evaluated. In group one, the VAS score at the 2nd year was 5. In group two, the 2nd year VAS score was 6. In group three, the VAS score at the 2nd year was 7. The results were evaluated and it was seen that the results in group 1 were more significant than the other groups.

Key Words: Osteoporosis, kyphoplasty, Vertebral fracture

Introduction:

Osteoporosis, which was included in the list of systemic skeletal diseases by the World Health Organization in 1994, is a condition that is frequently seen in advanced ages and is basically caused by a change in the mineral density in the bone structure or a decrease in some values (1,2). It is usually encountered with low calcium and vitamin D deficiency. Diagnosis is done with different examinations and imaging tests (3). Osteoporosis causes fractures after a while and thoracolumbar fractures are common. The treatment is medical and surgical, and there are different options in surgical treatment. It is seen that this disease should be investigated more.

Methods: This study was performed by retrospectively reviewing the records of patients (N=70) who underwent surgery for osteoporotic spinal fractures at Adıyaman University Training and Research Hospital between January 2019 and November 2024. The age range of the patients was between 42 and 80 years with a mean age of 63 years. Patients who underwent surgery after osteoporotic fracture as a result of neurologic and radiologic examinations were included. Fractures caused by traffic accidents, falls from height, infection, and tumors were excluded. The patients were divided into 3 groups: Group 1 was those with up to 25% collapse (Figure 1). Group 2 had 25-50% collapse and Group 3 had 75% collapse. Patients underwent surgical treatment and the results after 2 years were evaluated.

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Figure 1: cemented spine

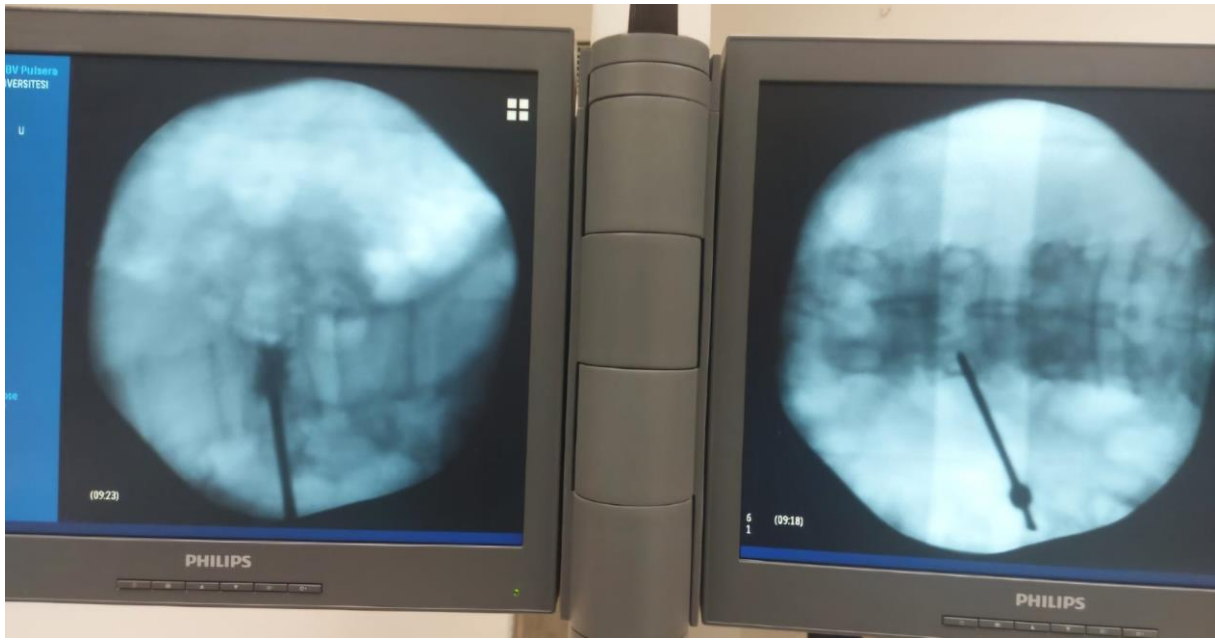


Figure 2: Postoperative direct radiograph and MR image



Results: Patients in all 3 groups were evaluated. There were 25 patients in group one and mean preoperative VAS scores were 8, postoperative VAS scores were 5 in the 1st month, 4 in the 1st year, and 5 in the 2nd year. There were 30 patients in group two and preoperative mean VAS scores were 9, postoperative mean VAS scores were 5 in the 1st month, 6 in the 1st year, and 6 in the 2nd year. There were 15 patients in group three and preoperative mean VAS scores were 9, postoperative mean VAS scores were 5 in the 1st month, 7 in the 1st year, and 7 in the 2nd year. The results were evaluated and it was seen that the results in Group 1 were more significant than the other groups.

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Discussion and conclusion:

Osteoporotic spinal fractures are frequently encountered at advanced ages. Many factors play a role in the development of osteoporosis. Patients are usually accompanied by chronic diseases such as diabetes mellitus, systemic diseases, malnutrition, bleeding disorders, hypertension. Various methods are used to diagnose osteoporosis. These include complete blood count, biochemistry values, osteoporosis scores, computerized spinal tomography and various magnetic resonance imaging studies (3). There are medical and surgical treatment options for these patients. All patients in our study were patients who underwent kyphoplasty (4). In this study, we divided the patients in whom we performed kyphoplasty into 3 groups according to the severity of the spine fracture, operated with the same technique and followed up with postop VAS score. In this study, it is seen that the benefit rate is higher in patients with up to 25 percent fracture in group 1. Kyphoplasty has many advantages compared to other open operations. The hospital stay is shorter and the infection rate caused by surgery is low. Therefore, kyphoplasty is frequently preferred for these patients because it is less invasive and can be performed with local anesthesia.

In conclusion, it is seen that all patients benefit in the early period in osteoporotic fractures, and in the late period, the benefit will be higher if the patients are intervened in the early period of the fracture before the height loss increases.

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THE ROLE OF POLITICAL PARTIES IN NATIONAL INTEGRATION AND DEVELOPMENT IN NIGERIA

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ABSTRACT

This study explores the critical role of political parties in advancing national integration and sustainable development in Nigeria. In a nation marked by ethnic, religious, and regional diversity, political parties have the potential to unite different groups around common goals and foster a collective national identity. Through qualitative analysis of party manifestos, policy proposals, and interviews, this research examines how Nigerian political parties contribute to or hinder integration and development. Findings indicate that while some parties promote economic inclusivity and equitable representation, others are constrained by ethnic biases, limiting their unifying potential. Issues such as corruption, intra-party conflicts, and regional favouritism further undermine their effectiveness. The study calls for Nigerian political parties to adopt more transparent, inclusive practices to support cohesive national development, offering insights into the essential functions of political parties in fostering stable governance in developing democracies.

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CROSS-CULTURAL COMPETENCIES OF EMPLOYEES IN BALKAN COUNTRIES

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ABSTRACT

This study examines the role of cross-cultural competencies in organizations public and private with a focus on the unique cultural dynamics of the Balkans. Drawing on artifacts, values, and assumptions, the research explores how these elements influence the development of intercultural skills, organizational practices, and employee relationships. Balkan culture, characterized by its rich history, ethnic diversity, and complex intercultural dynamics, offers a unique context for studying cross-cultural abilities. Through an analysis such as communication styles, rituals, and organizational structures, this study uncovers tangible cultural expressions and their impact on intercultural interactions and how thus competences have affected their everyday work.

Values, shaped by both Eastern and Western influences, provide insight into motivational factors and organizational decision-making, highlighting the region's balance of collectivist and individualistic elements. Assumptions, including deeply ingrained beliefs and cultural norms, reveal unconscious biases that shape perceptions, expectations, and workplace behavior. By addressing these dimensions, the research provides a comprehensive framework for understanding how cultural artifacts, values, and assumptions influence organizational culture and cross-cultural competencies in the Balkans.

The study contributes to the field by offering strategies to enhance cultural intelligence and improve intercultural relationships within organizations. It emphasizes the importance of fostering cultural awareness, challenging stereotypes, and promoting inclusivity through structured organizational practices. Insights from this research can guide policymakers, educators, and organizational leaders in creating culturally competent environments that enhance collaboration and effectiveness.

Keywords: Cross-cultural competencies, Balkan culture, organizational behavior, cultural values, intercultural skills, cultural intelligence, organizational culture.

Introduction

This study aims to provide a comprehensive examination and comparison of the competencies essential for executives in the private and public sectors, with a special focus on age-related competencies. In today's increasingly diverse and multi-generational workforce, the abilities and skills executives require not only vary by sector but are also influenced by age-related factors that shape adaptability, communication styles, decision-making processes, and leadership approaches. By investigating these core competencies, this research seeks to reveal key similarities and differences in the skills valued in each sector, offering insights into the specific abilities that drive success in diverse organizational environments.

The study will delve into how these competencies intersect with age-related characteristics, providing a deeper understanding of how age may impact performance, career progression, and adaptability to

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sector-specific demands. Additionally, this research will identify the unique challenges and opportunities faced by executives of different age groups within these sectors, emphasizing how age-related competencies contribute to overall organizational effectiveness. By highlighting these nuances, the study aims to inform HR practices, employee development initiatives, and succession planning strategies that maximize the strengths of a multi-generational workforce in both public and private organizations.

The findings aim to enhance the design of training and development programs by accounting for sector-specific and competency needs, thus supporting tailored managerial development and fostering effective leadership in diverse organizational settings.

Method

To examine the competencies required for employees in the private and public sectors, we conducted a systematic literature review, selected for its rigor and suitability in synthesizing extensive research to offer a comprehensive view of existing knowledge. This review was meticulously structured according to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Tricco et al., 2018), ensuring transparency and methodological consistency.

We carried out an extensive search across multiple electronic databases, including PubMed, Scopus, Web of Science, and Business Source Complete. The search strategy employed a combination of keywords—such as “management competencies,” “private sector,” “public sector,” “managerial skills,” “leadership qualities,” and “organizational context”—and Boolean operators (AND, OR) to refine and maximize relevant search results. Inclusion criteria focused on studies that specifically addressed managerial competencies within the private or public sector and provided empirical data or theoretical insights relevant to competencies. Exclusion criteria included studies centered exclusively on educational interventions without competency discussion, articles not in English, and grey literature such as unpublished theses and conference abstracts.

The research methodology adopted for this study strategically combines quantitative research methods, particularly survey research, with literature review approaches. This hybrid approach is designed to leverage the strengths of both methods, offering a multifaceted exploration of the research questions and enriching the overall understanding of the subject matter (Sukamolson, 2007).

Conceptual competencies

Conceptual competencies are essential for employees in the private sector as they enable them to understand and analyze complex problems, develop innovative solutions, and make informed decisions. These competencies involve the ability to think critically, solve problems, analyze data, and make strategic decisions. Critical thinking is one of the most critical conceptual competencies for employees. Critical thinking involves the ability to analyze information objectively, identify patterns, and make sound judgments based on evidence. Employees who possess this competency can evaluate complex problems, consider multiple perspectives, and make informed decisions that benefit the organization. Another important conceptual competency for employees is problem solving. Problem-solving involves the ability to identify problems, gather information, analyze data, and develop effective solutions. Employees who possess this competency can use their analytical skills to identify the root cause of problems, develop creative solutions, and implement them effectively to achieve positive outcomes (Cummings & Worley, 2014). Data analysis is also a critical conceptual competency for employees. Data analysis involves the ability to collect, analyze, and interpret data to make informed decisions. Employees who possess this competency can use data to identify trends, forecast future performance, and make evidence based decisions that benefit the organization (Grant, 2016). Strategic thinking is another important conceptual competency for employees in the private sector. Strategic thinking

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involves the ability to think ahead, anticipate future trends and developments, and develop long-term plans and strategies to achieve the organization's goals and objectives. Employees who possess this competency can create a vision for the organization, develop strategies to achieve it, and monitor progress toward achieving the organization's goals (Kotter, 2012).

In addition to these competencies, creativity, and innovation are also important conceptual competencies for employees in the private sector. Creativity involves the ability to generate new ideas and perspectives, while innovation involves the ability to turn these ideas into practical solutions that benefit the organization. Employees who possess these competencies can create a culture of innovation in the organization, where employees are encouraged to think creatively, experiment with new ideas, and develop innovative solutions that contribute to the organization's success (Mintzberg, 1994). Finally, systems thinking is another important conceptual competency for employees in the private sector. Systems thinking involves the ability to understand the interconnectedness of different components of a system and how they influence each other. Employees who possess this competency can analyze complex systems, identify the underlying relationships and interactions, and develop effective strategies that take into account the broader context of the organization and its environment. Conceptual competencies are essential for employees in the private sector. Critical thinking, problem solving, data analysis, strategic thinking, creativity and innovation, and systems thinking are just a few of the key conceptual competencies that are important for employees to possess. Employees who possess these competencies can analyze complex problems, develop innovative solutions, make informed decisions, and create a culture of innovation and success in the organization (Robbins et al., 2017).

Analysis of Comparison of Competencies between Private and Public Sector

Employees the competencies required for effective management differ between the private and public sectors. While both sectors require similar technical skills, there are key differences in the competencies necessary for success. Public sector employees work in a complex environment that involves managing multiple stakeholders, limited resources, and public scrutiny. They must navigate complex political and cultural contexts while upholding ethical and legal standards. In contrast, private sector employees focus on maximizing profits and shareholder value. They operate in a competitive environment where success is measured in terms of financial performance. Despite these differences, there are some overlapping competencies between private and public sector employees. Both require strong leadership skills, effective communication, and the ability to work collaboratively with others. However, the emphasis on these competencies varies depending on the sector. Understanding the differences in competencies between private and public sector employees is important for organizations seeking to develop effective management teams. By recognizing the unique demands of each sector, organizations can develop targeted training and development programs that equip their employees with the skills they need to succeed. This analysis will provide insights into the competencies required for success in each sector and offer recommendations for how organizations can develop these competencies among their staff. Technical competencies refer to the knowledge and skills required to perform a specific task or function. While both private and public sector employees require technical competencies, there are significant differences in the specific skills and knowledge needed for success in each sector. In the private sector, technical competencies are often industry-specific and focused on driving profits. Private sector employees must have a deep understanding of their industry and the markets in which they operate. They need to be able to analyze financial data, develop and implement marketing strategies, and make strategic business decisions that drive growth and profitability (Wagner & Harter, 2006). Private sector employees must also be adept at leveraging technology to improve operational efficiency and drive innovation. In contrast, public sector employees require technical competencies that are specific to the services they provide. For example, public sector employees in healthcare organizations need to have a

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deep understanding of clinical practices and regulatory compliance. Public sector employees in education organizations need to have expertise in curriculum development, instructional design, and student assessment. Public sector employees in environmental organizations need to have technical knowledge in areas such as pollution control, waste management, and sustainable development (Gurmu, 2019). Another important difference in technical competencies between private and public sector employees is the focus on compliance and regulation in the public sector. Public sector employees must be knowledgeable about relevant laws and regulations and ensure that their organizations are in compliance with them. This includes regulations related to financial management, procurement, and environmental sustainability (Mezher, 2002). Private sector employees also need to be aware of regulations that affect their organizations, but compliance is not the primary focus of their technical competencies. Private sector employees require technical competencies that are focused on driving profits and growth, while public sector employees require technical competencies that are specific to the services they provide and comply with regulations. Understanding these differences is critical for organizations seeking to develop effective management teams in each sector. Interpersonal competencies refer to the skills and abilities that employees use to interact effectively with others. While there are some similarities in the interpersonal competencies required for success in both the private and public sectors, there are also significant differences. In the private sector, employees are often focused on achieving specific business goals and driving profits. As a result, they need to be skilled at building relationships with customers, partners, and suppliers in order to achieve those goals. Private sector employees need to be able to communicate effectively, negotiate deals, and build trust with others (Wagner & Harter, 2006). They also need to be able to motivate and inspire their employees to work towards those goals. In contrast, public sector employees must navigate complex stakeholder relationships, often involving multiple levels of government, community organizations, and the general public. They must be able to communicate effectively with a diverse range of stakeholders, including elected officials, civil servants, interest groups, and the public. Public sector employees must also be skilled at building trust and fostering collaboration among these groups (Puppim de Oliveira & Berman, 2021). Another important difference in interpersonal competencies between private and public sector employees is the emphasis on ethical behavior in the public sector. Public sector employees must be committed to upholding ethical and legal standards in their interactions with others. This includes being transparent and accountable in their decision-making, avoiding conflicts of interest, and maintaining public trust (Gurmu, 2019). Private sector employees also need to be ethical in their interactions with others, but the consequences of unethical behavior are often financial rather than reputational. Private sector employees require strong interpersonal competencies to build relationships with customers and partners and achieve business goals, while public sector employees must navigate complex stakeholder relationships and maintain public trust through ethical behavior. Understanding these differences is critical for organizations seeking to develop effective management teams in each sector. Conceptual competencies refer to the ability to think critically, strategically, and creatively to solve complex problems and develop innovative solutions. While both private and public sector employees require strong conceptual competencies, there are some differences in how these competencies are applied. In the private sector, employees often focus on identifying and exploiting market opportunities to drive growth and profits. They must be able to analyze market trends, anticipate customer needs, and develop new products and services that meet those needs (Kianto, Sáenz, & Aramburu, 2019). Private sector employees also need to be skilled at managing resources effectively, allocating budgets, and making strategic investments to ensure the long-term success of the organization. In contrast, public sector employees must operate within a complex regulatory environment and navigate competing demands from a range of stakeholders with diverse interests and values. They must be able to analyze and evaluate policy options, anticipate the potential impacts of those policies, and develop strategies for

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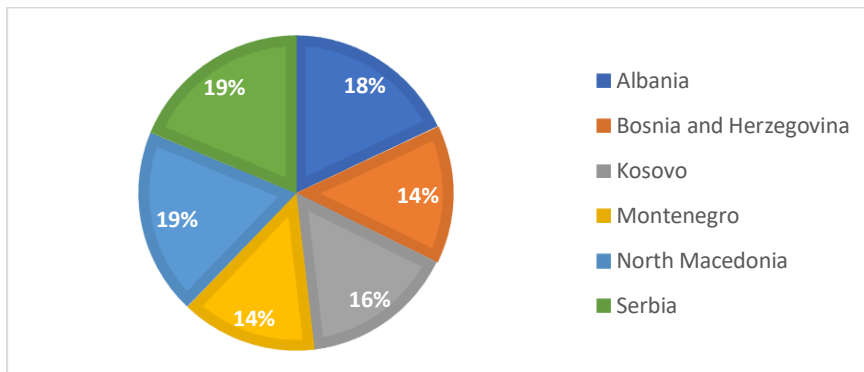
implementing them effectively (Kosar, 2019). Public sector employees must also be able to think critically about the role of government in society and develop innovative approaches to addressing complex public problems. Another key difference in conceptual competencies between private and public sector employees is the focus on mission and values in the public sector. Public sector employees must be able to align their work with the broader mission and values of the organization and ensure that their decisions and actions are consistent with those values. This includes a commitment to transparency, accountability, and equity (Puppim de Oliveira & Berman, 2021). Private sector employees are also concerned with mission and values, but these are often focused more narrowly on the interests of shareholders and customers. Private sector employees require strong conceptual competencies to identify and exploit market opportunities and ensure the long-term success of the organization, while public sector employees must navigate a complex regulatory environment and develop innovative solutions to address complex public problems while aligning their work with the broader mission and values of the organization. Developing and enhancing these competencies is critical for employees seeking to succeed in each sector. Global competencies refer to the knowledge, skills, and attitudes necessary for employees to operate effectively in a global context. In today's interconnected world, both private and public sector employees need to have strong global competencies to navigate diverse cultural contexts, work collaboratively with stakeholders from different backgrounds, and address complex global challenges. However, there are some differences in how these competencies are applied in the private and public sectors. Private sector employees often operate in a highly competitive and rapidly changing global environment, where they must be able to identify and exploit new market opportunities, manage global supply chains, and negotiate with partners and stakeholders across cultural boundaries (Kozlowski, 2018). They must be able to communicate effectively with colleagues, customers, and partners from different cultural backgrounds, and demonstrate cultural sensitivity and adaptability in their work. In contrast, public sector employees must navigate a complex and often politically charged global environment, where they must balance the interests of different stakeholders and address complex global problems such as climate change, poverty, and migration. They must be able to understand and navigate the political and cultural differences that exist between different countries and regions, and work collaboratively with international organizations and NGOs to address these challenges (Puppim de Oliveira & Berman, 2021). Another key difference in global competencies between private and public sector employees is the focus on accountability and transparency in the public sector. Public sector employees must operate within a framework of accountability and transparency, ensuring that their decisions and actions are transparent and consistent with the broader mission and values of the organization. This includes a commitment to ethical and responsible decision-making, and a willingness to engage with stakeholders and the public to build trust and support for their work (Puppim de Oliveira & Berman, 2021). Private sector employees are also concerned with ethical decision-making and building trust with stakeholders, but these values are often focused more narrowly on the interests of the organization and its shareholders. Private sector employees may also be more focused on short-term goals and profit maximization, rather than the long-term sustainability and social responsibility of the organization (Kozlowski, 2018). Private sector employees require strong global competencies to operate effectively in a highly competitive and rapidly changing global environment, while public sector employees must navigate a complex and politically charged global environment to address complex global challenges and operate within a framework of accountability and transparency. Developing and enhancing these competencies is critical for employees seeking to succeed in each sector.

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Analysis of the data

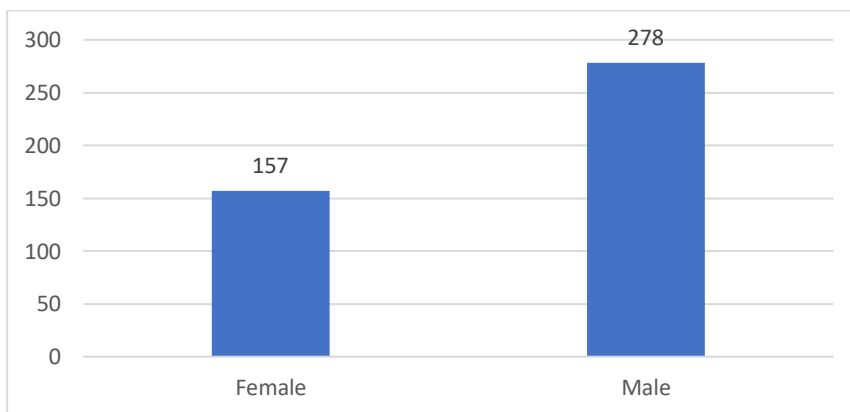
Demographic information

Graphic 1. Count of Which Balkan County did you live?



The dataset at hand provides valuable insights into the geographic diversity of respondents within the Balkan region. It showcases the number of individuals who have previous residency in various Balkan countries, shedding light on their collective experiences. 18% of respondents have shared their experiences living in Albania. 14% of respondents have had residences in Bosnia and Herzegovina. 16% of respondents have firsthand experience living in Kosovo. 14% of respondents have a history of living in Montenegro. 19% respondents have called North Macedonia their home. 19% of respondents have lived in Serbia. This data unveils the mosaic of backgrounds within the surveyed population, showcasing their diverse connections to these Balkan countries. It's a testament to the cultural richness and historical complexity of the Balkans, as experienced by these respondents during their respective periods of residence.

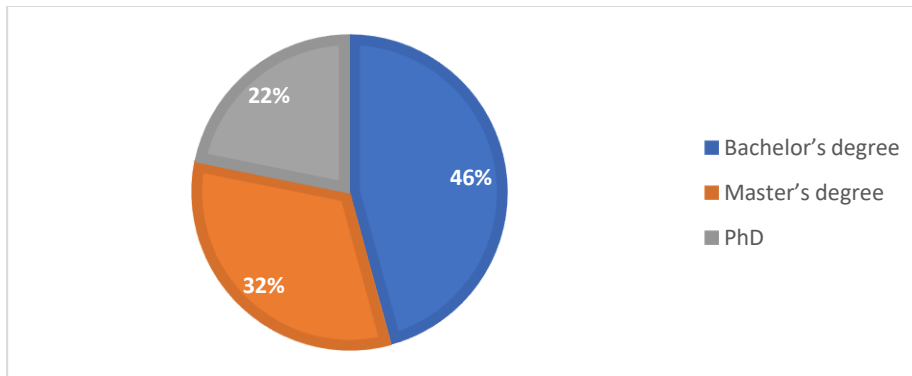
Graphic 2. Count of What is your gender?



The data provided represents the gender distribution among respondents to a survey or questionnaire. Out of the total respondents, there are 157 females and 278 males. This data reflects the gender composition within the surveyed group, with a higher number of male respondents compared to female respondents. Such information about the gender distribution is crucial for understanding the diversity within the respondent pool and can be used to analyze gender-specific perspectives and experiences in various contexts, such as in research, marketing, or social studies. It highlights the importance of considering gender as a demographic factor when interpreting and drawing conclusions from the survey results.

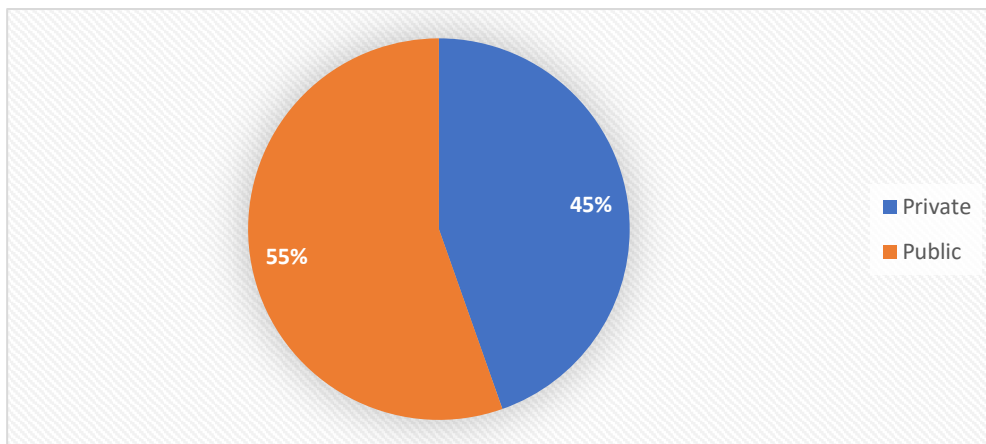
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Graphic 3. Count of What is your highest qualification?



The data provided offers insights into the highest qualifications held by the respondents to a survey or questionnaire. Among the surveyed individuals, the distribution of their highest qualifications is as follows: 46% respondents hold a bachelor's degree as their highest qualification. 32% respondents have achieved a master's degree as their highest educational attainment. 22% respondents have earned a Doctor of Philosophy (PhD) degree, which represents the highest level of academic achievement in this dataset. This data provides valuable information about the educational background of the respondents. It illustrates the diverse academic qualifications within the surveyed group, with bachelor's, master's, and doctoral degrees all represented. Such insights are essential for understanding the education level of the respondents and can inform decisions related to employment, research, or educational program development.

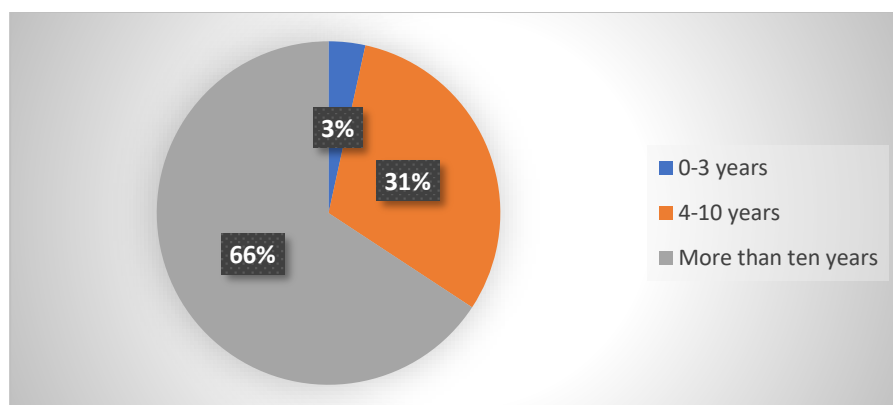
Graphic 4. Sector of the Organization



The provided data outlines the distribution of organizations based on their sector, distinguishing between private and public sectors. The dataset reveals the sectoral composition of organizations represented in the survey. Specifically: There are 45% respondents affiliated with organizations in the private sector. The survey includes 55% respondents from the public sector. This data offers valuable insights into the prevalence of private and public sector affiliations among the respondents. It signifies the diversity of sectors represented within the surveyed organizations and can be useful for understanding the landscape of employment and organizational structures within the scope of the survey. The balance between private and public sectors can have significant implications for various types of research, policymaking, and decision-making processes.

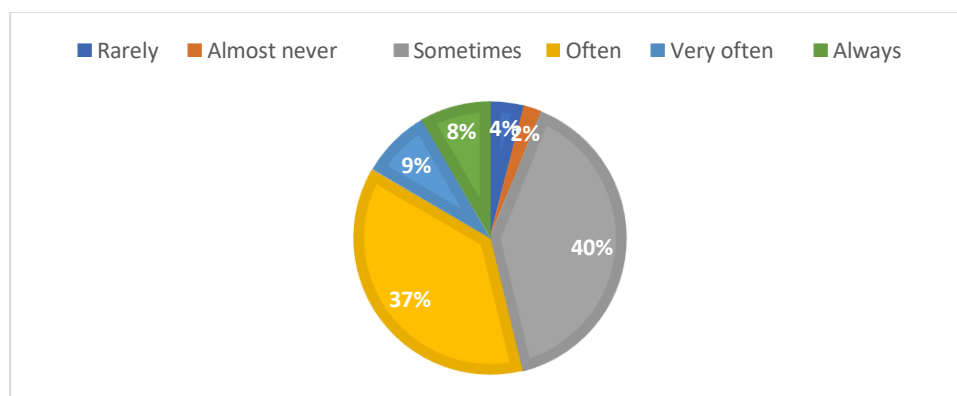
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Graphic 5. How much experience do you have working in this sector?



The data presented provides insights into the level of experience that respondents have accumulated within their respective sectors of employment. The dataset offers an overview of the distribution of respondents based on their years of experience in their respective sectors. There are 3% individuals with less than four years of experience in their current sector. 31% respondents have accrued between four and ten years of experience in their sector. The majority of respondents, comprising 66% individuals, possess over a decade of experience in their current sector. This data illustrates the diverse range of experience levels within the surveyed population. It provides insights into the distribution of experience, with a notable portion of respondents boasting extensive expertise within their respective sectors. Such information is valuable for understanding the demographics of the workforce and can be utilized in career development, human resources, and research studies focused on employment trends and experience-related factors within specific sectors.

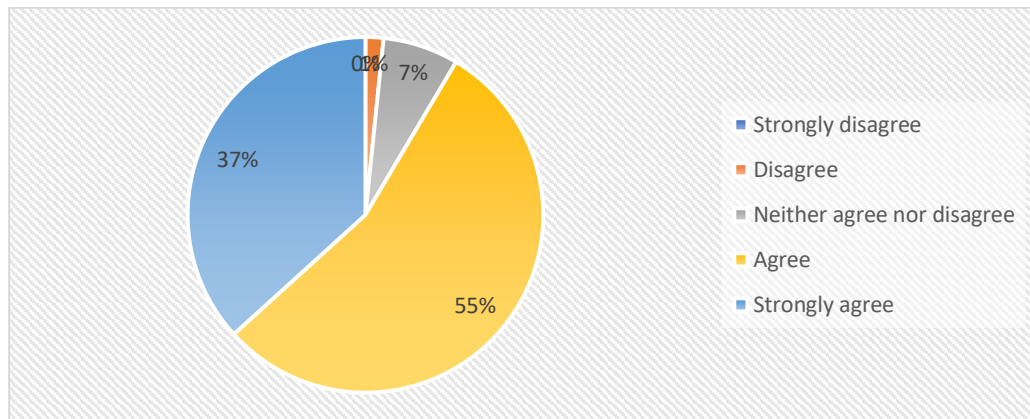
Graphic 6. I find my work challenging and stimulating



In this survey, respondents were asked to share their level of agreement with the statement: "I find my work challenging and stimulating." Only 4% of respondents indicated that they rarely find their work challenging and stimulating. A small number, specifically 2% individuals, mentioned that they almost never experience their work as challenging and stimulating. This is the most common response, with 40% of respondents indicating that they sometimes find their work to be challenging and stimulating. 37% of respondents reported that they often experience their work as challenging and stimulating. 9% individuals expressed that they very often find their work to be challenging and stimulating. Similarly, 8% respondents stated that they always find their work challenging and stimulating. The respondents' answers were recorded on a scale, with options ranging from "Almost never" to "Always." The data reflects a variety of responses, suggesting a range of experiences and perceptions regarding the degree of challenge and stimulation individuals find in their work. Analyzing these responses can provide insights into the overall job satisfaction and engagement levels of the surveyed individuals.

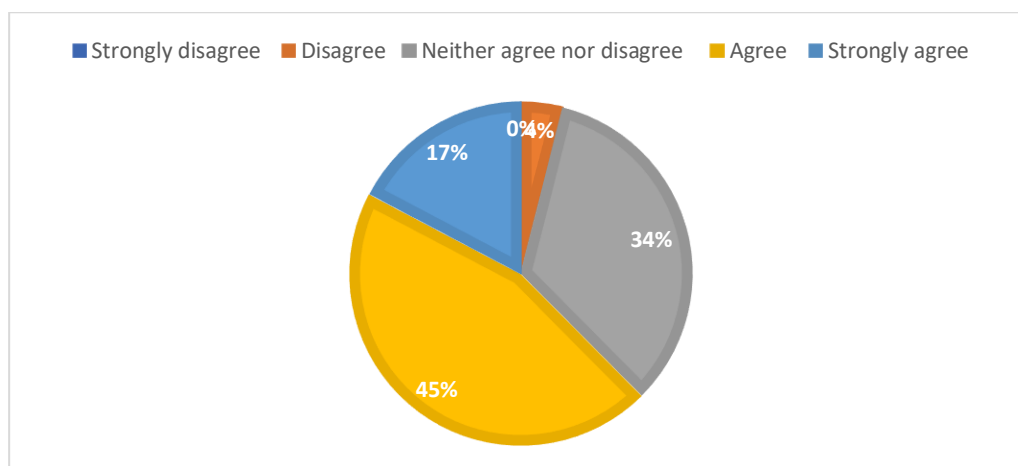
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Graphic 7. I am familiar with the work processes and procedures in my current job



The data provided outlines respondents' familiarity with the work processes and procedures in their current jobs. The dataset offers insights into the level of familiarity that respondents have with the work processes and procedures in their current jobs. It can be summarized as follows: None of the respondents strongly disagreed with their familiarity with work processes and procedures. A total of 1% of respondents expressed disagreement with their familiarity. 7% of individuals neither agreed nor disagreed, indicating a level of neutrality in their familiarity. A significant portion of respondents, specifically 55%, agreed with their familiarity with work processes and procedures. 37% of respondents strongly agreed with their familiarity in this regard. This data reflects the spectrum of responses within the surveyed population, ranging from those who strongly agree with their familiarity with work processes to a smaller group that holds a contrary view. Understanding the level of familiarity with work processes is essential for assessing employee competence, training needs, and overall job performance. It provides valuable insights for organizations looking to optimize their work procedures and enhance employee effectiveness.

Graphic 8. My current job provides opportunities to learn and grow professionally

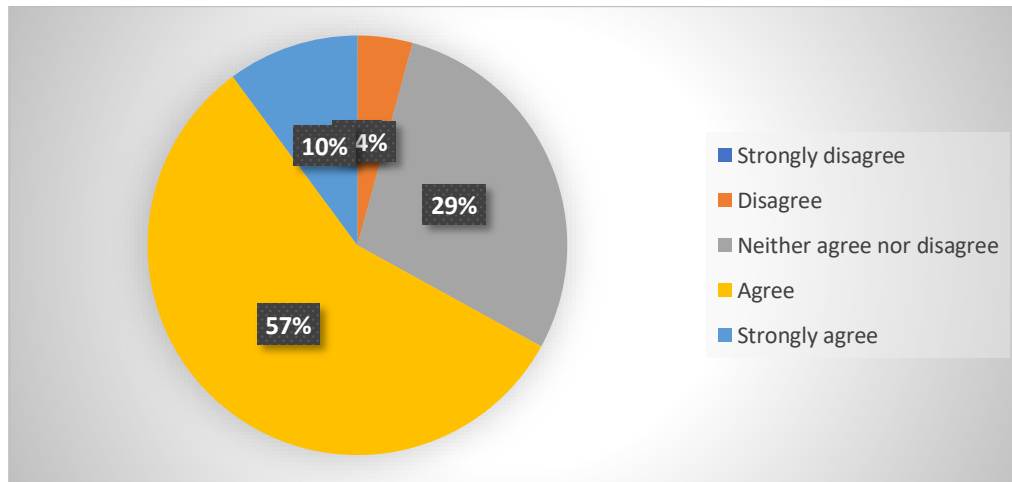


The data provided focuses on respondents' perceptions regarding the opportunities for professional learning and growth in their current jobs. The dataset offers valuable insights into the extent to which respondents perceive their current jobs as providing opportunities for professional learning and growth. It can be summarized as follows: None of the respondents strongly disagreed with the idea that their current job provides opportunities for professional growth. A total of 4% of respondents expressed disagreement with the availability of such opportunities. A substantial portion of respondents,

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specifically 34%, neither agreed nor disagreed, indicating a sense of ambivalence or neutrality regarding professional growth opportunities. 45% of individuals agreed that their current job offers opportunities for professional learning and growth. 17% respondents strongly agreed with the notion that their current job provides substantial opportunities for professional development. This data highlights the range of responses within the surveyed population, from those who strongly agree that their jobs are conducive to professional growth to a smaller group that disagrees. It underscores the importance of considering professional development within the workplace and can guide organizations in enhancing their programs and initiatives for employee growth and career advancement.

Graphic 9. My current job is a supportive and participatory work environment that addresses the social needs of employees.



The data reveals respondents' perceptions of their current job's work environment, focusing on its supportiveness, participatory nature, and ability to address employees' social needs, with a particular interest in how these perceptions may vary across age groups. This dataset offers valuable insights into social dynamics and perceived support within the work environment, summarized as follows:

- **Strong Disagreement:** None of the respondents strongly disagreed with the statement that their job provides a supportive, socially engaging environment.
- **Disagreement:** 4% of respondents disagreed that their work environment is supportive and meets social needs, suggesting potential areas for improvement in workplace support for this subset.
- **Neutral:** 29% of respondents were neutral, neither agreeing nor disagreeing, indicating ambivalence toward the social aspects of their workplace. This neutrality may reflect age-related differences in expectations around social support in the work environment.
- **Agreement:** The majority (57%) agreed that their work environment is supportive, participatory, and addresses social needs, suggesting general satisfaction.
- **Strong Agreement:** 10% of respondents strongly agreed, viewing their work environment as highly supportive and responsive to social needs.

This data highlights a generally positive perception of social support in the workplace, with varied responses potentially linked to age-related competencies and expectations. Organizations can use these insights to foster inclusive, supportive environments tailored to meet the social needs of employees at different life stages, which can enhance job satisfaction and improve workplace culture across age groups.

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Conclusions

The competencies required for effective management show notable differences between the corporate and public sectors. In the private sector, competencies are centered on goals like profit maximization, customer satisfaction, and innovation. Employees need skills in strategic thinking to capitalize on market opportunities, financial acumen to oversee resources, marketing expertise to understand consumer behavior, and adaptability to succeed in fast-paced environments. These competencies may vary with age, as younger employees might prioritize innovation and agility, while more experienced employees may focus on stability and long-term growth.

Conversely, public sector employees are tasked with responsibilities that include service delivery, policy implementation, and regulatory compliance. This necessitates competencies in policy analysis, project management, and a thorough understanding of governmental policies to ensure efficient and effective public service. Public sector employees, particularly those of differing age demographics, may place varied emphasis on skills like budget management, team leadership, and cross-cultural collaboration, with older employees likely prioritizing policy compliance, while younger employees might value innovation and stakeholder engagement.

Additionally, the role of education, especially in fostering cross-cultural competencies in Balkan schools, is essential for equipping future employees with a global perspective. Integrating global education into curricula can develop cultural competence, cooperative skills, and an understanding of international interconnectedness, all vital for navigating diverse work environments. Educators gain insights into managing classroom diversity, equipping students with cross-cultural awareness and adaptability that will serve them well as future employees in both sectors.

The data analysis illuminated respondents' perspectives on crucial competencies, covering technical, practical, marketing, ICT, managerial, project management, communication, legal knowledge, leadership, planning, language skills, finance, technology, and problem-solving abilities. Across age groups, technical and practical skills emerged as key drivers of organizational success. Communication skills, especially within multicultural contexts, were recognized as essential for effective collaboration in diverse work settings. Legal knowledge was important for ensuring compliance and supporting informed decision-making, while leadership and people management were viewed as foundational for creating a positive work environment. Competencies in planning, language, finance, and technology were also highlighted, each fostering efficiency and adaptability across all ages. Skills in time management, organization, and problem-solving were particularly valued, reflecting their role in maintaining productivity across generational lines.

The study also identified specific challenges in organizational administration, such as emotional intelligence, recruitment, innovation, planning, legal knowledge, employee well-being, technology use, immigration, and improvements in HR processes. These challenges are influenced by generational expectations and may benefit from tailored competency development programs for different age groups. Additionally, the findings emphasized the importance of cross-cultural competencies—such as cultural awareness, communication, adaptability, intercultural negotiation, and empathy—particularly for public sector management in the Balkans. These skills are essential for employees at all career stages to build positive relationships, address conflicts effectively, and succeed in multicultural environments.

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DESIGN AND FABRICATION OF VAPOUR ABSORPTION AC USING ENGINE EXHAUST GAS

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ABSTRACT

Air conditioning is essential in modern life; yet designing energy efficient and cost-effective systems remains challenging. About 60 – 65% of the fuel's energy lost as the heat waste in internal combustion engines and only 35 – 40% becomes useful for power generation. We can reuse that waste heat energy by capturing it and using it to power the vapor absorption cooling system without diminishing engine's efficiency. In this work, a complete working model of vapor absorption air conditioning has been fabricated which works on engine's exhaust gases. In this work, the exhaust gases are used as the heat generator which produces hot vapors or steam which is then cooled with the help of condenser and then passed through the expansion valve for additional cooling and then evaporator is used at the end and cycle repeats. A series of experiments are done for checking and evaluating the results and calculations. It is found that COP (Coefficient of Performance) initially increases with temperature due to better heat exchange resulting in improved efficiency. But when the temperature increases to threshold, it is noted that the efficiency decreases due to economic inefficiencies. It is concluded that efficiently utilizing waste heat of the engine for air conditioning reduces the greenhouse gas emissions and offers a sustainable alternative to traditional air conditioning systems. Furthermore, continuously recycling engine waste heat improves efficiency and reduces external energy dependency.

Keywords: IC Engine, Vapor Absorption, Waste Heat, COP, Air Conditioning.

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EPHEDRA ALATA ALEND MITIGATE BRAN OXIDATIVE STRESS AND BEHAVIORAL DISORDERS INDUCED BY FENTHION IN RATS

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ABSTRACT

The intensive and anarchic use of pesticides in recent years has led to the emergence of many ecological, environmental and health problems. Indeed, the presence of these substances, even in small quantities, in agricultural products and water, poses potential health risks in rats. This study aims to evaluate the toxic effect of an organophosphorus insecticide formulation Fenthion on the neurobehavioral parameters and brain histological appearance in male Wistar rats. On the other hand, we were interested in investigating the possible protective effect of supplementation of the aqueous extract of *Ephedra alata alenda* against experimental neurotoxicity of fenthion. 40 male rats were divided into four groups (n=5) and treated orally for 30 days: control group; fenthion-treated group; Ephedra-treated group and fenthion and Ephedra-treated group. At the end of the experiment, behavioral tests like EPM, OF and FST were assessed for anxiety and depression like behavior studies. Subsequently, the rats were sacrificed and the brain was carefully removed and fixed in 10% formalin for histological study and part preserved for study of oxidative stress parameters. Our results indicate that fenthion treatment caused anxiogenic, depression like behavior disorder's and induce a decrease in antioxidants enzymes (GSH, GST) as well as a significant increase in lipid peroxidation biomarker (MDA) compared to the control group. In addition, the histological study showed that the pesticide caused very marked damages in the brain (congestion and necrosis). In addition, *E.alata* supplementation remarkably decreased the level of neurotoxicity in fenthion treated group, by modulating the levels of biochemical markers by decreasing the state of brain oxidative stress, and by improving the tissue structure of the affected organ (brain). In light of our results, we can conclude that fenthion is potentially toxic in rats and supplementation of *Ephedra alata alenda* extract provides a protective effect against neurotoxicity induced by this pesticide.

Keywords: Fenthion, *Ephedra alata alenda*, Neurotoxicity, Histology. Oxidative stress.

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A COMPREHENSIVE REVIEW OF POLICE ADMINISTRATION EVOLUTION IN AFGHANISTAN: STRUCTURAL CHANGES, POLICY SHIFTS, LEADERSHIP, AND RESOURCE ALLOCATION

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ABSTRACT

The evolution of police administration in Afghanistan reflects a complex interplay of historical events, socio-political changes, and international interventions. This review examines the factors influencing the transformation of police administration in Afghanistan, with a focus on structural reforms, policy shifts, leadership, and resource allocation. Tracing the historical context, the paper explores key reforms and challenges across different eras—from the pre-1979 period through the Soviet invasion, the civil war, the rise and fall of the Taliban (1994-2001), to the post-2001 reconstruction efforts. The analysis highlights shifts between centralized and decentralized models, the impact of counterinsurgency and counterterrorism policies, evolving leadership styles, and the critical role of resource distribution. The paper also assesses specific initiatives, such as the Afghan National Police (ANP) and Afghan Local Police (ALP), evaluating their effectiveness amid ongoing issues of corruption, inadequate training, and public trust. Through this comprehensive review, it provides insights into the complex dynamics of police administration in Afghanistan and offers recommendations for sustainable, context-specific reforms to support future stability.

Keywords: Afghanistan, Police Administration, Structural Reforms, international intervention, Leadership Evolution

1. Introduction

Police administration in Afghanistan has undergone significant transformations over the past century, marked by periods of conflict, regime changes, and international involvement. These transformations are not merely administrative or procedural changes but are deeply intertwined with the socio-political fabric of the country. Understanding the evolution of police administration in Afghanistan requires an analysis of the various factors that have influenced its development over time, including historical context, structural adjustments, policy shifts, leadership changes, and resource allocation.

The history of policing in Afghanistan can be traced back to its early attempts at state-building during the reign of King Amanullah Khan in the 1920s, when efforts were made to establish a centralized police force to maintain internal security and enforce the rule of law (Barfield, 2010). However, these efforts were limited by the country's rugged geography, ethnic diversity, and the strong influence of tribal structures. The traditional law enforcement was often carried out by local militias and tribal elders, rather than a centralized state police force (Saikal, 2004).

The Soviet invasion in 1979 marked a significant turning point in Afghan police administration. The Soviets attempted to restructure the police force along Soviet lines, emphasizing political loyalty and counterinsurgency capabilities (Giustozzi, 2008). The aim was to create a police force that could support the communist government and counter the Mujahideen insurgents. This period saw the militarization of the police and a focus on internal security and counterinsurgency, rather than community policing

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and public service. The police were used as a tool of state repression, leading to widespread human rights abuses and a deep mistrust of the police among the population (Dorrnsoro, 2005).

The fall of the Soviet-backed government and the subsequent civil war in the 1990s further fragmented the police force. Various Mujahideen factions and warlords took control of different regions, leading to a patchwork of local militias and security forces with little to no central coordination (Graham-Harrison, 2012). The rise of the Taliban in the mid-1990s brought a new form of police administration, characterized by strict enforcement of Sharia law and brutal punishment for perceived infractions. The Taliban's police force, known for its harsh methods, further eroded public trust and created a legacy of fear and suspicion (Rashid, 2001).

The post-2001 era, following the U.S.-led invasion and the establishment of the Islamic Republic of Afghanistan, brought renewed efforts to rebuild and reform the police administration. International donors, particularly the United States and European Union, played a crucial role in funding and training the Afghan National Police (ANP) (Perito, 2009). These efforts aimed to transform the ANP into a professional, capable, and community-oriented police force. The focus was on providing training, equipment, and infrastructure to improve the operational effectiveness of the police. However, despite substantial investment, the ANP faced numerous challenges, including widespread corruption, lack of training, limited public trust, and the ongoing insurgency (Sedra, 2006).

The structure of the ANP has been a significant area of focus in reform efforts. There has been an ongoing debate between centralization and decentralization of the police force. Centralized control is argued to provide uniformity and stronger oversight, while decentralization is seen as necessary for local responsiveness and community engagement (Wilder, 2007). The balance between these approaches has been difficult to achieve, given Afghanistan's complex socio-political landscape and the varying needs of its diverse regions.

Policy shifts have also played a crucial role in the evolution of police administration in Afghanistan. The focus on counterinsurgency and counterterrorism has led to the militarization of the police, often blurring the lines between police and military roles (Jones, 2009). This approach has been criticized for undermining community policing efforts and exacerbating human rights abuses. On the other hand, community policing initiatives, promoted by international donors, aim to build trust and cooperation between the police and local communities. Programs such as the Afghan Local Police (ALP) aimed to involve local communities in security provision, though their effectiveness has been mixed, with reports of abuses and lack of accountability (Forsberg, 2010).

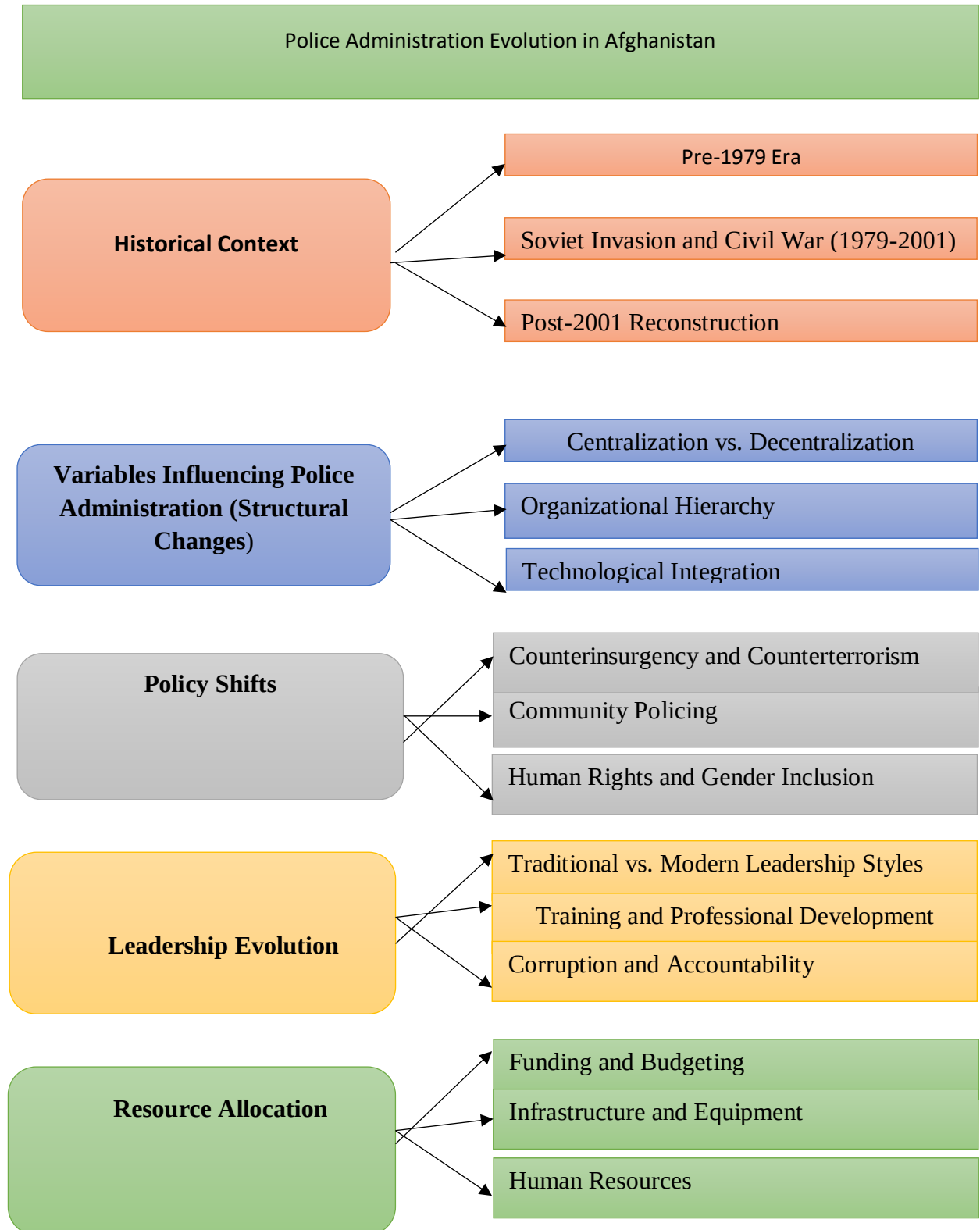
Leadership within the Afghan police force has been another critical variable. Leadership styles have evolved from traditional, authoritarian models to more modern approaches emphasizing accountability and professionalism. International training programs have aimed to instill principles of democratic policing and human rights among Afghan police leaders (Raghavan, 2011). However, the effectiveness of these programs has been limited by cultural and contextual factors. Efforts to promote diversity and inclusion within the police force, particularly the recruitment of women and ethnic minorities, have faced significant cultural and security challenges (Mani, 2011).

Resource allocation has been a fundamental aspect of police administration in Afghanistan. The funding and budgeting of the police force have been heavily reliant on international aid, raising concerns about sustainability (SIGAR, 2020). Efficient allocation of resources, reducing dependency on external funding, and addressing the challenges of recruitment, retention, and training of personnel are critical for building a competent and professional police force.

In summary, the evolution of police administration in Afghanistan is a complex and multifaceted process influenced by historical events, structural changes, policy shifts, leadership transformations, and

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resource allocation. This paper aims to provide a comprehensive review of these variables, offering a nuanced understanding of the challenges and progress in Afghan police administration. By examining the historical context and current challenges, the paper seeks to provide insights into the future directions of police administration in Afghanistan, emphasizing the need for sustainable and context-specific reforms.



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Figure. 1 Police Administration Evolution in Afghanistan “Structural Changes, Policy Shifts, Leadership, and Resource Allocation

2. Historical Context

Pre-1979 Era

Prior to the Soviet invasion in 1979, Afghanistan's police administration was relatively underdeveloped, with a primary focus on maintaining internal security and public order. The structure was hierarchical and centralized, with significant influence from tribal and local leaders (Saikal, 2004). The police force was generally under-resourced and lacked professional training.

Soviet Invasion and Civil War (1979-2001)

The Soviet invasion in 1979 marked a turning point in Afghan police administration. The Soviet-backed government attempted to restructure the police force along Soviet lines, emphasizing political loyalty and counterinsurgency (Dorronsoro, 2005). However, the ensuing civil war and the rise of the Mujahideen severely undermined these efforts, leading to a fragmented and weakened police force.

Post-2001 Reconstruction

The fall of the Taliban regime in 2001 and the subsequent establishment of the Islamic Republic of Afghanistan brought renewed efforts to rebuild and reform the police administration. International donors, particularly the United States and European Union, played a crucial role in funding and training the Afghan National Police (ANP) (Perito, 2009). Despite substantial investment, the ANP faced numerous challenges, including corruption, lack of training, and limited public trust.

No.	Period	Status	structure	Responsibilities	Dependency and challenges
1	Pre-1979	underdeveloped	Hierarchy and Centralized	Maintaining internal security& public order	Tribal and local leaders, lack of investment and professionalism
2	1979-2001	Fragile and weakened	Centralized and restructure along soviet lines	Counterinsurgency and Political loyalty to Soviet-backed government	Soviet investment and civil war
3	2001-2021	Modernization	centralized, Rebuild and reforming along NATO Policies	Maintaining public order, counterterrorism, government and foreign infrastructures protection	USA and EU donors, Corruption and public trust

Figure. 2: Historical Context of ANP

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3. Variables Influencing Police Administration (Structural Changes)

Centralization vs. Decentralization

Afghanistan's police administration has oscillated between centralized and decentralized structures, influenced by political stability and international interventions. Under the Soviet-backed government, the police force was highly centralized, with significant control exerted by the central government (Giustozzi, 2008). Post-2001, efforts were made to decentralize police administration to improve local responsiveness and community engagement. However, the lack of infrastructure and capacity at the local level often hindered these efforts (Wilder, 2007).

Organizational Hierarchy

The traditional hierarchical structure of the Afghan police has gradually evolved to incorporate more collaborative models, particularly in areas with strong international presence. Efforts to streamline decision-making and enhance coordination between different security agencies have been ongoing, though challenges remain in achieving effective inter-agency cooperation (Schmeidl & Karokhail, 2009).

Technological Integration

Technological integration in Afghan police administration has been limited due to infrastructure constraints and ongoing conflict. However, initiatives to introduce basic technologies, such as communication systems and data management tools, have been implemented with varying degrees of success (Sedra, 2006). The introduction of biometric systems for personnel management and criminal identification has also been a significant development, though its full potential is yet to be realized.

4. Policy Shifts

Counterinsurgency and Counterterrorism

Policies governing Afghan police administration have been heavily influenced by the need to address insurgency and terrorism. The focus on counterinsurgency has led to the militarization of the police force, often blurring the lines between police and military roles (Jones, 2009). This approach has been criticized for undermining community policing efforts and exacerbating human rights abuses.

Community Policing

Community policing initiatives have been promoted by international donors as a means to build trust and cooperation between the police and local communities. Programs such as the Afghan Local Police (ALP) aimed to involve local communities in security provision, though their effectiveness has been mixed, with reports of abuses and lack of accountability (Forsberg, 2010). Efforts to implement community policing face significant cultural and contextual challenges, including local resistance and ongoing conflict.

Human Rights and Gender Inclusion

Policies promoting human rights and gender inclusion have been a critical aspect of police reforms in Afghanistan. International training programs have aimed to instill principles of democratic policing and human rights among Afghan police officers (Raghavan, 2011). However, cultural and security challenges have hindered the effective implementation of these policies, particularly in recruiting and retaining women and ethnic minorities in the police force (Mani, 2011).

5. Leadership Evolution

Traditional vs. Modern Leadership Styles

Leadership within the Afghan police force has evolved from traditional, authoritarian models to more modern approaches emphasizing accountability and professionalism. International training programs

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have aimed to instill principles of democratic policing and human rights among Afghan police leaders (Raghavan, 2011). However, the effectiveness of these programs has been limited by cultural and contextual factors.

Training and Professional Development

Training and professional development have been critical components of police reform efforts in Afghanistan. International donors have invested heavily in training programs to enhance the skills and capabilities of Afghan police officers (Perito, 2009). However, the sustainability and effectiveness of these programs have been challenged by issues such as high attrition rates, corruption, and ongoing conflict.

Corruption and Accountability

Corruption remains a pervasive issue within the Afghan police force, undermining public trust and the effectiveness of police administration. Efforts to address corruption have included measures to improve oversight and accountability, though progress has been slow and inconsistent (SIGAR, 2020).

6. Resource Allocation

Funding and Budgeting

The funding and budgeting of the Afghan police force have been heavily reliant on international aid, raising concerns about sustainability (SIGAR, 2020). Efficient allocation of resources, reducing dependency on external funding, and addressing the challenges of recruitment, retention, and training of personnel are critical for building a competent and professional police force.

Infrastructure and Equipment

Investment in infrastructure and equipment has been a significant focus of international aid efforts, aimed at improving the operational effectiveness of the Afghan police. Despite substantial investment, challenges remain in ensuring the adequate distribution and maintenance of equipment, particularly in remote and conflict-affected areas (Perito, 2009).

Human Resources

The recruitment, retention, and training of personnel have been ongoing challenges for the Afghan police force. High attrition rates, limited training opportunities, and security threats have hindered efforts to build a competent and professional police force (Sedra, 2006). Initiatives to improve personnel management and professional development have been implemented, though their effectiveness has been limited by contextual factors.

Conclusion

The evolution of police administration in Afghanistan is a multifaceted and ongoing process, shaped by a myriad of factors including historical legacies, structural changes, policy shifts, leadership dynamics, and resource allocation. The historical context of Afghan policing highlights the deep-rooted challenges faced by the police force, including fragmentation, militarization, and a legacy of mistrust. Despite substantial efforts to reform and rebuild the police force, numerous challenges remain.

Efforts to centralize and decentralize the police force have both shown limited success due to the complex socio-political landscape of Afghanistan. The debate between centralized control for uniformity and decentralized policing for local responsiveness continues to be a critical issue. Technological integration, though in its nascent stages, offers potential for improving police effectiveness and accountability.

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Policy shifts towards counterinsurgency and counterterrorism have often resulted in the militarization of the police, undermining efforts to promote community policing and human rights. The Afghan Local Police (ALP) initiative, while aiming to involve local communities in security provision, has faced mixed results with significant challenges in accountability and effectiveness. Promoting human rights and gender inclusion within the police force remains a critical yet challenging objective, hindered by cultural and security barriers.

Leadership within the Afghan police force has evolved with international training programs emphasizing democratic policing and human rights. However, the impact of these programs has been limited by high attrition rates, corruption, and the ongoing conflict. Corruption continues to be a pervasive issue, undermining public trust and the effectiveness of police administration.

Resource allocation has been heavily reliant on international aid, raising concerns about the sustainability of reforms. Investment in infrastructure, equipment, and human resources is critical for building a competent and professional police force. However, challenges in recruitment, retention, and training of personnel persist, affecting the overall effectiveness of the police force.

In conclusion, the evolution of police administration in Afghanistan highlights the need for continued efforts to promote accountability, professionalism, and community engagement in policing. Addressing the deep-rooted challenges requires a nuanced understanding of the socio-political context and a commitment to sustainable and context-specific reforms. The future of Afghan police administration depends on the successful implementation of these reforms, fostering a professional, accountable, and community-oriented police force capable of maintaining security and upholding the rule of law.

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VIRTUAL NURSING PRESENCE; A PARADIGM SHIFT IN CARING?

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ABSTRACT

In the ever-evolving landscape of healthcare, the intersection of technology and nursing care has given rise to a profound inquiry into the essence of nursing presence. Rooted in both nursing theory and philosophical underpinnings, the emergence of virtual nursing presence challenges traditional paradigms, prompting a reflective exploration of its implications. From the philosophical perspective, nursing presence is deeply ingrained in the existential aspects of patient care, emphasizing the importance of human connection, empathy, and holistic understanding. As we navigate the uncharted territory of virtual nursing presence, it becomes imperative to scrutinize this phenomenon through the lens of nursing theories and philosophical frameworks. This exploration seeks to unravel the complexities surrounding the integration of technology in nursing care, examining how virtual platforms align with or challenge established theoretical and philosophical principles.

Keywords: Virtual Nursing, Presence, Caring, Paradigm Shift

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PHILOSOPHICAL PROJECTION HUMAN DEGRADATION IN THE WORKS OF CH. AITMATOV

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ABSTRACT

At the beginning of the 20th century, the meaning of the word began to acquire actual significance. What does the word "degrade" mean in the modern world? This is the process of transition from a complex state to a simpler one, when there is a gradual simplification, destruction, decline or loss of properties, qualities of a person, another organism, society, nature, system, molecules. Degradation affects all spheres of life and can affect any phenomenon, process. A phenomenon that is in the center of attention and is being studied by many scientists of completely different sciences and fields. By itself, a person does not contain the potential for destruction, but such cases are still observed. What does personality degradation mean? This is, first of all, the appearance of two important signs - depression and apathy. A person begins to lose balance, learning ability, the desire to learn about the world around him, to develop, to constantly be in dynamics. What does human degradation mean? This is a process of loss of qualities and properties inherent in a person, feelings, judgments, abilities, laid down at birth, are lost. Memory worsens, the ability to concentrate attention, there is no interest in life and the world around.

One of the central problems in modern humanities is the problem of personality degradation, which involves understanding the negative trends in the life of modern society. The designated topic is raised within the framework of religious studies, philosophy, sociology, history, and ethnography. cultural studies, psychology, political science and other sciences. Many predictions regarding the future of mankind, the risks of modern civilization and ways to minimize them, are made in art. They are of particular interest for research, since art, along with rational judgments, reflects the result of an intuitive comprehension of being.

That is why an important direction is the analysis of the problem of personality degradation, carried out both on the material of individual literary works, and in the creative heritage of writers-philosophers of a whole period, for example, the end of the 20th beginning. The article deals with the degradation of the personality: the impoverishment of the spirit, the moral decline of the personality in the works of Ch. Aitmatov "When the mountains fall", "The chopping block", etc. The image of the mountain, its

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greatness occupies a priority place among other natural images. The writer shows a person who is able to betray his land and his mountains, to trample on all existing values in pursuit of money. And if a person does not stop now, does not change his mind, then a catastrophe will break out in the human mind, a person will degrade, and as a result, we can lose our human face and our homeland.

Key words: Degradation, morality, personality, impoverishment, mountain, cradle, avalanches, morality, spirit, conscience.

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GENDER STATISTICS OF A MARITIME INSTITUTION TOWARDS A SEX- DISAGGREGATED DATABASE ESTABLISHMENT AND GENDER-RELATED POLICY DEVELOPMENT

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ABSTRACT

Gender equality and women empowerment are considered critically vital in today's world, compelling organizations – both local and international, to take steps to institutionalize gender mainstreaming approaches. One of these institutional mechanisms to gender mainstreaming is the generation and maintenance of Gender and Development (GAD) database. Thus, this study primarily aimed at collecting sex-disaggregated data of Philippine Merchant Marine Academy employees to establish a PMMA-GAD database in support of the Magna Carta of Women indicators. Using descriptive quantitative research design, the study revealed that PMMA employee-respondents are mostly male, heterosexual, married, non-teaching staff, permanent employment status with salary grade 1 to 9, all age groups are represented with the youngest age group having the highest representation supporting the 5-years and below service record at the academy. The common health problems are eye problem, diabetes, and hypertension/high blood pressure mostly males. Under economic profile, they are mostly breadwinners and have a net total income of Php10,000-P30,000 earned through salary. Despite being busy, both sexes are active in spiritual and family gatherings and have time for regular medical check-up. Social development services like electricity, clean water, cellphones, and others are available to both males and females at different percentage levels. Additionally, most of the respondents are aware of their right to security, justice, and peace, with a minimal percentage of women having emotional threats and males experiencing physical threats. It is therefore recommended that the proposed gender-responsive policy, program, and activities must be reviewed, pilot-tested, and implemented to address the needs of the PMMA employees.

Keywords: gender mainstreaming, gender statistics, GAD database, maritime higher education, Philippines

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THE ROLE OF GOVERNMENT PUBLIC RELATIONS IN MARKETING THE GRAND FAW PORT

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ABSTRACT

The Grand Faw Port is an Iraqi port located on the Faw Peninsula in southern Basra Province. The project's cost is approximately \$8.2 billion, covering a total area of 54 square kilometers. The planned capacity of the port is estimated at 99 million tons annually, making it one of the largest ports overlooking the Arabian Gulf and the tenth largest globally. The depth of the port is expected to be 19 meters, enabling it to accommodate the largest commercial ships. The foundation stone for this project was laid on April 5, 2010. There are many obstacles and threats to the project, the most prominent of which are:

- Mubarak Al-Kabeer Port - Kuwait: According to statements by Iraqi officials, the Faw Port will enable Iraq to become the leading country in the region in terms of ports.

- Iran: Iran has shown interest in the Grand Faw Port, which explains the green light given to the Iraqi government to construct the port in response to Mubarak Al-Kabeer Port. Since the port is close to the Iranian border, it provides Iran with opportunities to enhance trade.

Public relations aim to achieve mutual understanding between organizations and their employees, as well as between the organization and its stakeholders. It seeks to establish a good reputation for the organization among the public it deals with, which involves quickly and effectively addressing crises, ensuring clarity in public communication, and combating rumors related to the port.

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MEDIA CONTROL AND AGENDA FORMULATION

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ABSTRACT

The new world order and systematic approaches make it compulsory to follow communication tools in the information age. With the development of technology, social media communication has placed the effect of being informed and used as a resource within the system.

Since there are no limits in accessing information through social media and communication tools, individuals are informed about the agenda through the media. Mass media and social media are successful in determining not what the target audience will think but what they will think about and what will interest them.

The media determines the degree of importance of the information it presents according to the demographic structure of the target audience group it addresses. Visual messages repeated with visual and auditory elements place the event presented in the upper rungs of the importance level of the target audience.

In order to determine its power of influence, the media prioritizes issues and events that it thinks will attract attention. These issues and ideas form the agenda of the target audience. The world in the thoughts of individuals is shaped by agenda-setting elements. While controlling the media, it will be ensured to create individuals who exhibit similar thoughts and behaviors with “Splinternet”, “Cyber-Balkanization”, digital platform, filter bubbles “Gerbner Sowing Model” by offering personal content.

Within the framework of the study models, how effective the media and facts are on the target audience in terms of behavior orientation. It will be analyzed within the framework of agenda setting theories and the changes provided on target audience decisions will be examined.

Key; Media, Splinternet, Gerbner, Agenda Setting, Cyberbalancing

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FARKLI ZAMANLARDA AYNI BÖLGEDE ÇEKİLEN KONAK DİZİLERİNDE AİLENİN
TEMSİLİ: ASMALI KONAK VE SİYAH KALP DİZİLERİ ÜZERİNDEN
KARŞILAŞTIRMALI BİR ANALİZ

THE REPRESENTATION OF FAMILY IN MANSION SERIES FILMED IN THE SAME
REGION AT DIFFERENT TIMES: A COMPARATIVE ANALYSIS OF ASMALI KONAK
AND SİYAH KALP

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ÖZET

İnsan toplumsal bir varlık olması gereği ihtiyaçlarını karşılamak ve yaşamını devam ettirmek için bir yapıya aittir. İnsanın ait olduğu bu toplumsal yapının da en önemli kurumu ailedir. İnsan, ilk doğduğu andan itibaren bu yapının bir üyesidir. Modernleşme kapsamında sürece baktığımızda teknolojinin de etkisiyle toplumsal yaşamda değişiklikler meydana gelmiştir. Bu süreç kültürel, ekonomik, siyasi açıdan da birçok alanı etkilemiş ve bu da beraberinde bir değişimi getirmiştir. Bu değişimlerden en çok etkilenen toplumsal yapı ailedir. Aile etkilenirse birey de etkilenir. Yaşanan bu değişiklikler aile yapılarında da farklılıklara neden olmuştur. Bu yaşanan değişimlerin getirdiği farklılıklar, televizyon dizilerine de yansımış ve kurmaca anlatı yapısına sahip olan televizyon dizilerinde ailenin temsili de değişmiştir. Bu durumu, izleyici beklentilerinin de değişikliğe uğraması ve buna bağlı olarak yapım unsurlarının da farklılaşması etkilemiştir. Bu doğrultuda çalışmada, farklı zamanlarda aynı bölgede çekilen iki televizyon dizisi ele alınmıştır. Kapadokya bölgesinde çekilen ve ATV’de yayınlanan ilk dizi Asmalı Konak (2002) ve Show TV’de yayınlanan son dizi Siyah Kalp (2024) televizyon yapımları incelenmiştir. Diziler üzerinden aile değişim modeli çerçevesinde inceleme yapılarak dizilerin aileyi temsil etme biçimleri ortaya konulmuştur. İki dizinin çekim tarihleri arasındaki süre içerisinde aile yapısının nasıl değişikliğe uğradığı ve bununla beraber izleyici beklentilerinin ve yapım unsurlarının da dizilerin kurmaca anlatısına ne tür etkilerde bulunduğu incelenmiştir. Aile değişim modeli çerçevesinde yapılan inceleme kapsamında dizilerin olay örgüsü, karakter yaratımı, aile sistemi, sosyalleşme değerleri, yaşam koşulları ve aile etkileşiminin nasıl inşa edildiği ortaya konulmuştur. İki dizi arasında geçen süre içerisinde aile temsili modernleşme sürecinden etkilendiği, izleyici beklentilerinin de zaman içerisinde değişmesiyle dizilerin anlatı yapısında daha çok aile içi çatışmalı olay örgülerine yer verildiği dolayısıyla yapım unsurlarının da değiştiği görülmektedir.

Anahtar Kelimeler: Televizyon dizileri, aile, temsil, izleyici beklentileri.

ABSTRACT

Human beings, by nature as social entities, belong to a structure to meet their needs and sustain their lives. The most essential institution of this social structure to which individuals belong is the family. From the moment of birth, a person becomes a member of this structure. When examining the process within the scope of modernization, it is evident that changes have occurred in social life, influenced by technology. These changes have led to differences in family structures. The variations brought about by these changes have been reflected in television series, and the representation of the family in fictional

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narratives has evolved. This situation has also been shaped by shifts in audience expectations and, consequently, changes in production elements. In this context, the study examines two television series produced in the same region but at different times. The first series, *Asmalı Konak* (2002), broadcast on ATV, and the recent series, *Siyah Kalp* (2024), aired on Show TV, both filmed in the Cappadocia region, are analyzed. Using the descriptive analysis method within the framework of the family transformation model, the study explores how these series represent the family. The analysis examines how family structures have changed during the period between the two series and how these changes, along with shifts in audience expectations and production elements, have influenced the fictional narratives of the series. Within the framework of the family transformation model and through descriptive analysis, the study investigates the construction of the storylines, character creation, family systems, socialization values and family interactions depicted in the series. It concludes that over the intervening years, the representation of the family has been influenced by the modernization process. Additionally, as audience expectations have evolved over time, the narrative structures of the series increasingly emphasize intra-family conflicts, leading to transformations in production elements as well.

Keywords: Television series, family, representation, audience expectations.

GİRİŞ

Geleneksel kitle iletişim araçlarından televizyon, hem görsel hem de işitsel anlamda izleyiciyi etkisi altına almaktadır. Televizyon yapımlarının kendine özgü bir anlatımı ve izleyiciyi etkisi altına alan bir dünyası vardır. Televizyon yapımının türü ne olursa olsun amaç, yapım ve yaratım kısmında izleyicinin beklentilerini karşılayarak yapıntı dünyanın içerisinde mesajlar aktaracak bir içeriğe sahip olmasıdır. Genel iletişim modelinde iletişim süreci kaynak, mesaj, kanal ve alıcı arasında gerçekleşir, televizyonla iletişim sürecinde ise en temel iki unsur, yapım/yaratım ve izleyicidir. (Kars, 2012: 9) İzleyici beklentileri ise gerilim, merak, aksiyon, yenilik, kişisellik gibi yapım unsurlarının senaryoların dramatik yapısına eklenmesiyle karşılanmaktadır. Çünkü izleyici, eğlenme, bilgilenme, başka hayatlara şahit olma, romantik aşka inanma, başkalarının yanlışlarını görmek gibi kendisini gündelik hayatın rutininden uzaklaştıracak dramalar görmek ister. Dolayısıyla özellikle son yıllarda dizilerin dramatik anlatı yapılarında çatışma öğelerinin çok fazla yer aldığı görülmektedir. Bu kurmaca anlatı içerisinde ailenin temsili oldukça önemlidir. Özellikle 2000’li yılların başında televizyon dizilerinin büyük bölümünü kapsayan konak dizileri, geleneksel aile yapısını izleyiciye etkili bir şekilde aktarmıştır. O dönemdeki konak aileleri, ataerkil yapıya sahip ve bu yapıyı benimsemiş aile bireyleridir. Geleneksel aile sisteminde bireyler aile içi etkileşimde ailenin söz sahibi erkek karakterine saygı duyarlar, dolayısıyla itaat çatışmayı azaltır. Günümüzdeki konak dizilerinde ise aile yapısının daha modern ve eşitlikçi olduğu bununla beraber aile içi çatışmaların çok fazla yaşandığı görülmektedir. Modern aile yapısında fikir ve düşüncelerin aktarımı daha adil, kadın-erkek ilişkileri ise daha eşit çerçevededir. Ancak senaryoda çatışma öğelerinin çok fazla yer almasıyla son dönem televizyon dizilerinin neredeyse büyük bir kısmı izleyiciyi entrika, nefret, çatışma, olumsuz söylemler, kötünün yüceltilmesi gibi unsurlarla etkisi altına almaktadır.

TELEVİZYON DİZİLERİ VE AİLE TEMSİLİ

Televizyonun kurmaca anlatı yapısı içerisinde aile temsili büyük önem taşır. İzleyici her ne kadar yapıntı bir dünyanın içerisine çekilse de senaryo toplumdan ve gerçeklikten beslenir. Dolayısıyla dramaların temelinde toplum vardır. Televizyon drama biçimlerine bakıldığında gerçeği yansıttığı düşünülse bile kurmaca bir dünyadaki olaylar ve karakterler örüntüsünün belli kurallara göre üretildiği yapımlardır (Mutlu, 1991: 77). 2000’li yılların başında Türk televizyon yapımlarında ‘konak’ dizileri çekilmeye başlanmış ve geleneksel aile yapısının temsili izleyiciye aktarılmıştır. İzlenme oranlarının yüksek

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olmasıyla konak dizileri artış göstermiş ve ataerkil aile yapısının inşası ve aile içi etkileşim izleyiciye benimsetilmiştir.

MODERNLEŞME SÜRECİNDE AİLE

Modernleşme kavramına bakacak olursak sadece tek bir olgudan değil, birden fazla kaynaktan beslenerek süreç içinde gelişen bir kavram olduğunu söyleyebiliriz. Modernleşmenin temelinde sanayileşme, kapitalist dünya düzeni, güçlü ulus devletlerin oluşumu, kitle iletişim araçlarındaki gelişmeler, yeni medya ortamları gibi birçok gelişme yatmaktadır. Modernleşme çerçevesinde bu gelişmelerin tümü toplumları etkilemiş ve toplumun en önemli birimi olan aileyi de etkisi altına almıştır. Modernleşmenin etkisiyle aile yapılarında kadın-erkek ilişkilerinin değiştiği, aile içi dinamiklerin farklılaştığı, aile bireylerinin önceliklerinin değiştiği görülmektedir.

Aile kurumu, aile bireylerinin ihtiyaçlarını karşılayabilmek ve ailenin devamlılığını sağlayabilmek için yaşanan toplumsal koşullardaki değişikliklere ayak uydurmak durumunda kalmıştır. Ailenin toplumsal yapı içindeki işlevinin sarsılmasında en önemli neden üretimin aile tekelinden çıkması ve kâr amaçlı şirketler üzerinden yapılmasıdır. Dolayısıyla aile kurumu varlığını ve üyelerinin ihtiyaçlarını karşılayabilmek için işlevlerinde birtakım değişikliklere giderek toplumsal koşullara ayak uydurmaya çalışmaktadır. Bu yapısal değişimler ise aile kurumu üzerinde kimi zaman destekleyici kimi zaman da tehdit durumu yaratmaktadır (Özbay, 2015: 33).

İZLEYİCİ BEKLENTİLERİ VE YAPIM UNSURLARI

Medya ve iletişim çalışmaları alanında dünya çapında önemli çalışmaları olan Denis McQuail, kitle iletişim araçlarının karşıladığı gereksinimleri dolayısıyla izleyici beklentilerini dört maddede gruplandırmıştır:

- Gündelik yaşamın sıkıntılarından, gerginliklerinden, sorunların yükünden kaçış ve duygusal rahatlama.
- Kişisel ilişkiler, dostluk ve arkadaşlık, toplumsal yarar gereksinimi.
- Kişisel kimlik gereksinimi, insanın değerlerinin pekişmesi, gerçekliği araştırma ve kişiliğine ilişkin referans noktalarının sağlanması.
- Çevreyi gözetim altında tutma, bu amaçla içinde yaşanan karmaşık dünyaya ilişkin bilgi sahibi olma isteği. (Kars, 2012: 13-14)

Bu maddeler kapsamında bakıldığında kitle iletişim araçlarının kamu yararına ve kitle iletişim araçlarının ürünlerini tüketen medya tüketicilerinin talepleri doğrultusunda yayınlar yapmaları beklenmektedir. McQuail'in kitle iletişim araçlarının karşıladığı gereksinimlerine baktığımızda bu durum karşılanmaktadır ancak son yıllarda kurmaca bir anlatı yapısına sahip olan televizyon dizilerinde yapım unsurlarının değişikliğe uğradığı, senaryolarda çok fazla çatışma öğelerinin yer aldığı, aile temsiliinin değiştiği görülmektedir. İncelenen dizilerin reytinglerine bakıldığında reytinglerinin yüksek olduğu görülmüştür. Dolayısıyla izleyici beklentilerinin de bu kapsamda değiştiği görülmektedir. Gerilim, aksiyon, güldürü, enformasyon, önem, değer, kişisellik, merak, gerçeklik ve yenilik gibi yapım unsurları, izleyici beklentilerine göre şekillenir ve senaryolara eklenir. (Kars, 2012: 36)

ASMALI KONAK DİZİSİNİN İNCELENMESİ

Dizinin Öyküsü

Asmalı Konak dizisi, yönetmenliğini Çağan Irmak'ın yaptığı, ATV'de yayınlanan ve 2002-2003 yılları arasında tüm izleyici gruplarında en çok izlenen dizi olma özelliği taşımaktadır. (Wikipedia, 2011)

Kapadokya bölgesinde varlıklı, saygın bir aile olan Karadağ ailesi, Asmalı Konak'ta yaşamaktadır. Aile, konak hayatı ve geleneksel aile modelinin tüm özelliklerini taşımaktadır. Yaşadıkları bölgenin kültürel

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kalkınmasına destek olan, bölge halkı tarafından sevilen ve aynı zamanda mütevazı bir hayat yaşayan Karadağ ailesinin büyük oğlu Seymen Karadağ'ın, New York'ta Bahar ile tanışmasıyla ve sonrasında evlenmesiyle geleneksel ve modernin bir araya gelmesine şahit olunur.

Babadan oğula geçen aile otoritesi, 'ağa', 'konak hanımı' ve 'gelin ağa' figürlerinin izleyiciye benimsetildiği bir aile yapısı görülmektedir. Senaryo 54 bölüm boyunca bu temelde ve beraberinde getirdiği çatışma, beklenmedik olaylar, merak ögesi unsurlarıyla şekillenir.

Dizideki Karakterler

Filmin ana karakterleri aile bireyleri; Sümbül Hanım, Seymen, Bahar, Seyhan, Dilara ve Zeynep. Karakter yaratımlarına baktığımızda ataeril yapıyı benimseyen, bölge kültürüne ve hassasiyetlerine göre yaşayan kişiler olduğunu görüyoruz. Eşi öldükten sonra kızıyla ailesinin yanında yaşayan Dilara, babası vurulduktan sonra ailenin reisliğini üstlenen evin büyük oğlu Seymen, ona her konuda destek olan küçük erkek kardeş Seyhan, Seymen ile evlendikten sonra New York ve İstanbul'daki yaşantısını bırakarak Kapadokya'da bir konağa gelin gelen Bahar ve evin küçük şımarık kızı Zeynep. Karakterlerden en önemlisi de eşi vurulduktan sonra bütün aileyi toparlayan ve bölgenin saygın hanımları arasında olan anne Sümbül Hanım.

Ailedeki baba temsili Seymen'e duyulan saygı ve kararlarını kabul etme konusunda tüm aile bireylerinin geleneksel aile modeline uygun davrandıklarını görüyoruz.

Yaşam Koşulları ve Sosyalleşme Değerleri

Karadağ Ailesi, yüksek gelir düzeyine sahip geniş bir ailedir. Evde tüm işleri halleden ve aile bireyleriyle yaşayan yardımcıları bulunmaktadır. Ailenin geçimi, babaları vurulduktan sonra hisselerinin aile bireylerine devrolduğu ancak evin erkek çocukları Seymen Ağa ve Seyhan tarafından yönetilen şirketler tarafından sağlanmaktadır. Sabah kahvaltıları ve akşam yemekleri aile için önemlidir. Neredeyse her bölümde sabah kahvaltıları ve akşam yemekleri mutlaka beraber yenilir. Konakta her aile bireyinin ayrı odası bulunmaktadır. Bu odalar aile bireylerinin kendi dünyalarına döndükleri alanlardır. Erkekler daha çok şirket işleriyle kadınlar ise ev içi ortamda ya da misafirlikte vakit geçirmektedir. Bunların yanı sıra verilen davetler, kutlamalar da ailenin önem verdiği durumlardır. Aile, şarap üretim işiyle ve turizmle uğraşmaktadır. Bu anlamda bölge kültürüne katkısı da önemlidir. Kapadokya'nın tüm güzelliklerini dizide görmekteyiz. Ailenin bu bölgeye otel yatırımları yapması, yurtdışı ortaklarla çalışması, yemeklerin vurgulanması ilgi çekici noktalar.

Gündelik Hayatın Temsili

Asmalı Konak dizisinde gündelik hayatın temsiline baktığımızda kurmaca anlatıdaki gündelik hayatın, gerçek hayatın olağan akışına daha sadık kurgulandığını görüyoruz. Konakta yaşayan herkes, yapıntı bir hikayenin içinde olsa da boş zamanı değerlendirme, sabah rutinleri, akşam rutinleri, iş hayatındaki rutinler anlamında gerçek hayatın koşturmacasıyla uyum içindeler. Dizinin dramatik yapısının bu gibi unsurlarla zenginleştirilmesi de izleyiciyi ekrana bağlayan önemli noktalardan biri. Okul çağındaki karakterlerin her sabah kahvaltısını yapıp okula gitmeleri, okuldan geldikten sonra yemek yiyip ödevlerini yapmaları, konakta işler bittiğinde ya da herhangi bir olağandışı durum olmadığında konaktakilerin uzanarak dinlenmesi, uyumaları vb. akışlar diziyi samimi ve sıcak hale getiren olağanlıklar olarak dikkat çekiyor.

Aile İçi Çatışmalar

Dizide aile içi gelişen olaylara ve çatışmalar, aile bireylerinin kendi aralarındaki küçük çaplı tartışmalar, konaktaki hizmetlilerin kendi aralarında olan çatışmalar ve ana karakterlerden Seymen ve Bahar arasında kıskançlıktan kaynaklı gelişen çatışmalardan oluştuğunu görüyoruz. Konak çalışanlarının da sorunları aile içi çatışma içinde sayılabilir. Aile yapısında sınıfsal farklılıklara yaklaşım çok keskin değildir. Ailede çalışanlarını evlendiren, sorunlarıyla ya da hastalıklarıyla ilgilenen ve üzülen, yeri

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geldiğinde beraber sosyalleşen bir yapı vardır. Seymen'in eşi Bahar, toparlayıcı gelin konumundadır. Ailede kısa sürede göz bebeği olan ve sorunları büyütme yerine üstünü kapatmayı tercih eden Bahar, Seymen'in konak çalışanı Dicle'den olan gayrimeşru çocuğunu bile zamanla kabul eder ve benimser. Kocasına duyduğu aşkla konağın tüm dinamiklerine zor da olsa ayak uydurur ve ihtirasa çevirmez. Sümbül Hanım, konakta yaşayan herkesi kucaklar ve anaç tavrını çalışanlarına da gösterir. İzleyicinin bu sıcaklığı sevmesi, Karadağ ailesinde kendinden bir şeyler bulması diziyi vazgeçilmez kılar. Aile içi çatışmaların sonunun mutlaka tatlıya bağlanması ve konunun hiçbir zaman uzatılmaması da önemli diğer bir noktadır.

SİYAH KALP DİZİSİNİN İNCELENMESİ

Dizinin Öyküsü

Yönetmenliğini Murat Saraçoğlu ve Evren Karabıyık Günaydın'ın yaptığı, 2024 yılında Show TV'de izleyicisiyle buluşan ve reytinglerde zirvenin en yakın takipçisi olan Siyah Kalp dizisi, Kapadokya bölgesinde çekilmektedir. (Wikipedia, 2024) Şansalan Ailesi, Kapadokya'nın zengin ailelerindendir. Samet Şansalan Kapadokya'nın önde gelen saygın iş adamları arasındadır. Eşi Sumru Şansalan, yıllar önce trajik bir şekilde tecavüze uğramış, Nuh ve Melek isimli ikiz çocukları olmuştur. Ancak çocuklarını bakamayacağı için terk etmiştir. Sumru, bu büyük sırla Samet Şansalan ile evlenmiş, Harika ve Esat isimli çocukları olmuştur. Aynı zamanda Samet'in de eski eşinden Cihan isimli oğlu vardır. Nuh ve Melek'e yıllarca bakan kişi, anneleri bulmaları için onları Kapadokya'ya gönderir. Samet'in kız kardeşi olan Hikmet, Sumru'nun çocuklarını öğrenir ve büyük sır ortaya çıkar.

Şansalan Konağı'nda 'ağa', 'hanım ağa', 'gelin ağa' gibi geleneksel kavramlar görülmemektedir. Ataerkil sistemin zayıfladığı daha çok kadınların baskın olduğu bir aile yapısı bulunmaktadır. Özellikle Samet Şansalan'ın kız kardeşi Hikmet, baskın bir karakterdir. Konaktaki herkesi yöneten ve üzerlerinde söz sahibi olan bir karakterdir.

Dizideki Karakterler

Dizinin ana karakterleri aile bireyler; Samet, Sumru, Hikmet, Nuh, Melek, Esat, Harika ve Nihayet. Karakterlerin yaratımına baktığımızda Kapadokya bölgesinde yaşayan ancak geleneksel yapıdan uzak, modern bir anlayışa sahip olduklarını görmekteyiz. Aile içi dinamiklerini yönetmeye çalışan ancak kardeşi Hikmet'in etkisinde olan Samet, büyük sırları ve mücadelesiyle Sumru, yıllarca annelerinden uzakta yaşayan Nuh ve Melek kardeşler ve Sumru'nun annesi Nihayet. Nihayet Hanım, konağın en yaşlısı ancak çok fazla söz hakkı bulunmamaktadır.

Karakterler daha çok birbirlerinden kopuk, ayrıştırıcı, yıkıcı, uzak ve sırları olan kişilerdir. Dolayısıyla aile yapısı da bu durumdan etkilenmektedir. Bu da beraberinde aile içi çatışmaları kaçınılmaz kılmaktadır.

Yaşam Koşulları ve Sosyalleşme Değerleri

Şansalan Ailesi, Şansalan Konağı'nda yaşayan varlıklı bir ailedir. Miras kalan aile şirketini yöneten Samet Şansalan, Kapadokya bölgesinin en zengin iş adamlarındandır. Aynı zamanda aile bireylerinin de bu şirketlerde hisseleri vardır. Konakta aileyle beraber yaşayan konak çalışanları da bulunmaktadır. Şansalan ailesi sınıfsal farklılıklara önem veren ve konak çalışanlarıyla mesafeli olan bir anlayışadır.

Ailenin bölge kültürünü temsilini daha çok konak çalışanların da görmekteyiz ancak bu da çok yoğun değildir. Aile bireylerin de çok fazla bölge kültürünü temsil ya da bölge kültürüne katkı gibi noktalar görmemektedir. Dizinin bazı bölümlerinde yöresel yemeklerden çok nadir bahsedilir. Aile bireyleri, konak dışı mekanlarda daha çok bir konuyu konuşmak için ya da olay örgüsündeki bir kırılma noktasını yaşarken bulunmaktadırlar. Bölgenin doğal güzelliklerine de daha çok bu sahnelerde şahit olmaktadır.

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Gündelik Hayatın Temsili

Siyah Kalp dizisinde dizisinde gündelik hayatın temsiline baktığımızda kurmaca anlatıdaki gündelik hayatın, gerçek hayatın olağan akışına daha sadık kurgulandığı görülmektedir. Konakta yaşayan herkes, yapıntı bir hikayenin içinde olsa da boş zamanı değerlendirme, sabah rutinleri, akşam rutinleri, iş hayatındaki rutinler anlamında gerçek hayatın koşturmacasıyla uyum içinde değildirler.

Dizinin olay örgüsünde o kadar çok çatışma noktaları, kırılmalar ve doruk noktalar vardır ki; dizide gündelik hayatın rutinine çok nadir rastlanılmaktadır. Beraber yemek yenilen zamanlar çok az ve olsa dahi mutlaka bir tartışmayla sonlanmaktadır. Dizide güne başlayan tüm karakterler gün içinde gerçekleşecek çatışmalara adeta hazır durumdadırlar. Dolayısıyla izleyiciyi diziye bağlayan önemli unsurlar çatışma, beklenmedik olaylar ve merak öğesidir.

Aile İçi Çatışmalar

Şansalan Konağı'nda aile içi çatışmaların oldukça fazla olduğu görülmektedir. Evin otoritesini sağlamaya çalışan ve gücüyle herkesi kırıp geçen Samet, bunun yanı sıra Samet'i yöneten ve baskın bir karakter olan Hikmet, sırlarının ortaya çıkmasıyla olayların merkezi olan Sumru ve diğer karakterler üzerinden gelişen olaylar durmak bilmeden akıp gitmektedir. İzleyiciyi olaylar silsilesi içerisinde adeta kaybeden bir olay örgüsü bulunmaktadır.

Olaylar gelişirken toparlayıcı çok az karakter bulunmakta ve bu karakterlerin de etkileri olamamaktadır. Karakterlerin çoğu, birleştirici değil yıkıcı konumdadır. Aile içi çatışmalarda anne figürünü anlamak, mağdur kişinin yanında olmak, kötü figürüne nefret duymak gibi hisler izleyiciye aktarılmaktadır. Kaos içinde aile değerlerinin kaybolduğu, bağların zayıfladığı ve ihanetin arttığı bir aile yapısı görülmektedir.

SONUÇ

Kapadokya bölgesinde çekilen ve ATV'de yayınlanan ilk konak dizisi Asmalı Konak (2002) ve yine Kapadokya bölgesinde çekilen ve Show TV'de yayınlanan son konak dizisi Siyah Kalp (2024) televizyon yapımları incelenmiştir. İki dizinin çekim tarihleri arasındaki süre içerisinde aile yapısının nasıl değişikliğe uğradığı ve bununla beraber izleyici beklentilerinin ve yapımların da dizilerin kurmaca anlatı yapısına ne tür etkilerde bulunduğu incelenmiştir. Farklı zamanlarda aynı bölgede çekilen iki konak dizisinin incelenmesi kapsamında dizilerin olay örgüsü, karakter yaratımı, sosyalleşme değerleri, yaşam koşulları ve aile etkileşiminin nasıl inşa edildiği ortaya konulmuştur. İki dizi arasında geçen süre içerisinde aile temsili modernleşme sürecinden etkilendiği, Asmalı Konak dizisindeki geleneksel konak aile yapısının, Siyah Kalp dizisindeki temsilde değişikliğe uğradığı ve modernleşme sürecine ayak uydurduğu görülmüştür. Dizilerin izlenme oranlarına bakıldığında izleyici beklentilerinin de zaman içerisinde değişmesiyle dizilerin anlatı yapısında daha çok aile içi çatışmalı olay örgülerine yer verildiği dolayısıyla yapımların da değiştiği görülmektedir.

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POLYSEMY OF PHRASEOLOGICAL UNITS IN TURKISH AND RUSSIAN LANGUAGES

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ABSTRACT

Phraseological units represent a very complicated and contradictory unity, which is separately formed but has a holistic meaning. One features of phraseological units make it close to words, while another ones bring them closer to phrases.

Vitality of any phraseological unit is determined by the capacity of its meaning. Phraseologisms can be monosemantic or polysemantic. Let's take the expression "больное место" (painful place). It has two meanings:

- a) Something exciting more than everything, the reason to worry;
- b) the weakest point, shortage of something.

But at the same time meanings of polysemantic phraseologisms have the clear connection: both meanings of the expression "больное место" have the same sign - weakness.

There are also polysemantic phraseologisms, like "бить ключом" (to be in full swing) : 1) to seethe, to bubble; 2) to show itself very actively; 2) "первая ласточка" (first martin): 1) initiator; 2) first signs of something; 3) "в один голос" (with one voice): 1) unanimously; 2) at the same time.

There are several meanings of the phraseologism "отвести душу" (to take a soul away): 1) to express everything that was hushed up during a long time; 2) to forget yourself, to get distracted of something joyless; 3) to give yourself pleasure.

The examples of polysemantic phraseologisms in Turkish language are: "Allah aşkına": 1) for God's sake (it is used then asking smth.); 2) Really? (it expresses strong astonishment); "Allah ne verdiyse": 1) whatever edible at home; 2) whatever can be earned; "Açık alın": 1) a wide forehead; 2) straightforward (man); "acıısını çıkarmak" - 1) to pay some damage; 2) to take revenge; "bostan korkuluğu" - 1) garden scarecrow; 2) somebody who can not perform his duties.

Keywords: polysemy, phraseological units, languages.

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THE REGULATORY EFFECTS OF COMPETITION IN TRAVEL INDUSTRY – THE CASE OF AUSTRIAN AIRLINES IN ALBANIA

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ABSTRACT

It is essential for the economy of Albania to have healthy competition in order for it to function efficiently. The presence of competition among businesses leads to a reduction in costs, an improvement in the quality of products and services, innovations, and a wide variety of options becoming available.

When there is a restricted amount of competition in a given market, businesses have the ability to use their market power to their advantage by charging higher prices, offering products of lower quality, and maybe preventing other businesses from entering that market. As a consequence, firms may be unable to operate in an environment where market conditions are equitable, and creative ideas cannot be effectively translated into superior products or services. Several studies identify market dominance as a factor in inequities. Price increases and increased profits for corporations are two characteristics of an economy or sector that does not have sufficient competition. At the same time, the salaries of ordinary workers are decreasing. As a result of the pandemic, the risks that are connected with an economy that is dependent on a small number of businesses have been increased. This is illustrated by the supply chain problems that have arisen as a result of bottlenecks caused by corporations for essential supplies.

In recent decades, there has been a substantial amount of change in the field of air transportation. In order to assist the entry of new businesses into the market, liberalizations, deregulations, and economies of scale have been implemented. This has had a good impact on both innovation and competitiveness. Large firms frequently engage in anti-competitive practices in order to preserve their market share, which ultimately results in dissatisfied customers and a reduction in their affinity for the company. In this article, is presented a case that was brought to the Albanian Competition Authority and resolved with proper remedies that establish a competitive environment for airlines.

Competition, Aviation, Markets, Regulation, Anti-competitive Practices, and Competition Authority are some of the keywords that might be used.

L42, L49, and L51 are the JEL classifications.

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I. Introduction

The airline industry is making progress towards liberalization. The liberalization of any industry, including the aviation industry, creates positive impacts such as more competition and structural rationalization, which in turn makes it easier for businesses to experience rapid development and innovation.

As the airline markets continue to grow, the competition for destinations is becoming more and more fierce. Nevertheless, there are other airlines that operate exclusively for specific destinations and concentrate services that involve direct flights. In addition to being more time-efficient, direct flights from the country of origin to the destination are also the most favorable option for tourists.

There have been some modifications made to the general structure of the flights. In today's world, even the most well-established airlines offer a formula that provides to passengers just minimal support, particularly when they are traveling on shorter distances. Consequently, this suggests that low-cost airlines have successfully enforced internal laws that affect other airlines, which has enabled them to effectively compete in the market. This has been accomplished through the use of competitive pricing.

Pricing and the safety of the airplane are two of the most important aspects that buyers find appealing. After the safety of airlines has been established, particularly for flights that are short-haul, the affordability of the airline becomes the key element that influences the decisions that consumers make.

There is a wide range of complex problems that are relevant to the airline industry. It is the process of identifying the target market that is the source of the issue. As the number of products and competitors in the market grows, there is a corresponding growth in the variety of competitive difficulties. If the definitions are not explicit, the solutions may be drastically different from one another. As a consequence of this, airlines that are members of different alliances could provide a particular destination combined with one or two layovers. In addition to being accessible via direct flights from Austrian Airlines and Wizz Air, Vienna may also be reached through ITA with a layover in Rome. The paper raises the topic of whether or not we should consider as competitors just those airlines that provide direct flights from Tirana to Vienna, or whether or not we should widen the market to include airlines that provide Vienna as a destination with only one stop?

In light of the fact that consumers in every country are affected by issues such as delays, overbooking, and other comparable issues, this challenging subject has been addressed by both the United States and the European Commission.

The relationship between the problem and Competition Law, more specifically Law 9191 "On the Protection of Competition" in the Republic of Albania, is an important issue that has to be addressed. In particular, this law handles cases that are within the purview of the Competition Authority to oversee and regulate. In situations where prohibited agreements are present, such as cartels, collusions, bid rigging, or abuse of dominant market position, which can be seen in corporate behavior such as maintaining market share, imposing excessively high prices, price fixing, or vertical concentration, the Competition Authority has the authority to intervene and take control of the situation.

Due to the fact that it has been proved that the airline that was involved in this case study maintained a dominant position at the time of investigation, the issue that is being discussed refers to the regulatory competencies of the Competition Authority about the misuse of dominant position. Presented in this study is the example that occurred between 2017 and 2018, with the purpose of establishing its applicability for other situations and occurrences that may occur with consequences that are comparable.

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II. Definition of the relevant travel market

The identification of the relevant market is often the first step in the process of conducting an analysis of competition challenges. With anti-competitive behaviors being solely related with the relevant market, the characterization of the market in question is frequently of the utmost importance. The outcomes that are created by an accurate definition of the relevant market will be different from those that are produced by a definition of the relevant market that is incorrect. For example, due to the complexity brought about by many destinations and end-use consumers, studying the behavior of airlines about cargo transport in Albania may be very different from analyzing the behavior of airlines regarding cargo transport throughout the Adriatic region.

In order to properly define the relevant market, it is necessary to take into account two unique aspects: the product and the location. Due to the fact that transportation activity takes place inside certain geographical regions, the result of transportation naturally involves geographical characteristics. In light of this, the Organization for Economic Co-operation and Development (OECD) recommends that the definition of the relevant market in the aviation industry should begin with the place of origin (O) and end with the point of destination (D). Specifically, this is what is known as the O&D strategy.

This O&D technique frequently exemplifies the demand side perspective, which is when passengers consider all of the possible modes of transportation that can get them from a particular origin (O) to a particular destination (D). It is also possible for airlines to emphasize the fact that carriers could compete with one another based on the size and scope of their networks. On the supply side, it is also important to consider code-sharing agreements and destinations that are serviced by airlines that have reciprocal agreements at the same time. Despite the fact that the European Commission acknowledges the significance of supply-side substitution to a substantial extent, they have come to the conclusion that demand-side substitution makes a more significant contribution.

The O&D technique commonly classifies relevant air transport markets as city pairs or airport pairs. This is because cities and airports move in tandem. The airport pair technique is utilized in situations where a city is in possession of more than one airport. There is a possibility that this strategy could be misleading on occasion because it provides an inadequate picture of the competitive landscape. As a consequence of this, conducting a study of city pairs is more likely to result in a more comprehensive understanding of the competition among airlines. For situations in which such limits are present, a city-pair methodology is considered to be the more appropriate approach.

When determining whether indirect flights that serve a particular origin and destination may substitute direct flights with similar efficacy, the determination is dependent upon a number of criteria and is evaluated on a case-by-case basis. The Organization for Economic Cooperation and Development (OECD) stated that the European Commission acknowledged that one-stop flights might be a competitive option to direct flights for itineraries that are longer than six hours. Within the computer reservation system, this was the condition that occurred when one-stop transit flights that utilized the O&D pair methodology were offered as connecting flights.

There are numerous authorities that are comparable to this one that have established that business travelers and pleasure passengers comprise separate market sectors. Despite the fact that a number of academics argue that this differentiation might not be able to cover the entire spectrum of client segmentation.

II: Horizontal restrictions and Cartels

As a result of the liberalization of the markets for air transportation, airlines have been given the authority to determine their own pricing and schedules, in addition to developing their own economic

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plans. Numerous insolvencies, mergers, and partnerships have occurred over the course of several decades, resulting in the majority of the air transportation markets becoming extremely consolidated (oligopolistic). Unless airlines have antitrust immunity or authorization for specific collusive actions, cartel legislation and enforcement address, for example, collusion among airlines regarding competition factors such as fares, schedules, output, capacity, or other confidential information, as well as the allocation of markets or customers. This is with the exception of situations in which airlines have the ability to allocate customers or markets.

There is a possibility that airline alliances can be deemed as restrictive agreements in terms of rates, scheduling, capacity coordination, revenue and profit sharing, and other related matters. It is inevitable that such alliances will collapse if they do not receive antitrust protection or immunity.

III: Protection of competition. Albanian Law 9121 “On Competition Protection” review

Both Article 3 and Article 8 of the Law have been taken into consideration with regard to the case that we will be investigating.

All of the terminology that the Competition Authority employs in the process of adjudicating disputes is described in Article 9121 of Law 9121, which is titled "On the Protection of Competition." According to the definition of a dominant position, it is the economic power that is held by one or more entities that enables them to undermine effective competition in the market. This power also enables them to act independently of other market participants, such as competitors, customers, or consumers, in terms of supply or demand.

Instances in which the Company enjoys a dominant position in the relevant market are subject to the provisions of Article 8.

Specific factors are taken into consideration during the assessment of the dominating position held by one or more companies.

- a comparison of the relevant market share held by the undertaking or undertakings in question with that held by other competitors;
- barriers to accessing the market;
- competition in the pipeline;
- the impact that corporations have on the economy and the financial system;
- rely on the economy provided by both consumers and suppliers;
- a countervailing influence exerted by the buyers or
- development of the company's distribution network and examination of the possibility of making use of product resources;
- interactions within the financial sector with other companies;

Additional characteristics of the relevant market include the following: product homogeneity, market transparency, cost uniformity, enterprise size consistency, demand stability, and manufacturing capacity that is available.

When conducting an inquiry into allegations of abuse of dominant position in the relevant market, it is crucial to emphasize that some pieces of legislation are included in the Air Code of the Republic of

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Albania. This indicates that the Competition Authority may also take into consideration other jurisdictions that are relevant to the investigation.

IV: The Case of Albania

The problems started after two passengers who were traveling with Austrian Airlines from Tirana to Vienna lodged complaints about their passengers' experiences. During that particular year, Austrian Airlines was the only airline that provided direct flights between Tirana and Vienna. There is a possibility that Vienna could be offered as a destination by other airlines, albeit with one or more layovers. The passengers who were traveling from Tirana to Vienna expressed their dissatisfaction when they were informed on the day of the trip that, despite having paid in full for their tickets, seats were not assigned to them, and the policy for seating was "first come, first served." The passengers who complained stated that approximately 18 individuals were left without seating, which posed a genuine risk to their business and occasionally to their health. In light of the fact that Austrian Airlines was the only company operating in that market, the Secretariat of the Competition Authority presented a proposal to the Competition Commission requesting permission for additional investigations. The investigation will continue until the 31st of December in 2017, having been extended from January 1, 2017.

IV.1: Relevant Market

The origin and destination (O&D) technique is utilized in order to conduct an analysis of the market for passenger air transport services. In this analysis, it is hypothesised that a distinct market can be defined as any combination of origin and destination points, when evaluated through the lens of customer substitutability.

When determining whether or whether an origin and destination (O&D) comprises a relevant product market, it is necessary to take into consideration both direct flights between the two airports as well as alternative possibilities that are considered to be almost identical substitutes.

One of the most important factors that determines the degree of substitutability between direct and indirect flights is the duration of the flight. Generally speaking, the possibility of indirect flights serving as a viable alternative to direct flights increases in proportion to the length of the transportation journey.

The European Commission agrees that indirect flights do not normally serve as a competitive substitute for direct flights on short-haul routes. This is due to the fact that consumers generally prefer direct flights. In the context of this product market, passenger air transport services on the direct route between Tirana and Vienna, as well as vice versa, are included. It is possible to state that demand does not exhibit any substitutability over short distances, despite the availability of various options for travel from the country of origin (Tirana) to the destination (Vienna). This is the case when both direct and indirect flights are taken into consideration.

Regarding the issue of supply-side substitutability, it is possible to say that there is no supply-side substitutability because airlines have created flight routes, which has led to the split of airspace among numerous different operating lines.

For the purposes of this study, the geographical scope of the air transport service spans the entirety of the territory that constitutes the Republic of Albania.

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IV.2 The Configuration of the Market

According to the definition of the market, Austrian Airlines was the only airline that operated on the direct flight route between Tirana and Vienna (TIA-VIE and VIE-TIA).

After conducting an analysis of the elements that play a role in determining whether or not new participants are allowed to enter this market, it was discovered that such entry required certain conditions that were equal to those established by airlines operating within the European Union. The Civil Aviation Authority (CAA) is the entity that must issue an operating license to each and every operator in order to comply with the Air Code regulation. In order for the airline operator to obtain this license, they are need to fulfill certain conditions. As a consequence of this, the market in question presents a number of obstacles to participation.

Taking into account market share, barriers to entry, buyers' countervailing power, and other relevant market characteristics, it was determined that Austrian Airlines AG held a dominant position on the direct route between Tirana and Vienna, and vice versa, in accordance with Article 3 and Article 8 of Law no. 9121/2003. This was the conclusion reached after taking into consideration the aforementioned market characteristics.

IV.3 An Analysis of the Behavior of Austrian Airlines and Behavior Regarding the Price That Has Been Established

Through the analysis of the company's behavior with regard to ticket pricing, the goal is to determine whether or not the corporation establishes unfair purchasing, selling, or other trading conditions, either directly or indirectly. Additionally, the company does not have a figure that corresponds to the phrase "average cost for tickets between Tirana and Vienna and vice versa." This is despite the fact that the company has calculated the average pricing and ticket costs based on flight class and taxes.

The pricing framework is comprised of net tariffs and taxes (Tax + YQ), which include taxes that are collected in Albania. These taxes include airport insurance taxes in both countries, passenger service fees that vary from country to country, and taxes linked with fuel and security expenses for the airline, which vary depending on the booking class.

As much as twenty-five percent of the total cost of the ticket is comprised of taxes. In 2016, the average cost of a ticket for the trip between Tirana and Vienna was 156 Euros, and in 2017, that price had increased to 161 Euros. From 2016 to 2017, Austrian Airlines claimed that there was a little increase in the average ticket price. This increase can be ascribed to the increased demand for this route while passengers were in flight.

A comparison of the price of round-trip aircraft tickets to Vienna with the same airline, Austrian Airlines, for travel between June 4 and June 11 reveals that the price from Tirana is 190 Euros, which is 7.7% higher than the average price for the region (excluding Albania). It was determined that Prishtina had the highest ticket price in the region, which was 198 Euros, which was 12.3% higher than the average. A ticket to Vienna from Skopje may be purchased for as little as 160 Euros, which is 9.3 percent less than the average price in the region. The pricing in Montenegro was quite close to being comparable to the average price in the region. It is important to note that Albania and Kosovo each have a single airport, while Macedonia and Montenegro each have two airports, and Croatia has eight airports.

Unlike other airlines, Austrian carriers offered non-stop flights to Vienna, whereas other airlines only offered indirect (one-stop) choices, which are essential in our circumstances. Direct travel with Austrian Airlines is the best option for customers because it provides travelers with a route that does not involve any stops, hence reducing any time inefficiencies. The development of prices must take into account

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airport taxes and the cost of jet fuel, both of which vary from country to country. This is a crucial consideration that must be taken into account.

It is stated unequivocally in Article 11 of the Air Code that the market is the sole factor that determines the prices of air transportation, and that air carriers are obligated to make all air tickets for passengers, mail, and cargo available to the general public. This item outlines the commitment of the CAA to implement all necessary steps in order to prevent discriminatory tariffs and practices, excessively high pricing that results from a dominant position, and prices that are unreasonably low.

As indicated in this article of the Air Code, the Minister is obligated to enact regulations that will set specific criteria in order to limit the imposition of unreasonably cheap or high costs on passengers by air carriers that hold a dominant market position.

In order to prevent discriminatory tariffs and practices, excessively high pricing as a result of a dominant market position, and unreasonably low prices, the CAA ought to conduct a price analysis of the major air carrier, with Austrian Airlines serving as an example. According to the findings of the price study that was carried out by the dominant enterprise, the CAA is obligated to determine whether or not this enterprise engages in pricing that is either excessively high or excessively cheap in the market. Previously, it was mentioned that CAA does not possess a method to carry out this evaluation.

IV.4 Conclusions Regarding the Establishment of Unfavorable Competitive Conditions

According to the procedures of the European Commission and the opinions of the courts, the existence of a dominant position of the undertaking is not forbidden. There is no prohibition against holding a dominant position; nonetheless, an entrepreneur who holds such a position is held to a higher standard of responsibility for their activities.

According to the information that was presented by Austrian Airlines, the company has frequently sold tickets that are significantly more than the capacity of the aircraft, which has resulted in the cancellation of travel for those who exceed the capacity of the aircraft. The action taken by Austrian Airlines has also been brought to the attention of the Competition Authority in the form of complaints lodged by passengers. Austrian Airlines engages in discriminatory activities among customers by selling tickets that exceed the capacity of the aircraft. When passengers arrive at the airport for check-in, the airline informs them without prior notice that they are unable to travel according to the tickets they purchased, so engaging in discriminatory tactics.

As a result of its dominant position in the market, Austrian Airlines ought to maintain the highest possible level of transparency with its passengers and give timely alerts regarding flight cancellations, timetables, and other topics relevant to the industry. Austrian Airlines, as the sole airline operating the direct route between Tirana and Vienna, ought to minimize the sale of tickets that exceed the capacity of the aircraft, particularly during peak season, in order to prevent any potential anti-competitive actions that could put passengers at a disadvantage.

At the check-in desk as well as at the boarding gate, Austrian Airlines is obligated to present customers with a notification of their rights that is both visible and easily understandable. It is required to be displayed in a clear manner for passengers.

In light of the fact that Austrian Airlines holds a dominant position in the relevant market and operates exclusively on the direct route, the countervailing power of passengers is minimal, and the potential for new market entrants is low, as indicated by the size of the market and the entry barriers, the enterprise bears a particular responsibility in its behavior toward passengers in order to avoid putting them at a disadvantage in terms of competition. As a consequence of this, it is of the utmost importance to

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continuously monitor the behavior of the firm in order to evaluate the conditions of the market in order to achieve the promotion of free and effective competition.

The Competition Commission acknowledged that Austrian Airlines held a dominant position in the relevant market, and as a result, it imposed a special responsibility on the airline to carry its customers to their destinations without exposing them to any unfavorable conditions. The Competition Commission mandated that the airline must provide a notice that is both clear and legible at both the check-in desk and the boarding gate. This was done in accordance with the Air Code and Instruction No. 1, which was issued on February 26, 2013. The notice was intended to provide passengers with compensation and assistance in the event that they were denied boarding, had their flights cancelled, or experienced delays. A warning that reads, "If you are denied boarding or if your flight is canceled or delayed for at least two hours, please inquire at the ticket office for a regulation outlining your rights, particularly regarding compensation and assistance," shall be prominently posted for passengers and should include the following information:

In accordance with Instruction no. 1, dated February 26, 2013, the Competition Commission ruled that the airline must provide a written notification to each and every passenger who has missed their flight owing to overbooking or other airline-related concerns. This communication must outline the passenger's rights to compensation and help. Additionally, when a passenger has a delay of at least two hours, they are required to get a corresponding notice that substantiates their right to compensation and offers access to a complaint form.

Additionally, the airline ought to minimize ticket sales above the capacity of the aircraft in order to prevent any potential anti-competitive actions which may occur in the market, particularly during the peak season.

In the event that Austrian Airlines fails to fulfill the responsibilities listed above, the Competition Commission has stipulated that the airline may be subject to a punishment of up to ten percent of its annual turnover for major violations of competition laws.

Over the course of more than six months, the Competition Authority Commission's decision was subjected to oversight, and during that time, there were no additional concerns regarding competition violations in airline services that were noticed. Despite this, the case brought to light the ongoing difficulties that are present in the aviation industry, as well as the possibility of finding a solution to these problems through the establishment of a regulatory organization that has full market monitoring, such as the Competition Authority.

In situations where travel markets are unable to self-regulate, the Competition Authority may be able to assist successful market functioning by adopting competitive procedures and behaviors, thereby increasing consumer welfare.

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THE ROLE AND PLACE OF ENGLISH AS A LANGUAGE OF MODERN PROFESSIONAL COMMUNICATION

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ABSTRACT

The article raises the issue of reforming general and vocational education, which presents an important and responsible task for educators – improving the quality of education and upbringing of young people. It is necessary to improve the entire educational process so that the training of graduates from secondary and vocational educational institutions meets the requirements of today's life.

The main task of teaching a foreign language today is to foster interaction, cooperation, and the unification of efforts. Solving this task is connected with forming students' active life position, as well as their readiness and ability to engage with others, listen to and understand them, and defend their own views and beliefs.

In this regard, teaching a foreign language means teaching speech interaction, and we inevitably come to the conclusion that much needs to be changed in the educational process. We have always been focused on coherent student speech, such as a small report or pre-learned texts proposed by the teacher. Perhaps it would be better to focus on something else—the ability to solve communicative tasks. Agree on something, engage in a friendly conversation, share opinions, impressions or memories. In the learning process, it is essential to create conditions where each student, each pair, each group goes through the process of solving each task.

Keywords: communicative method, youth, education, reform, language.

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Introduction

Kyrgyzstan (officially Kyrgyz Republic), situated in Central Asia, bordering on Kazakhstan, Tajikistan, Uzbekistan, and China, was formerly part of the USSR, but has been independent since 1991 (see Figure 1).

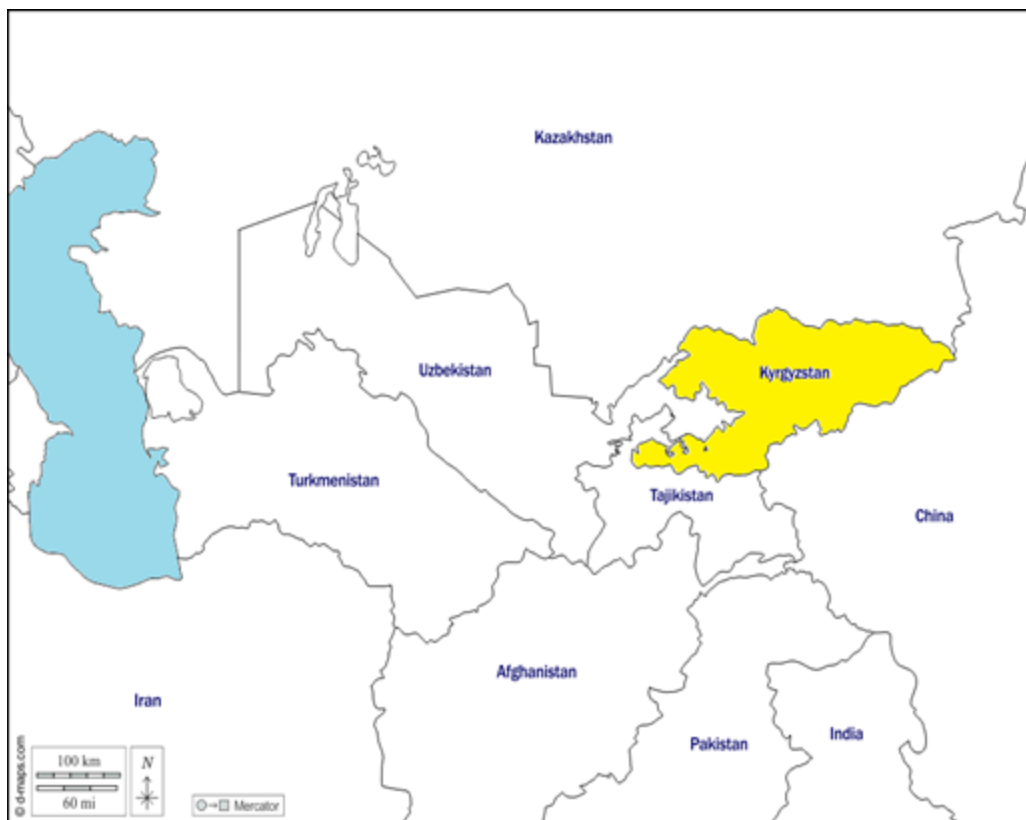


Fig. 1: Kyrgyzstan in Central Asia and Eurasia

Source: Adapted from https://d-maps.com/carte.php?num_car=5151&lang=en

English has gradually changed since independence in 1991 from one of several foreign languages taught in schools, colleges and universities in Kyrgyzstan to an ever more widely known and used part of the language ecology of the Kyrgyz Republic, with English now the most common foreign language in the education system, and is often used as a language of wider communication in international and national organizations in addition to Kyrgyz and Russian as a language of wider communication (LWC), contributing to the development of Kyrgyzstan's multilingual and increasingly plurilingual language ecology. (F. Shermatova, M. Totobaev, S.A. Bahry)

This article examines the methodologies of teaching English in Kyrgyzstan's secondary schools. In teaching English at national schools, a "new quality level" means that graduates of secondary schools must possess proficiency in English, driven by the need to develop bilingualism in the context of national and English languages. It is widely acknowledged that proficiency in English not only facilitates communication with English-speaking people but also helps students to better understand the mentality, culture, and traditions of the English-speaking countries. The sociocultural component of language learning is where knowledge of the country's realities, customs, traditions, and communication behaviors is formed; it includes knowledge and skills for verbal and non-verbal communication. The sociocultural component in teaching English has enormous potential in terms of involving students in

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cross-cultural dialogue and familiarizing them with the achievements of national culture, contributing to the development of universal human culture.

Communicative-oriented teaching has become a necessity of the time. There is no more important goal for our planet than mutual understanding among different peoples and speakers of different languages. Thus, it is the task of linguists and methodologists to help millions of people quickly and effectively learn languages, including English.

Therefore, interest in communicative teaching methods is clear, and over the last 10-15 years, this methodology has advanced significantly. But what is the long-term forecast for the development of this methodology? This knowledge is essential for writing textbooks and for improving teacher training to keep pace with the needs of the age. The task of methodology is to provide teachers with a system of guidelines to make optimal decisions in different educational situations. "We teach the language not as a pragmatic tool, but as a wise guide to the world around us" (A. Leontyev, Lectures on General Psychology, 2000).

Thus, for an English language teacher to lead the youth, they must follow developments in both methodology and related sciences.

A central issue is the communicative orientation of English language teaching. This issue was discussed from different perspectives:

- How to organize language teaching so that it is both personalized and individualized;
- How to organize the language material so that grammar learning serves communication goals (maximizing benefits from minimal grammar);
- How to address students' speech communication needs, bringing the model of learning closer to real-life communication to enhance motivation;
- How to improve teaching technology to maximize the benefits of a lesson;
- How to diversify students' learning activities;
- What is the teacher's role in teaching communication;
- What is the optimal model for a communicative-oriented textbook;
- How to deal with errors when teaching communication;
- How to differentiate levels of communicative competence to clarify learning goals.

Let us focus on some of these issues.

How to clarify levels of communicative competence? Understanding both real and potential speech needs of students has become an axiom in modern communicative methodology. Now, when the goal of teaching is to develop communicative skills, it is important to know the areas of communication and their significance for students, the types of communication, the social and communicative roles of speakers in situations, as well as speech acts, language minimums, etc. All this is needed for targeted teaching, so that the learning model is as close as possible to real communication.

Thus, forming communicative competence in each case should stem from real needs, which significantly enhances students' motivation. However, it is important not to set overly vague and inaccessible goals, as this can lower motivation. One of the central problems in communicative-oriented teaching is clarifying the content of communicative competence at different levels.

Numerous researches attempted to define the linguistic and communicative content of tri-level Kyrgyz-English bilingualism (high, sufficient, and weak). It takes into account the scope of communication, the nature of errors, their quality, the variability of grammatical constructions, lexical richness, presence or absence of accent, etc. This work can serve as a foundation for practical methodological conclusions.

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Maximizing benefit from minimal grammar. Issues that attract considerable interest of methodologists and educators are two — the place of grammar in communicative-oriented teaching and the problem of errors. The issue is no longer whether grammar should be included in communicative methodology, but rather what kind of grammar should be included. Analyzing several communicative-oriented textbooks created in our country reveals a contradiction between the theoretical views of authors on the role of grammar and their practical implementation. Grammar in textbooks remains somewhat traditional and excessive. Some of the educators' thesis that "we need to get the maximum benefit from minimal grammar" seems highly relevant. Certainly, the search for the most convenient way of describing the language for communication training remains important. Only after this can we hope to present grammar in textbooks at a qualitatively new level.

The issue of errors in communicative-oriented teaching always generates considerable debate among methodologists. How to differentiate errors, when to correct them, and how to evaluate students' communicative activity? An interesting proposition is that the cost of an error should be weighed in each case. If students are strictly instructed to "avoid errors!", this may result in dry, formal speech. We want to teach communication while denying students the joy of discovering creative solutions in communication. Emphasizing errors in speech hinders students, reducing their communication to mere correct language usage rather than encouraging them to express their thoughts and stimulate interaction.

Striving for speech culture. Of course, the communicative quality of speech must be considered more broadly. Poverty, monotony in speech, lack of imagery, variation, fear of prefixed verb constructions whose meanings students are unsure of (e.g., "sit down," "look around," "stare at," etc.) should also be viewed as errors. It is important to focus on error-prone areas. To do this, it is necessary to know the students' native language. In the context of forming general speech culture and improving the teaching process, it is crucial to make certain indicators of communicative quality (variation in constructions, lexical richness, imagery, etc.) primary in evaluation, while treating others as secondary. Students should be encouraged to self-analyze their speech, such as recorded on tape.

Psychological and Educational Conditions for Effective Learning. Psychological aspects of communication teaching are particularly relevant today. The problem of the psychological and pedagogical conditions for effective second language acquisition among younger students was addressed in a report by Shalva Amonashvili long ago. Many of these conditions, in our view, are prerequisites for successful language acquisition at both junior and senior stages. These conditions include:

- A personality-centered, humane approach, which means making the student our partner. This approach opposes imperative and authoritarian methods of teaching and promotes the development of democratic principles in communication (e.g., student participation in choosing work forms, topics for debates, reading materials, etc.).
- Teacher functions vary during different stages of the lesson and in different forms of work. For example, during a debate, the teacher should be simply a speaking partner, wise and friendly.
- Ensuring student success in their academic and cognitive activities is also a key condition. This involves teaching students self-assessment and recognizing the positive progress they make. Their efforts should be noticed and acknowledged by those they live, study, and interact with.

Multifaceted communicative training. Real communication demands from students multifaceted skills: listening to a fast-speaking interlocutor (whose speech may be truncated, figurative, or rich in modal words), while simultaneously thinking about how and what to respond. If a student is accustomed

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to performing only one of these tasks in class, it is no surprise that they are not able to cope with complex real-life communication situations.

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DEVELOPMENT TENDENCY OF KYRGYZ POETRY BETWEEN 1960-1970

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ABSTRACT

The topic "Development trend of Kyrgyz poetry in the period of 1960-1970" explores the characteristics of Kyrgyz literature during the Soviet period and the directions of development of that period. In this period, despite the demands of Soviet ideology and socialist realism, Kyrgyz poets tried to reflect their national characteristics and deep philosophical thoughts in their works.

The main trends of poetry in the 1960s and 1970s are the study of the spiritual world of a person, the reflection of contemporary social problems and social changes, as well as the enrichment of natural, artistic images.

The relevance of the period is due to its social and literary context. The influence of the Soviet regime and the pressure of socialist realism forced Kyrgyz poets to search for new creative methods. At the same time, poets tried to express their national themes, traditions and philosophical thoughts in poetry.

The article examines the interethnic literary relations of the Soviet era and the socio-spiritual features of that period. It also reveals the renewal and transformation of national poetry with the influence of socialist realism, national characteristics of Kyrgyz literature, and the connection of global literary currents.

From a scientific point of view, this study allows to understand new directions of Kyrgyz poetry, its place in Soviet and global literature. The topic provides an opportunity to analyze the national characteristics, cultural and social conditions of Kyrgyz literature and to deeply study their connection with world literature. The article explains the complex and multifaceted development of Kyrgyz literature at that time, as well as its connection with the general currents of Soviet and world literature. In addition, attention is paid to the formal features of the lyrics of the mentioned era, the metaphorical structure of the language, and the methods of conveying poetic philosophy. This analysis allows us to consider poetry as a powerful and creative form of philosophical thinking.

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The article shows the essence of philosophical lyrics and its importance in creating cultural and philosophical discourse in poetry. The research offers new methods for investigating the mentioned topic and allows for a deep understanding of the interdisciplinary relationship of poetry.

KEY WORDS: Kyrgyz literature, poetry, philosophy, literary trend, national characteristic, trend, period, spiritual world, philosophical poetry, poet, ideology.

INTRODUCTION

The 1960s-1970s marked an important and distinct stage in the history of Soviet poetry. This period was characterized by the emergence of new opportunities for creative freedom following the constraints of socialist realism. The turn from the 1950s to the 1960s marked a significant turning point in Soviet poetry. After a long period of censorship and suppression of creative impulses, associated with the exposure of the cult of personality, writers and poets began to feel the possibility of expressing their thoughts more openly, leading to a surge of creative activity. The early 1960s coincided with a political atmosphere in the Soviet Union when the relaxation of ideological restrictions prompted the renewal of creativity and the diversification of ideas and viewpoints. This renewal significantly impacted Kyrgyz literature, including poetry, where considerable changes took place.

The Kyrgyz poetry of the 1960s-1970s is an important and multifaceted stage in the development of Kyrgyz literature. This period is marked by a time of rapid change, as well as the search for new forms and themes in literary creativity. Poets of the 60s and 70s actively reflect on and reinterpret the legacy of previous generations, striving for renewal and the exploration of new horizons. During this period, there is a strong impulse toward national self-identification and a reevaluation of one's role in society, which is particularly evident in poetry. One of the key features of this time is the deeper reflection on social and personal issues, as well as the search for national identity in the context of the rapid transformation of society. Under the influence of socialist realism, which had a significant impact on the creativity of previous generations, the poets of the 60s sought to develop more individualistic and free poetic forms, breaking away from official conventions. At the same time, poetry remained committed to social themes that were important to the youth of that time, which is also reflected in the poetic art.

During this period, the attention of poets is focused on key aspects such as reflections on the meaning of life, the role of the individual in society, the search for new ways to connect with nature and everyday life, as well as a deep awareness of responsibility to future generations. The existing socio-political situation in Kyrgyzstan, combined with global literary trends, influenced the transformation of poetic language, leading to a new interpretation of symbolism, modernism, and other contemporary literary movements. Poets of this time, including Suyunbay Eraliyev, Tabildy Mukanov, Zholon Mamytov, T. Kozhombetiev, B. Sarnogov, R. Ryskulov, S. Akmatbekova, and others, actively engaged in cultural and philosophical discourse, developing themes of love, homeland, despair, and hope. Their poems reflect both national specifics and the worldview experiences of those years.

The aim of this work is to explore the main trends in the development of Kyrgyz poetry of the 1960s-1970s, analyzing the creative activities of leading figures of this period and their contribution to the development of both Kyrgyz and world poetry.

RESEARCH AND CONCLUSIONS. Russian poetry as a source of inspiration for Kyrgyz authors. Russian poetry and literary studies had a significant impact on the development of Kyrgyz poetry in the 1960s-1970s. The works of Russian poets from the "thaw" period, such as Yevgeny Yevtushenko, Robert Rozhdestvensky, Andrei Voznesensky, Bella Akhmadulina, and others, became a source of inspiration for Kyrgyz poets in their search for new forms and approaches to expressing personal and

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social themes. The "thaw" poets sought to combine truth and dream, which was reflected in their works and became an important reference for Kyrgyz authors. Poets of this era learned from their Russian counterparts to find a balance between ideals and reality, expressing their reflections through metaphorical language, free rhythm, and stylistic experimentation. This contributed to the renewal of the poetic language in Kyrgyz literature.

In the studies of Soviet literary scholars, valuable parallels between Russian and Kyrgyz poetry can be found. For example, literary critic V.I. Anisimov emphasized how Soviet poetry reflected societal changes, embodying the ideals of dreams and the realities of truth. This approach resonated with Kyrgyz poets, who, following these ideas, sought to reflect on social and political changes in their works.

The work of scholar A. Belyaeva, dedicated to the uniqueness of the "thaw" poets, highlights their ability to express personal experiences against the backdrop of global changes, which became a symbol of cultural resistance. Kyrgyz poets adopted this ability as an important element of their poetic work, focusing on personal motifs within the context of national and social self-identification. The studies of literary critic Zaitsev, which emphasize stylistic experimentation, also played a role. He analyzed how Russian poetry sought new forms, breaking away from the canons of socialist realism, which inspired Kyrgyz authors to engage in freer experiments with both form and content. Thus, Russian poetry and literary criticism not only inspired Kyrgyz authors but also contributed to the transformation of national poetry, making it more open, profound, and universal.

Literary Parallels Between Russian and Kyrgyz Poetry. In the studies of Kyrgyz poetry of the 1960s-1970s, special attention is given to the works of prominent Kyrgyz literary critics such as A. Sadykov, A. Erkebaev, O. Ibraimov, A. Akmatalliev, K. Dautov, and others, who examined the lyricism, moral quests, and key features of poetry from this period. They not only studied the social and historical contexts in which the poetry developed but also identified the philosophical, aesthetic, and moral characteristics inherent in the works of this time. A generalized theoretical analysis of their approaches can be outlined as follows:

The literary scholar A. Sadykov conducted a theoretical analysis in the context of the search for national identity in Kyrgyz poetry. He viewed the poetry of the 1960s-1970s as a process of interaction between traditional elements and new forms and styles. The author focused on how new poets sought to break free from the confines of socialist realism and express personal experiences and the contradictions of the era. His theoretical analysis showed how poetry of that time became more individualized, with a particular emphasis on moral and philosophical issues. O. Ibraimov focused on how societal changes were reflected in the content of literary works. He analyzed themes such as personal self-determination, social justice, and morality, as well as the influence of global processes on the worldview of Kyrgyz poets.

In the works of A. Erkebaev, significant attention was given to the theoretical reflection on changes in poetic language, which was manifested in the renewal of genres and forms. Literary critic and scholar K. Dautov, in his works, emphasized the philosophical depth and symbolism of poetry, investigating how poets reflected internal contradictions and human emotions in the context of social changes. His theoretical analysis examined not only philosophical motives but also the symbolism, images, and metaphors through which poets expressed their attitude toward reality and their inner world. He argued that the creative works of poets from the 1960s-1970s were largely directed at finding a new aesthetic, opposing the official narrative. In the works of A. Akmatalliev, one can find a theoretical analysis of both traditional and innovative trends in Kyrgyz poetry. He paid particular attention to the inner search of poets, exploring their philosophical and moral quests. He emphasized the issue of originality, which, according to him, was characteristic of the works of Kyrgyz poets of the 1960s, who sought to express

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individual and national consciousness through poetry. A. Akmatyaliyev also examined the influence of world literature and philosophy on the works of Kyrgyz authors.

The overall theoretical analysis of the works of these scholars shows their attempts to understand how the poets of the 1960s-1970s, and how the work of A. Osmonov, influenced other poets such as Suyunbay Eralyev, Zholon Mamytov, Tabildy Mukanov, and others, in their search for new forms of expression that reflected the philosophical and moral issues of their time. These studies provide insight into how Kyrgyz literature and poetry responded to global social and political changes, as well as how poets combined personal experiences with societal ideals using various forms and genres.

The Influence of Traditions and Their Reinterpretation. The 1960s in Kyrgyz poetry was also a time of significant change. The youth, especially poets who were sensitive to the new moods of the time, became the bearers of these transformations. This period saw a marked shift from loud political poetry to deeper and more philosophical lyricism, which was closely connected to a return to classical traditions. Comparing it to Russian poetry, it can be noted that in both Kyrgyzstan and Russia in the late 1960s, an important aspect was the moral elevation of the individual. For Kyrgyz poets such as Suyunbay Eralyev, Zholon Mamytov, Omor Sultanov, Turar Kozhombetiev, Ramiis Ryskulov, and others, this transformation was also expressed in the search for philosophical depth and the contemplation of personal and social experiences. Thus, in Kyrgyz poetry of the 1960s-1970s, we can observe both a sharp contrast in style and creative direction as well as common trends related to the search for new meanings and forms of poetic expression.

In the poetry of the 1960s, both in Kyrgyzstan and Russia, there was a similar process where poets, especially those from the front-line and civil poetry movements, sought deep reflections on history, focusing on the heroic aspect of humanity. In Kyrgyzstan, for example, representatives of philosophical lyricism also began to explore the connections between personal fate and the history of the nation, attempting to reflect the heroic spirit of those years. Just as in the works of Russian poets, Kyrgyz poetry of the time incorporated elements of philosophical reflection, striving for a deeper understanding of revolutionary processes and their impact on society and the individual. Lyricism became not just a poetic expression but an important means of interpreting the world, including historical experience and civic responsibility.

A parallel can be drawn with the works of Kyrgyz poets such as Zholon Mamytov and Suyunbay Eralyev, who, like their Russian counterparts, contemplate the era, its heroes, and events, giving these topics a philosophical tone. The themes of heroism, human struggle, and moral choice became relevant for both front-line poets and their Kyrgyz counterparts, who sought to connect personal destiny with the fate of the nation. Andrei Voznesensky, Bulat Okudzhava, Yevgeny Yevtushenko, Robert Rozhdestvensky, and Bella Akhmadulina, with their innovative poetry, were prominent in the Soviet Union, and Kyrgyz poets Ramiis Ryskulov and Omor Sultanov joined them. They became not only symbolic figures of their era but also embodiments of bold poetic exploration that challenged traditional forms and ideas. While Russian poets from their circle were unafraid to address themes of the individual, freedom, and society, Ramiis Ryskulov and Omor Sultanov added a unique color to Kyrgyz poetry. They reflected not only universal human experiences but also the specific realities of their culture, incorporating elements of Kyrgyz folklore tradition and language nuances. The poetry of these authors became a bridge between Eastern and Western cultures, opening new horizons for Central Asian literature. The reinterpretation of traditions, focus on the inner world of the individual, and engagement with social issues made their figures significant not only within Kyrgyzstan but also on the broader literary stage of the Soviet Union.

Alykul Osmonov is one of the outstanding Kyrgyz poets whose work in the 1950s also reflects the processes occurring in society at that time. Osmonov, like many other poets of his era, was a witness to

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political and social changes, which defined the themes of his works. His poetry is deeply connected to the philosophical reflection on history, human fate, and culture. Osmonov seemed to strive to connect the past and the present, seeking answers to questions of national identity and the significance of history in contemporary times.

One of the distinguishing features of his poetry is the awareness of the importance of roots and traditions, as well as the attempt to understand how these elements can remain relevant in a rapidly changing society. Particularly important is the fact that in the works of Osmonov from the 1950s, one can see his aspiration for lyrical depth and philosophical maturity. He uses the imagery of nature and the native land as symbols of spiritual purification and strength. In this respect, Osmonov's poetry can be compared to the poetry of Russian poets of the 1960s, such as Yevgeny Yevtushenko and Aleksandr Tvardovsky, who also sought to overcome the limitations imposed by censorship and address timeless questions, such as the meaning of life, the role of the individual in history, and the significance of cultural roots. It is also worth noting that Osmonov often turned to the imagery of his homeland and the rich history of the Kyrgyz people, which was an important part of national self-identification. In his poems, he created entire mythological images that can be seen as a kind of response to the challenges of the time and a search for a new path for the people. In his works, Osmonov frequently sought to provide symbolic and philosophical answers to the challenges of the era, which makes his poetry deeply meaningful not only for Kyrgyz literature but also for the broader cultural tradition of the time. Alykul Osmonov is not only a key figure in Kyrgyz poetry but also a person who significantly influenced the poets of the 1960s-1970s, including those who sought to express philosophical and social ideas in their poetry amidst great societal changes. His work, like that of many other poets of the time, reflects global processes such as social reforms and cultural self-identification, and this influence extended to the generation of poets working in the 1960s-1970s.

Thus, Alykul Osmonov had a profound influence on many Kyrgyz poets of the 1960s-1970s, becoming not only an example of philosophical reflection on life and history but also a proponent of new poetic forms that combined lyricism with deep social and philosophical orientation. His influence is evident in the works of many poets who sought to develop themes related to national identity, nature, history, and the social processes occurring in Kyrgyzstan. For example, in the works of Tabildy Mukanov, one can see an effort to understand the importance of the past and how it reflects on contemporary Kyrgyz life. While Yevgeny Yevtushenko and Aleksandr Zabolotsky also exhibited a desire to understand the pain and discrepancies in the relationship between power and the people, Kyrgyz poets focused on preserving cultural values, which was also a kind of response to the challenges of the era.

In this context, it can be noted that in Kyrgyz poetry of the 1960s, there is not only a desire to explore the past but also a search for new forms of expression, which could also have been a result of the changes occurring in society within the Soviet Union as a whole. The modernization of poetry, the rejection of excessive politicalness, and the turn toward deep inner experiences became important characteristics of this time in literature.

In Kyrgyz poetry of this period, parallels can be drawn with the processes occurring in Russian literature. For example, Suyunbay Eraliyev, who also engaged in the reflection of socio-historical changes and cultural identity. The question of how culture finds its own form after a long period of censorship and pressure from the authorities could have been particularly relevant for Kyrgyz authors of the time. During this period, poetry, while remaining tied to the fundamentals of socialist realism, sought to transcend its boundaries, allowing authors to attain spiritual freedom and highlight social and spiritual issues. New themes, styles, and experiments with poetic forms began to develop in Kyrgyz poetry. Central to this development were reflections on the inner world of the individual, spiritual quests, existential questions, philosophical perceptions of the world, and the connection between humans and

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nature. Poets sought to reflect the changing reality and the spirit of the time through their works. The weakening of the boundaries of socialist realism in the 1960s-1970s contributed to the emergence of a whole generation of new poets, which led to a significant development of the literary process. This period witnessed innovative ideas, deep reflections, and philosophical concepts that were reflected in Kyrgyz poetry.

Thus, the 1960s-1970s became a time of intensive development for Kyrgyz poetry, during which works emerged that combined philosophical, spiritual, and aesthetic ideas. This period marked an important stage in the history of Kyrgyz literature, opening up new opportunities for creativity and the reflection of social and spiritual issues for poets.

The Transition from Socialist Realism to New Creative Freedom. In the late 1950s and early 1960s, works written in accordance with the requirements of socialist realism had to strictly adhere to social and ideological norms. However, they often paid insufficient attention to the inner world of the individual and the changes occurring in their soul. The political limitations imposed by this system significantly restricted creative freedom. For poets, the opportunity to move beyond these norms and address new themes, as well as changes in aesthetic form, paved the way for the renewal of creativity.

From the mid-1960s onwards, new aesthetic trends began to form in Kyrgyz poetry. During this period, poets started to move away from the rigid frameworks of socialist realism, focusing on the inner world of the individual, existential questions, personal freedom, social difficulties, and spiritual quests. This allowed poets to gain creative freedom, deepen their perspectives, and explore new forms and approaches in their work.

Creative Freedom and Individuality of Poets. New aesthetic views contributed to the emphasis on the individuality of poets in Kyrgyz poetry. Guided by their personal views, ideas, and creative aspirations, poets began to move away from the collective socialist ideology, creating works that reflected renewal, development, self-confidence, and the expression of individuality. During this period, authors experimented with poetic forms, creating new images, metaphors, symbols, and allegories.

For example, in Kyrgyz poetry of the 1960s-1970s, lyrical elements became popular, along with deep reflections on the inner world of the individual, feelings, and unique aspects of personal life. This allowed authors to move beyond social and ideological norms and create works that reflected their inner world. The individuality of poets became a dominant aspect of their creativity, and the forms and styles of poetry became noticeably more diverse.

Nature and the Individual: New Aesthetic Expressions of Connection. In Kyrgyz poetry of the 1960s-1970s, themes of the connection between nature and the individual took on great significance. The relationship between the inner world of the person and nature was reflected in new aesthetic forms. Nature, the world, and the individual were perceived through symbolic and metaphorical images, which were used as artistic tools for expressing deep reflections. During this period, philosophical musings about the spiritual connection between humans and the surrounding world arose, exploring the perception of nature, its role in human life, and the individual's place in society. The symbolism of nature and the individual became one of the key aspects of the aesthetic renewal of Kyrgyz poetry.

Poets of this period sought to reflect the complex realities of the inner world of the individual, while simultaneously creating poetic images that conveyed the higher spiritual aspirations of humanity and nature. They saw the harmony between nature and the human being as something necessary and significant. The poetic images of nature became a tool for a deeper understanding of the inner world of people, for rethinking the world and life from a new perspective. During this period, poets actively turned to new poetic forms and genres. The previously existing norms of socialist realism were reconsidered, and poetry began to feature independent, simple, yet chaotic images that conveyed the

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freedom of creativity. Poets experimented with poetic forms, themes, and images, which led to the expansion of social and philosophical issues. For example, many new metaphors, symbols, and images appeared in poetry, in line with new aesthetic standards.

The Influence of New Aesthetic Views on the Creativity of Poets. New aesthetic perspectives contributed to the emergence of new forms, ideas, and concepts in the poets' works. During this period, Kyrgyz poetry became enriched with existential philosophy, deep reflections on the inner world of the individual, and the reevaluation of life, national, and spiritual values. Thanks to these new aesthetic views, poets aimed to reflect the diversity of relationships between society, nature, and humanity.

In these years, the establishment of new aesthetic views led to qualitative changes in Kyrgyz poetry. Poets focused on reflecting the inner world and society in new forms and with philosophical depth. These processes revitalized Kyrgyz poetry, offering poets opportunities for creative freedom. Moving beyond the boundaries of socialist realism allowed poets to create new aesthetic forms, ideas, and creative directions.

Introduction of New Themes and Philosophical Reflection. In the early stages of this period, Soviet poetry began gradually moving away from socialist themes, focusing on the inner world of the individual, spiritual quests, and existential questions. In the 1960s, Kyrgyz poets underwent an evolution that touched upon personal, social, political, spiritual, and philosophical issues. Poets paid much attention to inner feelings and various existential questions. Particularly important were questions of spiritual depth, often expressed through symbolic and metaphorical images. From 1960 to 1970, significant changes took place in Kyrgyz poetry, as poets began to move beyond the demands of socialist realism, introducing new themes and philosophical reflections. This period became one where the questions of individuality and society, as well as new views on the world and the human being, were explored more deeply, leading to philosophical reflections on these themes.

Individualism and Existentialism. One of the key new themes in Kyrgyz poetry of the 1960s-1970s was the emphasis on personal human experience, development, inner struggles, and freedom. Under the influence of existentialism, poets began to reflect more deeply on the meaning of human existence, the future, and the significance of personal freedom. The existential crisis, the importance of choice, and the place of humanity in nature became central themes of their work. The poetry of this period introduced philosophical reflections on the inner world and emotions of individuals, giving literature greater depth and complexity. The difficulties of human life, the struggle for spiritual perfection, internal struggles, and the search for truth began to be reflected in a new, more nuanced, and emotionally charged light. This allowed poets to express their understanding of the world and uncover its mysteries through intellectual and sensory forms.

The work of Alykul Osmonov became a vivid example of the transition of Kyrgyz poetry to a new level of philosophical depth and personal reflection. Osmonov, one of the leading figures in Kyrgyz literature in the mid-20th century, actively developed themes of the inner world of the individual, spiritual quests, and self-awareness, which influenced poets of subsequent generations. Individualism and existentialism, as key directions of Kyrgyz poetry in the 1960s-1970s, reflect the poets' desire to move beyond the collective values characteristic of socialist realism and focus on the inner world of the individual. This shift was not only a response to global philosophical and cultural trends but also a reaction to the challenges of the time when society was undergoing profound social and personal changes. The emphasis on personal experience manifested itself through reflections on the meaning of life, responsibility, choice, and freedom. Poets paid attention to subjective experiences, internal conflicts, and the desire to find harmony in a contradictory world. The lyrical hero became the central figure of the works — a person facing an existential crisis and striving to find their place in the world. The influence of existential philosophy is evident in how Kyrgyz poets explored themes of loneliness,

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anxiety, the search for the meaning of life, and the inevitability of death. These motifs are reflected in the works of authors such as Suyunbay Eraliyev, Zholon Mamytov, and Tabildy Mukanov. Their poetry illustrates the struggle of the individual to preserve their identity amidst social changes and ideological pressure.

New forms of expression became an important stage in the development of Kyrgyz poetry. Poets sought to renew the language, using symbolism, abstract images, metaphors, and allegories to convey philosophical and emotional nuances. This allowed them to emphasize the universality and depth of their themes. For example, in the poetry of Suyunbay Eraliyev, the theme of personal freedom was closely intertwined with questions of national identity. His poetry explores the conflict between tradition and modernity, as well as the search for harmony between them. Zholon Mamytov focused on the themes of time and eternity, depicting the individual as a wanderer searching for meaning in a changing world. His works are filled with reflections on the transience of life and the value of each moment. Tabildy Mukanov, in turn, paid attention to the psychological aspects of personality, its vulnerability and inner strength. In his poetry, moral and ethical dilemmas faced by the individual occupy a central place. Thus, Kyrgyz poetry of the 1960s-1970s gained philosophical depth, taking a step towards universal themes of existence and individualism. Through rethinking global trends, the poets of this period created lyricism that harmoniously combined personal experiences with the search for social and national meaning.

The shift toward personal freedom in the poetry of the 1960s-1970s can be seen as a form of cultural resistance. Poets not only moved away from official ideology but also offered readers a deeper and more universal perspective on human existence. Existential motifs allowed for discussions of matters beyond the immediate political realities, creating works that addressed fundamental questions of being. Thus, individualism and existentialism in Kyrgyz poetry of the 1960s-1970s not only renewed the content and form of lyric poetry but also became expressions of the spiritual and cultural quests of the era. These trends strengthened its philosophical foundation and made Kyrgyz poetry a part of the broader process of rethinking literature in the Soviet Union.

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CONCLUSION

In the 1960s and 1970s, the emergence of new themes and their philosophical reflection elevated Kyrgyz poetry to a new level. Moving beyond the confines of socialist realism, poets began to delve deeper into the inner world of individuals, existential issues, the connection between humans and nature, as well as national and social matters. These trends contributed to the establishment of a new creative freedom in Kyrgyz poetry, allowing fundamental human questions to be explored on a philosophical level. The introduction of new themes provided poets the opportunity to expand the boundaries of poetry, respond to social and spiritual concerns, and express personal and national quests.

An analysis of the trends in the development of Kyrgyz poetry in the 1960s and 1970s reveals significant changes in literary pursuits, reflecting both social and personal transformations in the context of Soviet society. This period became a time of active reflection on issues of individual existence, the inner world of the person, as well as the social and cultural context in which the poetry evolved. One of the key trends was the evolution of poetry from the strict canons of socialist realism to freer and more layered forms of self-expression, which led to the emergence of new existential and individual themes. In the works of poets such as Suyunbay Eraliyev, Zholon Mamytov, Omor Sultanov, Ramis Ryskulov, Tabildy Mukanov, and Sagyn Akmatbekova, symbols of inner search, loneliness, and conflicts between the individual and society emerged. They not only aimed to preserve national identity but also integrated more philosophical and profound motifs into their works.

The introduction of social and national symbols also became an important feature of this period. Poets actively engaged with themes of national memory, traditions, and historical events, emphasizing the preservation of cultural heritage. At the same time, they did not shy away from addressing issues of social justice and individual freedom, which created a tension between the personal and the societal in their poetry. Thus, the poetry of the 1960s-1970s became a vivid reflection of the changes occurring in society and an important stage in the development of Kyrgyz literature. The issues of existential search, national identity, social protest spirit, and the quest for personal freedom formed a rich and multifaceted legacy of this period. Through their works, poets were able to express not only themes relevant to their time but also laid the foundation for further literary explorations in the future.

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RE-CREATION of a TUYUQ GENRE of UZBEK CLASSIC POETRY in RUSSIAN and ENGLISH

(On the basis of translations of tuyuq genre)

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ABSTRACT

The Re-creation of the Tuyuq Genre in Uzbek Classic Poetry: A Comparative Analysis of Translations in Russian and English

This article explores the intricate genre of tuyuq, a unique form of Uzbek classic poetry epitomized by its playful use of homonyms and rich philosophical undertones, as popularized by the renowned poet Alisher Navoiy. With globalization and increased cultural exchanges in the 21st century, there is a growing interest among Western literary circles in Uzbek literature, particularly in the poetic legacy of Navoiy. The tuyuq, characterized by its specific rhythmic structure and brevity, serves not only as an artistic expression but also as a vehicle for moral and philosophical contemplation. Through a comparative analysis of translations of tuyuqs into Russian and English, the article aims to highlight the challenges and successes encountered by translators. It examines how the nuances of the original Uzbek text are preserved or transformed in translation, considering factors such as rhythm, rhyme, and the inherent complexity of polysemous words in original language. The study also touches upon the historical context and evolution of the tuyuq genre, noting its roots in Turkish literature and its adaptation into other literary traditions.

By analyzing specific translations, it becomes evident that while both Russian and English renderings strive to convey the essence of the original tuyuq, they often diverge in tone and meaning. The article ultimately argues that a deeper understanding of the cultural and linguistic backgrounds of both source and target languages is crucial for successful translation, allowing for a richer appreciation of this peculiar genre of Uzbek poetry in a global literary context. Through this exploration, the study not only sheds light on the artistry of recreating tuyuqs but also emphasizes the importance of intercultural literary communication in today's interconnected world.

Conceptual keys: genres, lyrics, peculiar, tuyuqs, formation, homonyms, rhymed words, moral idea, background, art formed by words, lack of fond knowledge.

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Background.

In Uzbek classic poetry a lot of genres are verified. Among them popular ones are: ghazels, masnaviy, fard, rubaiy, tuyuq, qit'a, muhammas, musamman, musaddas, mustazod, tarjiband and others. Nowadays, as we know, the people of the West, mainly men of pen take a notable interest in Uzbek classic literature, especially in Alisher Navoiy's poetic legacy. His beautiful and melodious poems written in arooz rhythm draw their attention. Sh. Sirojiddinov considers that relations between the Universe and Human race, Uzbek nations outlooks, their width made deep impression on the philosophy of the West. [8,p.3]

About tuyuq and its peculiar features firstly Alisher Navoiy the Uzbek classic poet and scholar gave information in his "The measure of Rhythms", (Interpretation of the two dictionaries). He noted tuyuqs as well-known form of poetry which was popular with "Ulus Chig'atoy population" and gave definite instruction in which he wrote that tuyuq had to be created on the basis of peculiar rhythm and rhyme.

Later Zahiriddin Muhammad Bobur in his books "Manual on arooz rhythm" and in "Mukhtasar" (witty ideas said in shortened form) gave more valuable information about tuyuqs and its types.[4,162]

In the end of 19th and in the beginning of 20th centuries such scientist as F.E.Korsh, P.M.Melioranskiy, Kh. Gibb, A.N.Samoylovich, F. Kuprilizoda studied tuyuq and gave their opinions concerning that kind of poems. I.B.Stebleva and I.V.Samoylovich who were specialists on Turkish Literature noted tuyuq as special type of genres. The note which was made by Samoylovich is more valuable, he had summarised the general trends of creating tuyuqs. He said that this genre was based on playing on words. Later it became genre and entered Arabian-Persian literature as form which is called tuyuq based on tajnis. The word "tajnis" means polysemy of words.

It is said that I.V.Samaylovich translated 16 tuyuqs, but in the book dealing with lyrics and called "The treasure of wisdom" by Navoiy only 13 tuyuqs were included.[3,10-22]

The etymology of the word "tuyuq" was given by scientists as N. V. Radlov and S N Ivanov the word "tuyuq" is formed from the stem of the verb (duy/tuy +uq) (feel) and later it was used as an adjective in the meaning of (been felt, been understood) and stands close to participles. And taking this idea into consideration we can note that this word means "to feel", "been felt".[6,192]

S.Ivanov, G.Salomov considered that translation of tuyuq was difficult as it was based on homonym words and playing on words.

S.N.Ivanov used a syllabic rhythm, and each line consisted of 15(14) syllables.

Principles and ways of translating tuyuqs were given by him:

- 1.Re-creation of the form, conveying the meaning to TT.
- 2.The word chosen as homonym can be used as a single word or with combinations which are called complicated homonyms.
- 3.The humour, which is expressed by this word must be handled with special manner peculiar to Turkish people.
- 4.Not enlarge the number of syllables when it's possible.

A. Hojiahmedov notes that tuyuqs are usually written in the following rhythm:

Foilotun foilotun foilun and

Foilotun foilotun foilon. And rhymed system is as following:

a a b a.[13,167]

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B Valikhojaev who dealt with studying Navoiy's legacy in his article. "Tuyuq and his followers", noted that tuyuq as genre in Turkish literature developed as tuyuq-ruboiy, tuyuq-qitaa genre which preserved the antique peculiarities of folklore.[5,151]

Thus, one more form of Uzbek classic poetry which consists of only from four lines is called tuyuq. It is a peculiar form of poetry. It is formed on the basis of rhymed words which grounded on usage of homonym words. And the Uzbek language is rich in homonyms and this case gives wide possibility in forming, writing tuyuqs. For example, the word "ot" can be used in various meanings: as "horse", as "name", and as "throw" in the imperative mood. The word has the same spelling and the same pronunciation. We come across such words in the English language too, example, the word spring has the same spelling and pronunciation but has various lexical meanings.

They are: the season of the year- spring, the form of activity-jumping,
the source of water- spring and other meanings.

Tuyuqs are usually written in arooz rhythm and its each line consists of 9 or 11 syllables. Tuyuq is formed with the usage of playing on words. In a short form a poet describes feelings, sometimes humour and makes peculiar influence on the readers. They express didactic, philosophic ideas with usage of art of words.

The ST:

Necha dedim ul sanamg'a, bormog'in,

Qilmadi ul tark oxir bormog'in.

Munchakim xudro'qliq ko'rguzdi ul,

Aql hayrat qildi, tishlab bormog'in.

The meaning of the poem:[1,721]

Many times I told the beauty not to leave. But she didn't stop, went on going away. How deep caprice she showed. Mind surprised biting the finger.

Translation by Sergey Ivanov or re-creation in Russian:

Чтоб ей сказать: "Не уходи!", уста я растворил,

Но замер зов мой на устах и льда не растворил.

Ее лукавству нет конца, упорству –нет границ

Мир удивлен: такое зло, ну кто хоть раз творил? [2,509]

The meaning of the re-created words: In order to say to her (not leave) my mouth I opened. But my words got cold in my mouth, not melted the ice. Her caprice has no numbers, there is no verge, on her persistence,

The words (surprised, such evil doing, caprice had ever being shown) don't match the meaning of the ST.

On reading translation done by Russian translator Sergey Ivanov you would not agree with him as the translation is overstrained, tense, overdone. The tone of the verse is cruelly stressed. The grammatical structures, manner of narration were not preserved in the translation. The poet's attitude towards his mistress is not so outrageous; he slightly criticises but not blames her mistress for her going away.

Translation done by D. Sultanova in ti English:

Lots of time I bade that beauty not leave that way,

But she didn't give up her habit in any way,

So deep willing she showed to that act, so that

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I was at a loss, lost my tongue off and away.[3,70]

The word way is taken as the key word which is used in three meanings:

1-leave that way- with that manner;

2-in any way-absolutely;

3-off and a way-indeed;

Instead of the words biting a finger used in source text in recreated text the words “lost my tongue, off and away” are used as when one bites his finger he can’t speak-instead of the words mind astonish the words at a loss are used. As it is seen generalization is used. And it is clear the ST and TT are similar but not the same, and so TT came close to Uzbek tuyuq.

The poets as Lutfiy, Gadoiy, Muqumiy used, wrote tuyuqs. From an antique classical poet Yusuf Amiriy’s tuyuqs. Alisher Navoiy wrote only 16 (13) tuyuqs.

Interpretation of the next tuyuq of Navoiy.

The ST:

Javr o‘qin jonimg‘a soqiy yozmadi,

Vasl jomidin xumorim yozmadi,

Kilki qudrat sabr xatolar ishqidin,

O‘zga ish dilimg‘a go‘yo yozmadi.[1, 719]

The meaning of the ST:

A wine server didn’t prescribe for me arrows of misdeeds I hadn’t have,

But at the same time didn’t loosen my wish of meeting have with wine

Though there was shown a deep desire of enjoying love soaked with taste of her lips

But my fate didn’t prescribe for me that chance.

Translation done by D. Sultonova:

I’m sick this night as for wine I do long,

And thirst for thy lips tortures me for long,

I have a hope to getting to my hoped shore,

But crossing the river filled with my rains takes long.

to long-to miss; for long-always; take long-take much time.

The TT in Russian:

Стрела обиды в грудь впилась и сердце мне задела,

Едва утихнувшая страсть опять взялась за дело.

Так предначертано судьбой: мы страстью рвемся к юным.

А до других –кто не любим –влюбленным что за дело?[2,507]

The meaning of Russian TT:

Arrows of offence stroke the breast and tortured my heart,

Passion that was hardly weakened burst into flame again.

It’s sat up with our fate but we try to match the youth with passion

But others who are not beloved not care of the state of men in love.

The meaning of TT differs from the meaning of ST. S. Ivanov again describes the state of the poet in not right way.

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TT in English:

O wine server with blows of mischief me not moved,
And my long for beholding lover wasn't down moved.

I wished enjoy the love soaked with taste of her lips,
But that desire of mine by my fate made off moved. .[9,70]

“to move” is used in the meaning of to “to touch” to move down, verb adverb combination is used in the meaning of (to make low)

to move off – in the meaning of (to put aside)

Thus, the Russian variant of re-creation differs from the English one Sultanova feels the poet's claim, his offence, mainly the tone used by the poet in expressing his dissatisfaction.

Though tuyuq has the same outward form as ruboiy and consists of four lines which make a couplet and sometimes has got the same rhyme scheme as (a a b a), it differs from ruboiy, as ruboiy is formed by usage of radif (a repeated word) and before it a rhymed word.

Conclusion:

Though, it is considered that tuyuq as the genre belongs only to Turkish languages, above given translations or re-creations show that tuyuqs can be translated into English and Russian, created in English. The English language, its vocabulary are rich in polysemantic words which having been used in different combinations obtain different meanings. And just this case can give translators possibilities for creations tuyuqs in English.

Giving our concern about Russian translations we can say, all those shortcomings, mistakes occurred because of not knowing, not feeling the language, customs, habits, peculiar cognition of source language speaking men.

But in both types of translations, general idea and main concepts are given.

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LEVERAGING ICT FOR EFFECTIVE FOOD SECURITY GOVERNANCE: EMPIRICAL INSIGHTS FROM THE NATIONAL FOOD SECURITY ACT, 2013

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Mr. Jaswant Singh Rajput⁴

ABSTRACT

Through the National Food Security Act (NFSA) 2013, the Indian government established food security by guaranteeing access to subsidised food grains as a legal right for its populace. The Public Distribution System (PDS), implemented through the National Food Security Act (NFSA), faces obstacles from inefficiencies alongside corruption and leakage issues. This research evaluates how Information and Communication Technology (ICT) integration within NFSA governance structures can boost transparency alongside increasing operational efficiency and accountability practices. A study of Chandigarh, Mohali, and Patiala presents data demonstrating how ICT tools implemented through Aadhaar-linked ration cards, e-PoS devices, and real-time monitoring systems have cut through systematic issues and strengthened beneficiary accessibility. The analysis exposes ongoing obstacles such as deficient digital skills among users, inadequate network infrastructure, and disparities in digital access that reduce the impact of ICT solutions. This research develops an optimisation framework for ICT that includes evolving technological solutions and robust infrastructure development while ensuring alignment with inclusive and sustainable objectives. The suggested policies seek increased digital education initiatives, systematic complaint resolution systems, and regular assessment frameworks designed to achieve fair and efficient food ration delivery. ICT in National Food Security Act governance enhances food safety and establishes an operational blueprint for future public welfare transformations worldwide.

Keywords: National Food Security Act (NFSA), Public Distribution System (PDS), Food Security Governance, E-Governance

Introduction

Despite being the world's largest democratic country with its leading economy based on agriculture, India struggles with equal food access, although production has improved. Through the National Food Security Act of 2013, millions have gained food security through dependable legal rights coupled with a robust Public Distribution System. Success with such a substantial policy initiative depends on solving inefficiencies linked to corruption and inclusion errors through strong governance systems. Information and Communication Technologies are powerful transformational tools for modernising governance operations and improving transparency alongside process optimisation. The research connects policy interventions to governance systems and technical solutions while examining how Information and Communication Technologies optimise Public Distribution System delivery through the National Food Security Act framework.

1. Context of Food Security in India and the National Food Security Act (NFSA), 2013

Food security is a primary concern for India because it represents sixteen per cent of the world's population. Since it ranks as a top grain producer, India struggles to address problems in food allocation

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and issues involving malnutrition and scarcity of food. The 1943 Bengal famine, with its enormous death toll, highlighted fundamental flaws in the country's food distribution system, allowing post-independence officials to focus on food security (Mooij, 1998). After its emergence in years past, the Public Distribution System (PDS) now operates as India's principal food security framework because it delivers cheaper food grains to hundreds of thousands of households (Masiero, 2015).

The PDS receives ongoing criticism because distribution issues such as leaking supplies and distribution identification mistakes result in systemic flaws in distribution methods (Biswal & Jenamani, 2018). The National Food Security Act (NFSA) became law in 2013 to address system inefficiencies and rising public interest in food justice. India's commitment to protecting citizens' food rights reached a historical peak with the enactment of the National Food Security Act 2013 (Government of India, 2013), extending food access to 800 million people. The Act delivered specific food affordability support to priority household categories through programs such as Antyodaya Anna Yojana, which safeguarded the most vulnerable. The implementation of NFSA requires developed governance systems to manage the complexities involved in such massive food security operations.

2. Importance of Governance Mechanisms in Achieving Food Security Goals

The transformation of the NFSA's ambitious regulations into observable results depends entirely on effective governance systems. In this context, governance goes beyond policy creation to include planning functions along with the need for coordination and monitoring alongside accountability systems. The vast scope of NFSA demands comprehensive coordination from the central government, state government agencies, fair price shops, and local bodies since citizen identifications and food grain delivery to households pose significant implementation challenges (Masiero, 2015).

Governance is a critical function in solving the fundamental PDS problems that stem from corruption, beneficiary duplication, and sluggish subsidy transfers (Gupta, 2016). Strong grievance redressal systems serve as a fundamental requirement to allow beneficiaries' voices to reach intended recipients (Biswal, 2020). Adequate governance frameworks demonstrate crucial importance for higher food production and consumption adaptability according to dynamic changes such as climate effects, population shifts, and urban development (Anser et al., 2021). The performance of these mechanisms directly affects the results of food security programs because programs necessitate transparent governance, which uses technology alongside responsive frameworks.

3. The Role of ICT in Modern Governance and Its Potential in the Public Distribution System (PDS)

In the era of digital transformation, information and communication technologies (ICT) have emerged as powerful tools to enhance governance efficiency and transparency. For the PDS and NFSA, ICT has the potential to revolutionise the way food security programs are designed, monitored, and delivered. Digital innovations such as Aadhaar-linked ration cards, e-PoS (Electronic Point of Sale) devices, and mobile-based grievance redressal platforms have already demonstrated their ability to reduce leakages and improve targeting efficiency (Nakasone & Torero, 2016). For instance, Aadhaar-based biometric authentication helps eliminate ghost beneficiaries and ensures food subsidies reach the intended recipients (Masiero, 2015).

Beyond targeting and distribution, ICT can play a transformative role in supply chain management, enabling real-time tracking of food grains from procurement centres to fair-price shops (Biswal & Jenamani, 2018). E-governance portals, which integrate databases of beneficiaries and stocks, facilitate data-driven decision-making and enhance accountability across the supply chain (Gupta, 2016). Additionally, mobile and SMS notifications can inform beneficiaries about ration availability and transactions, fostering greater citizen empowerment (Anser et al., 2021).

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The integration of ICT into the PDS aligns with global best practices, as seen in successful food security initiatives in Kerala and other Indian states that have embraced e-governance (Masiero, 2015). However, digital literacy, infrastructural gaps, and the digital divide remain significant barriers, particularly in rural and marginalised communities (Nakasone & Torero, 2016). Overcoming these barriers is crucial to unlocking the full potential of ICT in achieving the goals of the NFSA and ensuring inclusive and sustainable food security governance.

In conclusion, converging governance, technology, and policy frameworks offer a unique opportunity to address long-standing issues in India's food security systems. As this paper explores, leveraging ICT within the NFSA framework can serve as a model for strengthening food security governance in India and other developing economies facing similar challenges.

Objectives of the Study

In the context of India's evolving efforts to ensure food security through the National Food Security Act (NFSA), 2013, and the role of technology in governance, this study aims to address the critical gaps in the implementation and effectiveness of the Public Distribution System (PDS). The objectives are threefold:

1. To Explore the Integration of ICT in NFSA Implementation

This objective seeks to understand how Information and Communication Technologies (ICT) are employed across the various stages of NFSA implementation, including beneficiary identification, supply chain management, and grievance redressal mechanisms. The study will examine the design and deployment of key ICT tools such as Aadhaar-linked digital ration cards, e-PoS devices, and real-time monitoring systems, highlighting their impact on operational efficiency and inclusivity. Additionally, it will assess the infrastructural and institutional readiness required for seamless ICT integration.

2. To Evaluate the Effectiveness of ICT Interventions in Addressing Inefficiencies, Corruption, and Leakages in the PDS

This objective focuses on critically analysing the extent to which ICT interventions have succeeded in mitigating systemic issues like leakages, diversion of food grains, and corruption within the PDS. Using case studies and empirical data from states and union territories that have adopted ICT-driven solutions, the study will evaluate improvements in transparency, accountability, and accuracy in subsidy transfers. Key performance indicators such as error reduction in beneficiary targeting, cost savings, and timely delivery will be analysed to provide insights into the effectiveness of these technological interventions.

3. To Provide Policy Recommendations for Optimizing ICT Deployment

Building on the findings, the study aims to propose actionable recommendations for policymakers, focusing on enhancing the scalability, accessibility, and sustainability of ICT solutions in NFSA implementation. These recommendations will address challenges like the digital divide, infrastructural inadequacies, and the need for capacity-building initiatives among stakeholders, including beneficiaries and frontline workers. The proposed framework will aim to align technological innovation with governance reforms, ensuring equitable and efficient delivery of food security programs.

Through these objectives, the study seeks to contribute to the broader discourse on leveraging ICT for governance and public welfare, offering insights that can guide the future of food security policy in India and other developing economies.

Methodology

Empirical Insights for ICT-Driven Food Security Governance

The study utilises mixed methods to provide a deep evaluation of how ICT works to improve food security governance. Combining quantitative survey methods and qualitative data collection techniques

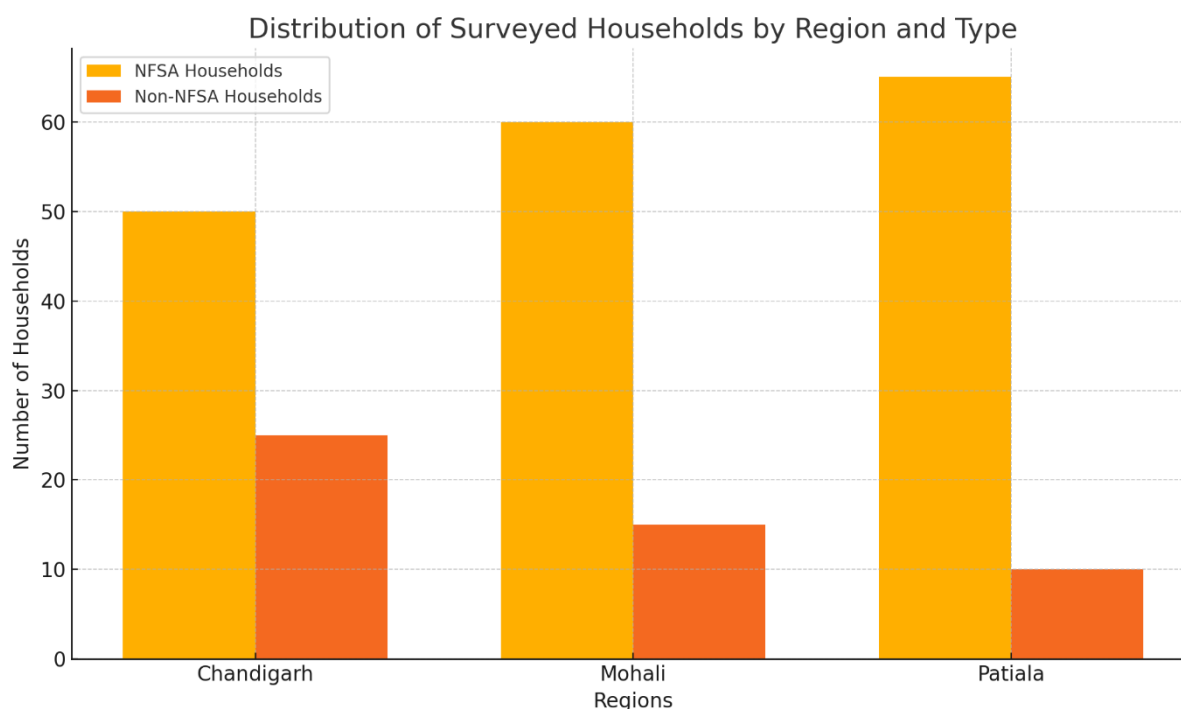
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provides an extensive study of ICT implementation in the Public Distribution System (PDS). Household questionnaires used structured formats alongside detailed stakeholder interviews with FPS owners and government representatives for contextual information evaluation. Our research team performed observational assessments to analyse ICT instruments' practical functioning, including Aadhaar-linked ration cards and e-PoS devices in real-world contexts.

The study focuses on three diverse regions to capture the varied contexts of food security governance. The data collection took place across three different districts of Punjab: Chandigarh, which serves as the research focus for its high technology infrastructure and urban features; Mohali stands as a district linking both rural and urban elements. At the same time, Patiala presents itself as the leading rural part for analysis. The research design includes multiple regions to showcase ICT implementation benefits alongside challenges in urban, semi-urban and rural districts, providing continent insights.

A purposive sampling technique generated results that included key stakeholder representation. A total of 75 households were studied throughout each region among both NFSA-subscribing and non-NFSA-subscribing families. The sample design tested ICT operational impacts by assessing Fair Price Shops (FPS) operations in each district while officials and inspectors received interviews regarding policy execution. Researchers chose this surveillance group through a process that optimised demographic variety by examining homes across various financial, occupational, and residential level differences.

To achieve a thorough analysis, this investigation used primary and secondary database collections. The study utilised field surveys, interviews, and on-site observations to assess targeting efficiency, grievance redressal, and ICT accessibility indicators. The authors analysed secondary data comprised of district policy documents and reports from NFSA portals to support their primary research outcomes. Digital tools support data collection to maintain accuracy and reliability during data acquisition from real-world settings.



A bar chart shows the number of NFSA and non-NFSA households surveyed in Chandigarh, Mohali, and Patiala.

A comprehensive analytical system processed and interpreted all gathered data. Analyses of quantitative data elements through SPSS revealed statistical distributions of inclusion and exclusion errors and

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subsidy delivery trends. Combining thematic analysis and qualitative assessment on transcripts and field notes established the foundation for interpreting quantitative outcomes. The united approach combined objective and subjective data methods to create a detailed and complete comprehension of ICT's role in food security governance.

This methodology established specific performance metrics to achieve key research aims during its implementation. The study evaluated two ICT technologies - Aadhaar-linked systems and e-PoS devices - through measurements of operational reliability, user satisfaction and beneficiary targeting accuracy. The solution centres focused on confronting three main system-level obstacles: digital literacy gaps, connectivity restrictions and rural-urban discrepancies. This structured method gives actionable information about ICT solution success rates and helps identify the roadblocks to their best possible deployment.

ICT Tools in NFSA Governance: Enhancing Efficiency, Transparency, and Accountability

The National Food Security Act (NFSA) governance adopted Information and Communication Technology (ICT) tools to drive a transformation of the Public Distribution System (PDS) in India. These digital tools solve systematic problems and strengthen service delivery capabilities and responsibility systems at all food security governing bodies. Digital ration cards, e-PoS (Electronic Point of Sale) devices, and mobile systems for grievance redressal form the core of ICT interventions.

Digital Ration Cards serve as fundamental tools for advancing both beneficiary detection and eligibility verification processes. Immunising digital cards through Aadhaar segregation eliminates both mistakes during distribution and cuts down ghost beneficiary cases and duplications. The implementation of mobile and banking information on ration cards supports more efficient communication processes and the smooth transfer of subsidies. Real-time databases track beneficiary information properly while providing live functionality for dynamically adding or removing households from the system.

The implementation of **e-PoS Devices** at Fair Price Shops (FPS) through biometric authentication has transformed distribution processes by validating transactions between users. Through e-PoS devices, rightful beneficiaries can obtain their designated food grains while simultaneously maintaining zero incidents of fraud or theft and offering real-time monitoring tools for administrators to use for informed decisions. The automated FPS system now operates at higher levels of operational efficiency while simultaneously shortening transaction times for users.

Mobile-based grievance Redressal Systems create empowerment opportunities for people in beneficiary status through mechanisms to submit complaints coupled with tracking systems managing resolution processes. Through these systems, users gain direct access to authorities to report service delays and raise concerns about discrepancies and quality issues. The systems function as supervisory systems that enable government officials to locate recurrent problems and choose appropriate remedial action.

These ICT tools delivered multiple advantages during their implementation. Operation efficiency improves through minimised human processes while FPS transactions proceed faster and subsidy payments occur on time. Real-time tracking methods installed across the food grain supply chain establish better transparency by detecting leakages during their journey from procurement to distribution points. The tools enhance accountability through their ability to generate verifiable data that serves as an audit foundation for checking compliance throughout the entire supply chain operations.

The potential of these tools exists, but implementation challenges in digital literacy gaps, infrastructural needs, and the unequal level of ICT adoption limit their full realisation. The implementation of ICT tools shows promise for food security governance in Chandigarh combined with Mohali and Patiala because

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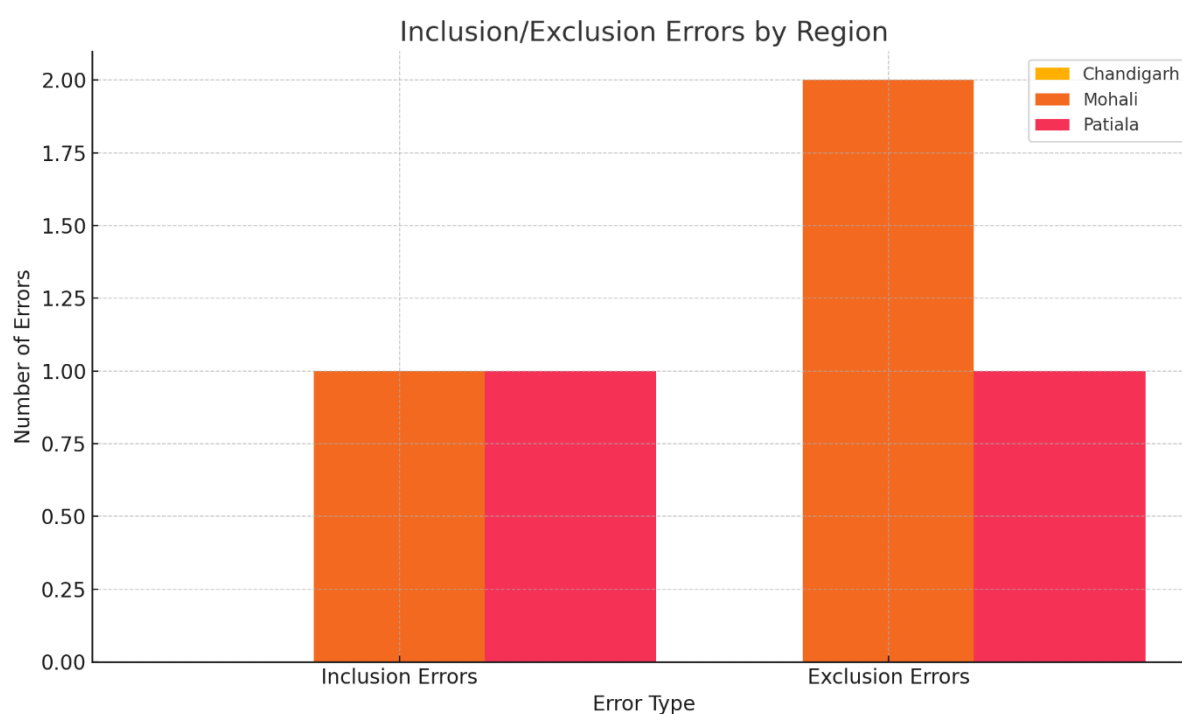
they establish strong equitable distribution networks through the NFSA framework when executed properly. The implemented tools both improve current delivery operations and establish a model for incorporating ICT solutions across wider public welfare programs.

Case Studies and Findings: Regional Insights into ICT Integration in NFSA Governance

Different regions experienced varied outcomes from implementing ICT tools through the National Food Security Act (NFSA) because their specific socio-economic characteristics interact with their infrastructure systems. Three Punjab localities, including Chandigarh and Mohali, along with Patiala, show how these governance technologies performed after their implementation for food security goals.

Chandigarh: Pioneering Direct Benefit Transfers and Aadhaar Integration

The advanced infrastructure of Chandigarh as a Union Territory places it in the leading position to join Direct Benefit Transfers (DBT) with Aadhaar-linked systems throughout its food security management framework. The adoption of direct cash transfers instead of food distribution. DecimalFields the steps of subsidy distribution by eliminating needless procedures while directing program funds directly to rightful recipients. Aadhaar-based verification supports DBT's system by acting as a verification tool that both eliminates ghost beneficiaries and improves target beneficiary precision.



A stacked bar chart shows the number of inclusion and exclusion errors in Chandigarh, Mohali, and Patiala.

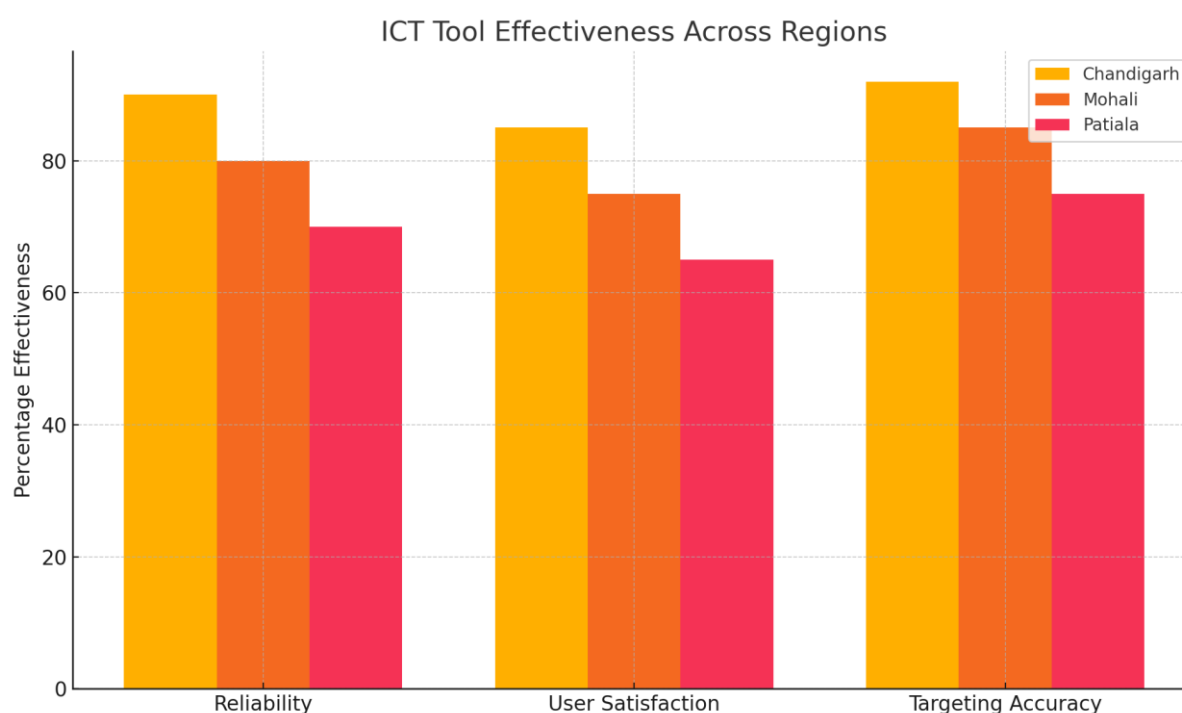
Real-time monitoring tools track all phases of the distribution system, from procurement to cash payments, thus delivering operational advantages and transparency. Digital challenges remain most significant for groups of people who struggle with online literacy programs. Benefits recipients, chief among economically disadvantaged people, find it hard to operate in bank environments and retrieve alerts through mobile devices while distinguishing government subsidy messages from other texting alerts. Ongoing shifts in mobile number ownership combined with outdated beneficiary information records have interrupted subsidy announcement pathways and hindered recipient awareness of financial transactions.

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The majority of Chandigarh beneficiaries report satisfaction with DBT because the system delivers transparency alongside ease of use. The study demonstrates that continued digital literacy drives alongside effective grievance-handling systems serve to maximise the advantages of ICT adoption in urban food security governance systems.

Mohali and Patiala: Transforming Fair Price Shops through e-PoS Systems

Electronic Point of Sale (e-PoS) systems introduced at Fair Price Shops (FPS) in Mohali and Patiala's rural and semi-urban districts have achieved notable operational advancements. The integration of Aadhaar authentication using e-PoS devices succeeded in cutting down fraud by removing multiple or non-qualifying benefit recipients from the system. The system achieves precise measurements of food grain disbursements and reduces cases where beneficiaries transfer free products to other markets. The new system operating in these areas has heightened trust among both participants because of better system visibility and better functionality.



Bar chart comparing ICT tool performance metrics (reliability, user satisfaction, targeting accuracy) in Chandigarh, Mohali, and Patiala.

The ability of e-PoS systems to succeed faces substantial hurdles related to basic infrastructure deficits, which are mostly seen in remote areas. The electricity outages and regional wi-fi outages diminished service integrity since it interferes with e-PoS devices and hampers order processes and stresses. Customer satisfaction Supply chain delays occurring at FPS result from deficient logistical and storage facilities that lead periodically to food grain shortages at distribution points. The gap between those who have access to technological services and those who do not exacerbate the existing problems because rural beneficiaries struggle to use technology appropriately.

The rollout of e-PoS systems in Mohali and Patiala demonstrates that ICT tools can build transparency and decrease food distribution system corruption even when confronting implementation hurdles. A comprehensive action plan that includes infrastructure development alongside digital literacy training needs to be implemented for these areas to achieve both fair and efficient delivery of food security entitlements.

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The Analysis of both Field Studies Demonstrates

The combination of case studies within Chandigarh Mohali and Patiala demonstrates how ICT enables NFSA governance improvements while showing both territory-specific implementation hurdles. Real-time monitoring and direct subsidy transfers deployed through DBT and Aadhaar-linked systems demonstrate their effectiveness in urban welfare delivery according to Chandigarh's successful implementation. The combination of e-PoS systems in Mohali and Patiala proves the importance of these systems because they deliver transparency while decreasing fraud during subsidy distribution in semi-urban and rural regions.

The same technological obstacles, including digital literacy shortfalls, substandard infrastructure and inefficient supply chain operations, continue to exist evenly throughout all regions. The investigation demonstrates that successful implementations require focused improvement strategies that combine investments into connectivity systems with capacity-building programs and improved supply chain logistics. The resolution of current limitations will allow ICT tools to maximise their contribution to both sustainable and equitable food security governance objectives.

Barriers to ICT Implementation in NFSA Governance: Challenges and Insights

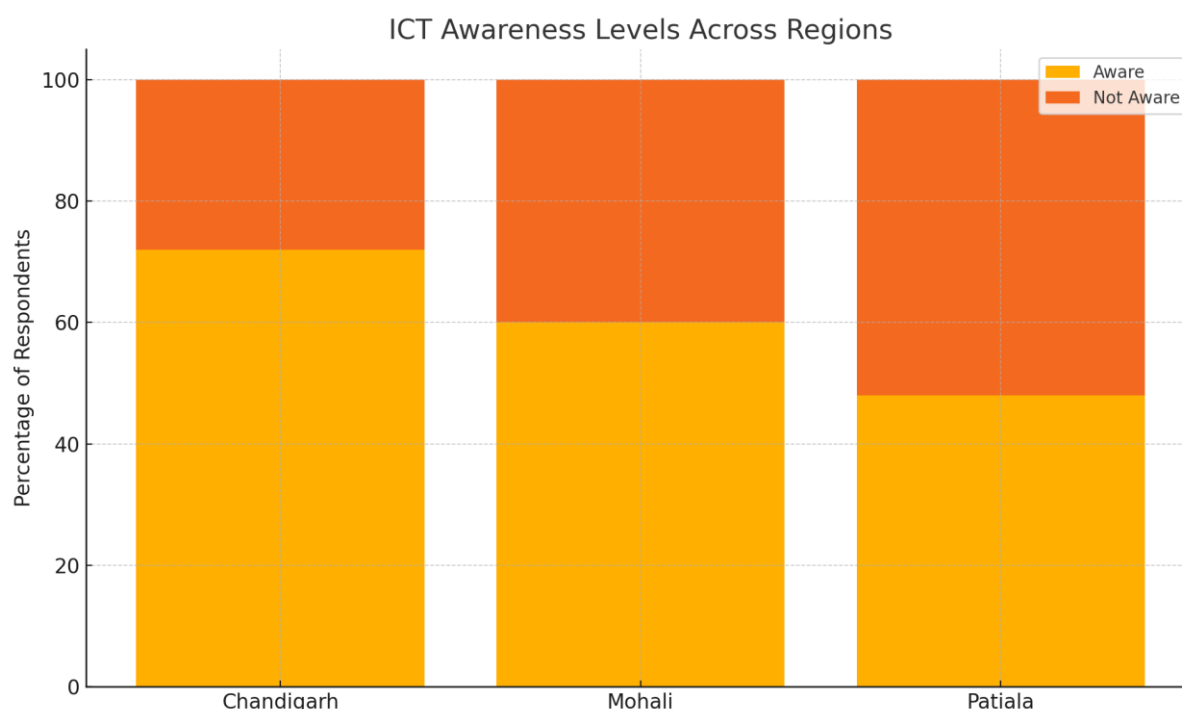
Integration of Information and Communication Technology tools into National Food Security Act governance functions exposes multiple systemic impediments that limit their best usage. These tools demonstrate great potential to make governance more efficient, yet their effectiveness is reduced by socio-economic gaps and infrastructure deficits between regions. Underdeveloped digital infrastructure, together with local socio-economic challenges, create substantial gaps in how ICT promotes food security governance between rural residents and more affluent populations.

1. Digital Literacy Gaps among Rural and Marginalized Populations

ICT tool adoption faces a major obstacle because rural and marginalised people demonstrate widely inadequate digital literacy skills. Beneficiaries from Mohali and Patiala and other semi-urban and rural areas show limited skills to operate ICT-enabled systems like e-PoS devices and mobile-based grievance redressal platforms because of their low understanding of these technologies. People from disadvantaged economic backgrounds, together with older adults and women, face greater disadvantages because they typically have restricted access to digital platforms in addition to limited educational and training opportunities.

The digital literacy gap endures in Chandigarh despite moderate technological fluency because qualified beneficiaries struggle with both Aadhaar-linked verification requirements and subsidy tracking alerts via mobile devices as well as DBT banking transactions. Rural areas experience increased difficulties in digital engagement because officials have not effectively conducted awareness campaigns combined with targeted capacity-building programs to allow beneficiaries to leverage intended ICT empowerment opportunities.

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Bar chart illustrating ICT awareness levels (aware vs. not aware) in Chandigarh, Mohali, and Patiala.

2. Infrastructure Deficiencies: Connectivity and Power Outages

Users face multiple obstacles when trying to execute ICT systems because of inadequate infrastructure. Precarious rural network connections interrupt e-PoS machinery operations, so food distribution through Fair Price Shops (FPS) faces delays. Beneficiaries located in Mohali and Patiala experienced technical problems with their transactions because of network connectivity failures that created both distribution delays and damaged public confidence in the program. The limited stability of electricity supplies in rural areas creates operational challenges for ICT tools because e-PoS devices, together with other systems, need continuous electricity flow to function properly.

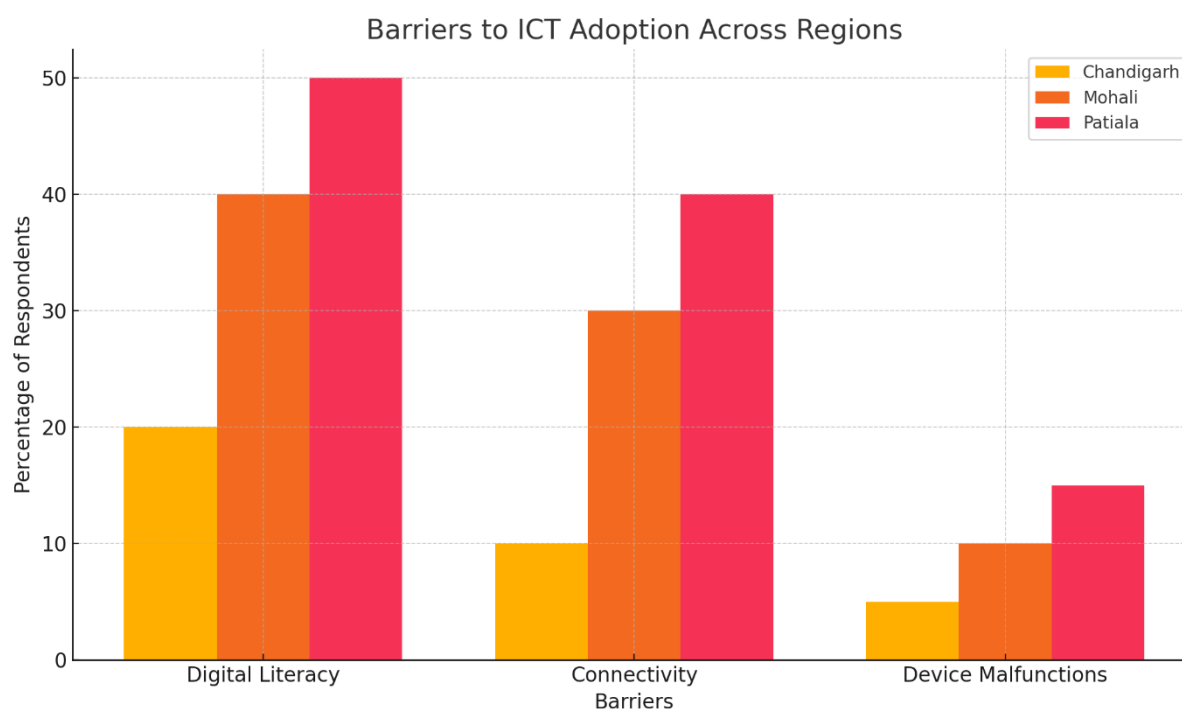
The city of Chandigarh demonstrates superior infrastructure capabilities to sustain uninterrupted ICT performance while revealing sharp differences between its urban setting and rural districts. Case-specific system failures, along with delays, point to the necessity of better maintenance arrangements and redundancy systems to guarantee reliable system performance across every context.

3. Urban-Rural Divide in ICT Adoption and Access

The differences in ICT adoption rates between urban and rural areas create an enduring obstacle that weakens the NFSA's goal of equality for all stakeholders. ICT tool implementations function more smoothly in Chandigarh because urban areas receive advanced infrastructure services and high digital literacy education alongside better access to technology. The Patiala area faces limitations due to a lack of infrastructure, insufficient resources, and lower digital inclusion levels.

Rural populations face additional difficulties when attempting to reach grievance channels and learn about programs such as the One Nation One Ration Card (ONORC). Urban beneficiaries demonstrate better engagement with these systems because they grasp the advantages, while rural beneficiaries struggle because of language barriers, restricted outreach, and technical challenges to service accessibility.

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Bar chart showing the percentages of digital literacy gaps, connectivity issues, and device malfunctions in Chandigarh, Mohali, and Patiala.

Addressing the Barriers

To overcome these barriers, targeted interventions are necessary:

1. **Digital Literacy Campaigns:** Specialized training programs need implementation to provide essential ICT system abilities for rural and disadvantaged community beneficiaries. These initiatives need to focus first on serving women and elderly citizens and economically deprived populations.
2. **Infrastructure Development:** Rural ICT tools operate best when reliable internet connections and uninterrupted power supply are properly funded because these infrastructure investments create continuous tool operation. The resolution of these system shortcomings depends heavily on strategic partnerships between the public and private sectors.
3. **Bridging the Urban-Rural Divide:** Governments must establish policies that both promote inclusive information and communication technologies and specifically address rural area needs. Digital accessibility grows when communities create awareness through localised communications and build multilingual information systems that work to close the digital gap.

Food security governance requires a multidimensional approach that unites technological progress with economic progress to guarantee equal access for all. ICT systems can achieve their full potential to create an inclusive NFSA through dedicated solutions for these issues.

Recommendations for System Improvements: Strengthening ICT Integration in NFSA Governance

The model for implementing Information and Communication Technology (ICT) tools within the National Food Security Act (NFSA) governance framework needs focused development to eliminate gaps while enhancing equal service availability for all users. Building on case study observations and region-specific challenges identified in Chandigarh, Mohali, and Patiala, this paper presents essential recommendations for enhancing system access, stability, and inclusivity improvements.

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1. Awareness Campaigns for Digital Tools and Grievance Mechanisms

Beneficiaries, mainly from rural and marginalised areas, face understanding challenges when it comes to ICT adoption because they have limited digital proficiency. Specific educational campaigns need to be launched to explain and promote the operation and value of advanced digital tools, including e-PoS devices alongside Aadhaar-linked ration cards and mobile grievance redressal solutions.

- **Localized Communication Strategies:** Campaign materials need to present information through local languages while leveraging community radio along with FPS visual displays and public announcement systems. These campaigns yield substantial improvements in ICT system understanding among beneficiaries while simultaneously improving their knowledge of related tools and applications.
- **Digital Literacy Workshops:** Regulatory training sessions provided regularly to FPS owners, local administrators, and beneficiaries will enhance their ability to use digital tools effectively. The government needs to focus special educational efforts on vulnerable groups like women combined with elderly and poor citizens in order to provide access for all.
- **Public Engagement Platforms:** The combination of open forums and feedback events between beneficiaries and administrators builds dual-directional communication channels that build trust while keeping beneficiaries informed regarding their rights and system capabilities.

2. Investment in Infrastructure: Internet Connectivity and Reliable Power

ICT tools function smoothly because infrastructure development remains essential for areas that lack consistent connectivity and grid power. The digital success of e-PoS devices and real-time monitoring platforms requires constant internet connectivity and a stable power supply.

- **Internet Connectivity:** The implementation of infrastructure projects targeting broadband and mobile network extensions should receive high policy investment focus in underserved areas. The implementation of public-private partnerships enables service providers to receive incentives that help them build infrastructure networks throughout rural areas.
- **Power Reliability:** The implementation of solar-powered systems at FPS units combined with e-PoS device battery backups ensures continuous operation during local power disruptions, resulting in meaningful disruption reduction. The continuing power outages that frequently Patiala demand special attention to ensure a reliable power supply.
- **Monitoring and Maintenance:** Preliminary checks on e-PoS devices combined with regular inspection of servers through ICT maintenance protocols protect the system from technical breakdowns, which allows uninterrupted services across the network.

3. Enhanced Grievance Redressal and System Flexibility

The effectiveness of beneficiary satisfaction, along with system trust, depends heavily on well-established grievance redressal frameworks. Main research shows that current procedures receive minimal use because beneficiaries lack appropriate knowledge about their options, and the complaint settlement system works poorly. These systems must undergo improvements, along with the implementation of flexible service delivery methods, to resolve present problems.

- **Strengthening Grievance Mechanisms:** The grievance resolution system requires improvements to free helplines with dedicated mobile applications and specific portals, which must offer quick, transparent resolution for all complaints. System performance is evaluated through periodic beneficiary feedback surveys, which help officials address persistent system issues.
- **System Flexibility for Vulnerable Populations:** Home delivery of food grains to vulnerable beneficiaries, including disabled and older citizens, through options will boost accessibility and make

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them less dependent on FPS visits. This reveals additional value for situations where rural district residents face difficulties accessing transportation.

- **Increased FPS Portability:** Extending the mobile features of the One Nation One Ration Card (ONORC) system will let beneficiaries obtain their benefits from any Fair Price Shop point to suit the needs of mobile workers.

Proposed Framework for ICT Optimization: Transforming Food Security Governance

Information and Communication Technology implementations within the National Food Security Act governance framework demonstrate effective potential to resolve operational problems and provide better services. The strategic development of an ICT optimisation framework is crucial for achieving maximum results from these technological systems. This comprehensive framework integrates modern ICT solutions together with specific implementation strategies focused on promoting sustainability while achieving inclusivity goals for developing a strong and equitable food security system.

1. **Advanced ICT Solutions:** The system implements five advanced technology components that include End-to-End Digitization AI and Blockchain along with IoT.

Food distribution processes must receive critical advanced technologies to build transparency while ensuring completeness and operational excellence.

- **End-to-End Digitization:** A single cloud-based platform that digitises the PDS system from procurement to distribution points enables stakeholders to access continuous data exchange during every cycle.
- **Artificial Intelligence (AI):** Through artificial intelligence, the process benefits from predictive analytics features that forecast consumer demands while optimising supply networks and detecting unusual payment activities. The analysis of beneficiary databases coupled with transaction pattern examination by AI enables both improved fraud detection and reduced error rates.
- **Blockchain Technology:** Through blockchain technology, stakeholders can securely monitor the complete journey of food grains through procurement, storage, and distribution through a tamper-resistant ledger system. The technology provides open visibility into system processes to stop data tampering while establishing confidence between subsidy program participants and program operators.
- **Internet of Things (IoT):** Through IoT-enabled devices, organisations can monitor storage conditions such as temperature and humidity levels in warehouses and track food grain movement in real time. The systems improve operational efficiency and minimise waste through fast responses during issue detection.

The introduction of technological solutions enables policymakers to develop a data-oriented governance system that advances the management of complex food security operations.

2. **Strategies to Address Digital Literacy and Connectivity Challenges**

The transformative power of advanced ICT solutions depends on resolving digital illiteracy together with inadequate infrastructure so they can succeed. Enhancing access to technology requires specific methods that will close the existing gaps between groups.

- **Comprehensive Digital Literacy Campaigns:** Specific training programs should introduce essential knowledge about using ICT tools specifically to beneficiaries alongside FPS owners and local administrators. Special attention must be paid to women and elderly participants as well as people from disadvantaged economic backgrounds to create equal access to technological assistance.
- **Localized and Multilingual ICT Interfaces:** The adoption of easy-to-use digital interfaces alongside native language content allows ICT tools to become more usable by rural disadvantaged populations.

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All mobile applications and grievance platforms should possess intuitive design layouts that adapt to multiple literacy abilities through straightforward navigation structures.

- **Connectivity Infrastructure Development:** Rural ICT operations depend heavily on investments that expand mobile and broadband networks. Telecom provider relationships enable internet service availability for areas without enough coverage. The combination of solar-powered equipment and portable backup batteries helps solve power disruptions experienced by regional e-PoS device systems.
- **Technical Support Centers:** IT support hubs located throughout regions deliver instant assistance to FPS owners and beneficiaries to address hardware failures alongside connectivity and technical difficulties.

3. The integration of information and communication technologies must serve both sustainable and inclusive objectives.

NFSA governance benefits from Information and Communication Technologies when these tools meet three requirements: technological creation, equitable access, and sustainability. ICT solutions require policymakers to establish equity-focused deployment methods with future relevance as paramount factors.

- **Inclusivity:** Attractive information and communication technology tools are needed to fulfil the critical requirements of population segments, including women, migrant workers, elderly individuals, and persons with disabilities. Through ONORC's expansion, migrant workers should be able to access their food card benefits from any state. A home delivery system should be HANDLED) for food grains to provide accessibility to individuals facing mobility limitations.
- **Sustainability:** The environment will benefit from ICT deployment by using solar-powered e-POs and IoT monitoring systems that maintain high energy efficiency. Real-time tracking and monitoring, together with sustainable storage and transportation systems, will help decrease food grain wastage.
- **Policy Integration:** Various ICT projects should support ongoing national platforms, such as Digital India and Smart Cities, so their educational value will increase. Future-proof activities depend on official governmental partnerships along with both business commerce enterprises and community participation groups.

This proposed ICT framework helps existing measures tackle management obstacles that impact NFSA governance alongside infrastructure limitations and equal rights challenges. When policymakers employ innovative advances in AI blockchain and IoT alongside digital inclusion improvements, they can establish a resilient food security platform through coherent strategies. Through this framework, PDS obtains operational and transparency enhancements that distribute ICT benefits to all population segments, thereby establishing a reference model for digital public welfare.

Conclusion and Recommendations: The Transformative Potential of ICT in NFSA Governance

IT in governance serves as the National Food Security Act's (NFSA) pivotal enhancement of India's food security systems through modernisation. Developments in ICT, such as Aadhaar-linked ration cards plus e-PoS devices along with mobile grievance redressal platforms, prove effective in improving transparency while enhancing operational efficiency and ensuring enhanced accountability. Through these technological innovations, the system has removed cheating opportunities while optimising operation flows to reach beneficiaries' subsidies accurately. According to the case studies in Chandigarh, Mohali and Patiala, ICT has proven its capability to solve organisational inefficiencies and create stronger relationships among implementing entities. Critical obstacles continue to block the complete deployment of ICT solutions despite recent technological improvements. Lack of digital competence among population segments who reside mainly in rural areas hinders users from effectively working with digital systems. Advances in ICT are hindered by both infrastructure shortcomings that affect

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network quality and unstable power in regional areas where Patiala is located. A vast difference between urban and rural areas in Information and Communication Technology (ICT) adoption and availability shapes unequal service delivery, which strips away the foundation of equity outlined in the NFSA framework.

Deep-focused strategies need implementation to address existing obstacles. Tools that deliver extensive digital literacy education based on specific beneficiary needs will empower vulnerable citizens to master ICT resources successfully. The effective delivery of services requires investments in expanding broadband networks alongside establishing regional ICT support facilities and enhancing power reliability. The alignment of ICT solutions toward inclusive and sustainable practices by implementing home delivery mechanisms and environmentally friendly systems protects the systems from being inequitable while promoting care for the environment.

The future adoption of ICT governance systems will shape public welfare initiatives across multiple domains, extending past food security. Through data analytics derived from ICT systems, public administrators gain evidence-based policies that support effective governmental responses to developing challenges. The implementation of ICT tools results in transparent processes that enhance governance accountability while building trustworthy public systems. Next-generation success with ICT will require building partnerships that unite government institutions along with private sector actors and civil society groups. The collaborative efforts between organisations can promote innovation combined with successful models' expansion and provide stable sustainability platforms for ICT programs. Policymakers need to combine solutions for current problems together with ICT innovation to advance NFSA governance and create innovative public welfare systems that promote inclusivity, efficiency, and equitable service delivery. ICT stands as a vital foundation of governance transformations because it forms the basis of a digital social structure through which technology connects everyone to opportunities and services.

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EFFECTS OF NUTRITIONAL THERAPY IN POLYCYSTIC OVARY SYNDROME (PCOS) AND INSULIN RESISTANCE

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ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder in women of reproductive age and is closely associated with insulin resistance. The aim of this study was to evaluate the role of nutritional therapy in improving insulin resistance in PCOS. Nutritional therapy plays a critical role in improving weight control, blood glucose balance and hormonal levels. We analyzed the effects of low-glycemic index (GI) diets, the Mediterranean diet, high-protein diets, and low-carbohydrate diets on PCOS by reviewing randomized controlled trials and reviews conducted in the last five years. The study included 10 recent studies from PubMed, Scopus, and Web of Science databases between 2019 and 2024. All of the studies measured the effects of dietary patterns on insulin resistance, hyperandrogenism, menstrual pattern and body composition. Participants were women aged 18-40 years, diagnosed with PCOS and insulin resistance. Dietary interventions were administered for 6-12 weeks and evaluated with before-and-after analyses. In addition to medical approaches in the treatment of PCOS, nutritional therapy can improve quality of life and reduce healthcare costs in both the short and long term. In this context, it is important to implement individualized diet plans to control the metabolic and hormonal effects of PCOS. Studies have shown that low GI diets provide a significant reduction in fasting insulin levels and HOMA-IR scores. The anti-inflammatory effects of the Mediterranean diet have been found to be effective in maintaining hormonal balance. High-protein diets were found to be effective in weight loss and maintenance of lean body mass, while low-carbohydrate diets were found to be effective in reducing hyperandrogenism. Overall, it was concluded that personalized nutrition therapies are an effective tool in the management of PCOS and insulin resistance.

Keywords: Polycystic Ovary Syndrome (PCOS), Insulin Resistance, Individualised Nutrition Therapy

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OBESITY SURGERY AND THIAMINE DEFICIENCY: RISKS AND SYMPTOMS

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ABSTRACT

Obesity surgery, particularly procedures such as sleeve gastrectomy and gastric bypass, is an effective and widely used approach for treating morbid obesity. However, these surgical interventions alter nutrient absorption and intake, leading to significant micronutrient deficiencies. One of the most critical deficiencies is thiamine (vitamin B1) deficiency. Thiamine is a vital vitamin in carbohydrate metabolism. Postoperative thiamine deficiency may result from factors such as vomiting, inadequate dietary intake, low carbohydrate consumption, and impaired absorption in the small intestine. If left untreated, thiamine deficiency can cause severe neurological disorders. The most serious clinical condition associated with thiamine deficiency is *Wernicke's Encephalopathy*. This condition is characterized by symptoms such as ophthalmoplegia, ataxia, and confusion, and it can be life-threatening. Additionally, polyneuropathy, muscle weakness, paresthesia, and cardiac complications are other symptoms linked to thiamine deficiency. Therefore, preventing and managing the risk of thiamine deficiency in individuals undergoing obesity surgery is of paramount importance. Providing nutritional counseling before and after surgery, using multivitamin supplements containing thiamine, and controlling risk factors like persistent vomiting are essential measures. Early diagnosis and treatment play a crucial role in preventing severe complications caused by thiamine deficiency in these patients. In conclusion, thiamine deficiency following obesity surgery is a significant concern for both patients and healthcare professionals. Regular follow-up and proactive measures during this process are key to ensuring long-term success and improving patients' quality of life.

Keywords: Thiamine Deficiency, Obesity Surgery, Wernicke's Encephalopathy

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LONGEVITY AND HEALTHY NUTRITION: AN EVALUATION IN THE LIGHT OF CURRENT RESEARCH

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ABSTRACT

This paper evaluates the relationship between the goal of extending human life span (longevity) and healthy nutrition practices. Our aim is to provide a roadmap in this field by analysing the effects of healthy nutrition models on longevity in the light of recent scientific studies. Studies on the mechanisms of diet, inflammation, metabolic health and cellular ageing, which are among the main determinants of longevity, are the main focus of the report. In this context, the effects of different nutritional strategies such as Mediterranean diet, low-carbohydrate diets, intermittent fasting on quality and duration of life are detailed. In this study, 10 academic studies from indexes such as PubMed, ScienceDirect and Web of Science between 2019-2024 were reviewed. Randomised controlled trials evaluating effects on longevity, cellular ageing, inflammation biomarkers and metabolic health were preferred in the selection of studies. Data were obtained from meta-analyses, prospective cohort studies and laboratory experiments. The studies reviewed revealed that the Mediterranean diet, which is high in fruits and vegetables, whole grains, healthy fats and moderate protein, reduces cellular inflammation and slows aging. For example, in a study conducted by Harvard University in 2021, it was reported that telomere length was preserved and signs of aging were reduced in individuals following the Mediterranean diet. Similarly, a study conducted in 2020 found that intermittent fasting contributes to cellular renewal by activating autophagy mechanisms. Low-carbohydrate diets have been found to prolong life by reducing the risk of metabolic syndrome. This paper aims to provide a comprehensive framework on the relationship between longevity and healthy eating, and to help individuals base their dietary choices on a scientific basis. The findings will serve as a guide for health professionals in dietary planning.

Keywords: Longevity, healthy eating, metabolic health.

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POLİKİSTİK OVER SENDROMUNDA KURKUMİNİN POTANSİYEL ROLÜ POTENTIAL ROLE OF CURCUMIN IN POLYCYSTIC OVARY SYNDROME

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ÖZET

Polikistik over sendromu (PKOS), üreme çağındaki kadınları etkileyen, insülin direnci, hiperandrojenizm, adet düzensizlikleri ve kronik iltihaplanma ile karakterize karmaşık bir endokrin ve metabolik bozukluktur. Bu çok yönlü patofizyolojisi nedeniyle, Curcuma longa bitkisinden elde edilen ve anti-enflamatuar ve antioksidan özelliklere sahip bioaktif bir bileşen olan kurkumin gibi doğal bileşiklere dayalı tamamlayıcı tedavilere olan ilgi giderek artmaktadır.

Bu derleme, PKOS'un yönetiminde kurkuminin potansiyel rolünü incelemektedir. Preklinik çalışmalar, klinik denemeler ve meta-analizlerden elde edilen bulguları sentezleyerek kurkuminin metabolik parametreler, hormonal dengesizlikler ve üreme sağlığı üzerindeki etkilerini vurgular. Kanıtlar, kurkuminin insülin duyarlılığını iyileştirebileceğini, sistemik iltihabı azaltabileceğini ve adet düzenliğini artırabileceğini öne sürmektedir. Bununla birlikte, androjen düzeyleri, lipid profilleri ve hirsutizm üzerindeki etkileri belirsizliğini korumaktadır.

Kurkuminin anti-enflamatuar ve insülin duyarlılığını artırıcı mekanizmaları, kronik iltihaplanma ve metabolik bozuklukları önlemeye yönelik etkileriyle ilgi çekmektedir. Yapılan çalışmalar, kurkuminin adenozin monofosfatla aktive olan protein kinaz (AMPK) ve glikoz metabolizmasına etkileri üzerine odaklanmaktadır. Bu mekanizmalar, insülin direncini azaltma ve şeker metabolizmasını iyileştirme potansiyeline sahiptir.

Bununla birlikte, mevcut çalışmaların sınırlılıkları, küçük örneklem büyüklükleri, değişken dozajlar ve kısa takip süreleri gibi faktörleri kapsamaktadır. Gelecekteki araştırmalar, daha büyük örneklem grupları ve standardize edilmiş protokollerle kurkuminin etkinliğini ve güvenilirliğini değerlendirmelidir. PKOS tedavisinde kurkuminin tamamlayıcı bir tedavi olarak kullanılma potansiyeli umut vadetmektedir. Ancak bu potansiyelin gerçekten hayata geçirilebilmesi için uzun vadeli araştırmalara gereksinim duyulmaktadır.

Anahtar Kelimeler: Polikistik over sendromu, Kurkumin, Tamamlayıcı tedavi, İnsülin direnci, Enflamasyon, Üreme sağlığı.

ABSTRACT

Polycystic ovary syndrome (PCOS) is a complex endocrine and metabolic disorder affecting women of reproductive age, characterized by insulin resistance, hyperandrogenism, menstrual irregularities, and chronic inflammation. Due to its multifaceted pathophysiology, there is a growing interest in complementary therapies based on natural compounds such as curcumin, a bioactive component derived from Curcuma longa with anti-inflammatory and antioxidant properties.

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This review examines the potential role of curcumin in the management of PCOS. It synthesizes findings from preclinical studies, clinical trials, and meta-analyses to highlight curcumin's effects on metabolic parameters, hormonal imbalances, and reproductive health. Evidence suggests that curcumin may improve insulin sensitivity, reduce systemic inflammation, and enhance menstrual regularity. However, its effects on androgen levels, lipid profiles, and hirsutism remain inconclusive.

Curcumin's anti-inflammatory and insulin-sensitizing mechanisms have drawn attention for their potential to mitigate chronic inflammation and metabolic disorders. Research has focused on curcumin's impact on adenosine monophosphate-activated protein kinase (AMPK) and glucose metabolism. These mechanisms hold promise for reducing insulin resistance and improving glucose regulation.

Nevertheless, existing studies have limitations, including small sample sizes, variable dosages, and short follow-up periods. Future research should involve larger sample groups and standardized protocols to evaluate curcumin's efficacy and safety comprehensively.

Curcumin shows promising potential as an adjunctive therapy in the treatment of PCOS. However, long-term studies are essential to translate this potential into practical applications.

Keywords: Polycystic ovary syndrome, Curcumin, Complementary therapy, Insulin resistance, Inflammation, Reproductive health.

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ƏRƏB VƏ İBRI DİLLƏRİNDƏ İSİMLƏRİN TƏRKİBDƏ İŞLƏNMƏSİ USAGE OF NOUNS IN CONSTRUCTIONS IN ARABIC AND HEBREW

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Bunyadov

XÜLASƏ

Bir çox başqa dillərdə olduğu kimi ərəb və ibri dillərində də iki və daha artıq ismin eyni tərkibdə bir-biri ilə uzlaşmadan işlənməsi geniş yayılmış qrammatik hadisələrdəndir. Dilimizdə uzlaşmayan təyini söz birləşməsi kimi adlandırılan həmin birləşmə ərəb dilində izafət - إضافة , ibri dilində isə yaxınlıq, qarışıqlıq mənasında işlənən - סמיכות adlanır. Bu cür birləşmələrdə təyin yiyəlik hal vasitəsilə tərəflər arasında müxtəlif mənə əlaqələri yaradır ki, bunların arasında daha çox işlənən cəhət birləşmənin sahibiyat və mənsubiyyət bildirməsidir.

Bu birləşmələrdə diqqəti cəlb edən cəhətlərdən biri də tərəflər arasındakı möhkəm əlaqəni bildirməkdən ötrü birləşmənin birgə vurğu ilə tələffüz edilməsidir. Bu kimi birləşmələr dilçilikdə “status constructus” – (tərkibi vəziyyət) adlanır. Özümdən sonra yiyəlik tələb etməyən birləşmələr isə dilçilikdə “status absolutus” adlanır.

Ərəb dilinə gəldikdə isə, bu dil üçün tərkibi vəziyyət birinci konstruksiya ilə səciyyəvi hesab olunur.

İbri dilində vurğu vurğusuz və vurğulu hecada saitlərin xarakterinə təsir göstərir. Amma tərkibi vəziyyətdə əsas vurğu idarə olunan sözə düşür və idarə edən söz vurğusunu itirdiyi üçün saitlərin tərkibində məlum dəyişikliyə məruz qalır: uzun saitlər qısa saitlərə çevrilə bilər, tam saitlər həddən artıq qısa saitlərə əvəz oluna bilər - סָפָה (ibri dilində), hətta bu ya digər sait düşə bilər. Bunları nəzərə alaraq demək olar ki, isimlər “status constructus”da “status absolutus”dan daha fərqli xüsusi forma ala bilər. Burada hal bildirmək üçün fleksiya əlamətləri olmadığından ikinci sözün məhz yiyəlikdə olduğunu qəbul etmək üçün izafətdəki idarə edən ismin forması əsas götürülür.

Sadə uzlaşmayan söz birləşmələrində iki üzv iştirak edir: təyin edən isim və təyin olunan isim. Bu cür söz birləşmələrində ikidən artıq isim iştirak edərək bir-birini təyin edirsə, onda həmin konstruksiya “mürəkkəb izafət” və ya “izafət zənciri” adlanır.

Acar sözlər: ərəb dili, ibri dili, izafət, isim

ABSTRACT

As in many other languages, it is a common grammatical phenomenon in Arabic and Hebrew to use two or more nouns within the same construction without agreement. This structure, known in our language as a "non-agreeing attributive phrase," is referred to as *idāfa* (إضافة) in Arabic and *səmixut* (סמיכות), meaning proximity or connection, in Hebrew. In such constructions, the genitive case creates various semantic relationships between the components. Among these, the most frequent is the expression of ownership or belonging.

One notable characteristic of these constructions is their pronunciation with a combined stress, reflecting the strong relationship between the elements. In linguistics, these structures are called "status constructus" (construct state). In contrast, constructions that do not require a genitive complement are referred to as "status absolutus" (absolute state).

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Regarding Arabic, the construct state is considered characteristic of the first type of construction.

In Hebrew, stress affects the nature of vowels in both stressed and unstressed syllables. However, in the construct state (**status constructus**), the primary stress falls on the governed word, causing the governing word to lose its stress. This loss of stress leads to specific changes in vowel quality: long vowels may shorten, full vowels may be replaced with very short vowels such as **shva** (אָ) in Hebrew, and in some cases, certain vowels may even disappear. Considering these factors, it can be concluded that nouns in the **status constructus** take on a distinct form compared to the **status absolutus**. Since there are no inflectional markers to indicate case in this structure, the form of the governing noun in the construct is used to confirm that the second noun is indeed in the genitive case.

In simple non-agreeing phrases, there are two components: the governing noun (specifier) and the governed noun (specified). When more than two nouns participate in such a construction, modifying one another sequentially, the structure is called a "complex construct" or a "construct chain."

Key words: arabic, hebrew, postpositional attributive group

Bir çox başqa dillərdə olduğu kimi ərəb və ibri dillərində də iki və daha artıq ismin eyni tərkibdə bir-biri ilə uzlaşmadan işlənməsi geniş yayılmış qrammatik hadisələrdəndir. Dilimizdə uzlaşmayan təyini söz birləşməsi kimi adlandırılan həmin birləşmə ərəb dilində izafət - إضافة , ibri dilində isə yaxınlıq, qarışıqlıq mənasında işlənən - מִיְּכֻלָּ adlanır. Bu cür birləşmələrdə təyin yiyəlik hal vasitəsilə tərəflər arasında müxtəlif mənə əlaqələri yaradır ki, bunların arasında daha çox işlənən cəhət birləşmənin sahibbiyyət və mənsubiyyət bildirməsidir.

Bu birləşmələrdə diqqəti cəlb edən cəhətlərdən biri də tərəflər arasındakı möhkəm əlaqəni bildirməkdən ötrü birləşmənin birgə vurğu ilə tələffüz edilməsidir. Bu kimi birləşmələr dilçilikdə "status constructus" – (tərkibi vəziyyət) adlanır. Özündən sonra yiyəlik tələb etməyən birləşmələr isə dilçilikdə "status absolutus" adlanır.

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Sadə uzlaşmayan söz birləşmələrində iki üzv iştirak edir: təyin edən isim və təyin olunan isim. Bu cür söz birləşmələrində ikidən artıq isim iştirak edərək bir-birini təyin edirsə, onda həmin konstruksiya "mürəkkəb izafət" və ya "izafət zənciri" adlanır. Bu tip birləşmələrdə birinci söz adlıqda və ya cümlədəki, vəzifəsinə uyğun halda, sonra gələn digər sözlər isə yiyəlik halda olur. İzafətdəki təyin olunan isim təyin və artikl qəbul edə bilmir. Ondən sonrakı söz artiklli vəziyyətdə və ya xüsusi isim olduqda birinci tərəfi də müəyyənləşdirir və buna görə də təyin olunan isim tam müəyyən hesab olunur, ondan sonra gələn söz qeyri-müəyyənləşdirmə olduğu halda birinci tərəf də qeyri-müəyyən və ya tam müəyyən olmayan xüsusiyyəti daşıyır. Məsələn:

(naməlum) şagirdin (naməlum) kitabı – כְּתָב תִּלְמִיד

(naməlum) şagird (naməlum) kitabı – סֵפֶר תִּלְמִיד

(məlum) şagirdin (məlum) kitabı – כְּתָב הַתִּלְמִיד

(məlum) şagirdin (məlum) kitabı – סֵפֶר הַתִּלְמִיד

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Yuxarıda qeyd olunduğu kimi, tərkibdəki sözlərin kəmiyyətindən asılı olaraq izafət və ya smixut sadə və ya mürəkkəb ola bilər. Tərkibində üç və daha artıq ismi birləşdirən bu tip söz birləşmələri izafət zənciri və ya smixut zənciri adlanır. Müəyyən edən söz haqqında əvvəlcədən söhbətin getdiyindən və ya getmədiyindən asılı olaraq o, müəyyən və ya qeyri-müəyyənlikdə olur, məsələn:

(naməlum) şagirdin kitabının adı – **إِسْمُ كِتَابِ تَلْمِيزٍ**

(naməlum) şagird kitabının adı – **שֵׁם סֵפֶר תִּלְמִיד**

(məlum) şagirdin kitabının adı – **إِسْمُ كِتَابِ التَّلْمِيزِ**

(məlum) şagirdin kitabının adı – **שֵׁם סֵפֶר הַתִּלְמִיד**

Bundan əlavə ibri dilində nismaxim zənciri - **נִסְמָכִים** vasitəsi ilə də birləşdirmə mümkündür. Məsələn:

dövlət başçısının ölümü - **מָוֶת רֹאשׁ הַמְּמִשְׁלָה**

Lakin bu tip zəncirlərin “ **שָׁל** ” ön qoşması vasitəsi ilə bölünməsi daha məqsədə uyğun hesab olunur [86; səh.31].

מָוֶת שָׁל רֹאשׁ הַמְּמִשְׁלָה

Qeyd etmək lazımdır ki, izafət tərkibi ilə müxtəlif mənalar əldə etmək olur.

Məsələn:

a) mənsubiyyət:

bu oğlanın kitabları – **كُتُبُ هَذَا الْوَلَدِ**

bu oğlanın kitabları – **סֵפֶרֵי הַיָּלֵד הַזֶּה**

b) əşyanın təyinatı:

dərs vəsaiti – **مُعَدَّاتُ التَّعْلِيمِ**

dərs kitabı – **סֵפֶר הַלְמוּד**

c) sahiblik:

evin sahibi – **صَاحِبُ الْبَيْتِ**

evin sahibi – **בֶּעַל הַבַּיִת**

a) rəhbərlik edənin rəhbərlik edilənə münasibəti:

ordu komandiri – **قَائِدُ الْحَيْشِ**

qoşun komandiri – **שָׂר הַצֶּבֶא**

b) hadisənin onu törədənə münasibəti:

günəş enerjisi – **طَاقَةُ الشَّمْسِ**

günəş istiliyi – **חֶם הַשֶּׁמֶשׁ**

ə) əşyanın nədən düzəldiyinə münasibəti:

qızıl üzük – **خَاتَمٌ ذَهَبٍ**

dəmir qələmucu – **עֵט בְּרָזֶל**

c) əşyanın nə ilə dolduğuna münasibəti:

bir stəkan su – **كُوبُ الْمَاءِ**

bir stəkan su – **כּוּס מַיִם** [98; səh.736-373]

d) tamdan bir hissə:

otağın küncündə – **فِي رُكْنِ الْعُرْفَةِ** [97; səh.162-164]

evin küncləri – **זוּיּוֹת הַבַּיִת**

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Tərkibi vəziyyəti düzgün müəyyənləşdirmək üçün bu aspektləri nəzərə almaq lazımdır.

I. Söz sonluqlarının dəyişilməsi bu hallarda baş verir:

1. İbri dilində kişi cinsi cəmdə יX [īm] və təsniyədə יX, [ayim] sonluğu יX [ēy] – formasına çevrilir ki, bu zaman sondakı ם hərfi düşür. Ərəb dilində isə اُنْ (yiyəlik və təsirlikdə یِنَّ) və اِنْ (yiyəlik və təsirlikdə یِنَّ) sonluqlarındakı ن öz qısa saiti ilə birlikdə düşür. Məsələn:

התלמידים של הכיתה = תלמידי הכיתה – sinfin şagirdi
المعلمون للمدرسة = معلمو المدرسة – məktəbin müəllimləri
المعلمان للمدرسة = معلمَا المدرسة – məktəbin iki müəllimi
من المعلمين للمدرسة = من مُعَلِّمي المدرسة – məktəbin müəllimlərindən
הרגלים של הבחור = רגלי הבחור – oğlanın iki ayağı
من المُعَلِّمِينَ للمدرسة = من مُعَلِّمي المدرسة – məktəbin iki müəllimlərindən

Ərəb dilində sonrakı “nun” un düşməsi ilə açıq qalan uzun sait sonrakı birləşdirici həmzəli sözə qısa şəkildə heca yaratsa da, bu sözün tək deyil məhz cəm və ya təsniyədə işlənməsini bildirməkdən ötrü vurğunu qoruyur. Məsələn:

مُعَلِّمُو الْأَجَامِعَةِ – [mu‘allimu-l-cəmi‘ati]

Əks təqdirdə birləşmənin mənasında dəyişiklik baş verə bilər [3; s.105].

2. a) İbri dilində təkdə qadın cinsi əlaməti olan Xה “status constructus” da əvvəlki vəziyyətini saxlayaraq Xה olur, ərəb dilində isə təkdə qadın cinsin əlaməti olan ة (تاء المربوطة) sonluğu dəyişmədən qalır [11; s.39]. Məsələn:

דודת הילד – uşağın xalası
خالَةُ الولد – uşağın xalası
הצעירה שמלת – gənc qızın paltarı
ثوب الفتاة – gənc qızın paltarı

b) İbri dilində təkdə qadın cinsində isimlərdə Xה [eth] sonluğu dəyişmədən qalır. Məsələn:

דלת הבית – evin qapısı

3. Ərəb dilində olduğu kimi (ات) ibri dilində də Xה [ōth] cəm sonluğu dəyişmədən qalır.

קירות הקדר – otağın divarları
مكتبات الجامعة – universitetin kitabxanaları
בחורות האוניברסיטה – universitetin qızları
بنات الجامعة – universitetin qızları

II. Tərkibin tərəfləri (təyinlənən və təyin edən مُضَافٌ إِلَى və מְבֻטָּח מִ) təkcə ayrı-ayrı isimlər və substantivləşmiş sözlərlə deyil, həm də söz qrupları ilə ifadə oluna bilər. Belə birləşmələrin tərəfləri sifət və ya işarə əvəzlilikləri ilə işlənən uzlaşan təyini söz birləşmələri ola bilər. Bu cür təyinlərin sadə tərkibdə işlənməsi bu qaydalara tabe olur:

1) a) Tərkibin ikinci tərəfinə aid olan təyini söz birləşməsi artıq məlum olan qaydalara uyğun olaraq işlənir (sifətdən ibarət olan təyin özündən əvvəl gələn isimlə tam şəkildə uzlaşır):

أهمية قاموس كبير – böyük lüğətin əhəmiyyəti
ספר חקים חדשים – yeni qanunların kitabı

b) İzafətin birinci tərəfinə aid olan sifətdən ibarət təyin tərkibin ikinci tərəfindən və ya ikinci tərəfə aid sözlərdən sonra gəlir.

أهمية القاموس الكبيرة – lüğətin böyük əhəmiyyəti

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qanunların yeni kitabı – סֵפֶר הַחֻקִּים הַחֲדָשִׁים

c) Qeyd etmək lazımdır ki, tərkibin tərəfləri bir-biri ilə sıx bağlı olur. Bu bağlılıq ondan irəli gəlir ki, tərəflər bir-biri ilə qırılmaz sintaktik vahid yaradır. Buna görə də bunların arasına hər hansı bir sözün daxil olması qadağandır (ərəb dilində müstəsna hal kimi onların arasında işarə əvəzliyi işlənə bilər). Bütün bunları nəzərə alaraq tərkibin üzvləri ilə uzlaşan sifətdən ibarət olan təyinlər bütünlükdə qrupdan sonra gəlir. Bu halda sonuncu üzvə aid olan təyin bilavasitə ondan sonra gəlir, məsələn:

בְּיָמֵי הַמֶּלֶךְ הַחֲדָשִׁים – אֲמִינֵהוּ הַמֶּלֶךְ הַחֲדָשִׁים

yeni qanunların yeni kitabı – סֵפֶר הַחֻקִּים הַחֲדָשִׁים

d) Tərkibində hər iki tərəfin eyni cinsə mənsub olması ilə onlardan birinə aid olan təyin qrammatik cəhətdən hər iki tərəfə aid ola bilər:

“böyük lüğətin qiyməti” – תִּמְנָן הַמֶּלֶךְ הַחֲדָשִׁים

və ya “lüğətin böyük qiyməti”

“böyük şagirdin kitabı” – סֵפֶר הַתְּלָמִיד הַחֲדָשִׁים

və ya “şagirdin böyük kitabı”

Belə hallarda tərkibin və kontekstin mənasından çıxış etmək lazımdır.

1. Artıq qeyd edildiyi kimi tərkibin hər bir tərəfi təyin qəbul edə bilər. Məlum olduğu kimi işarə əvəzliyi ilə ifadə olunan təyin bilavasitə artikillə ifadə olunmuş təyin etdiyi isimdən əvvəl gəlir.

Ərəb dilindən fərqli olaraq ibri dilindəki, qaydalara uyğun olaraq bu dildə işarə əvəzliyi təyin etdiyi sözədən sonra gəlir:

כִּתָּב הַזֶּה הַתְּלָמִיד – bu şagirdin kitabı

סֵפֶר הַתְּלָמִיד הַזֶּה – bu şagirdin kitabı

Tərkibin birinci tərəfinə aid olan işarə əvəzliyindən ibarət təyin izafət birləşməsinin sonunda gəlir. Məsələn:

כִּתָּב הַזֶּה הַתְּלָמִיד הַחֲדָשִׁים – bu fəal tələbənin bu maraqlı kitabı

סֵפֶר הַתְּלָמִיד הַחֲדָשִׁים – bu fəal şagirdin bu maraqlı kitabı

III. İzafət birləşməsi tərəflərə həmcins üzvlərin artırılması ilə də genişləndirilə bilər. Təbii ki, belə hallarda həmin həmcins üzvlər aid olduqları tərəfin tabe olduğu qrammatik qaydalara uyğun işlənilir.

Bəzən iki təyin olunan ard-arda gəldiyindən onlardan biri ilə təyin edən arasında başqa bir söz olduqda sanki birbaşa əlaqə itir. Bunu nəzərə alaraq həmcins üzvlərdən biri təyin edəndən sonraya keçir və bitişən əvəzlik vasitəsilə tərkibə birləşir. Məsələn:

אֲבְנֵי הָרֶגֶל וְיִצְחָק – kişinin oğlanları və onun qızları

בְּנֵי הָאֵשׁ וְיִצְחָק – kişinin oğlanları və onun qızları

Lakin həmcins üzvlərlə bağlı bu qaydaya müasir ərəb və ibri dillərində çox da riayət olunmur. Məsələn:

1) Birinci tərəfə aid olan həmcins üzvləri:

כִּתָּב וְדִפְתָר וְקַלָּם הַתְּלָמִיד – tələbənin kitabı, dəftəri və qələmi

סֵפֶר וּמִחְבֵּרֶת וְעֵט הַתְּלָמִיד – şagirdin kitabı, dəftəri və qələmi

2) İkinci tərəfə aid olan həmcins üzvlər:

מִלּוֹן הַמֶּלֶךְ הַחֲדָשִׁים – müəllimin, tələbənin və şagirdin lüğəti

מִלּוֹן הַמֶּלֶךְ הַחֲדָשִׁים – müəllimin, şagirdin (oğlanın) və şagirdin (qızın) lüğəti

müəllimənin, şagirdin (oğlanın) və şagirdin (qızın) lüğəti –

IV. İzafət tərkibi yaradan üsullardan biri də אֲفֵל formasında olan müqayisə və ya üstünlük

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bildirən sifətin sonrakı isimlə eyni birləşmədə işlənməsidir.

1) أَفْعَل formasında olan sifətin özündən sonra gələn tək, təsniyə və ya cəmdə olan qeyri-müəyyənlikdəki isimlə izafət yaratması:

ən məşhur yazıçı – أَشْهُرُ كَاتِبٍ

iki yazıçıdan ən məşhur – أَشْهُرُ كَاتِبَيْنِ

2) أَفْعَل formasında olan sifətin özündən sonra gələn cəmdə, müəyyənlikdə olan isimlə izafət yaratması:

ən məşhur yazıçı – أَشْهُرُ الْكَاتِبِ

ən məşhur yazıçı qadın – أَشْهُرُ الْكَاتِبَاتِ

3) فَعْلَى formasında olan sifətin özündən sonrakı cəmdə, qadın cinsində, müəyyənlikdə olan isimlə izafəti:

ən yaxşı (gözəl) qadın – حُسْنَى النِّسَاءِ

4) أَفَاعِلُ və ya فُعْلِيَّاتُ formasındakı sifətin özündən sonrakı cəmdə və müəyyənlikdə olan isimlə izafəti:

kişilərin ən böyükləri – أَكْبَرُ الرِّجَالِ

qadınların ən böyükləri – كُبْرَى النِّسَاءِ

İbri dilində də üstünlük dərəcəsi “smixut” vasitəsilə, yeni hər hansı bir məfhumun təkisi ilə onun cəminin müəyyənlikdə olan variantının bir birləşmədə verilməsi ilə ifadə oluna bilər [8; səh.47]. Məsələn:

מְשִׁיר הַיְרִים – mahnıların ən yaxşısı

V. Miqdar sayları özünün qrammatik xüsusiyyətinə görə dörd qrupa bölünür:

1. a) 3-10 saylarını əhatə edən ikinci qrup sayları da digər miqdar sayları kimi isimdən əvvəl gəlir. Bu halda isim xüsusiyyəti daşıyan say sayılan isimdən əvvəl gəlməklə həmin isimdə izafət tərkibi yaradır və tərkibdəki isim cəmdə, qeyri-müəyyənlikdə olduğu halda say həmin ismin təkisi ilə əks cinsdə olur. Məsələn:

altı gün – שֵׁשֶׁת יָמִים

on saat – עֲשָׂרָה سَاعَاتٍ

b) Dördüncü qrupa aid olan 100 və 100-dən artıq miqdar sayları da sayılan isimlə izafət təşkil edir. Bu halda isə isim təkə, qeyri-müəyyənlikdə olur. Məsələn:

yüz kitabxana – מֵئֶה מִכְתָּבָה

min söz – אֶלֶף כְּלִימָה

300-dən 900-ə dək olan miqdar sayları həm bitişik, həm də ayrı yazıla bilər:

Məsələn:

ثَلَاثُمِئَةٍ او ثَلَاث مِئَةٍ – 300(300)

أَرْبَعُمِئَةٍ او أَرْبَع مِئَةٍ – 400(400)

خَمْسُمِئَةٍ او خَمْس مِئَةٍ – 500(500)

Özlüyündə izafətdən ibarət olan bu saylar digər bir isimlə izafət yaradanda, təbii olaraq buradakı tənvin açılır.

2) Mürrəkkəb saylar bilavəsitə özündən əvvəl gələn isimlə izafət yarada bilər.

Məsələn:

أَنَا أَبْنُ وَاحِدٍ وَعِشْرِينَ عَامًا – mənim iyirmi bir yaşı var

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(hærfæn: mæn iyirmi bir ilin oğluyam).

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kitab şkafı (hərfən: kitabların şkafı) – خزانة كتب

fəhlə evi (hərfən: fəhlənin evi) – بيت فلاح

uşaq bağçası (hərfən: uşaqların bağçası) – ילדים

xalq evi (hərfən: xalqın evi) – בית-עם

Bir çox hallarda da iki ismin birləşməsi olan **إضافة** və **توصيف** Azərbaycan dilinə bir söz vasitəsi ilə tərcümə olunur:

məktəb (hərfən: kitab evi) – בית ספר

heyvanxana, zoopark (hərfən: heyvanların bağı) – حديقة الحيوانات

təqvim (hərfən: illərin cədvəli) – לוח השנה

VIII. Xüsusi isimlər də izafət birləşməsinin tərəfləri ola bilər

1. a) Allah sözünü bildirən **الله** və ya Onun epitetləri olan **الرَّحْمَنُ** -ər-Rəhman, **الْقَادِرُ** əl-Qadir, **الَّذِينَ** və s. bu kimi sözlər. Məsələn:

Abdullah (hərfən: Allahın qulu) – عَبْدُ اللَّهِ

Əbdülrəhman (hərfən: Rəhmanın qulu) – عَبْدُ الرَّحْمَانِ

Seyfəddin (hərfən: Dinin qılıncı) – سَيْفُ الدِّينِ

Şəmsəddin (hərfən: Dinin günəşi) – شَمْسُ الدِّينِ

b) Bəzi mürəkkəb adlar da izafət formasında olur. Məsələn:

Məhəmməd Əli (hərfən: Əlinin Məhəmməd) – مُحَمَّدٌ عَلِيٌّ

2. **ابْنُ** oğul sözü həm əslə mənada, həm də əlavə mənada işlənərək sonrakı isimlə izafət yaradır.

a) Cümlənin və sətirin əvvəlində, həmçinin xəbər rolunda olduqda bu söz hər hansı bir fonetik dəyişikliyə uğramır. Məsələn:

İbn Cərir (hərfən: Cəririn oğlu) – ابْنُ جَرِيرٍ

b) Əlavə kimi işlənən **ابْنُ** sözü isə öz birləşdirici həmzəsini itirərək sonrakı sözlə izafət təşkil edir, məsələn:

Əl-Haris ibn Hüseyin – الْحَارِثُ بْنُ حُسَيْنٍ

İshaq ibn Yaqub – إِسْحَاقُ بْنُ يَعْقُوبَ

3. a) Xüsusi isimlər izafətin ikinci tərəfi (təyin edən) rolunda da çıxış edə bilər:

Bakı sərgisi – مَعْرَاضُ بَاكُو

Bakı sərgisi – مَعْرَاضُ بَاكُو

Zeynəbin mahnısı – أُغْنِيَةُ زَيْنَبَ

Xananın mahnısı – نَشِيدُ خَنَانٍ

b) Xüsusi isimlər izafətin birinci tərəf (təyin olunan) rolunda da çıxış edə bilər:

ingilabi Bağdad – بَغْدَادُ الثَّوْرَةِ

zamanənin Bəkri – بَكْرُ الزَّمَنِ

IX. Ərəb dilində çox işlənən formalardan biri də sifətin isimlə izafəti nəticəsində əmələ gələn mürəkkəb sifətlərdir. Məsələn:

gözlə (xoşsifət) – حَسَنُ الْوَجْهِ

çoxmillətli – عَدِيدُ الْقَوْمِيَّاتِ

Maraqlı cəhət ondadır ki, bu cür sifətlər özündən əvvəlki digər bir ismə də təyin rolunda çıxış edə bilər.

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Belə halda mürəkkəb təyinin sifəti özündən əvvəlki isimlə tam şəkildə uzlaşır. Məsələn:

رَجُلٌ حَسَنُ الْوَجْهِ – xoşsifət (qeyri müəyyən) kişi

الرَّجُلُ الْحَسَنُ الْوَجْهِ – xoşsifət (müəyyən) kişi

إِمْرَأَةٌ حَسَنَةُ الْوَجْهِ – xoşsifət (qeyri müəyyən) qadın

الْإِمْرَأَةُ الْحَسَنَةُ الْوَجْهِ – xoşsifət (müəyyən) qadın

Bu şəkildə ifadə üsulu özünü ibri dilində də göstərir [86; səh.45-49]. Bununla bağlı ibri dilindən gətirilən iki misalla kifayətlənirik:

יָפָה תֵּאָר – xoşsifət (gözəl görkəmli)

צָר-עֵין – paxıl (hərfən: dar baxışlı)

İbri dilində birləşmənin aparıcı qolunun sifətdən ibarət olduğu tərkibləri xüsusilə qeyd etmək lazımdır. Məsələn:

אִשָּׁה יָפָה תֵּאָר – qəşəng qadın (hərfən: zahiri cəhətdən gözəl)

אֲנָשִׁים קָלִי-דַעַת – yüngül adamlar

Ərəb dilində digər bir sözdüzəltmə metodu bəzi isimlərin müxtəlif sözlərlə izafət girərək maraqlı mənalar kəsb etməsidir. Məsələn:

أَبُو الْلَحْيَةِ – saqqalı

أَخُو الْعَرَبِ – ərəb

أُمُّ الطَّارِقِ – böyük yol

أَهْلُ الْعِلْمِ – alim

ابْنُ السَّبِيلِ – yolçu

ذُو الْمَالِ – varlı

صَاحِبُ النَّارِ – məhkum

غَيْرُ شَاكِرٍ – naşükür

X. Məsələrin **إِضَافَةٌ**-də, feldən törənən ismin isə **דְּ-מִכּוּת**-də idarəsi.

Əgər “status constructus”da birinci tərəf məsələlə və ya feldən törənən isimlə ifadə olunubsa, o halda ikinci tərəf həm hərəkətin subyekti, həm də obyektı adlana bilər. Məsələn:

تَأْيِيدُ الْحُرِّيَّةِ – azadlığın dəstəklənməsi

תְּמִיכַת הַחֲרוּת – azadlığın dəstəklənməsi

تَأْيِيدُ الْمَدِينَةِ – şəhərin dəstəklənməsi

תְּמִיכַת הָעִיר – şəhərin dəstəklənməsi

XI. Ərəb ölkələrində olduğu kimi İsraildə də ayların ifadəsi üçün həm Avropadan əks edilmiş adlardan, həm də xalqın dilində işlənən sözlərdən istifadə olunur:

=> يَنَّاوَرُ – **יָנוּאָר** – yanvar

=> תִּשְׁוָרִי – **ינוָר** – yanvar

=> شَبَّاطُ – **פֶּבְרַאיר** – fevral

=> תִּשְׁוֹן – **פֶּבְרַוָּאָר** – fevral

Bu adların hər birinin əvvəlinə **שֶׁהָר** və ya **חֹדֶשׁ** sözlərini artırmaq olur və həmin halda “status constructus” əmələ gəlir. Məsələn:

בִּי שֶׁהָר תָּמוֹר – iyul ayında

בִּחֹדֶשׁ נִסָּן – iyul ayında

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Həftənin günlərini bildirmək üçün “يَوْمٌ” və ya “יום” sözləri işlədilir. Lakin bir çox hallarda bu sözlər işlənmədən də həftənin günləri ifadə oluna bilər:

يَوْمُ الْأَحَدِ <= الْاَحَدُ – bazar günü

יום הראשון <= הראשון – bazar günü

Qeyd: Avropa həftə günlərinin adlarından fərqli olaraq ərəb və yəhudi dillərində həftə günləri əsasən də bazar günü bazar ertəsi kimi qəbul edilir.

Qeyd etmək lazımdır ki, bəzi hallarda “status constructus” adlanan tərkibləri əvəz etmək və ya onları yüngülləşdirmək mümkündür.

Tərkibi vəziyyətdə hər hansı bir mənsubiyyətlik bildirildikdə onu təsviri üsulla əvəz etmək mümkündür:

1. Təyin olunan tərəfin mənasında qeyri-müəyyənlik olduqda:

a) Bu halda o adətən “مِنْ” və ya “מִן” ön qoşması vasitəsilə təkrar olunur.

Məsələn:

سُؤَالٌ مِنْ أَسْئَلَةِ الْيَوْمِ – bu günün suallarından biri

שְׁאֵלָה מִן שְׁאֵלוֹת הַיּוֹם – bu günün suallarından biri

b) Qədim ibri mətnlərində tərkib adətən “ל” ön qoşması vasitəsilə əvəz edilir:

בֶּן לְדָוִד – Davudun oğullarından biri

בֶּן דָּוִד – Davudun oğlu

2. İbri dilində üç və daha artıq isimdən ibarət zəncir olduqda, qədim ətnlərdə belə tərkib əvəz edilir:

a) ל [le] ön qoşması vasitəsilə:

דְּבָרֵי-הַנְּמִים-לְמֶלֶךְ-יִשְׂרָאֵל – İsrail padşahlarının səlnaməsi

yazılır דְּבָרֵי-יָמֵי-מֶלֶךְ-יִשְׂרָאֵל əvəzinə

b) אָשֶׁר [ašer le] vasitəsilə:

שִׁיר הַשִּׁירִים אָשֶׁר לְשְׁלֹמֹה – Süleymanın ən yaxşı nəğməsi

3. İbri dilində emfatik (gücləndirici) adlanan digər bir tərkib də mövcuddur - סְמִיכּוּת [smixut].

Burada üçüncü şəxsə olan bitişən əvəzlilik əlavə olunur. Məsələn:

הַבַּיִת שֶׁל מֹרִי <= בֵּית מֹרִי və ya הַבַּיִת שֶׁל מֹרִי

הַבַּיִת שֶׁל הַמֹּרֶה <= בֵּית הַמֹּרֶה və ya הַבַּיִת שֶׁל הַמֹּרֶה

הַבַּיִת שֶׁל הַמֹּרֶה <= בֵּית הַמֹּרֶה və ya הַבַּיִת שֶׁל הַמֹּרֶה

הַבַּיִת שֶׁל הַמֹּרִים <= בֵּית הַמֹּרִים və ya הַבַּיִת שֶׁל הַמֹּרִים

הַבַּיִת שֶׁל הַמֹּרוֹת <= בֵּית הַמֹּרוֹת və ya הַבַּיִת שֶׁל הַמֹּרוֹת

Müəllimin (mənim müəlimimin və s.) evi

Müqayisə üçün ərəb dilində işlənən “كُلُّ” , “جَمِيعٌ” – “bütün”, “hamısı” mənasındakı sözləri misal gətirmək mümkündür. Bu sözlər də izafət tərkibində işlənməklə yanaşı, həm də aid olduğu sözü qeyd etmək və ya onun mənasını gücləndirmək üçün əlavə kimi də işlənir. Onların məhz həmin ismə aid olmaları müvafiq bitişən əvəzliliklə göstərilir. Məsələn:

كُلُّ الشَّرْقِ كُلُّهُ	الشَّرْقُ كُلُّهُ
كُلُّ الْمَدِينَةِ	الْمَدِينَةُ كُلُّهَا
جَمِيعُ النَّاسِ	النَّاسُ جَمِيعُهُمْ
جَمِيعُ النِّسَاءِ	النِّسَاءُ جَمِيعُهُنَّ

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Bu mövzu ilə bağlı ərəb və ibri dilləri ilə müqayisə aparmaq oxşar və fərqli cəhətləri üzə çıxartmağa çalışmışıq.

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THE ROLE OF A CLINICAL PHARMACIST IN THE PHARMACOTHERAPY OF HERPES SIMPLEX VIRUS

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ABSTRACT

As in other countries, so in Georgia, herpes virus occupies one of the leading places in terms of the spread of the disease. Raising awareness of herpes virus on the part of pharmacists is an urgent issue, because the pharmacist is an intermediate link between the patient and the doctor, and the pharmacy is the institution that the patient turns to first.

The purpose of the study was to determine the role of the clinical pharmacist in the pharmacotherapeutic process of herpes simplex virus. It was necessary to identify the most frequently used drugs for the treatment of herpes simplex virus; to find out how informed patients are about the possible side effects of antiviral drugs; how are the symptoms of herpes simplex virus managed with combination medications; at what stage of herpes simplex virus symptoms do patients most often turn to the pharmacy; what symptoms do patients most often complain about with herpes simplex virus; the research method was an anonymous survey of pharmacists of various chains in Tbilisi. A total of 50 pharmacists were interviewed. Participation in the study was voluntary.

The survey results revealed that: for the treatment of herpes virus, acyclovir ointment was most often recommended during pharmaceutical care in 62% of cases, Zovirax ointment in 30%, acyclovir tablets in 6%, and Larifan ointment in 2%. According to the respondents, 56% of patients were informed about possible side effects by the clinical pharmacist, 30% were partially informed, and 14% did not receive any information. It was found that 80% of pharmacists recommend the simultaneous use of tablets with ointment, while 20% recommend only one medication. The survey revealed that: 70% of patients turn to the pharmacy in the early stages of herpes symptoms, and 30% in an acute state. 78% of young people, 20% of adolescents and 2% of the elderly turn to pharmacies for treatment of herpes simplex virus symptoms. In conclusion, it can be said that the clinical pharmacist has a great influence on the effectiveness of the prescribed therapy, since a large part of patients turn to the pharmacy when they develop herpes symptoms. Timely response is a priority for effective treatment. In the process of

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pharmaceutical care, the clinical pharmacist, through a patient survey, identifies the possible cause of complaints, helps him solve the problem and recommends the necessary medication, and in case of dangerous symptoms, sends him to a doctor.

As in other countries, in Georgia, herpes virus occupies one of the leading places in terms of the spread of the disease. Raising awareness of the herpes virus on the part of the pharmacist is an urgent issue, because it is an intermediate link between the patient and the doctor. And the pharmacy is the institution that the patient first turns to, where the pharmacist, within the scope of his competence, recommends over-the-counter antiviral medications for the treatment of herpes simplex. In this regard, this paper aims to demonstrate the role of the clinical pharmacist in the treatment of herpes simplex virus and the proper provision of pharmaceutical care to patients. After a patient goes to the pharmacy with symptoms of the herpes virus, antiviral medications prescribed by the pharmacist save the patient's time and ensure early administration of the drug, which makes the treatment more effective and allows us to avoid drug-related complications. Proper monitoring of antiviral therapy allows us to improve the patient's condition and reduce the risk of drug side effects. [25,26]

The aim of the study was to determine the role of the clinical pharmacist in the implementation of care and control of herpes simplex virus.

ACCORDINGLY, THE FOLLOWING RESEARCH OBJECTIVES WERE FORMULATED:

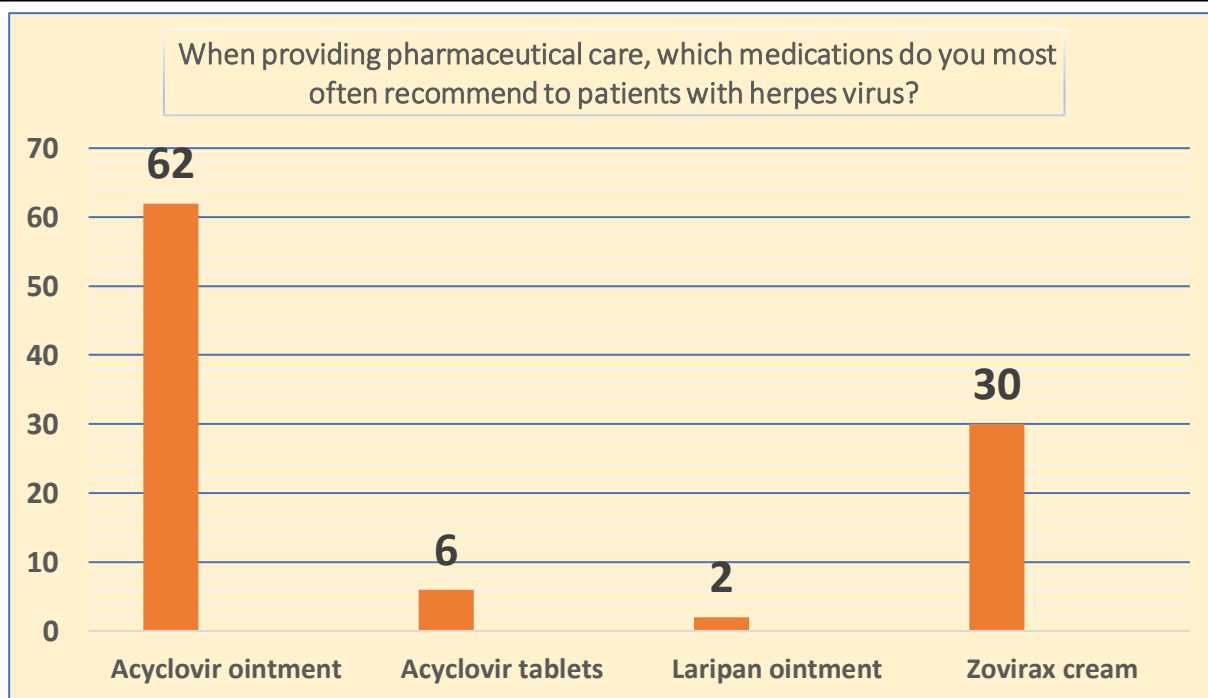
- To identify the most commonly used drugs for the treatment of herpes simplex virus;
- To find out how informed patients are about the possible side effects of antiviral drugs;
- Whether the symptoms of herpes simplex virus are managed with combination medications;
- At what stage of herpes simplex virus symptoms do patients turn to the pharmacy;
- What symptoms do patients experience with herpes simplex virus;
- What age group of patients is most often affected by herpes simplex virus;
- To find out whether pharmaceutical care is provided in pharmacies for pregnant women.

The subjects of the study were pharmacists working in pharmacies. We interviewed them to find out what symptoms patients with herpes complain of, which group of drugs they use more often, whether medication is selected/prescribed immediately after symptoms appear, since herpes treatment at an early stage gives faster results. We interviewed a total of 50 pharmacists. Participation in the study was voluntary.

THE DATA OBTAINED AS A RESULT OF THE SURVEY ARE REFLECTED IN THE DIAGRAMS.

Diagram 1. When providing pharmaceutical care, which drugs do you most often recommend to a patient with herpes virus?

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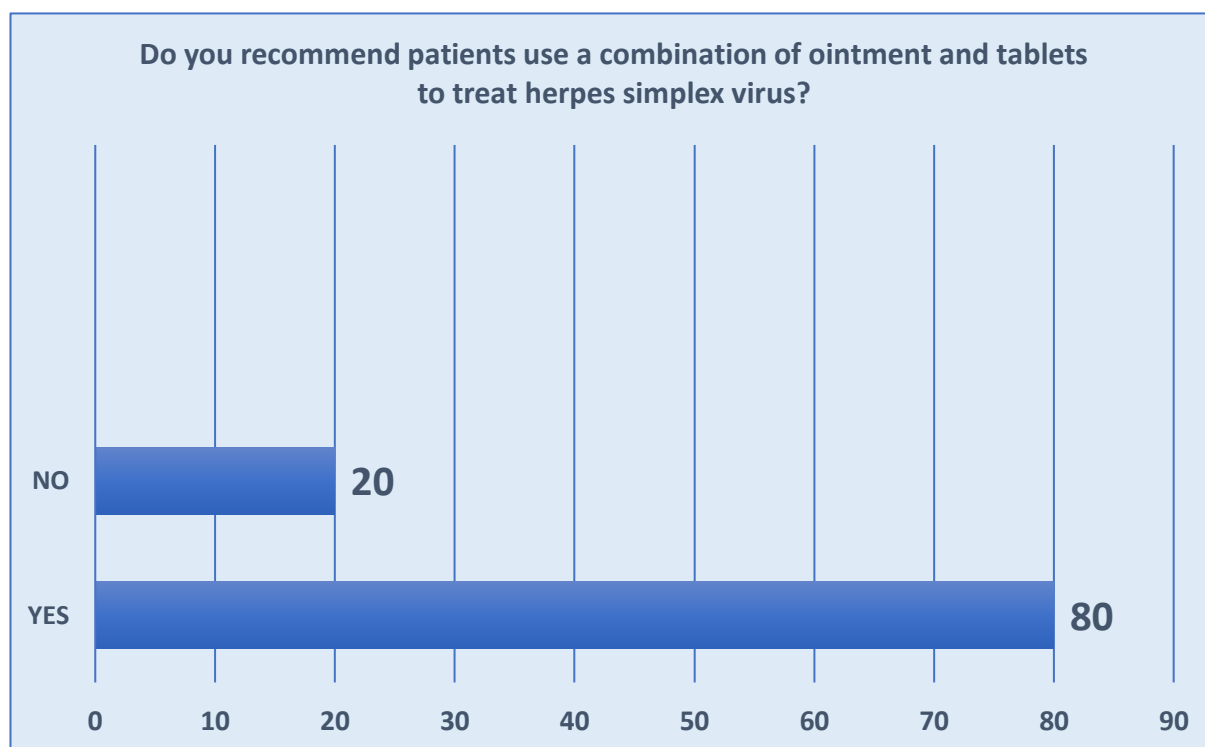
The survey results revealed that the most common pharmaceutical care for the treatment of herpes virus was acyclovir ointment (62%), less often Zovirax ointment (30%), acyclovir tablets (6%) and Larifan ointment (2%).

When asked whether you provide herpes patients with information about the possible side effects of antiviral drugs,

According to the respondents, 56% of patients receive comprehensive information, 30% are partially informed, and 14% do not provide the patient with any information about the side effects of antiviral drugs. It should be noted that when dispensing a drug, the patient must be warned about the peculiarities and risks of taking the drug, and the clinical pharmacist is the person who is more competent in clinical matters and who can provide the care. He is better versed in the symptoms of the disease and pharmacotherapy, he understands the symptoms through communication with the patient, gives advice within the scope of his competence and, in case of dangerous symptoms, sends the patient to a doctor. It is worth noting that an effective method of treating herpes simplex virus is the simultaneous use of a combined tablet and ointment. We wondered whether pharmacists advise patients to use a combined ointment and tablet for the treatment of herpes simplex virus?

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Diagram 2



It turns out that 80% of pharmacists recommend the simultaneous use of tablets and ointment, while 20% offer only one medication. (Diagram 2)

According to the survey, 70% of patients turn to the pharmacy in the early stages of herpes simplex, and 30% in an acute state.

It is desirable to respond soon after the symptoms appear, because it is easier to get a result. As for complicated forms, in such cases, the pharmacist refers the patient to a doctor.

58% of patients with herpes virus in the pharmacy complain of a rash in the lip area, 1% suffer from itching, 10% feel pain, and 31% have redness in the lip area. (Diagram N3)

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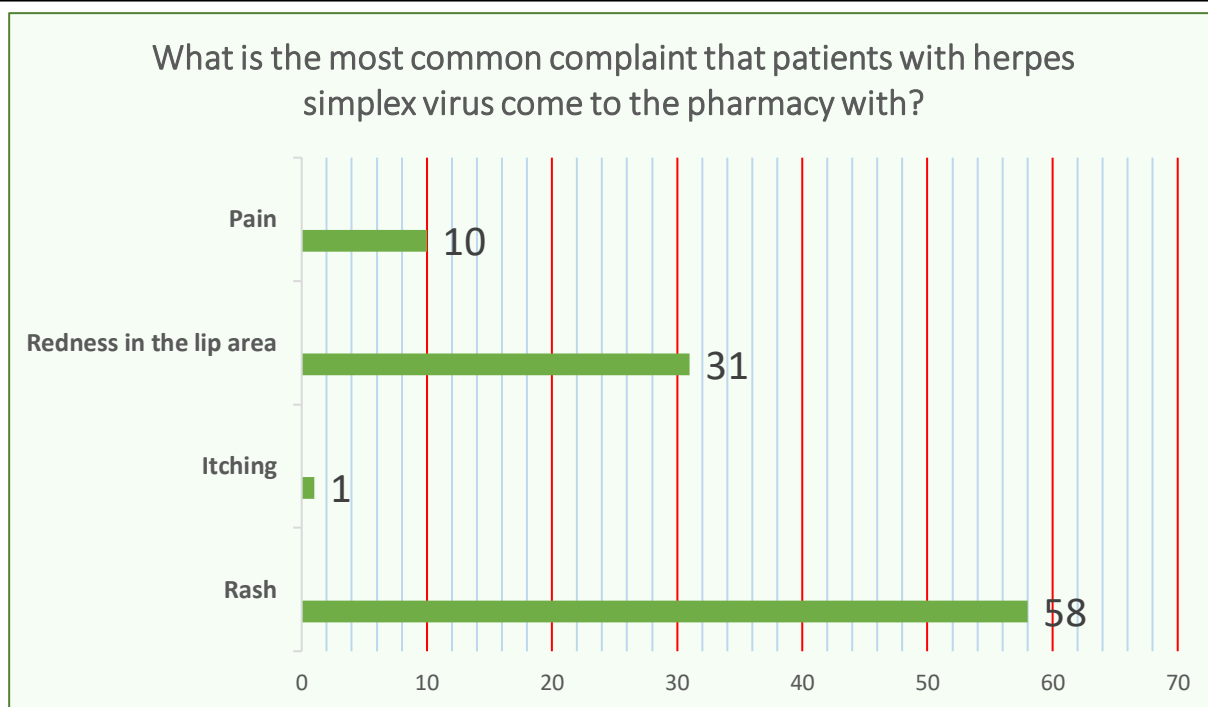


Diagram 3

A pharmacist, within the scope of his/her competence, can recommend non-steroidal anti-inflammatory drugs for pain relief in relatively mild forms of the disease, antihistamines for itching, and antivirals for rashes and redness. According to the respondents, 78% of young people, 20% of adolescents, and 2% of the elderly visit a pharmacy with symptoms of herpes simplex virus.

The study found that only 4% of the pharmacists surveyed provide pharmaceutical care, while 96% only dispense medication.

It should be noted that herpes simplex virus is quite common in pregnant women, which requires delicate treatment and the appointment of medications that will not be harmful to either the mother or the fetus. The clinical pharmacist is responsible for explaining to the patient that in his/her case it is necessary to contact a doctor to select the right treatment.

In conclusion, it can be said that:

In the process of pharmaceutical care, the clinical pharmacist, through questioning, identifies the possible cause of the patient's complaints, helps him solve the problem and recommends the necessary medications, and in case of dangerous symptoms, sends him to the doctor. Accordingly, in our opinion, the clinical pharmacist is the person who, together with the doctor, tries to make the pharmacotherapeutic treatment process more effective.

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THE IMPACT OF SOCIAL MEDIA ALGORITHMS ON PUBLIC OPINION FORMATION: A LITERATURE REVIEW

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ABSTRACT

Social media algorithms are a critical component of digital platforms, significantly influencing how individuals receive and interpret information. This paper aims to examine the impact of social media algorithms on public opinion formation through a critical review of existing literature. The study focuses on three key aspects: the amplification of polarized content, the creation of filter bubbles and echo chambers, and the dissemination of misinformation. Existing literature suggests that algorithms possess the power to shape individual perceptions and significantly influence decision-making. Through personalization, algorithms provide content that aligns with users' existing interests and perceptions, contributing to the fragmentation of public opinion and fostering political and cultural polarization. At the same time, the limited transparency and uncontrolled use of algorithms raise complex ethical challenges, including concerns over opinion manipulation and the spread of false information. This paper also explores opportunities for leveraging algorithms to promote balanced information and mitigate their negative effects. The discussion reflects recommendations for future research and best practices for designing and regulating algorithms in the public interest. By integrating a broad review of the literature and addressing current challenges, this paper contributes to a deeper understanding of the impact of social media algorithms on public opinion formation and the ethical and social implications they entail.

Keywords: Social Media, Algorithms, Public Opinion, Filter Bubbles, Echo Chambers, Misinformation Spread, Algorithmic Transparency.

INTRODUCTION

The advent of social media platforms has revolutionized the way individuals access information, communicate, and form opinions. These platforms, powered by sophisticated algorithms, are designed to enhance user experience by curating content that aligns with individual preferences. However, this personalization comes at a cost. Social media algorithms, while improving user engagement and satisfaction, have far-reaching implications for public opinion formation and democratic processes. Social media platforms such as Facebook, Twitter, and Instagram rely on algorithms to sift through vast amounts of data and present content deemed most relevant to users. These algorithms analyze user behavior, such as likes, shares, and comments, to create a tailored experience. While this approach ensures that users encounter content they find engaging, it also reinforces existing biases and limits exposure to diverse perspectives. This phenomenon, often referred to as the "filter bubble," narrows the range of information individuals consume, potentially skewing their understanding of complex issues.

Moreover, the prioritization of engagement-driven content amplifies emotionally charged and polarizing narratives. Algorithms are programmed to maximize time spent on the platform, often favoring content that elicits strong emotional reactions. Consequently, sensationalist headlines and divisive opinions are more likely to surface, shaping public discourse in ways that may not align with factual accuracy or constructive dialogue. The implications of these dynamics extend beyond individual users to broader

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societal and political structures. The formation of echo chambers, where users interact predominantly with like-minded individuals, exacerbates polarization and diminishes the capacity for cross-ideological dialogue. This fragmentation of public discourse undermines democratic values by hindering consensus-building and informed decision-making. Ethical considerations surrounding algorithmic influence add another layer of complexity. Issues such as transparency, accountability, and bias in algorithmic decision-making have sparked widespread debate among scholars, policymakers, and the public. The lack of transparency regarding how algorithms operate and the criteria they use for content curation raises concerns about manipulation and the erosion of trust in information sources. Furthermore, social media algorithms have been criticized for their role in amplifying disinformation and fake news. The spread of such content is often attributed to the algorithm's focus on engagement rather than accuracy, which incentivizes the proliferation of sensationalist or misleading posts. These dynamics not only affect individual perceptions but also influence broader public discourse, often undermining democratic processes and trust in institutions.

This paper aims to explore the multifaceted impact of social media algorithms on public opinion formation through a critical review of existing literature. By examining the amplification of polarized content, the creation of filter bubbles and echo chambers, and the dissemination of misinformation, this study seeks to shed light on the challenges and opportunities presented by algorithmic governance. In doing so, it highlights the need for a balanced approach that leverages the potential of algorithms while addressing their ethical and societal implications.

MATERIALS AND METHOD

This study adopts a qualitative research design, employing a systematic literature review and critical discourse analysis to explore the role of social media algorithms in shaping public opinion. This methodological approach enables a comprehensive evaluation of the mechanisms underlying algorithmic curation, their societal implications, and potential regulatory interventions. The research is based on secondary data sources, including peer-reviewed journal articles, policy papers, industry white papers, and regulatory reports. The selection criteria focused on publications from the past decade to ensure relevance to contemporary social media practices. The scope of the literature included studies on algorithmic personalization, misinformation dissemination, digital governance, and regulatory frameworks. Key sources were drawn from technology and policy research, including reports from the European Commission, the Federal Trade Commission, and digital rights advocacy organizations. A structured search strategy was employed across academic databases such as Google Scholar, Scopus, Web of Science, and IEEE Xplore. Keywords included social media algorithms, misinformation, filter bubbles, echo chambers, algorithmic transparency, political polarization, and digital governance. Studies were selected based on methodological rigor, relevance to the research objectives, and contributions to the discourse on algorithmic accountability.

Data analysis was conducted using a thematic content analysis framework, categorizing findings into key themes such as algorithmic personalization, engagement-driven ranking, misinformation amplification, and ethical concerns. Additionally, critical discourse analysis (CDA) was applied to policy documents and regulatory discussions to assess how various stakeholders frame algorithmic governance and accountability. This dual-method approach provides a balanced perspective on both the technological and regulatory challenges associated with social media algorithms. Despite its contributions, this study has several limitations. The reliance on secondary data limits access to proprietary algorithmic mechanisms, as social media platforms maintain opaque ranking and recommendation systems. Additionally, the rapid evolution of digital algorithms presents challenges in capturing their real-time effects on public opinion formation. Future research should incorporate

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empirical user studies and experimental methodologies to assess user interactions with algorithmically curated content. By synthesizing findings from academic research and policy discussions, this study provides a foundation for understanding the implications of social media algorithms on public discourse. The insights contribute to ongoing debates on algorithmic accountability and offer potential pathways for regulatory and technological interventions aimed at fostering a more transparent and responsible digital information ecosystem.

LITERATURE REVIEW

Social media algorithms have transformed the way individuals consume and engage with information, significantly shaping public opinion. These algorithms leverage machine learning and user interaction data to curate personalized content, optimizing user engagement while simultaneously influencing information exposure patterns. While these systems enhance user experience by delivering content tailored to individual preferences, they also raise concerns about ideological biases, misinformation spread, and the lack of transparency in digital ecosystems. This section reviews key themes in the existing literature, beginning with algorithmic personalization and engagement, which dictate content exposure based on user behavior, often reinforcing pre-existing beliefs and interests. It then explores the role of filter bubbles and echo chambers in exacerbating polarization and limiting viewpoint diversity, creating isolated ideological environments where exposure to opposing perspectives is minimized. Additionally, it examines the impact of algorithmic amplification of misinformation, emphasizing how engagement-driven ranking systems prioritize sensationalist content that may lack factual accuracy. Ethical concerns regarding algorithmic bias and transparency are also analyzed, particularly in relation to how opaque decision-making processes affect public trust and media credibility. Finally, emerging technological interventions aimed at mitigating these challenges are discussed, including algorithmic transparency initiatives, content moderation strategies, and policy-driven regulatory frameworks. By synthesizing existing research, this review establishes a foundation for evaluating strategies to balance personalization with the need for a more responsible, diverse, and equitable digital information ecosystem. The insights from this literature review will inform further discussions on potential regulatory, technological, and educational approaches to addressing the challenges posed by algorithm-driven content curation.

Algorithmic Personalization and Engagement

Algorithmic personalization is at the core of how social media platforms function, ensuring that users are presented with content tailored to their preferences and interests. This functionality, driven by complex machine learning algorithms, is designed to optimize user engagement by predicting the type of content that will most likely resonate with an individual. Pariser (2011) describes this as the "filter bubble" effect, where users are enveloped in a personalized content ecosystem that reinforces their existing beliefs and preferences. Research by Vosoughi, Roy, and Aral (2018) delves deeper into the implications of algorithmic personalization, emphasizing how algorithms prioritize emotionally engaging content. Content that elicits strong emotional reactions—whether positive or negative—is more likely to be prioritized by algorithms, as it tends to generate higher levels of user interaction. This emphasis on engagement often comes at the expense of informational diversity, with algorithms amplifying sensationalist or polarizing content that appeals to user emotions.

One critical consequence of this prioritization is the reinforcement of confirmation bias. As users interact with content that aligns with their existing viewpoints, algorithms learn to deliver more of the same, creating a feedback loop that isolates users from alternative perspectives. Over time, this contributes to the formation of "filter bubbles," which limit exposure to diverse ideas and exacerbate societal

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polarization (Pariser, 2011). The effects of algorithmic personalization are particularly pronounced in political discourse. Sunstein (2017) highlights how algorithms can shape political narratives by curating content that aligns with a user's ideological leanings. During significant political events, such as elections, this phenomenon can lead to the amplification of partisan rhetoric and the marginalization of moderate voices. For instance, during the 2016 U.S. presidential election, personalized content delivery played a role in deepening political divisions among voters. The commercial incentives driving algorithmic personalization further complicate its impact. Social media platforms rely on advertising revenue, which is closely tied to user engagement metrics. As a result, algorithms are optimized to prioritize content that maximizes user time on the platform, often favoring sensationalist or clickbait material that garners attention. This monetization model raises ethical questions about the balance between profit-driven objectives and the societal need for balanced and accurate information (Noble, 2018). To address these challenges, scholars and practitioners have proposed several strategies for reconfiguring algorithmic priorities. One approach involves integrating metrics that prioritize content credibility and diversity alongside engagement. By exposing users to a broader range of perspectives, algorithms can mitigate the risks associated with personalization while preserving its benefits. Additionally, platforms can offer users greater control over their content curation settings, allowing them to customize the degree of personalization they experience.

Finally, fostering media literacy among users is critical in mitigating the effects of algorithmic personalization. By equipping individuals with the skills to critically evaluate the content they encounter, media literacy programs can empower users to navigate personalized content ecosystems responsibly. This, combined with transparent algorithmic practices, can help create a healthier and more inclusive information environment.

Polarization and Echo Chambers

Polarization and the formation of echo chambers are among the most significant consequences of algorithm-driven content curation. Echo chambers emerge when individuals engage predominantly with like-minded communities, resulting in a self-reinforcing loop of shared beliefs and opinions. Social media algorithms exacerbate this phenomenon by prioritizing content that aligns with users' existing preferences and behavioral patterns (Sunstein, 2017). Research highlights that algorithms inadvertently deepen ideological divides by promoting homogeneity within digital spaces. When users repeatedly encounter content that confirms their beliefs, they become less likely to engage with opposing viewpoints. This dynamic fosters political and cultural polarization, which undermines the foundations of democratic discourse (Del Vicario et al., 2016). A particularly striking example of echo chambers influencing public opinion is their role during political campaigns. Studies have shown that during the 2016 U.S. presidential election, social media platforms amplified partisan narratives, often at the expense of balanced discourse. This phenomenon resulted in greater ideological segregation, where individuals from opposing political factions were exposed predominantly to narratives supporting their respective ideologies (Sunstein, 2017; Bakshy et al., 2015). Beyond politics, echo chambers also impact societal responses to public health crises. For instance, during the COVID-19 pandemic, misinformation regarding vaccines proliferated in echo chambers, leading to widespread vaccine hesitancy and resistance. Cinelli et al. (2020) note that misinformation within these spaces often gains traction because it is validated by like-minded peers, further solidifying false beliefs.

The psychological mechanisms underlying echo chambers exacerbate these effects. Cognitive biases, such as the "backfire effect," suggest that individuals exposed to contradictory information within an echo chamber may double down on their original beliefs rather than revising them (Nyhan & Reifler, 2010). This reinforces polarization, making it increasingly difficult for cross-ideological dialogue to occur. Addressing polarization and echo chambers requires a multi-faceted approach. First, platforms

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can incorporate "diversity by design" principles into their algorithms, ensuring that users are exposed to a broader range of perspectives (Helberger, 2020). For example, recommendation systems could prioritize content from credible sources with differing viewpoints, disrupting the homogeneity of echo chambers. Second, fostering media literacy is crucial. By equipping users with the skills to critically evaluate the credibility and intent of the content they encounter, educational initiatives can empower individuals to navigate polarized digital landscapes responsibly. Media literacy programs should emphasize the importance of engaging with diverse perspectives and recognizing the mechanisms driving algorithmic curation (Mihailidis & Viotty, 2017).

Lastly, policymakers must play a proactive role in regulating platform behavior. Transparency mandates, such as those outlined in the European Union's Digital Services Act, can compel platforms to disclose how their algorithms function and what criteria influence content prioritization. Such measures can enhance accountability and reduce the risk of polarization being exacerbated by opaque algorithmic processes (European Commission, 2020). By addressing the systemic factors driving polarization and echo chambers, society can move towards a healthier information ecosystem that fosters inclusive and democratic discourse.

Misinformation and Credibility

The proliferation of misinformation on social media platforms represents one of the most significant challenges associated with algorithm-driven content curation. Algorithms prioritize content that generates high engagement, often amplifying emotionally charged or sensationalist posts. This prioritization creates an environment where false or misleading information can spread rapidly and widely, particularly during crises. Cinelli et al. (2020) investigated the role of algorithms in amplifying false narratives during the COVID-19 pandemic. Their findings revealed that misinformation about vaccines, treatments, and the origins of the virus was disproportionately shared within certain online communities. Algorithms, designed to maximize user engagement, inadvertently contributed to this phenomenon by promoting posts that elicited strong emotional responses, regardless of their factual accuracy. The issue of misinformation is further exacerbated by the algorithmic emphasis on "virality." Content that spreads quickly across platforms is often ranked higher by algorithms, regardless of its reliability. Vosoughi, Roy, and Aral (2018) found that false news stories are 70% more likely to be shared than true stories, largely because they evoke stronger emotional reactions. This dynamic creates a feedback loop where sensationalist and inaccurate content is continuously promoted, undermining trust in credible information sources.

Misinformation also exploits cognitive biases such as confirmation bias and the "illusory truth effect," where repeated exposure to false information increases its perceived credibility. Social media algorithms inadvertently amplify these biases by reinforcing the visibility of content that aligns with users' pre-existing beliefs (Lazer et al., 2018). During political campaigns, for example, misinformation about candidates or policies often gains traction within ideologically homogenous groups, influencing voter perceptions and behaviors. One notable consequence of misinformation is its impact on public health. During the COVID-19 pandemic, false narratives about vaccine safety and efficacy contributed to vaccine hesitancy, prolonging the pandemic and undermining public health efforts. Misinformation about treatments, such as the promotion of unproven remedies, further complicated the dissemination of accurate health guidance (Cinelli et al., 2020). To combat the spread of misinformation, platforms have implemented various measures, including fact-checking partnerships, content moderation, and algorithmic adjustments. Fact-checking initiatives, such as Facebook's collaboration with third-party organizations, have shown some success in reducing the visibility of false content. However, these efforts often struggle to keep pace with the volume of misinformation circulating on platforms.

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Algorithmic interventions also hold promise for mitigating the effects of misinformation. By incorporating credibility signals, such as source reliability and content accuracy, into ranking criteria, algorithms can prioritize factual information over sensationalist narratives. Additionally, platforms can introduce tools that provide users with context about the content they encounter, such as "related articles" or "fact-checking labels." Educational programs aimed at improving media literacy are another critical component of combating misinformation. By teaching users to critically evaluate the credibility of information and recognize common tactics used to spread false narratives, these initiatives can reduce the impact of misinformation on public opinion. Media literacy campaigns should also emphasize the role of algorithms in shaping content visibility, helping users understand how their online behaviors influence the information they encounter (Mihailidis & Viotty, 2017). Regulatory frameworks are equally important in addressing the systemic factors driving misinformation. Policymakers can require platforms to disclose their content curation criteria and implement transparency measures to hold them accountable for the spread of harmful content. For example, the European Union's Digital Services Act outlines requirements for platforms to assess and mitigate risks related to misinformation while preserving user rights to freedom of expression (European Commission, 2020).

In summary, addressing misinformation requires a comprehensive approach that combines algorithmic adjustments, educational initiatives, and regulatory oversight. By tackling the structural and behavioral factors that enable the spread of false information, society can build a more informed and resilient public sphere.

Ethical Challenges and Transparency

The ethical challenges associated with social media algorithms primarily stem from their opacity and the lack of accountability in their design and deployment. Scholars such as Noble (2018) argue that the "black box" nature of algorithms limits public understanding of their decision-making processes, raising significant ethical concerns. This opacity creates an environment where biased or harmful outcomes can persist unchecked, often disproportionately affecting marginalized communities. One of the key ethical dilemmas is algorithmic bias, which occurs when algorithms produce outcomes that favor certain groups over others. This bias often reflects the data on which the algorithms are trained, perpetuating existing inequalities and stereotypes. For instance, Noble (2018) highlights how search engine algorithms can reinforce racial and gender biases, leading to discriminatory outcomes in online information retrieval. Transparency is critical in addressing these ethical issues. Platforms must disclose the criteria used by their algorithms to curate and prioritize content. Ananny and Crawford (2018) emphasize that transparency is not just about revealing the code behind algorithms but also about providing meaningful explanations of how algorithms influence information ecosystems. Without such transparency, users are left unaware of the factors shaping their online experiences, undermining their autonomy and trust in digital platforms. Another significant ethical concern is the prioritization of profit over public welfare. Social media platforms often design algorithms to maximize engagement metrics, as these directly correlate with advertising revenue. However, this emphasis on engagement incentivizes the promotion of polarizing and sensationalist content, which can deepen societal divides and erode public trust. Diakopoulos (2015) notes that this commercial imperative often conflicts with the broader societal need for balanced and accurate information.

Accountability mechanisms are essential for ensuring that algorithms serve the public good. Platforms should establish independent oversight bodies to audit algorithmic processes and address user grievances. These mechanisms can help identify and rectify harmful outcomes, promoting fairness and equity in algorithmic decision-making. The integration of ethics review boards within technology companies can also ensure that ethical considerations are prioritized during the design and deployment of algorithms (Helberger, 2020). Ethical challenges also arise from the lack of user agency in algorithmic

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systems. Users often have little control over the content they are exposed to or the factors influencing its prioritization. Enhancing user agency through customizable algorithms could empower individuals to tailor their online experiences according to their preferences and values. Such features could include options to prioritize credible sources or to reduce the visibility of polarizing content. Educational initiatives aimed at improving algorithmic literacy among users are another critical component of addressing ethical challenges. By teaching users to understand how algorithms influence their online experiences, these initiatives can empower individuals to make informed decisions about their media consumption. Media literacy programs should also emphasize the importance of questioning the intent and impact of algorithmic curation, fostering a more critical and informed user base (Mihailidis & Viotty, 2017). Regulatory interventions play a pivotal role in promoting transparency and accountability. Policymakers can mandate that platforms disclose the criteria and impact assessments associated with their algorithms. For example, the European Union's General Data Protection Regulation (GDPR) includes provisions requiring platforms to provide users with explanations for automated decisions affecting them. Such regulations can serve as a model for addressing the ethical challenges posed by opaque algorithmic processes (European Commission, 2020).

Finally, the inclusion of diverse perspectives in the algorithmic design process can help mitigate ethical risks. By involving stakeholders from various backgrounds—including ethicists, sociologists, and community representatives—platforms can ensure that their algorithms reflect a broader range of values and priorities. This collaborative approach can foster the development of systems that are not only effective but also equitable and inclusive.

In conclusion, addressing the ethical challenges associated with social media algorithms requires a multi-faceted approach that combines transparency, accountability, and user empowerment. By fostering collaboration between technologists, policymakers, and educators, society can ensure that algorithms are designed and deployed in ways that uphold ethical standards and promote the public good.

Technological Innovations in Algorithm Design

The evolution of algorithmic technologies has introduced numerous innovations aimed at addressing the limitations and ethical concerns of traditional systems. Explainable Artificial Intelligence (XAI) is one such development that enhances transparency by providing interpretable explanations for algorithmic decisions. By revealing the rationale behind content prioritization, XAI fosters trust and accountability, enabling users to better understand and assess the information presented to them (Gunning et al., 2019). Additionally, algorithmic auditing tools have emerged as essential mechanisms for ensuring accountability. These tools allow for independent evaluations of algorithmic systems to identify biases, discriminatory outcomes, and unintended consequences. Regular audits not only promote transparency but also drive improvements by highlighting areas where adjustments are necessary (Raji et al., 2020).

Efforts to mitigate bias and enhance fairness in algorithmic systems have also advanced significantly. Techniques such as adversarial debiasing and fairness-aware machine learning focus on minimizing discriminatory patterns and promoting equitable outcomes. These approaches ensure that algorithms are more inclusive, reducing the risk of perpetuating existing inequalities (Barocas et al., 2019). In content recommendation systems, innovations have sought to balance personalization with diversity. Hybrid models that combine collaborative filtering and content-based techniques aim to expose users to a broader range of perspectives, thereby mitigating the risks associated with filter bubbles. Platforms are also introducing user-customizable features, allowing individuals to adjust their content preferences to prioritize diversity and credibility (Helberger, 2020). Context-aware algorithms represent another frontier in innovation, leveraging contextual factors such as user intent, location, and time to deliver more relevant and accurate recommendations. By incorporating these factors, platforms can reduce the

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spread of irrelevant or misleading content, enhancing user experience and trust (Adomavicius & Tuzhilin, 2015).

Finally, blockchain technology offers a promising avenue for enhancing transparency in algorithmic systems. Its decentralized and immutable nature enables the recording of algorithmic decisions in a tamper-proof ledger, allowing for traceability and verification. This approach not only increases transparency but also bolsters user confidence in the integrity of digital platforms (Zhang et al., 2020). While these innovations hold immense potential, challenges remain in their implementation. For instance, explainable models often involve trade-offs between interpretability and performance. Similarly, algorithmic auditing and fairness evaluations require substantial resources and face resistance from platforms concerned about proprietary information. Nevertheless, by fostering collaboration among technologists, policymakers, and civil society, these challenges can be addressed to ensure that algorithmic innovations align with societal values and ethical standards.

RESULTS AND DISCUSSION

The findings of this study reveal the multifaceted impact of social media algorithms on public opinion formation, particularly in relation to content exposure, polarization, misinformation spread, and ethical concerns surrounding transparency and accountability. Through an in-depth analysis of existing literature and empirical studies, three key themes emerge: algorithmic reinforcement of ideological biases, the amplification of misinformation through engagement-driven ranking, and the opacity of algorithmic decision-making in shaping digital discourse.

One of the most significant findings relates to the role of algorithmic personalization in reinforcing ideological biases. Social media algorithms prioritize content that aligns with users' past interactions, effectively creating filter bubbles and echo chambers that limit exposure to diverse perspectives (Pariser, 2011; Sunstein, 2017). This phenomenon is particularly pronounced in politically charged discussions, where users are more likely to encounter viewpoints that reinforce pre-existing beliefs rather than content that challenges them (Cinelli et al., 2021). Studies suggest that such exposure patterns contribute to increasing political polarization, making it more difficult for users to engage in constructive debates or consider alternative viewpoints (Bakshy, Messing, & Adamic, 2015). The second major finding highlights the amplification of misinformation as a consequence of engagement-driven content ranking. Algorithms prioritize content that generates high user interaction, often at the expense of accuracy (Vosoughi, Roy, & Aral, 2018). False information, particularly sensationalist or emotionally charged content, tends to spread more rapidly than factual news due to its higher engagement potential (Zollo et al., 2017). This trend has been observed across various global events, including health crises such as the COVID-19 pandemic and political elections, where misleading narratives have gained substantial traction before corrective measures could be implemented (Cinelli et al., 2020). The reliance on engagement metrics as the primary determinant of content visibility presents a significant challenge for digital information ecosystems, as it prioritizes virality over veracity. A third critical issue emerging from the analysis concerns the lack of transparency and accountability in algorithmic decision-making. Social media companies rarely disclose the specific parameters governing content ranking, making it difficult for users and regulators to assess the fairness and neutrality of these systems (Ananny & Crawford, 2018). The opacity surrounding algorithmic operations has raised concerns over potential biases embedded within these systems, particularly in relation to marginalized or underrepresented communities (Gillespie, 2018). While some platforms have introduced measures such as fact-checking partnerships and content labels to address misinformation, these interventions often occur reactively rather than proactively, limiting their overall effectiveness (Helberger, 2020). Calls for increased

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algorithmic transparency and explainability have intensified in response to these challenges, with policymakers advocating for greater public oversight and accountability measures (Gorwa, 2019).

Despite these challenges, potential interventions to mitigate algorithmic biases and misinformation have emerged in both policy and technological spheres. Regulatory efforts, such as the European Union's Digital Services Act, aim to enhance transparency requirements for algorithmic ranking systems, compelling social media companies to disclose content moderation practices and provide users with greater control over their content preferences (Napoli, 2019). Similarly, advancements in explainable artificial intelligence (XAI) seek to make algorithmic decision-making more interpretable, enabling users to understand why certain content is recommended to them and offering options to diversify their information exposure (Ghosh, 2021). While these interventions represent promising steps toward addressing algorithmic influence, further research is needed to assess their long-term effectiveness. Empirical studies examining how users respond to algorithmic transparency measures, as well as experimental research on alternative ranking models that promote information diversity, could provide valuable insights into best practices for balancing personalization with public interest objectives (Tufekci, 2017). Additionally, future research should explore the intersection between algorithmic governance and media literacy initiatives, as user awareness and critical engagement with digital content remain crucial factors in mitigating algorithmic biases and misinformation spread (Benkler, Faris, & Roberts, 2018).

Overall, the findings of this study underscore the profound impact of social media algorithms on digital information landscapes. While algorithmic curation enhances user engagement and information accessibility, it also poses significant risks to public discourse by reinforcing ideological divides, amplifying misinformation, and operating with limited transparency. Addressing these issues requires a multi-stakeholder approach that incorporates regulatory oversight, technological advancements, and user empowerment through digital literacy initiatives. By fostering collaboration between policymakers, technology companies, and civil society organizations, a more balanced and responsible digital information ecosystem can be achieved.

CONCLUSION

This study has provided an in-depth examination of how social media algorithms influence public opinion formation, focusing on the mechanisms through which content is curated, ranked, and disseminated. The findings suggest that while algorithms enhance user engagement and content personalization, they also contribute to ideological polarization, the spread of misinformation, and ethical concerns regarding transparency. The prevalence of filter bubbles and echo chambers underscores the risks associated with algorithmic decision-making, particularly in an era where digital platforms play a dominant role in information consumption. The increasing reliance on algorithmically curated content necessitates proactive regulatory and technological interventions. While efforts such as the European Union's Digital Services Act highlight the growing recognition of algorithmic accountability, further steps must be taken to ensure that social media platforms uphold principles of transparency, fairness, and user autonomy. In addition to regulatory oversight, technology firms must adopt responsible AI practices that balance engagement-driven content ranking with mechanisms that promote information diversity and credibility. Digital literacy is also essential in mitigating the unintended consequences of social media algorithms. Equipping users with critical thinking skills to assess online content and understand how algorithms shape their information environment can enhance public resilience against misinformation and algorithmic biases. Educational initiatives should integrate digital literacy training to empower individuals to navigate the digital landscape more effectively.

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Future research should explore the long-term effects of algorithmic content curation on public discourse and democratic participation. Empirical studies assessing the efficacy of algorithmic transparency measures, as well as experimental research on alternative content recommendation models, would provide valuable insights into improving information exposure dynamics. Additionally, interdisciplinary collaborations between policymakers, computer scientists, and social scientists can foster innovative solutions that address the ethical and societal challenges posed by social media algorithms.

In conclusion, social media algorithms serve as powerful mediators of public discourse, influencing what users see, engage with, and ultimately believe. While they provide efficiency and personalization, their impact on opinion formation raises concerns that cannot be overlooked. A comprehensive approach—combining regulation, technological innovation, and user awareness—is necessary to create a more balanced and responsible digital ecosystem. By promoting transparency, accountability, and inclusivity, stakeholders can work toward mitigating the risks of algorithmic content curation while preserving the benefits of digital connectivity.

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SYNTHESIS AND X-RAY STUDIES OF THE CORRESPONDING DICHLORODIAZADIENES BASED ON M-NITRO BENZOYL ALDEHYDE

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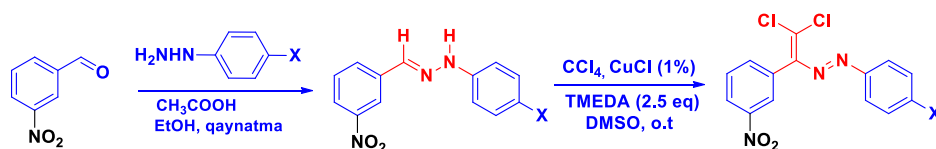
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ABSTRACT

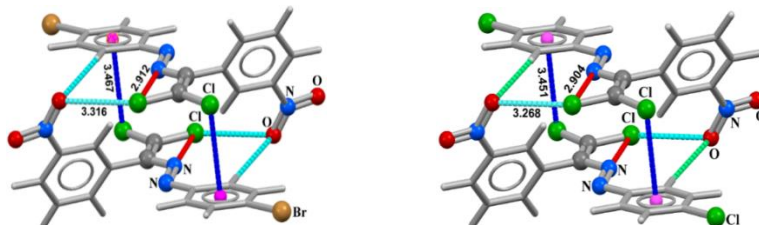
Non-covalent bond is understood as a relatively weak chemical bond that is not based on electron sharing. In order to study non-covalent bonds, which have attracted great interest from researchers in recent times, we have synthesized dichlorodiazadienes. Because dichlorodiazadienes are an ideal model due to their unique structure. Therefore, reactions have also been continued on m-benzoyl aldehyde. The main goal of continuing research in this direction was to study the effect of the positions of the nitro group on the benzene ring, primarily on the crystal design, the outcome and direction of the reaction. First, the corresponding phenylhydrazones of m-nitrobenzoyl aldehyde were synthesized, and dichlorodiazadienes were synthesized analogously from the latter. It was determined that the presence of the nitro group in the meta position in the synthesis reactions did not significantly affect the outcome of the reaction.

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X-OCH₃, CH₃, H, F, Cl, Br

The structures of the obtained compounds were determined by NMR and X-ray diffraction, and intermolecular non-covalent bonds were studied.



Thus, it can be concluded that the formation of compounds, and in polyfunctional compounds in general, crystals, is related to the combined effect of various non-covalent bonds.

Keywords: Dichlorodiazadiene, noncovalent interaction

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TURKEY'S PUBLIC RELATIONS EFFORTS FOR GAINING SUPPORT FOR THE KOREAN WAR

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ABSTRACT

This paper explores Turkey's strategic public relations efforts during the Korean War to gain domestic and international support for its military participation. For this paper, a historical research approach is undertaken. Books, articles, essays, dissertations, conference papers, documentaries are collected and examined thematically. International newspapers and magazines are scanned to identify important events and activities as well as national newspaper archives. Furthermore, individual, personal and organizational texts such as memouars, speeches, brochures, educational materials for miners are taken into consideration. From this data, the important agents and events are identified, and goals, strategies and tools were explicated. In the wake of World War II and the emerging Cold War dynamics, Turkey sought to solidify its position within the Western bloc and secure its geopolitical interests. Recognizing the significance of public perception, Turkey initiated targeted communication campaigns to justify its involvement in the war as part of the United Nations forces. Domestically, these campaigns emphasized Turkey's commitment to peace, international cooperation, and its role as a defender of freedom and democracy. The government employed newspapers, radio broadcasts, and public speeches to align public sentiment with the state's strategic priorities. Internationally, Turkey presented itself as a reliable ally of the West, particularly the United States, framing its participation as a contribution to global security and regional stability. These efforts not only aimed to foster legitimacy for the military intervention but also served to strengthen Turkey's candidacy for NATO membership. By examining the narratives, media strategies, and diplomatic messaging employed during this period, the paper highlights Turkey's adept use of public relations to influence public opinion and gain political leverage on both national and international levels.

Keywords: Korean War, Turkish foreign policy, public relations campaigns, NATO membership, Cold War diplomacy

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KLOTHO: A FASCINATING PROTEIN WITH MULTIFACETED ROLES IN HEALTH AND DISEASE

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ABSTRACT

Background: Klotho, an anti-aging protein, has emerged as a key regulator of multiple biological processes, including aging, calcium-phosphorus metabolism, and oxidative stress. Its role as a co-receptor for fibroblast growth factor 23 (FGF23) and its involvement in cellular protection mechanisms have garnered significant interest in recent years. Emerging evidence suggests Klotho also plays a crucial role in maintaining skin homeostasis, preventing skin aging, and protecting against environmental damage.

Materials and Methods: A systematic review of peer-reviewed literature from 2000 to 2024 was conducted using PubMed, Scopus, and Web of Science databases. Inclusion criteria focused on studies investigating Klotho expression, function, and clinical implications in aging, chronic kidney disease (CKD), cardiovascular disease (CVD), neurodegenerative disorders, and skin biology. Experimental data from cell cultures, animal models, and human studies were analyzed to elucidate Klotho's molecular mechanisms, particularly its effects on skin structure, hydration, and oxidative stress. Quantitative data synthesis was performed where applicable.

Results: The analysis revealed that Klotho deficiency is associated with accelerated aging, vascular calcification, impaired renal function, and skin deterioration. Klotho expression decreases with age, particularly in CKD patients, contributing to systemic inflammation, oxidative damage, and skin aging. In skin biology, Klotho has been shown to promote dermal fibroblast longevity, enhance skin hydration, and reduce oxidative stress-induced damage. Animal models demonstrated that Klotho overexpression extends lifespan and improves skin elasticity and barrier function. Furthermore, Klotho's antioxidant properties mitigate UV-induced skin damage, highlighting its potential in skin rejuvenation therapies.

Discussion: Klotho's pleiotropic roles highlight its importance as a potential biomarker and therapeutic target, not only for systemic diseases but also for skin aging and related disorders. Its involvement in FGF23 signaling underscores its significance in mineral homeostasis, while its anti-inflammatory and antioxidant properties suggest promising implications for skin health. The ability of Klotho to counteract oxidative stress and improve skin hydration makes it a valuable candidate for dermatocosmetic interventions. However, challenges remain in understanding Klotho regulation, tissue-specific expression, and its therapeutic delivery for skin-related applications.

Conclusions: Klotho represents a pivotal protein in aging and age-related pathologies, including skin aging and deterioration. Its role in skin biology offers opportunities for novel interventions targeting skin rejuvenation, hydration, and protection against environmental damage. Further clinical and translational research is required to unlock its full therapeutic potential in dermatology and beyond.

Keywords: Klotho, aging, skin aging, fibroblast growth factor 23, oxidative stress, skin hydration, UV protection, dermatology.

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SYNTHESIS OF A DI-CATIONIC SURFACTANT CONTAINING TWO PYRIDINIUM IONS AND ANTI-CORROSION EFFECT ON STEEL IN 1.0 M HCl

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ABSTRACT

Pyridinium salts have many uses such as anti-microbial, drugs and drug delivery systems, sensors, gene therapy, cosmetics, phase transfer catalyst, dyes, electrolytes and surfactants¹. As surfactants, it has been determined that they have anti-corrosion effect against metal corrosion in acidic media and inhibit electrochemical corrosion reactions on the metal surface. In this study, a di-cationic surfactant containing two pyridinium rings and a long carbon chain attached to one of these rings was synthesized. The structure of the surfactant was elucidated by spectroscopic methods (FT-IR and NMR). After proving its structure, whether this compound inhibits metal corrosion in 1.0 M HCl medium was investigated by considering the weight loss method on metal coupons. For this purpose, low carbon steel coupons of a certain size (0.1 cm thickness, 2.2 cm width, 5.0 cm length) and a known elemental percentage were immersed in 1.0 M HCl solution without inhibitor and containing different concentrations (2, 10, 50, 250 ppm) of inhibitor. The steel coupons were immersed in the acid solution for 6, 24, 48 and 72 h. At the end of each period, the inhibition efficiency for each concentration of inhibitor was calculated by determining the weight loss of the metal. In addition, it was also investigated how the inhibition activity of the compound changes at different temperatures (25, 40, 60 °C). As a result of the corrosion tests, the synthesized di-cationic surfactant showed a good anti-corrosion effect for steel immersed in acidic medium. For each immersion time, although similar results were obtained at different inhibitor concentrations, it was observed that the inhibition efficiencies increased slightly as the immersion time increased. However, it was found that inhibition activities increased when the ambient temperature increased from 25 to 40 °C, but decreased when the ambient temperature increased to 60 °C.

Keywords: Synthesis, Di-cationic surfactant, Corrosion inhibitor, Weight loss, HCl

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CONTRIBUTION OF PUBLIC SPACES TO THE FORMATION OF SOCIAL RESILIENCE CAPACITY: THE CASE OF ÇAYIROVA*

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ABSTRACT

Cities can be defined as dynamic structures that constantly change and transform under the influence of both natural causes and human actions. Within this dynamic structure, the necessity for cities to cope with unexpected situations and stresses they encounter, while maintaining their functions, is one of the key emphases of the concept of urban resilience. Initially, urban resilience was addressed within the framework of disaster management and risk reduction strategies. Over time, it has been understood that cities must be resilient not only to disasters but also to economic, social, and environmental changes. In urban planning literature, the relationship between resilience and urban planning has been discussed in various areas, and multiple planning strategies have been developed to help cities manage crisis processes. It has often been emphasized that building urban resilience capacity increases the ability to cope with unforeseen situations and adapt to changes while maintaining functionality. Public spaces are fundamental urban spatial elements in terms of enhancing the resilience capacity of cities and have significant effects on their economy, environment, security, health, harmony, and identity. Planning public spaces in line with sustainability principles, along with ensuring their healthy functioning and development, provides important insights into the current status and future of cities. This study aims to contribute to the literature on the relationship between public spaces and resilience, based on the fact that well-planned public open spaces, designed in accordance with urban planning principles and sustainability approaches, are effective in enhancing social resilience during and after crises. Furthermore, this study, which seeks to explain the impact of public open spaces on social resilience through a case study (Çayirova/Kocaeli), is expected to serve as an example for other fields of research.

Keywords: Public Space, Public Open Space, Resilience, Social Resilience, Çayirova.

**This paper is prepared from Selma Baykara's MSc thesis titled 'The Contribution of Public Spaces to the Formation of Social Resilience Capacity: The Case of Çayirova'.*

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THE EFFECT OF MINDFULNESS EXERCISES ON REDUCING TEST ANXIETY SINAV KAYGISINI AZALTMADA MİNFLNESS EGZERSİZLERİNİN ETKİSİ

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ABSTRACT

Mindfulness exercises are an effective technique that aims to reduce anxiety and stress levels by enabling individuals to focus on the time they are in test anxiety is an important problem that negatively affects individuals' academic success and psychological well-being. High levels of anxiety reduce students' ability to concentrate, focus, and recall information, thus decreasing their exam performance. This study aims to both support individual well-being and increase academic achievement by examining the effect of mindfulness exercises in reducing test anxiety. In the study, quantitative and qualitative data were collected using a sequential transformational design design from mixed method research. In the quantitative dimension, a one-group pretest-posttest experimental design was used. In the qualitative dimension, semi-structured interviews were conducted to understand students' experiences and views on mindfulness exercises. Multidimensional Test Anxiety Scale and Student Interview Form for Mindfulness Exercises were used as data collection tools. Quantitative data were analysed with Jamovi 2.3.28 software. In line with the assumption of normal distribution, paired t-test was applied from parametric tests, and it was found that mindfulness exercises reduced test anxiety in a statistically significant way ($p = 0.002$). Qualitative data were analysed by descriptive and content analysis method and it was found that mindfulness exercises positively affected the emotional, mental and physical states of the students. The findings of the study show that mindfulness exercises are an effective method to reduce test anxiety. As a result of the research, it is recommended that teachers should implement mindfulness exercises to reduce test anxiety. By integrating mindfulness exercises into the educational environment, students' academic and personal development is expected to be supported.

Keywords: Test Anxiety, Mindfulness Exercises, Conscious Awareness, Peace, Success.

ÖZET

Mindfulness egzersizleri, bireylerin içinde bulunduğu zamana odaklanmasını sağlayarak kaygı ve stres seviyelerini düşürmeyi hedefleyen etkili bir tekniktir. Sınav kaygısı, bireylerin akademik başarılarını ve psikolojik iyilik hallerini olumsuz etkileyen önemli bir sorundur. Yüksek kaygı seviyeleri, öğrencilerin dikkatlerini toplama, odaklanma ve bilgiyi hatırlama becerilerini azaltarak sınav performanslarını düşürmektedir. Bu araştırma, sınav kaygısını azaltmada mindfulness egzersizlerinin etkisini inceleyerek hem bireysel iyilik halini desteklemeyi hem de akademik başarıyı artırmayı amaçlamaktadır. Araştırmada karma yöntem araştırmalarından sıralı dönüşümsel tasarım deseni kullanılarak nicel ve nitel veriler toplanmıştır. Nicel boyutta, tek gruplu öntest-sontest deneysel desen kullanılmıştır. Nitel boyutta ise öğrencilerin mindfulness egzersizlerine dair deneyim ve görüşlerini anlamak için yarı yapılandırılmış görüşme yapılmıştır. Veri toplama aracı olarak *Çok Boyutlu Sınav Kaygısı Ölçeği* ile *Mindfulness*

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Egzersizlerine Yönelik Öğrenci Görüşme Formu kullanılmıştır. Nicel veriler, Jamovi 2.3.28 programı ile analiz edilmiştir. Normal dağılım varsayımı doğrultusunda parametrik testlerden eşleştirilmiş t-testi uygulanmış, mindfulness egzersizlerinin sınav kaygısını istatistiksel olarak anlamlı bir şekilde azalttığı bulunmuştur ($p = 0.002$). Nitel veriler ise betimsel ve içerik analizi yöntemiyle çözümlenmiş ve mindfulness egzersizlerinin öğrencilerin duygusal, zihinsel ve fiziksel durumlarını olumlu etkilediği tespit edilmiştir. Araştırmanın bulguları, mindfulness egzersizlerinin sınav kaygısını azaltmada etkili bir yöntem olduğunu göstermektedir. Araştırma neticesinde sınav kaygısını azaltmaya dönük öğretmenlere mindfulness egzersiz uygulamalarını yaptırmaları önerilmektedir. Mindfulness egzersizlerinin eğitim ortamına entegre edilmesi ile öğrencilerin akademik ve kişisel gelişimleri desteklenmesi beklenmektedir.

Anahtar Kelimeler: Sınav Kaygısı, Mindfulness Egzersizleri, Bilinçli Farkındalık, Huzur, Başarı.

INTRODUCTION

While anxiety causes cognitive problems such as distraction, lack of concentration and difficulty in remembering information by negatively affecting the mental and physical functions of individuals, it can also manifest itself with physiological symptoms such as sweating, shortness of breath and nausea (Koçyiğit, 2023; Spielberger, 1980). This situation not only decreases academic achievement but also threatens the psychological well-being of the individual (Koppenborg et al., 2024). According to Zeidner (1998), the effects of anxiety can lead to wide-ranging problems at both individual and social levels. Therefore, the need for effective interventions to help individuals cope with anxiety is increasing day by day (Erduran Tekin & Satan, 2024). Test anxiety is one of the important factors that affect students in many ways in modern educational environments.

Test anxiety is a common problem that negatively affects students' academic achievement and threatens their mental health. Zeidner (1998) and Spielberger (1980) emphasised that test anxiety causes both cognitive and physiological problems by reducing individuals' focus, recall and performance capacities. In the current education system, students' ability to manage test anxiety is critical for academic success and psychological well-being. In this context, mindfulness exercises stand out as an effective method to reduce test anxiety and improve performance (Kabat-Zinn, 1990; Brown & Ryan, 2003). Mindfulness techniques, which include approaches such as acceptance and compassion, have started to be seen as an effective tool in stress and anxiety management in recent years. Grossman et al. (2004) stated that mindfulness practices reduce stress levels by providing physical and mental relaxation. Similarly, Brown and Ryan (2003) stated that mindfulness exercises support success in exams by increasing attention and focus.

The effect of mindfulness exercises on reducing test anxiety has been widely discussed in the literature. Zeidan et al. (2010) showed that these exercises reduce individuals' stress levels and develop a calmer state of mind. Neff (2003) states that mindfulness-based approaches help individuals develop a positive perspective towards themselves and this reduces test anxiety. Grossman et al. (2004) emphasised that mindfulness practices are effective in alleviating physiological symptoms related to test anxiety by providing physical relaxation. As an alternative to traditional methods such as cognitive behavioural therapy, mindfulness contributes to academic success by improving individuals' emotional regulation skills (Kabat-Zinn, 1990). This technique supports individuals to accept the anxiety they experience before and during the exam and to cope effectively with this situation. Orosz et al. (2024) concluded that the development of mindfulness skills increases individuals' psychological resilience and reduces their anxiety levels. These techniques not only reduce test anxiety, but also support emotional resilience by increasing the overall quality of life (Brown & Ryan, 2003).

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The effect of mindfulness techniques on reducing test anxiety draws attention with its positive reflections on the psychological and physiological states of individuals. Grossman et al. (2004) stated that mindfulness-based body scanning exercises reduce the symptoms of test anxiety by providing physical relaxation. Similarly, Schussler et al. (2024) stated that mindfulness-based programmes reduce test anxiety by increasing attention focus and stress management in students.

Many strategies have been developed to reduce test anxiety, including cognitive behavioural therapy, breathing techniques, relaxation exercises and mindfulness-based approaches. Mindfulness is an effective technique that allows individuals to manage anxiety and stress by focusing on the present moment (Kabat-Zinn, 1994). This method supports individuals to gain mental clarity, achieve emotional balance and increase their capacity to cope with stress (Atalay, 2019; Zeidan et al., 2010; Schussler et al., 2024). In the literature, it is stated that mindfulness exercises play an important role in reducing test anxiety as well as increasing the academic performance of individuals (Keng et al., 2011; Orosz et al., 2024).

The effectiveness of mindfulness exercises in reducing test anxiety has the potential to improve both students' test performance and their overall quality of life. However, while existing research generally focuses on the general effects of these techniques, research directly addressing the test anxiety experienced by middle and high school students is limited. Studies on the specific effects of mindfulness practices on managing test anxiety were generally conducted with limited participant groups and were insufficient to provide generalisable results. In this context, this study aims to fill an important gap in this field by addressing the effects of mindfulness exercises with both quantitative and qualitative dimensions in order to reduce the test anxiety of students preparing for the exam. Accordingly, the aim of this study is *'to examine the effect of mindfulness exercises on reducing test anxiety and to concretise this effect with the individual experiences and opinions of students.'* As a result of the detailed literature study conducted in line with this purpose, the problem statement of the research was determined as *'Are mindfulness exercises an effective method in reducing test anxiety?'* The sub-problems of the research were analysed in line with 2 main problems as follows.

Sub Problems

1. Do mindfulness exercises have an effect on reducing test anxiety?
2. How do students' experiences and opinions about mindfulness exercises explain its effect on reducing test anxiety?

METHOD

Research Model

This research was structured in a sequential transformational design design from mixed method studies in order to examine the effect of mindfulness exercises in reducing test anxiety. Mixed method studies are an approach where qualitative and quantitative methods are used together, aiming to provide more comprehensive answers to research questions (Creswell & Plano Clark, 2011). A single-group pretest-posttest experimental design model was used in the quantitative dimension of the research. In order to collect quantitative data, the Multidimensional Exam Anxiety Scale was applied to the students who participated in the mindfulness exercises before and after the experiment. In the qualitative dimension of the research, semi-structured interviews were conducted in order to understand the individual experiences of mindfulness exercises.

Study Sample/Study Group

The study group of this research consisted of 8/A grade students studying in a state secondary school affiliated to the Ministry of National Education and preparing for the exam. A single-group experimental design was preferred in order to concretely evaluate the effect of the independent variable (mindfulness

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exercises) on the dependent variable (test anxiety level). With this design, it was aimed to collect data in a shorter time by working in a single class. In the sample selection, the scale was applied to all three classes in the school and the class with the highest anxiety level was selected as the sample.

Data Collection Tools

The Multidimensional Test Anxiety Scale was used in the quantitative dimension of the research, and the Student Interview Form for Mindfulness Exercises was used in the qualitative dimension.

Multidimensional Test Anxiety Scale: The Multidimensional Test Anxiety Scale is a scale developed to evaluate students' test anxiety in cognitive, emotional and physical dimensions. The scale is the Turkish adaptation of an original scale developed by Putwain et al. (2020). It consists of 16 items in total and 4 sub-dimensions: Anxiety, Cognitive Interference, Tension and Physiological Indicators. The items in the 5-point Likert-type scale are answered as 1 (Strongly disagree) and 5 (Strongly agree). The highest possible score on the scale is 80, and the lowest is 20. Validity and reliability studies have shown that the scale is suitable for Turkish culture and evaluates students' test anxiety experiences in a multidimensional manner. Statistical methods such as confirmatory factor analysis and internal consistency coefficients were used in the validity study of the scale, and the results revealed that the scale has a high reliability. It is used as an effective tool in measuring test anxiety, especially for students between the ages of 11-19. The Cronbach alpha internal consistency coefficient of the scale was calculated as .80. No detailed analysis was made for the sub-dimensions in the scale, and the evaluation was made under a single dimension (Exam Anxiety).

Student Interview Form for Mindfulness Exercises: The student interview form for mindfulness exercises was designed to understand the effects of mindfulness exercises on students' test anxiety and to examine the experiences experienced in this process in depth. The form aims to determine how students feel during mindfulness exercises, their intentions to use these techniques in their daily lives, and their suggestions regarding the duration, frequency, or content of the exercises. It includes open-ended questions that allow students to comprehensively explain their views on their emotional, mental, and physical states. The form is an important tool in assessing the sustainability of mindfulness practices as well as revealing the potential of students to develop strategies to cope with exam anxiety. Three open-ended questions prepared by the researchers were asked to the students. The answers received for each determined question were recorded in writing on the interview form by the researchers.

Data Analysis

The Multidimensional Test Anxiety Scale developed by Köseoğlu et al. (2022) was applied to measure the test anxiety levels of the students participating in the study, and then mindfulness practices were carried out. The experimental group students were included in a five-week program that included mindfulness exercises. The quantitative dimension of the study is presented in Table 1:

Table 1. Single Group Pretest-Posttest Experimental Design Model

Group	Measurement 1	Implementation	Measurement 2
Experimental Group	Pre-test	Mindfulness Exercises	Post-test
		8 sessions (5 weeks)	

Table 1 shows the single group pretest-posttest experimental design model of the study. With this design, an 8-session application including mindfulness exercises was carried out on the experimental group. The effect of mindfulness exercises was evaluated with the scale applied before and after the application.

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In order to analyze the effect of mindfulness exercises in reducing exam anxiety, the data obtained from the multidimensional exam anxiety scale was analyzed using the Jamovi 2.3.28 program. Descriptive statistics were performed in line with the first sub-problem of the study. The skewness coefficient was calculated to find out whether there was a normal distribution between the groups. Since the skewness coefficient for the general dimension of the scale and the sub-dimensions was between -1 and +1, it was determined that the students' exam anxiety levels showed a normal distribution. In addition, Levene's homogeneity test was applied to determine whether the data were parametric/non-parametric. Since the data were greater than .05, the paired sample t test from parametric tests was used.

The qualitative data of the study were evaluated by analyzing the data obtained from semi-structured interviews with content analysis and descriptive analysis methods in order to understand the effects of mindfulness practices on students. In this context, the effects of mindfulness exercises on exam anxiety were supported qualitatively in line with the sub-themes obtained. The data presented regarding the themes determined in line with the student opinions were supported by direct quotations from the student opinions. The students participating in the project were coded as Ö1, Ö2, Ö3, Ö4.....Ö19.

Validity and Reliability

The study titled The Effect of Mindfulness Exercises on Reducing Test Anxiety was obtained by uploading the necessary information documents and permission (parent, school, student) documents to the system from the Ministry of National Education's <https://arastirmaiznleri.meb.gov.tr/> address. Since applying mindfulness exercises requires a professional field of expertise, both the advisor teacher and the students received training from a mindfulness exercise implementing expert who has a doctorate degree in Guidance and Psychological Counseling. The first application session of the study was carried out by the expert, and the subsequent sessions were carried out by the advisor teacher. All sessions progressed within a certain plan. In this context, interviews were conducted with the school administration where the application would be carried out. The pretest-posttest application, implementation of exercises, management of the process, analysis of data and reporting processes of the study were all carried out by the students under the supervision of the consultant.

Various measures were taken to ensure the internal and external validity of the study. The Multidimensional Test Anxiety Scale and mindfulness exercises applied to the participants were carried out by the researchers themselves and the instructions were clearly conveyed. Participants who were absent for more than two weeks and responded to the scale items to the same degree were removed from the study, thus increasing the reliability of the data set. In this direction, 1 student was removed from the study because he was absent and 1 student was removed from the study because he filled in all the items of the scale to the same degree. In order to control the effect of the mindfulness exercises, the application process was carried out under the same standard conditions and no additional independent variable was allowed to affect the results. These approaches allowed the effect of the independent variable of the study to be observed reliably and to increase the generalizability of the results to student groups with similar characteristics.

The suitability, comprehensibility and applicability of the interview form used as a data collection tool in the qualitative dimension of the research were evaluated by two academicians who are experts in their fields. The interview form was re-prepared in line with the expert opinions. The purpose of the research was clearly explained to the students, it was stated that the obtained data would be used only for the purpose of the research and that the confidentiality of the participant names would be protected in the presentation of the data, and this confidentiality was also protected. The research method, study group, data collection tool, data collection and analysis were explained in detail. Notes were taken during the interview to prevent data loss and to increase the validity and reliability of the research. The direct

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statements of the participants were presented in italics and some abbreviations were used in order not to disrupt the flow of the interview.

Implementation Process of the Research

The booklet of mindfulness exercises 1 and 2 developed by Sönmez (2020) for test anxiety inspired the creation of some activities. In addition, permission for use was obtained by the author. The determined exercises were produced in an original standard. The project's implementation schedule is given in detail in Table 2 below.

Table 2. Project Implementation Schedule

Date	Procedures to be Performed
9 December 2024	1st Session: Breath Awareness Exercise
13 December 2024	2nd Session: Relaxation Exercise
16 December 2024	3rd Session: Relaxation Exercise
20 December 2024	4th Session: Love Meditation Exercise
23 December 2024	5th Session: Focus Exercise
27 December 2024	6th Session: Emotional Resilience Exercise
30 December 2024	7th Session: Mindfulness Walking Exercise
06 January 2025	8th Session: Rock Pose Exercise

As presented in Table 2, the application process of the study consists of 8 different sessions. In the creation of the sessions, the research team worked together with an expert in the field of mindfulness and carefully created the activities. The activities obtained as a result of the literature study were compiled and the activities directly aimed at reducing exam anxiety were examined. Beyond all the activities, 8 original mindfulness exercise contents were created under 8 different titles. The determined titles: *Breath Awareness Exercise*, *Relaxation Exercise*, *Attention Exercise*, *Love Meditation Exercise*, *Focus Exercises*, *Emotional Resilience Exercise*, *Mindfulness Walking Exercise*, *Rock Pose Exercise*.

FINDINGS

In this section, the analysis results of the data obtained within the scope of the research are presented. In the quantitative dimension of the research, the effect of mindfulness exercises on reducing test anxiety was evaluated with statistical analysis, and in the qualitative dimension, the experiences and opinions of the students regarding mindfulness exercises were examined with content analysis. The findings are presented in a sequential manner to answer the sub-problems of the research.

Findings on the Effect of Mindfulness Exercises in Reducing Test Anxiety

The distribution characteristics of the pretest and posttest scores of the test anxiety scale used in the study were examined in order to test the normality assumption. In this context, the skewness coefficient was calculated and it was evaluated whether the data had a symmetric distribution. The skewness coefficient values of the pretest and posttest scores of the experimental group are presented in the table below.

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Table 3. Distribution Characteristics of Pretest and Posttest Scores and Normality Test Results

	Mean	Median	Skewness		Kurtosis		Shapiro-Wilk	
			Skewness	SE	Kurtosis	SE	W	p
Pre-test	52.4	53	0.178	0.524	-0.0104	1.01	0.984	0.975
Post-test	41.5	40	0.784	0.524	0.2897	1.01	0.939	0.258

According to the data presented in Table 3, the mean pretest scores ($M = 52.4$) are significantly higher than the mean posttest scores ($M = 41.5$). The skewness coefficients show that the pretest distribution (Skewness = 0.178) is quite close to symmetry, while the posttest distribution (Skewness = 0.784) shows a slight right skew. The kurtosis coefficients (Pretest Kurtosis = -0.0104; Posttest Kurtosis = 0.2897) indicate that both distributions are close to a normal curve. The results of the Shapiro-Wilk normality test show that both pretest ($W = 0.984$, $p = 0.975$) and posttest ($W = 0.939$, $p = 0.258$) scores meet the assumption of normality ($p \geq 0.05$). These findings indicate a suitable data structure for examining the effect of mindfulness exercises on reducing test anxiety with parametric tests. When the means, skewness and kurtosis coefficients of the data are examined, they provide strong clues that mindfulness exercises significantly reduce test anxiety by decreasing posttest scores.

In order to evaluate the effect of mindfulness exercises on reducing exam anxiety, a paired t-test was applied between the pretest and posttest scores of the experimental group. This test allows comparison of scores at different time points (pretest and posttest) within the same group.

Table 4. Paired t-Test Results of the Difference Between Pretest-Posttest Scores of the Experimental Group

			statistic	df	p
Pre-test	Post-test	Student's t	3.67	18.0	0.002

According to the paired t-test results presented in Table 4, there is a statistically significant difference between the pretest and posttest scores of the experimental group ($p = 0.002$). This result shows that mindfulness exercises are an effective method in reducing test anxiety. The fact that the pretest scores ($M = 52.4$) are significantly higher than the posttest scores ($M = 41.5$) supports the fact that mindfulness exercises significantly reduce test anxiety after the application.

Findings Regarding Students' Experiences and Views on Mindfulness Exercises

In this study, one-on-one interviews were conducted with 19 students in the experimental group within the framework of sequential transformational design in order to deeply understand the effects of mindfulness exercises on students. A structured interview form was used in the interviews to evaluate the students' feelings, thoughts and experiences during the mindfulness exercises. Three questions in the form were applied to determine the feelings and thoughts, gains, satisfaction or criticisms of the students during the exercises. The student opinions obtained through the interviews were analyzed with content

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analysis method and were designed to include the emotional, physical and mental effects of mindfulness exercises; the applicability of the techniques in daily life and their suggestions about the duration, frequency and content of the exercises. The opinions obtained were examined with thematic analysis method and the findings showed that mindfulness exercises were effective in reducing students' exam anxiety and improving their general emotional state. The themes obtained as a result of the content analysis are presented in Table 5 below.

Table 5. Thematic Distribution of Student Views on Mindfulness Exercises

S.N.	Theme	Frekans
1.	Emotional Effects	6
2.	Mental Effects	6
3.	Physical Effects	5
4.	Applicability	10
5.	Duration of Exercises	3
6.	Content of Exercises	3
7.	Student Suggestions	4

Table 5 presents the effects of mindfulness exercises on the experimental group students and the suggestions received from the students in a thematic structure. The data were obtained as a result of the analysis of one-on-one interviews with 19 students and were grouped around seven main themes. The students generally stated that they experienced emotional, mental and physical relaxation; they stated that the techniques were applicable in coping with test anxiety. In addition, suggestions for development regarding the duration, frequency and content of the exercises were also shared.

Emotional Effects: Mindfulness exercises significantly improved students' emotional states. Students reported feeling peaceful, calm, and relaxed, especially during the exercises. This finding suggests that mindfulness practices support emotional balance.

"I felt relaxed and peaceful." (Student 1)

"I felt much more emotionally balanced." (Student 4)

Mental Effects: The exercises helped students gain mental clarity and reduce exam-related anxiety. In particular, focus and reduced mental distraction were noted as significant outcomes of this effect.

"I felt less mentally distracted during the exercise." (Student 3)

Physical Effects: Students emphasized that the exercises provided physical relaxation and especially reduced pre-exam tension. Some reported a significant decrease in their physical tension.

"My physical tension decreased and I felt relaxed. I noticed a lightness in my shoulders. I want to do these exercises at home." (Student 16)

Applicability: Students frequently stated that mindfulness techniques can be applied to manage exam anxiety in daily life. Most students stated that they plan to use these techniques before exams and in other stressful situations.

"I will use these techniques to reduce my exam anxiety. I believe that these exercises will help me perform better in my mock exams and written exams." (Student 6)

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Duration of Exercises: There were various opinions on the duration of the exercises. While some students found the duration sufficient, others suggested that the duration should be longer or shorter.

"I found the activity durations to be too short. The duration can be increased. Because just when we are feeling relaxed and peaceful, we suddenly open our eyes. There were many times when I wished we had continued a little longer." (Student 8)

"The longer duration distracts my attention. Activities should not exceed 10 minutes." (Student 2)

Exercise Content: Suggestions were made to improve the content of the exercises. It was stated that different techniques such as guided meditations and the addition of physical movements should be included in the content.

"This is the first time I have encountered such activities. I researched mindfulness exercises on the internet and started listening to them. Thank you very much for introducing me to this. It would be very appropriate if you developed a mobile application." (Student 15)

"The exercises can be increased even more. It is a bit difficult to do these exercises alone. It seems like a teacher or a practitioner is needed for this." (Student 5)

Student Suggestions: Students made suggestions such as increasing the frequency of the exercises or making the application times more flexible. This shows that there is a need to increase the effectiveness of mindfulness exercises.

"I think these exercises should be done every day to see the benefits of these activities." (Student 4)

"I liked the sessions very much but I found them insufficient. Also, the duration could be extended. For some reason, good things always end quickly." (Student 17)

In the qualitative part of the study, the effects of mindfulness exercises on test anxiety were examined by one-on-one interviews with 19 students in the experimental group. The interviews were structured to understand the students' emotional, mental and physical experiences, the applicability of the techniques in daily life, and their views on the duration, frequency and content of the exercises. As a result of the content analysis, it was determined that mindfulness exercises provided emotional balance, increased mental clarity and focus, and provided physical relaxation in the students. The students stated that the techniques were effective in managing test anxiety and offered suggestions for development in terms of duration, frequency and content. Both the quantitative and qualitative findings of the study show that mindfulness exercises are an effective method in reducing test anxiety and that adjustments may be needed for greater applicability.

CONCLUSION AND DISCUSSION

In this study, the effect of mindfulness exercises in reducing test anxiety was addressed in both quantitative and qualitative dimensions. The quantitative findings of the study revealed that mindfulness exercises reduced test anxiety statistically significantly ($p = 0.002$). This result is consistent with studies showing that mindfulness-based programs have the potential to reduce students' anxiety levels (Zeidan et al., 2010; Grossman et al., 2004; Totan et al., 2019). Mindfulness techniques increase individuals' attention by allowing them to focus on the present moment, while also reducing the physiological symptoms that occur due to test anxiety (Schussler et al., 2024; Kabat-Zinn, 1994).

Qualitative findings show that mindfulness exercises are effective not only in reducing students' test anxiety but also in positively improving their emotional, mental and physical states. Yolcu (2015) emphasizes that test anxiety can manifest itself physiologically, mentally, emotionally and behaviorally. The fact that students stated that they experienced emotional relaxation, mental clarity and physical relaxation during the exercises indicates the multidimensional effects of mindfulness practices (Brown and Ryan, 2003; İkiz and Uygur, 2019; Neff, 2003). In particular, it is important for the sustainability

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of these techniques that students find mindfulness techniques applicable in daily life and see them as an effective tool in pre-exam stress management. These findings show that mindfulness practices not only support academic success but also have the potential to increase students' overall quality of life (Orosz et al., 2024). These findings of the study led us, the researchers, to develop a mobile application that will provide content for mindfulness exercises that all students can easily access.

An important outcome of this study is that it expands the limited information in the literature on the effects of mindfulness exercises on middle and high school students. The study revealed that mindfulness exercises develop basic skills such as awareness, stress management and anxiety control in students, thus emphasizing that such practices should be used more widely in educational settings. However, it is recommended that mindfulness programs be repeated in larger sample groups and at different age levels in order to fully evaluate their effects.

This study has shown that mindfulness exercises are an effective method in reducing test anxiety. Quantitative findings show that mindfulness exercises reduce test anxiety statistically significantly, while qualitative findings show that these exercises contribute to students' emotional relaxation, mental clarity and physical relaxation. One of the most striking results of this study is that students see mindfulness techniques as a method applicable to coping with exam stress in daily life. However, the fact that this study was conducted with only a 19-person experimental group is a limitation in terms of generalizability of the findings. It is recommended that future studies should work with larger sample groups and examine the effects of mindfulness exercises for students at different levels of education. In addition, follow-up studies conducted over longer periods of time are needed to understand the long-term effects of mindfulness practices. This study has provided important insights into the usability of mindfulness exercises in educational environments and their effectiveness in reducing test anxiety, and has emphasized that mindfulness-based programs should be disseminated. It is thought that mindfulness techniques can be considered as a powerful tool that supports students' academic and personal development within the scope of educational policies and practices.

SUGGESTIONS

The mindfulness-based exercises developed within the scope of this study provided an important outcome for reducing test anxiety. It is recommended that researchers evaluate the long-term effects of this application on a larger sample group and examine the effectiveness of the application in different age groups. It is recommended that different methods and techniques be used to measure the effects of mindfulness exercises and the physical and mental effects of the application be analyzed in more depth. Future studies should focus on how the application can appeal to a wider audience globally by comparing the effects of mindfulness exercises in different cultural contexts. Such studies will contribute to a more comprehensive understanding of the effect of mindfulness on test anxiety.

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PRESEASON BODY COMPOSITION ASSESSMENT IN ELITE FEMALE BASKETBALL PLAYERS

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ABSTRACT

Body composition is one of the key components of physical fitness in high-intensity sports such as basketball. The aim of the study was to assess the body composition prior to the 2024-2025 season among elite female basketball teams in Tirana, Albania, using the BOD POD apparatus. **Methodology:** The study subjects included three elite female basketball teams; Partizani No.15, Student No.15 and Tirana No.15, with a total of 45 players aged over 18. Subjects underwent BOD POD® testing before the season to obtain accurate body composition measurements in the following parameters: Body Height (cm), Body Weight (kg), Body Fat (BF%), Fat Mass (kg), Fat-Free Mass (kg), Fat-Free Mass Percentage, and Body Mass Index (BMI, kg/m²). **Results:** The results are presented as mean values with standard deviation (mean ± SD) for body fat percentage, which varied between the teams (BF%: 0.2%). **Conclusions:** In conclusion, these results further emphasize the importance of body fat percentage (BF%)—whether low or high—for health among elite female basketball players in Albania, as it influences sports performance. However, since this is the only available study in elite basketball in Albania, further research is needed to better interpret the body composition of elite female basketball players before and after the season. Regular monitoring of body composition in elite female basketball players is recommended to identify an ideal training regime, nutrition plan, and unique body composition profile for each athlete.

Key Words: Body composition, elite basketball, physical activity, performance

INTRODUCTION

The level of physical activity often seen in athletics can prevent the gain of unwanted fat mass (FM) (body fat) and can lead to weight loss; involvement in physical activity results in calorie burning. High-intensity activities can help reduce body fat by promoting calorie expenditure (Medicinenet, 1996). Basketball has been identified as an example of such a high-intensity sport, where physical skills and metabolic demands are particularly high (Gibson et al., 2009). To develop an appropriate off-season, pre-season, and in-season training routine, coaches must be familiar with the specific demands that basketball places on the athlete's body (Tavino et al., 1995). Assessing and monitoring body composition during the college basketball season can help coaches and strength and conditioning specialists recognize the demands and effects of the intensive nature of basketball on the body. Body composition should be considered one of the key components of physical fitness in basketball, as well as in other high-intensity sports. According to the authors (Gibson et al., 2009), changes in body composition have been reported during a sports season; thus, assessing body composition is a key component of physical abilities and metabolic demands, which are particularly high. The intensity and duration of some sports can influence the number of calories burned; literature acknowledges that high-intensity physical activity sports can impact body composition (Bird S, 2008; Esmat, 2010; Fleck, 1983; Kim, G.S, 2006; Ramana et al., 2004; Smith, 1976).

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Carling & Orhant (2010) investigated variations in body composition in 30 male professional football players along with the effects of exposure time and player position. However, research has not yet investigated changes in BF% in relation to playing time. Due to the intensive nature of basketball, combined with its high demands for physical skills and metabolic demands (Gibson et al., 2009), pre-season and post-season changes in body composition are assumed to vary with the amount of playing time for each athlete. There is a lack of literature on elite female basketball players in Albania. The development of reliable advanced technological equipment in sports science research has provided new perspectives in studies of the physical demands and physiological responses of team sports, particularly in basketball, which has numerous demands on aerobic and anaerobic potential, direction changes, accelerations, decelerations, jumps, sprints, contacts, as well as specific skills. Many studies on female basketball have referred to body composition assessed with sophisticated devices like Bod Pod, which is available in the Exercise Physiology Laboratory at the University of Sports in Tirana. Therefore, we decided to start assessing the body composition of elite female basketball players using the Bod Pod equipment.

MATERIALS AND METHODS

Participants

The study subjects included three elite female basketball teams: Partizani No.15, Student No.15, and Tirana No.15, with a total of 45 players aged over 18. Approval was obtained from the Institutional Ethics Committee of the University of Sports Tirana. Any player who faced various factors leading to injuries or illnesses was excluded from the study. Subjects underwent BOD POD® testing before the season to obtain accurate body composition measurements in the following parameters: Body Height (cm), Body Weight (kg), Body Fat (BF%), Fat Mass (kg), Fat-Free Mass (kg), Fat-Free Mass Percentage, and Body Mass Index (BMI, kg/m²). The pre-season testing was performed two weeks before the official start of the season (September 2024).

Instrument

The electronically calibrated BOD POD® apparatus was used to measure the weight of each subject. The BOD POD® GS-X model, serial number 2021X059 Firmware Version 16.12, was used to assess body composition. Height was recorded using a standard stadiometer.

Procedure

Before beginning the testing, all instruments were calibrated according to the manufacturer's instructions (Cosmed, 2010). Various readings such as temperature, barometric pressure, and relative humidity were maintained within the limits identified for the proper functioning of the BOD POD®. Subjects were asked to wear a swim cap, shorts, and a sports bra. The subjects were also instructed not to eat or exercise 3-4 hours before the test. Testing procedures followed the techniques outlined in the BOD POD® software. Basic information about the subject (height, age, and ethnic affiliation) was entered into the control system. The BOD POD® was then calibrated. The subjects' weight was measured using an integrated digital scale (accuracy ensured by the regular calibration of the scale using the provided calibration weights). The body volume of the subject was measured while seated inside the BOD POD®. The players were then instructed to relax, breathe normally, and remain as still as possible during the actual testing. The thoracic gas volume of each subject was assessed. Since the subjects included Caucasian females, the (Siri, 1956) was used to estimate the body fat percentage. The test results for each subject were displayed and printed.

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Statistical Analysis

The results are described as team averages with standard deviation (mean $\pm$ SD). All calculations were performed using Excel software, serving as pre-season test data for elite female basketball players in Albania.

RESULTS

The study consisted of three elite women's basketball teams; Partizani No.15, Student No.15 and Tirana No.15, with a total of 45 players with an average age of 20-21 years. Four players did not meet the study requirements and were excluded. All subjects were present, healthy and eligible for all regular season games. The data obtained from the Bod Pod device are presented in Table 1.

Table 1. Data obtained from the Bod Pod for Basketball Elite female

Body Height (BH cm), Body Weight (BW kg), Body Fat Percentage (BF%), Fat Mass (kg), Fat-Free Mass (kg), Fat-Free Mass Percentage, and Body Mass Index (BMI, kg/m²).

Team	Age		BH cm	BW kg	BF %	FM kg	FFM kg	FFM %	BMI kg/m ²	SD
		Average	172.3	69.9	25.6	18.67	51.31	74.4	23.53	0.2
Partizani	21	<i>Max</i>	179	104	42.9	44.63	60.5	83.6	32.5	
		<i>Min</i>	165	54.3	16.4	10.63	43.69	57.1	19.6	
		Average	172.3	67.9	23.46	16.04	51.91	76.53	23.23	0.1
Studenti	21.1	<i>Max</i>	189	74.5	31.4	21.94	61.38	87.9	26.2	
		<i>Min</i>	163	60.34	12.1	7.3	45.79	68.6	20.4	
		Average	176	70.78	24.25	17.91	53.03	75.75	22.3	0.3
Tirana	20	<i>Max</i>	180	97	36.4	35.68	62.23	86	26.9	
		<i>Min</i>	167	62	14	9.05	45.36	63.6	19.1	

DISCUSSION

It was anticipated that participation in the high-intensity sport of elite-level basketball for women would result in changes in pre-season BF%, and such changes would be linked to game performance. Although the results of this study identified other significant relationships between BF% and other components, there was a strong correlation, according to (Cohen 1988), between those with a low BF% at the beginning of the season and a low BF% at the end of the season. Consequently, the results showed that pre-season BF% was not significantly different between the teams included in the study, but there were differences between the players as per the data in Table 1. However, such findings should not be dismissed. A mean difference of 2.8 kg in FM/kg was observed both between the teams and among the players. However, discrepancies exist between various studies that have examined pre-season and post-season BF% changes among female collegiate basketball players (Carbuhn et al., 2010; Johson et al., 1989; Siders et al., 1991; Sinning, 1985).

Carbuhn et al. (2010) and Siders et al. (1991) noted significant changes in body composition between the pre-season and post-season in female collegiate basketball players; they found an average reduction in body fat from the pre-season to the post-season. It is important to recognize the different sample sizes

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between studies; specifically, studies with significantly larger sample sizes found a marked reduction in BF% before and after the season (Carbuhn et al., 2010; Siders et al. 1991). Smaller and more limited samples may explain the lack of significance in the results.

Currently, it is shown that (Kyle UG et al., 2003) BMI alone cannot provide information about the relative contribution of FFM or fat mass to body weight. They presented FFMI and BFMI values corresponding to low, normal, overweight, and obese BMI categories, where FFMI and BFMI provide information on body composition regardless of height. The authors state that there are no published ranges for fat-free mass index (FFMI; kg/m^2), body fat mass index (BFMI; kg/m^2), and percentage of body fat (%BF). Furthermore, the differences between studies may also be explained by the different methods used to assess BF%. Moreover, the way researchers defined the pre-season and post-season, and when BF% measurements were taken, also varied. The current study collected data two weeks before the official start of basketball practices. The authors chose this time frame to ensure that all subjects were injury-free and well-hydrated. All female basketball players were measured during the same time period (early afternoon), with pre-season assessments using the Bod Pod. The main explanation for the results obtained may have been the limited data analysis. Female basketball players should not lose too much BF%, as the results may have negative consequences on their overall health. This study was the first to examine changes in body composition among elite female basketball teams in Albania. Therefore, there are limited studies for comparison. The results suggest a potential importance in monitoring the body composition of female basketball players consistently throughout a sports season, before and after it. Body composition is a vital tool when assessing an athlete's health and physical fitness (Fox et al., 1993; Lin, 2002; McArdle et al., 2001, Wilmore, 1994), in relation to their playing time. Due to the lack of similar studies, further research and investigation are recommended for better interpretation and verification of such a relationship.

CONCLUSION

The assessment and monitoring of body composition help coaches and athletes to better identify and maintain a healthy, low, and unique BF%, possibly serving as an indicator of their physical ability and sports readiness. These results support and further recognize the importance of low or high BF% for health among elite female basketball players in Albania. However, being the only preliminary study in elite basketball in Albania, further studies are needed to better interpret the body composition of elite female basketball players before and after the season according to the player's position (guard, forward, center). Addi

tional body composition assessments beyond the pre-season and post-season could better reflect the results of a competitive season for elite female basketball players in terms of BF%. Regular monitoring of body composition in elite female basketball players is recommended to identify an ideal training regimen, nutrition plan, and unique body composition for each athlete.

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PULMONER HİPERTANSİYON PULMONARY HYPERTENSION

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ÖZET

Pulmoner arteriyel hipertansiyon, pulmoner arteriollerde yüksek kan basıncı ve vasküler yeniden şekillenme ile karakterize ciddi ve ölümcül bir klinik sendromdur. İstirahat halinde ortalama pulmoner arter basıncının 25 mmHg veya üzerinde olması pulmoner hipertansiyon olarak kabul edilmiştir. Pulmoner arteriyel hipertansiyon; sol kalp hastalığı nedeniyle oluşan pulmoner hipertansiyon; akciğer hastalığı veya hipoksi nedeniyle oluşan pulmoner hipertansiyon; kronik tromboembolik pulmoner hipertansiyon; belirsiz veya çok faktörlü mekanizmaları olan pulmoner hipertansiyon olmak üzere klinik olarak dört gruba ayrılmıştır.

Kronik tromboembolik pulmoner hipertansiyon, en az bir veya daha fazla çözülmemiş akut pulmoner embolizm atağının sonucu olabilir; bu nedenle, güncel uygulama kılavuzları tarafından süresiz antikoagülasyon şiddetle önerilir. Varfarin gibi K vitamini antagonistleri ilaçların kronik tromboembolik pulmoner hipertansiyon tanısı konulan hastalarda venöz tromboz oluşumunu azaltmada klinik olarak etkili olduğu kanıtlanmıştır. Ancak, K vitamini antagonistlerinin kullanımının düzenli doz takibi ve doz ayarlamaları gerektirmesi ve birçok ilaçlarla ve bazı yiyeceklerle etkileşimleri gibi önemli dezavantajları vardır. Kronik tromboembolik pulmoner hipertansiyon tedavisinde dabigatran, rivaroksaban, apiksaban ve edoksaban gibi doğrudan oral antikoagülanların K vitamini antagonistleri ile benzer etkinlik ve güvenlik düzeyleri gösterdiğinden son zamanlarda tercih edilmektedir. Ancak, kronik tromboembolik pulmoner hipertansiyon olan hastalarda düşük kalp debisi nedeniyle sağ kalp yetmezliği ve böbrek disfonksiyonu gelişebileceğinden doğrudan oral antikoagülanların tedavisinden önce hastaların hepatik ve renal fonksiyonları gözden geçirilmelidir.

Hidatik kist ve şistosomiyazis pulmoner hipertansiyona yol açabilen başlıca paraziter hastalıklardır. İnterstisyel akciğer hastalıklarında da altta yatan bir bağ dokusu hastalığı veya idiyopatik pulmoner fibrozis sonucu pulmoner hipertansiyon olabilir. Pulmoner hipertansiyon birçok bağ dokusu hastalıklarında görülebilmesine rağmen en çok sklerodermada (%37) görülür. Skleroderma olanlarda pulmoner hipertansiyon sıklığı fazla olduğundan aralıklı ekokardiyografik kontrol önemlidir.

Pulmoner arteriyel hipertansiyon, ilerleyici vasküler yeniden şekillenmeye bağlı olarak pulmoner vasküler direncin artmasıyla karakterize, eninde sonunda sağ kalp yetmezliğine ve ölüme yol açabilen, yaşamı tehdit eden bir hastalık olduğundan altta yatan neden ne olursa olsun gecikmeden tedavisi gereklidir.

Anahtar Kelimeler: Pulmoner Hipertansiyon, Antikoagülasyon, Embolizm.

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ABSTRACT

Pulmonary arterial hypertension is a serious and fatal clinical syndrome characterized by high pulmonary blood pressure and vascular remodeling in the pulmonary arterioles. A resting mean pulmonary artery pressure of 25 mmHg or more is considered pulmonary hypertension. Pulmonary arterial hypertension is divided into four clinical groups: pulmonary hypertension due to left heart disease; pulmonary hypertension due to lung disease or hypoxia; chronic thromboembolic pulmonary hypertension; and pulmonary hypertension with uncertain or multifactorial mechanisms.

Chronic thromboembolic pulmonary hypertension may be the result of at least one or more unresolved episodes of acute pulmonary embolism; therefore, indefinite anticoagulation is strongly recommended by current practice guidelines. Vitamin K antagonist drugs, such as warfarin, have been proven clinically effective in reducing the occurrence of venous thrombosis in patients diagnosed with chronic thromboembolic pulmonary hypertension. However, the use of vitamin K antagonists has significant disadvantages, including the need for regular dose monitoring and adjustments and interactions with many drugs and some foods. In the treatment of chronic thromboembolic pulmonary hypertension, direct oral anticoagulants such as dabigatran, rivaroxaban, apixaban and edoxaban have recently been preferred because they have shown similar efficacy and safety levels to vitamin K antagonists. However, since right heart failure and renal dysfunction may develop due to low cardiac output in patients with chronic thromboembolic pulmonary hypertension, hepatic and renal functions of patients should be reviewed before treatment with direct oral anticoagulants.

Hydatid cyst and schistosomiasis are the main parasitic diseases that can cause pulmonary hypertension. Pulmonary hypertension may also occur in interstitial lung diseases as a result of an underlying connective tissue disease or idiopathic pulmonary fibrosis. Although pulmonary hypertension can be seen in many connective tissue diseases, it is most commonly seen in scleroderma (37%). Since the frequency of pulmonary hypertension is higher in patients with scleroderma, periodic echocardiographic control is important.

Pulmonary arterial hypertension is a life-threatening disease characterized by increased pulmonary vascular resistance due to progressive vascular remodeling, which can eventually lead to right heart failure and death, and therefore, it requires prompt treatment, regardless of the underlying cause.

Keywords: Pulmonary Hypertension, Anticoagulation, Embolism.

Giriş

Pulmoner arteriyel hipertansiyon, pulmoner arteriollerde yüksek kan basıncı ve vasküler yeniden şekillenme ile karakterize ciddi ve ölümcül bir klinik sendromdur ve aynı zamanda kötü prognozlu, akciğer damar yapısının hızla ilerleyen bir hastalığıdır (1). İstirahat halinde ortalama pulmoner arter basıncının 25 mmHg veya üzerinde olması pulmoner hipertansiyon olarak kabul edilmiştir (2); ancak son zamanlarda 20 mmHg'nın üzerinde olması ve pulmoner damar direncinin 3 Wood U x m^2 üzerinde olması pulmoner hipertansiyon olarak değerlendirilmektedir (3). İdiyopatik formda veya farklı klinik durumlarda ortaya çıkabilen pulmoner hipertansiyon, pulmoner vasküler direncin belirgin ve sürekli yükselmesiyle karakterizedir ve pulmoner arter basıncında artışa, sağ ventrikül yetmezliğine ve nihayetinde ölüme yol açar (4).

Pulmoner hipertansiyonun başlıca sonucu, sol kalp, beyin, böbrekler, karaciğer, gastrointestinal sistem, iskelet kası ve endokrin, bağışıklık ve otonomik sistemler de dahil olmak üzere birden fazla organ sistemini etkileyen karmaşık bir klinik sendroma neden olan sağ kalp yetmezliğidir (5).

Pulmoner arteriyel hipertansiyon hastalarında sağ kalbin eksantrik yeniden şekillenmesi ve kontraktıl disfonksiyonu, sol ventrikül geometrisi, yapısı ve fonksiyonunun bozulmasına neden olabileceğinden

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sol ventrikül üzerinde önemli bir etkisi olur. Paylaşılan miyokardial septum, perikardiyal kısıtlama ve dolaşım sisteminin seri doğası tarafından belirlenen kalbin sol ve sağ taraflarının birbirine bağımlılığı göz önüne alındığında, sağ ventrikül gerginliği doğrudan sol ventrikülü etkiler (5). Sağ ventrikül boyutunda ve basıncındaki artışlar, mekanik olarak septumda sola doğru kaymaya neden olarak sol ventrikül kompresyonuna yol açar (6). Sağ ventrikül disfonksiyonundan kaynaklanan düşük atım hacmi ve kardiyak output, özellikle egzersiz sırasında sol ventrikülün yetersiz dolmasına katkıda bulunabilir (6). Sol ventrikül miyokard üzerindeki sonuçlarına ek olarak, şiddetli pulmoner hipertansiyon koroner perfüzyonu da etkileyebilir. Topografik yakınlık nedeniyle, pulmoner arter genişlemesi bazen sol ana koroner arterin sıkışmasına (sol ana koroner arter kompresyon sendromu) neden olabilir ve miyokardiyal iskemi ve aritmileri tetikleyebilir (8).

Sınıflandırma

Pulmoner arter hipertansiyonu da denilen pulmoner hipertansiyon ile ilgili çeşitli sınıflandırmalar yapılmıştır. Pulmoner arteriyel hipertansiyon; sol kalp hastalığı nedeniyle oluşan pulmoner hipertansiyon; akciğer hastalığı veya hipoksi nedeniyle oluşan pulmoner hipertansiyon; kronik tromboembolik pulmoner hipertansiyon (KTEPH); belirsiz veya çok faktörlü mekanizmaları olan pulmoner hipertansiyon olmak üzere klinik olarak gruplara ayrılmıştır (9). Pulmoner hipertansiyon altta yatan patolojiye göre de, idiyopatik pulmoner hipertansiyon, kalıtsal pulmoner hipertansiyon, ilaç veya toksin kaynaklı pulmoner hipertansiyon, bağ dokusu hastalığıyla ilişkili pulmoner hipertansiyon, konjenital kalp hastalığıyla ilişkili pulmoner hipertansiyon, HIV ile ilişkili pulmoner hipertansiyon, venöz/kılcal damar tutulumu olan pulmoner hipertansiyon, ve yeni doğanın kalıcı pulmoner hipertansiyonu olarak sınıflandırılmıştır (10).

Kronik tromboembolik pulmoner hipertansiyon (KTEPH)

Kronik tromboembolik pulmoner hipertansiyon (KTEPH), pulmoner arterlerin lümenini tıkayan, vasküler yeniden şekillenmeye neden olan ve böylece pulmoner hipertansiyona ve en sonunda sağ ventrikül yetmezliğine yol açan çözülmemiş, organize embolilerden kaynaklanan pulmoner emboli komplikasyonudur (11). Akut pulmoner emboli (PE), pulmoner arterlerde kan pıhtısı geliştiğinde oluşur ve kan akışının kısıtlanmasına ve akciğerlerde basıncın artmasına neden olur. KTEPH, trombotik pulmoner vasküler obstrüksiyon durumunda ortalama pulmoner arter basıncının >25 mmHg olması olarak tanımlanır (12). KTEPH, akut pulmoner emboliyi takiben gecikmiş bir komplikasyon sonucu ortaya çıkan bir durumdur. Damarlarda kan pıhtısı oluşumunu içeren venöz tromboemboli (VTE) tekrarlama riskini azaltmak için, güncel tıbbi kılavuzlar KTEPH tanısı konulan hastalarda antikoagülasyonu önermektedir (13).

KTEPH nadir görülen bir durum olsa da, epidemiyoloji bunun idiyopatik pulmoner arteriyel hipertansiyondan daha yaygın bir pulmoner hipertansiyon nedeni olduğunu göstermektedir. Provoke edilmemiş pulmoner embolizm, daha büyük başlangıç perfüzyon defektleri, tanı anında sağ ventrikül disfonksiyonu, tanı gecikme, tekrarlayan embolik olaylar ve pulmoner arter sistolik basıncının 50 mmHg üzerinde olması ile tedaviden sonra kalıcı pulmoner hipertansiyon dahil olmak üzere ilk akut embolik olayla ilişkili bir dizi risk faktör KTEPH gelişimi ile ilişkilidir. Ayrıca, splenektomi, antifosfolipid antikorları, hipotiroidizm ve birkaç kronik inflamatuvar durum (ostemiyelit, inflamatuvar bağırsak hastalığı ve enfekte intravasküler cihazlar dahil) KTEPH için ek risk faktörleridir (12).

KTEPH, ilerleyici pulmoner arter tıkanıklığı, vasküler yeniden şekillenme ve tedavi edilmezse ilerleyici sağ kalp yetmezliği ve ölümle sonuçlanabilir (6-19). KTEPH, akut PE'den sonra nispeten az görülen ancak nadir olmayan bir sonucu temsil eder (14). Çeşitli çalışmalarda, akut PE'den sonra KTEPH sıklığının %0,5 ila %11 arasında değiştiği bildirilmiştir (12).

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KTEPH, en az bir veya daha fazla çözülmemiş akut pulmoner embolizm atağının sonucu olabilir; bu nedenle, güncel uygulama kılavuzları tarafından süresiz antikoagülasyon şiddetle önerilir. Ömür boyu antikoagülasyon önerilen hastalıklar, bilindiği gibi geleneksel olarak oral K vitamini antagonistleri (VKA'lar) ile tedavi edilir (15). Varfarin gibi VKA ilaçların KTEPH tanısı konulan hastalarda venöz tromboz oluşumunu azaltmada klinik olarak etkili olduğu kanıtlanmıştır. Ancak, VKA'ların kullanımının düzenli doz takibi ve ayarlamaları gerektirmesi ve birçok ilaçlarla ve bazı yiyeceklerle etkileşimleri gibi önemli dezavantajları vardır. KTEPH tedavisinde dabigatran, rivaroksaban, apiksaban ve edoksaban gibi doğrudan oral antikoagülanların (DOAK'lar) VKA'lar ile benzer etkinlik ve güvenlik düzeyleri gösterdiği bildirilmiştir (13). VKA tedavisinin dar terapötik aralığı olması ve gıda ve ilaç etkileşimlerinin sıklığı da göz önüne alınırsa KTEPH tedavisinde DOAK'ların VKA'lara karşı bir alternatif olması muhtemeldir. Nitekim, KTEPH tanısı konulanlarda yaşam boyu antikoagülasyon için sabit dozaj, öngörülebilir farmakokinetik ve farmakodinamik özellikler ve izleme gereksinimlerinin olmaması gibi çeşitli avantajlara sahip olan DOAK'lar giderek daha fazla kullanılmaktadır (2).

DOAK'ların bir avantajı ise invaziv prosedürler planlandığında heparinle köprüleme tedavisi olmadan antikoagülasyonun sürdürülmesinin kolaylığıdır. Bu son avantaj, sağ kalp kateterizasyonu veya pulmoner balon anjiyoplasti gibi invaziv prosedürlere giren KTEPH hastalarında özellikle avantajlı olabilir (14). Ancak, KTEPH'li hastalarda düşük kalp debisi nedeniyle sağ kalp yetmezliği ve böbrek disfonksiyonu gelişebileceğinden hastaların hepatik ve renal fonksiyonları gözden geçirilmelidir (5).

Varfarin ile tedavi edilen 115 KTEPH hastası ve DOAK'larla tedavi edilen 206 KTEPH hastasından oluşan bir çalışmada, varfarin ve DOAK tedavisi gören gruplar arasında sağ kalım ve kanama sıklığı bakımından anlamlı bir fark gözlenmemiştir. Ancak, DOAK grubunda VTE tekrarlama oranı, varfarin grubundan istatistiksel olarak anlamlı derecede yüksek bulunmuştur (2).

KTEPH tanısında akciğer ventilasyonu/perfüzyon sintigrafisi, tercih edilen tarama testidir; normal bir tarama KTEPH'yi dışlar. Anormal bir perfüzyon taraması durumunda, pulmoner vasküler tutulumu doğrulamak ve tanımlamak ve tedavi kararı vermeden önce yüksek kaliteli bir pulmoner anjiyogram gereklidir. Pulmoner hipertansiyon, tedavi belirlemesi için de gerekli olan sağ kalp kateterizasyonu ile doğrulanmalıdır. Kronik antikoagülasyon tedavisine ek olarak, KTEPH'li her hasta, kılavuzda önerilen tedavi olan pulmoner endarterektomi değerlendirmesiyle başlayarak planlanmalıdır. KTEPH olan uygun hastalarda pulmoner endarterektomi tercih edilen tedavi yöntemidir (2). Şüphesiz VTE tedavisinin ve profilaksisin düzgün yapılması ve nökslerin önlenmesi KTEPH gelişmesini önleyeceğinden önemlidir. Teknik olarak ameliyat edilemez vakalar için, pulmoner kan basıncını düzeltmek için tıbbi tedavi önerilir. Tıbbi tedavide riociguat etkilidir (11).

Şistosomiyazis ile ilişkili pulmoher hipertansiyon

Şistosomiyazis, trematod cinsi *Schistosoma* spp.'nin enfestasyonuna bağlı dünya genelinde malarya ve amebiyazisten sonra en sık görülen bir tropikal paraziter hastalıktır (8). Şu anda 21 türü tanınmaktadır ve dört gruba ayrılmıştır: bunlar *Schistosoma mansoni*, *Schistosoma japonicum*, *Schistosoma haematobium* ve *Schistosoma indicum* olup, ilk üçü insan vakalarının büyük çoğunluğundan sorumludur (17).

Hidatik kist ve şistosomiyazis pulmoner hipertansiyona yol açabilen başlıca paraziter hastalıklardır. Pulmoner hipertansiyon, hepatosplenik şistosomiyazisin iyi bilinen bir komplikasyonudur. Son zamanlardaki yaygın çalışmalar, şistosomiyazis hastalarının pulmoner hipertansiyonun prekapiller ve postkapiller formlarını geliştirebileceğini ortaya koyarak, doğru tanı için invaziv hemodinamik ölçümlerin rolünü güçlendirmiştir. Bu çalışmalar ayrıca şistosomiyazisle ilişkili pulmoner arteriyel hipertansiyonun en yaygın formunu temsil edebileceğini göstermiştir (17).

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Akut şistosomiyazis genellikle kendiliğinden sınırlı ve iyi huyludur. Ancak, hastalığın kronik formu ciddi sağlık sorunlarına yol açabilir. Hepatosplenik hastalık kronik şistosomiyazisin yaklaşık %25'ini oluşturur ve karaciğer fibrozu, portal hipertansiyon ve parazit yumurtalarının akciğerlere göçüyle sonuçlanabileceğinden ve bunun pulmoner hipertansiyon ve nihayetinde sağ ventrikül yetmezliğinin gelişimiyle ilişkili olduğundan klinik açıdan özellikle ilgi çekicidir (18).

Schistosomiasis ile ilişkili pulmoner hipertansiyonun kesin patogenezi hala belirsizdir, ancak parazitik arteriyel embolizasyon, pulmoner arteriyopati ve portopulmoner hipertansiyon benzeri patofizyoloji dahil olmak üzere çeşitli mekanizmalar öne sürülmüştür. Hastalığın immünopatolojisi de belirsizdir, ancak idiyopatik pulmoner arteriyel hipertansiyonun immünolojisiyle benzerlikleri vardır (18). Şistosomiyazisle ilişkili pulmoner hipertansiyon, şistosomiyazın endemik olduğu ülkelerde ve muhtemelen dünya çapında pulmoner hipertansiyonun önde gelen nedeni olarak kabul edilmektedir (19).

Şistosomiyazis tanısı parazite çevresel temas öyküsü ile birlikte gaita, idrar veya rektal biyopside parazit yumurtalarının saptanmasıyla konur. Canlı yumurtaların görülmemesi tanıyı dışlayamaz. Serolojik testler şistosomalara daha önce maruz kalmışları tanımlayabilir (16).

Sekonder pulmoner hipertansiyon

İnterstisyel akciğer hastalıklarında da altta yatan bir bağ dokusu hastalığı veya idiyopatik pulmoner fibrozis sonucu pulmoner hipertansiyon olabilir (20). Pulmoner hipertansiyon birçok bağ dokusu hastalıklarında görülebilmeye rağmen en çok sklerodermada (%37) görülür. Ayrıca sistemik lupus eritematozus (%14) ve romatoid artrit (%5) pulmoner hipertansiyonun eşlik ettiği diğer bağ dokusu hastalıklarıdır. Sklerodermada pulmoner vasküler yapılar histolojik olarak idiyopatik pulmoner hipertansiyondaki vasküler yapılara benzer vasıftadır. İnterstisyel fibrozis sebebiyle sıkışan küçük pulmoner damarlardaki daralmalar sonucu pulmoner hipertansiyon ortaya çıkar (20). Skleroderma olanlarda pulmoener hipertansiyon sıklığı fazla olduğundan aralıklı ekokardiyografik kontrol önemlidir. Pulmoner arteriyel hipertansiyon, ilerleyici vasküler yeniden şekillenmeye bağlı olarak pulmoner vasküler direncin artmasıyla karakterize, eninde sonunda sağ kalp yetmezliğine ve ölüme yol açabilen, yaşamı tehdit eden bir hastalık olduğundan altta yatan neden ne olursa olsun gecikmeden tedavisi gereklidir (21).

Pulmoner hipertansiyon tedavisinde önerilen ilaçlar

Pulmoner hipertansiyon için şu anda onaylanmış terapötik ilaçlar endotelin reseptör antagonistleri, fosfodiesteraz tip 5 inhibitörleri, prostasiklin reseptör agonistleri, prostasiklin analogları ve çözünür guanilat siklazdan (sGC) ibarettir (10). Pulmoner vasküler hastalığın vazokonstriksiyon ve vasküler yeniden şekillenme bileşenlerini hedef alan bu ilaçlar pulmoner hipertansiyon semptomlarının çoğunu hafifletmiş ve pulmoner vasküler hemodinamiği bir dereceye kadar iyileştirmiş olsa da, mortalite açısından etkileri tatmin edici değildir ve kesin bir kür sağlamazlar (1).

Riociguat (ADEMPAS™), pulmoner arteriyel hipertansiyon ve kronik tromboembolik pulmoner hipertansiyon tedavisi için onaylanmış, sınıfında ilk guanilat siklaz (cGMP) uyarıcısıdır (21). Riociguat, hem pulmoner arteriyel hipertansiyon hem de kronik tromboembolik pulmoner hipertansiyonun tedavisinde kullanımı olan tek ilaçtır (22). Riociguat, nitrik oksitten (NO) bağımsız cGMP'yi direkt uyarabilir ve cGMP'yi endojen NO'ya duyarlı hale getirerek intrasellüler cGMP düzeylerini artırır (22). Bu nedenle riociguat pulmoner arterlerde vazodilatasyon dışında, antifibrotik, antiproliferatif ve antiinflamatuvar etkilere de sahiptir (23). Riociguat ile tedavinin semptomatik pulmoner arteriyel hipertansiyonu olan ve hastalığı için başka bir tedavi almayan veya endotelin reseptör antagonistleri veya prostanoidler kullanan hastalarda 6 dakikalık yürüme mesafesini, pulmoner vasküler direnci ve diğer bazı ikincil etkinlik son noktalarını anlamlı şekilde iyileştirdiği bildirilmiştir (21).

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NO-sGC-cGMP sinyal yolağı kardiyovasküler sistemde önemli bir rol oynar. Nitrik oksit tonunun kaybı veya bozulmuş sinyalleme, hipertansiyon, pulmoner hipertansiyon ve kalp yetmezliği gibi kardiyovasküler hastalıklarla ilişkilendirilmiştir (22).

Şistosomiyazis tarihsel olarak prazikuantel ile tedavi edilmiştir. Enteral olarak iyi emilen bir pirazinoizokinolin türevi olan bu ilaç karaciğerde metabolize edilir ve inaktif metabolitleri öncelikli olarak idrarla atılır. Yetişkin kurtların konakçı vasküler duvarından ayrılmasına ve nihayetinde ölmelerine neden olur ve %90'a varan bir iyileşme oranıyla sonuçlanır. Hasta iyileşmezse, parazit ve yumurta yükü ilk tedaviyle önemli ölçüde azalır ve ikinci bir tedavi süreci genellikle paraziti ortadan kaldırmada başarılı olması muhtemeldir (18).

Şistozomiyaz ile ilişkili pulmoner hipertansiyon olan hastalar, herhangi bir kontrendikasyon (örneğin, gastrointestinal kanama riski yüksek) olmadığında oral antikoagülasyon, diüretikler ve gerektiğinde oksijen dahil olmak üzere geleneksel destekleyici tedavilerle tedavi edilir. Bununla birlikte hepatosplenik şistosomiyazis tanısı konulanların çoğunda portal hipertansiyon vardır ve özefagus varis kanaması ihtimali sebebiyle antikoagülan tedavi risklidir (16,17). Yüksek doz kalsiyum kanal blokerleri ise portal hipertansiyon varlığında yan etkileri nedeniyle önerilmez (4,16).

Bağ dokusuyla ilişkili pulmoner hipertansiyonda subkutan trepostil, intravenöz epoprostenol ve oral yoldan uygulanan bosentan tedavisi yararlı olabilir (20). Diyastolik disfonksiyon veya mitral darlığı sonucu gelişen pulmoner hipertansiyonda pulmoner vazodilatör ilaçların yararı olmaz. Bilindiği gibi pulmoner vazodilatör tedavi en bariz olarak kardiyak outputu artırdığından, pulmoner venöz darlık giderilmediği sürece bu tedavi pulmoner ödem artışına ortam hazırlayacaktır (20).

Sonuç olarak, pulmoner hipertansiyon tedavi edilmezse gelişen sağ kalp yetmezliği sonucu birçok organ ve sistemin disfonksiyonuna yol açarak ölüme götüreceğinden mümkün olduğunca erken teşhis edilip tedavi edilmesi gereklidir.

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EGZERSİZ VE KÖK HÜCRE ARASINDAKİ İLİŞKİ THE RELATIONSHIP BETWEEN EXERCISE AND STEM CELLS

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ÖZET

Kök hücreleri, özelleşmiş hücelere farklılaşabilen, kendini yenileme özelliği bulunan, vücut içinde veya laboratuvar ortamında uygun şartlar sağlandığında birçok farklı hücre tipine dönüşebilen hücrelerdir. Kök hücreler, embriyo geliştirme (embriyonik kök hücre, ESC) veya yetişkin organizmadaki dokuyu değiştirmek (yetişkin kök hücre, ASC) amacıyla kendini yenileme ve özel bir hücre tipine farklılaşma potansiyeline sahiptir. Kendini yenileme özelliği kök hücre havuzunun devamlılığını sağlar. Yetişkin organizmanın birçok dokusunda doku değişimi ve dönüşüm amacıyla kök hücrelerin keşfi, ASC'nin organ ve tüm sistem sağlığındaki rolüne ilişkin yeni ve heyecan verici sorular ortaya çıkarmış ve yaşam boyu çok çeşitli dejeneratif koşulları tedavi etmek için bu hücrelerin potansiyel kullanımına yönelik önemli bir ilgi oluşturmıştır. Hematopoietik kök hücreler, meme kök hücreleri, mezenkimal kök hücreler, endotelyal kök hücreler, nöral kök hücre, koku ASC'leri, nöral krest kök hücreleri, testis hücreleri olmak üzere en az sekiz farklı ASC türü izole edilmiştir.

Egzersizın sağlık açısından tartışılmaz faydaları vardır. Fiziksel aktivitenin doku yeniden yapılanmasının güçlü bir uyarıcısı olmasının yanı sıra sağlık ve zindeliği korumanın önemli bir bileşeni olduğu gerçeği, ASC'lerin egzersizle ilişkili bazı olumlu sonuçlar için bir temel oluşturabileceğini düşündürmektedir. Önceki çalışmalar, egzersizin çeşitli organlarda doku yenilenmesini ve onarımını destekleyebileceğini öne sürmektedir. İnsanlarda en çok incelenen ASC'lerden biri, egzersiz stresi ve kas hasarı altında çoğalan ve havuz boyutunu artıran satellit (uydu) hücresidir. Sinyal yolları, oksidatif stres, metabolik yeniden programlama ve kodlayıcı olmayan RNA'ların katılımı dahil olmak üzere birçok mekanizma, egzersizin doku yenilenmesi üzerindeki moleküler tepkisine aracılık eder. Egzersize dayalı yenilenmede yeni düzenleyici moleküler hedeflerin belirlenmesi, özellikle rejeneratif tıp gibi translasyonel araştırmalarda büyük öneme sahiptir. Kas, beyin ve kan damarı gibi organ sistemlerindeki öncü hücreler veya kök hücreler, çoğalmak, farklılaşmak veya doku yenilenmesini teşvik eden inflamatuvar yanıtları tetiklemek için egzersizle aktive edilir. Araştırmalar, egzersize bağlı kök hücre çoğalmasının kas yaralanmasını onarabildiğini ve yaşlı farelerde kas kök hücre aktivasyonunu destekleyebildiğini göstermiştir. Egzersizin koruyucu etkileri hematopoietik hücreleri çevresel, mesleki ve tıbbi oksidatif stres kaynaklarından koruyabilir. Bunun kanserin önlenmesinde ve tedavisinde egzersizin rolü açısından önemli sonuçları olabilir.

Anahtar Kelimeler: Egzersiz, kök hücre, progenitör hücre, adult kök hücre.

ABSTRACT

Stem cells are cells that can differentiate into specialized cells, have the ability to self-renew, and can transform into many different cell types when appropriate conditions are provided in the body or in the laboratory. Stem cells have the potential to self-renew and differentiate into a specific cell type for the

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purpose of developing an embryo (embryonic stem cell, ESC) or replacing tissue in an adult organism (adult stem cell, ASC). Self-renewal ensures the continuity of the stem cell pool. The discovery of stem cells for tissue replacement and transformation in many tissues of the adult organism has raised new and exciting questions regarding the role of ASC in organ and whole-system health and has generated significant interest in the potential use of these cells to treat a wide variety of degenerative conditions throughout life. At least eight different types of ASCs have been isolated: hematopoietic stem cells, mammary stem cells, mesenchymal stem cells, endothelial stem cells, neural stem cells, olfactory ASCs, neural crest stem cells, and testicular cells.

Exercise has undeniable health benefits. The fact that physical activity is a powerful stimulator of tissue remodeling and an important component of maintaining health and fitness suggests that ASCs may provide a basis for some of the positive outcomes associated with exercise. Previous studies suggest that exercise may promote tissue regeneration and repair in various organs. One of the most studied ASCs in humans is the satellite cell, which proliferates and increases its pool size under exercise stress and muscle damage. Multiple mechanisms, including signaling pathways, oxidative stress, metabolic reprogramming, and the involvement of noncoding RNAs, mediate the molecular response of exercise to tissue regeneration. Identifying novel regulatory molecular targets in exercise-induced regeneration is of great importance, particularly in translational research such as regenerative medicine. Precursor cells, or stem cells, in organ systems such as muscle, brain, and blood vessels are activated by exercise to proliferate, differentiate, or trigger inflammatory responses that promote tissue regeneration. Studies have shown that exercise-induced stem cell proliferation can repair muscle injury and promote muscle stem cell activation in aged mice. The protective effects of exercise may protect hematopoietic cells from environmental, occupational, and medical sources of oxidative stress. This may have important implications for the role of exercise in cancer prevention and treatment.

Keywords: Exercise, stem cell, progenitor cell, adult stem cell

Giriş

Kök hücreleri, özelleşmiş hücrelere farklılaşabilen, kendini yenileme özelliği bulunan, vücut içinde veya laboratuvar ortamında uygun şartlar sağlandığında birçok farklı hücre tipine dönüşebilen hücrelerdir (Sağsöz ve Ketani 2008). Kök hücreler, embriyo geliştirme (embriyonik kök hücre, ESC) veya yetişkin organizmadaki dokuyu değiştirmek (adult kök hücre, ASC) amacıyla kendini yenileme ve özel bir hücre tipine farklılaşma potansiyeline sahiptir. Kendini yenileme özelliği kök hücre havuzunun devamlılığını sağlar. Döllenme sonrası gelişmekte olan bir embriyoda ortaya çıkan hücreler totipotent veya "tamamen güçlüdür" ve insan vücudunu oluşturan iki yüzden fazla farklı hücre tipinden birine farklılaşma kapasitesine sahiptir. Yetişkin organizmanın birçok dokusunda doku değişimi ve dönüşüm amacıyla kök hücrelerin keşfi, ASC'nin organ ve tüm sistem sağlığındaki rolüne ilişkin yeni ve heyecan verici sorular ortaya çıkarmış ve yaşam boyu çok çeşitli dejeneratif koşulları tedavi etmek için bu hücrelerin potansiyel kullanımına yönelik önemli bir ilgi yaratmıştır (Boppart vd 2015). ASC'ler iskelet kası, kemik, kırık, deri, kan damarları, dişler, kalp, karaciğer, bağırsak, periferik kan, yumurtalık epiteli, testis ve kemik iliği dahil olmak üzere birçok doku ve organda tanımlanmıştır. Hematopoietik kök hücreler, meme kök hücreleri, mezenkimal kök hücreler, endotelial kök hücreler, nöral kök hücre, koku ASC'leri, nöral krest kök hücreleri, testis hücreleri olmak üzere en az sekiz farklı ASC türü izole edilmiştir. ASC havuzları, anatomik olarak tanımlanabilen özel bir yerel mikro ortam olan "kök hücre nişi" adı verilen belirli bir alanda bulunur (Macaluso and Myburgh 2012).

Egzersiz sağlık açısından tartışılmaz faydaları vardır. Egzersizin bilişsel işlevler, kardiyovasküler sistem ve kas sağlığı üzerindeki yararlı etkilerini gösteren çok sayıda araştırma mevcuttur. Egzersizin

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yaygın faydaları göz önüne alındığında, birçok patolojik durumun önlenmesi ve tedavisi için egzersizin önerilmesi şaşırtıcı değildir (De Lisio ve Parise, 2013). Fiziksel aktivitenin doku yeniden yapılanmasının güçlü bir uyarıcısı olmasının yanı sıra sağlık ve zindeliği korumanın önemli bir bileşeni olduğu gerçeği, ASC'lerin egzersizle ilişkili bazı olumlu sonuçlar için bir temel oluşturabileceğini düşündürmektedir.

Çok potansiyelli kök hücrelere kıyasla, insan vücudundaki ASC'lerin çoğunluğu, sınırlı farklılaşma kapasitesine sahip tek güçlü kök hücreler veya yerleşik progenitör hücreler olarak tanımlanmıştır. Bu soydan gelen kök hücrelerin örnekleri arasında endotel hücreleri (damar sistemi), uydu hücreleri (iskelet kası), nöral kök hücreler, bağırsak kök hücreleri, şişkin hücreler (deri), germ hücreleri, oval hücreler (karaciğer), kalp progenitörleri ve bronşioalveolar (akciğer) hücreleri bulunur (Timmermans 2009, Boppart vd 2015). Önceki çalışmalar, egzersizin çeşitli organlarda doku yenilenmesini ve onarımını destekleyebileceğini öne sürmektedir. Liu ve ark (2023) egzersizin öncelikle iskelet kası, sinir sistemi ve damar sistemindeki kök hücreler ve progenitör (öncül) hücrelerin aracılık ettiği doku yenilenmesi üzerindeki ana etkilerini araştırdıkları çalışmada egzersize bağlı kök hücre aktivasyonunun patolojik koşullar altında ve farklı organlarda yaşlanmaya karşı koruyucu işlevi de ayrıntılı olarak tartışılmıştır. Farklı egzersizlerin türü ve süresindeki farklılıklar sıklıkla farklı uyaran etkilerine sahiptir. Fareler üzerinde yapılan çalışmalar ayrıca yüzme, gönüllü tekerlek koşusu ve koşu bandı koşusu gibi farklı egzersiz türlerinin hücre çoğalması ve doku yenilenmesi üzerinde spesifik etkiler yarattığını da göstermiştir.

Yetişkin kök hücrelerin (ASC'ler) sayısı çok azdır ve dokuların rejeneratif potansiyelini sınırlar. İnsanlarda en çok incelenen ASC'lerden biri, egzersiz stresi ve kas hasarı altında çoğalan ve havuz boyutunu artıran satellit (uydu) hücreleridir (Macaluso and Myburgh 2012).

Pek çok kişi egzersiz yapamadığından veya belirli bir yoğunluk ve egzersiz süresi düzeyine ulaşamadığından, egzersizle desteklenen yenilenmenin moleküler mekanizmasını incelemek çok önemlidir. Sinyal yolları, oksidatif stres, metabolik yeniden programlama ve kodlayıcı olmayan RNA'ların katılımı dahil olmak üzere birçok mekanizma, egzersizin doku yenilenmesi üzerindeki moleküler tepkisine aracılık eder. Egzersize dayalı yenilenmede yeni düzenleyici moleküler hedeflerin belirlenmesi, özellikle rejeneratif tıp gibi translasyonel araştırmalarda büyük öneme sahiptir (Liu vd 2023). Kas, beyin ve kan damarı gibi organ sistemlerindeki öncül hücreler veya kök hücreler, çoğalmak, farklılaşmak veya doku yenilenmesini teşvik eden inflamatuvar yanıtları tetiklemek için egzersizle aktive edilir (Liu vd 2023).

Kaslar

Yetişkin iskelet kası, iskelet kası liflerinden (kas hücreleri) ve kas uydu hücreleri veya kas kök hücreleri (MSC'ler) adı verilen az sayıda hareketsiz kök hücreden oluşur (Yablonka-Reuveni 2011). İskelet kası çok çekirdekli miyositlerden oluşur. İskelet miyositlerinin çekirdekleri post-mitotik olduğundan, miyonükleusların yenilenmesi MSC'lerin sinsityuma füzyonuna bağlıdır. Araştırmacılar, bir miyonükleusun sitoplazmanın yalnızca belirli bir alanına, yani miyonükleer alana hakim olabileceğini öne sürdüler.

Önceki çalışmalar, MSC'lerin fiziksel aktiviteye yanıt olarak miyonüklei artışına katkıda bulunabileceğini ve miyonükleer sayının, miyonükleer alan teorisini destekleyen miyofiberlerin boyutuyla ilişkili olduğunu göstermiştir. (Schiaffino vd 1976). IGF-1, sarkolemmada lokalize olan reseptörüne bağlanarak iskelet kası büyümesini düzenler ve protein sentezini teşvik etmek için PI3K/Akt sinyal kaskadını başlatır. IGF-1'in dolaşımdaki konsantrasyonları egzersiz ve beslenme gibi birçok yaşam tarzı faktöründen etkilenir (Macaluso ve Myburgh, 2012).

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MSC'ler doğumdan sonra kas büyümesi için gereklidir, ancak yetişkinlerde hareketsiz bir duruma girerler ve yalnızca kas hasarı veya egzersiz uyarılması durumunda yeniden etkinleştirilirler (Zammit vd. 2004).

Kas yaralanması üzerine, hasarlı hücre dışı matris (ECM), hücreler arası kalsiyum konsantrasyonunun hızlı bir şekilde artmasını tetikleyerek MSC'lerin aktivasyonunu uyarmak için FGF2 gibi büyüme faktörlerini serbest bırakır (Liu and Schneider 2014). İlginç bir şekilde kas yenilenmesi aynı zamanda MSC'lerin göçüne de bağlıdır. Miyofiberin bir ucundaki yaralanma, aynı kas lifi üzerindeki tüm MSC'leri aktive edebilir ve bu MSC'leri hasarlı bölgelere toplayabilir (Schultz vd 1985). Aktive edilmiş MSC'ler, doku rejenerasyonu sırasında kas lifleri arasında göç edebilir (Stark vd 2011). Fakat yaşlanma gibi belirli durumlarda MSC'lerin düzenleyici faktörleri bozulur ve aktivasyonları ve yenilenmeleri sınırlanır. Yaşlanma sürecinde, MSC'lerin yenilenme potansiyeli azalır (Liu vd 2023). Egzersizin kas atrofisi üzerindeki koruyucu etkisi iyi bilinmektedir (Liu vd 2021). Ancak egzersizin MSC'lerin çoğalması ve aktivasyonu üzerindeki etkisi tam olarak açıklanamamıştır. Araştırmalar, egzersize bağlı kök hücre çoğalmasının kas yaralanmasını onarabildiğini ve yaşlı farelerde kas kök hücre aktivasyonunu destekleyebildiğini göstermiştir (Chen vd 2020). Yaşlı kişilerde yakın zamanda yapılan bir çalışma, direnç eğitiminin diz ekstansiyon gücünü ve kas liflerindeki MSC sayısını artırabildiğini gösterdi, bu da MSC'lerin kas liflerinin büyümesinde bir rol oynadığını öne sürüyor (Blocquiaux vd 2020). Özetle, egzersiz çeşitli moleküler mekanizmalar yoluyla kas yenilenmesini destekler. Ayrıca kas rejenerasyonunda egzersiz süresi ve yaş gibi faktörlerin egzersizin etkisi ve altta yatan mekanizmanın yorumlanması üzerinde önemli etkisi vardır (Liu vd 2023).

Kardiak etkisi

Şu ana kadar yetişkinlerde herhangi bir kalp kök hücresi tanımlanmadı. Önceki çalışmalar, egzersizin mevcut kardiyomiyositlerin çoğalmasını teşvik ederek endojen miyokardiyal rejenerasyonu destekleyebileceğini ileri sürmektedir (Vujic vd 2018). Farelerde yüzme ve gönüllü tekerlek koşusu mevcut kardiyomiyositlerin çoğalmasını teşvik edebilir. Ayrıca egzersiz, miyokard enfarktüsü (MI) gibi kalp yaralanmalarından sonra kardiyomiyosit çoğalmasını ve kalp onarımını destekleyebilir.

Son çalışmalar, fiziksel aktivitenin aşağı yönlü düzenleyici molekülleri olarak görev yapan kodlamayan RNA'ların, egzersiz aracılı kardiyak rejenerasyonda önemli bir rol oynadığını göstermiştir. miRNA'lar ve lncRNA'lar gibi kodlamayan RNA'lar, egzersize bağlı kardiyomiyosit proliferasyonunda önemli bir rol oynar (Liu vd 2023).

Hematopoietik kök hücrelere (HSC) akut egzersizin etkisi

Hematopoietik ve mezenkimal kök hücreler, çoklu soy potansiyelini koruyan ve yetişkin insanda kemik iliği, kan ve birçok dokuda küçük konsantrasyonlarda dağılan iki ASC popülasyonudur (Ratajczak 2015, Hass vd 2011).

Hematopoietik sistem çoğunlukla dolaşımda bulunan tüm olgun kan hücrelerinin yanı sıra ağırlıklı olarak kemik iliğinde bulunan kök ve progenitor hücreleri içerir. Oksijen ve besin dağıtımı, bağışıklık tepkisi yoluyla patojenlerin uzaklaştırılması ve kanın pıhtılaşması dahil olmak üzere çok sayıda işlevi vardır. Hematopoietik sistem, kendini yenileme için yüksek kapasiteye sahip olgunlaşmamış çok potansiyelli kök hücrelerden, daha farklılaşmış, soyu kısıtlı, son derece proliferatif progenitorlara ve tamamen farklılaşmış olgun kan hücrelerine kadar bir hiyerarşiyi takip eder (Wilson ve Trumpp, 2006). Kemik iliğinde bulunan hematopoietik kök hücreler, homeostazi korumak için günde yaklaşık 10 milyar kan hücresinin üretiminden sorumlu olan nadir, çok potansiyelli, normalde hareketsiz hücrelerdir (Attar ve Scadden 2004).

HSC'ler, diğer tüm kan hücrelerinin türetildiği hematopoietik sistemin en ilkel hücreleridir. HSC'lerin işlevi, doğal olarak meydana gelen hücre dönüşümü veya stres sonucu kaybedilen olgun hematopoietik

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hücrelerin yenilenmesi yoluyla periferik kan hücresi popülasyonlarının sürekli olarak korunmasını sağlamaktır. HSC'ler bu işlevi yaşam boyunca sürekli aktivasyon, çoğalma ve farklılaşma yoluyla yerine getirir. Akut enfeksiyon, kan kaybı veya kanser tedavisi için kemoterapi veya radyasyon nedeniyle hematopoietik hücrelerin kaybı gibi hematopoietik stres zamanlarında, hematopoietik sistemi hızlı bir şekilde yeniden oluşturmak için HSC'lerin genişlemesi hızla artar (Boppart vd 2015). Akut egzersiz periferik kandaki HSC miktarını arttırıyor gibi görünmektedir; ancak, konu özelliklerinin çok çeşitli olması, HSC'yi tanımlamak için kullanılan belirteçler ve analizin zamanlaması nedeniyle çalışmaları karşılaştırırken kesin sonuçlara varmak zordur (De Lisio ve Parise, 2013).

Akut egzersizle ilgili olarak, Bonsignore ve meslektaşları (2002), hareketsiz bireyler ile yarım veya tam maratonda yarışan kişiler arasında periferik kandaki CD34+ hücreleri olarak tanımlanan HSC miktarını karşılaştırdılar. HSC, her iki yarıştan hemen sonra yarış öncesi değerlerle karşılaştırıldığında değişmedi ve yarıştan 24 saat sonra önemli ölçüde azaldı.

Yaşın HSC'nin akut egzersize yanıtı üzerindeki etkisi de incelenmiştir. Zaldivar ve arkadaşları (2007), erken ve geç ergenlik çağındaki erkek çocukların 20 dakikalık yüksek yoğunluklu bisiklete verdiği tepkiyi incelediler ve her iki grupta da periferik CD34+ hücrelerinde eşit artışlar gözlemlenildi.

Yaşlanma spektrumunun diğer ucunda, Thijssen ve meslektaşları (2006), genç ve yaşlı bireylerde akut egzersiz uyarısından sonra dolaşımdaki HSC'de benzer bir göreceli artış gözlemlenildi.

Egzersizin koruyucu etkileri hematopoietik hücreleri çevresel, mesleki ve tıbbi oksidatif stres kaynaklarından koruyabilir. Bunun kanserin önlenmesinde ve tedavisinde egzersizin rolü açısından önemli sonuçları olabilir (De Lisio ve Parise 2013). Aslında egzersiz, yerleşik ASC'leri aktive etmek ve hematopoietik kök hücreleri dolaşıma mobilize etmek için hücre sinyallemesini güçlendiren fizyolojik bir uyarı sağlayabilir. Hastalarda miyokardiyal rejenerasyonun bazı kanıtları bulunmaktadır (Macaluso and Myburgh, 2012). Fiziksel hareketsizliğin günümüzde dünya çapında dördüncü önde gelen ölüm nedeni haline geldiği bildirilmektedir. Fiziksel hareketsizliğin çoğunlukla koroner kalp hastalığı, diyabet, kanser ve hatta ruh sağlığı gibi bulaşıcı olmayan hastalıklar üzerinde olumsuz bir etkiye sahip olduğunu gösteren önemli kanıtlar vardır ve küresel sağlık yükünü önemli ölçüde ağırlaştırır ve insanların yaşam beklentisini kısaltır. Bu nedenle, fiziksel aktivitenin teşvik edilmesi insan yaşam kalitesini iyileştirmenin önemli yöntemlerinden biridir (Chen vd 2022).

Yaş gibi faktörler egzersizin etkisinde farklılıklara neden olabilir. Bu nedenle yaş ve diğer etkileyen faktörleri içeren çalışmalarda fenotipin daha dikkatli değerlendirilmesi gerekmektedir. Egzersizin, hasar almış doku ve organların tekrar yenilenmesi yani rejeneratif etkilerinin ortaya çıkmasında etkili olan moleküllerin bulunması bazı dejeneratif hastalıkların tedavisinde bile etkili olabilir. Düzenli egzersiz, yalnızca hastalıkların önlenmesinde değil, gelecekteki stres etkenleri ve hasarlara cevap olarak hızlı aktivasyon gösteren, vücut dokusunu kolayca iyileştirme ve yenileme kapasitesine sahip yüksek ASC rezervini oluşturabilen ve progenitör hücre potansiyelini muhafaza etmek içinde desteklenen doğal olarak tasarlanmış bir süper kahraman olabilir.

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POLITICAL FACTORS OF INVOLVING YOUTH INTO SCIENCE IN TURKMENISTAN

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ABSTRACT

The purpose of this article is to identify political factors of involving young people into science in Turkmenistan, analyzing state-programming documents. We have studied government programs in the socio-economic sphere, education, scientific and youth policy of our country.

One of the tasks of this research is defining the factors of the policy of involving youth into science. Firstly, we have to clarify the concept of "factor". Etymological dictionaries show that the "factor" is an essential circumstance of a process or phenomenon, or a driving force of a process (phenomenon), which determines its character or individual features [2].

Youth, educational, scientific and innovation policies are part of the socio-economic policy of our country. These areas of state policy are strategic for Turkmenistan. We studied long-term and short-term state programs of strategic planning. Important documents for our study are state programs of socio-economic development for 2011-2030, for 2022-2052, respectively, the state programs of youth, educational, scientific and innovation areas for 2012-2016; for 2015-2020; for 2019-2025 years were studied. We used political and legal methods in this research.

Key words: Turkmen youth, youth policy, state policy, education and scientific policy, intellectual development, scientific creative work of youth, developed human capital, political factors, involving youth into science

INTRODUCTION

The youth, scientific and educational policy of Turkmenistan is at the stage of innovative development. The innovative development of the society and the state is coordinated. The main directions of these changes are devoted to the youth, scientific and educational policy, which help to improve the human capital. We can see it in the speeches and messages of the President of Turkmenistan. For example in the congratulatory speech of the President of Turkmenistan to the winners of the annual competition of scientific works among young people, he said: "The purpose of state policy directed to the innovative development of scientific and education system through stimulating the interest of talented youth into scientific and technical creativity" [1].

The purpose of this article is to identify political factors of involving youth into science in Turkmenistan. For identifying political factors, we studied state programming documents concerned to the socio-economic sphere, education, scientific and youth policy of our country.

METHODS

The methodological bases of this research work are founded on the general scientific and political analysis. During the identifying the political factors of the policy of involving youth into science we used such methods as content analysis of state programming documents, system analysis. These methods help us to make model and to reveal general factors of this socio-economic direction [3,4,5].

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DISCUSSION

One of the tasks of this research is defining the factors of the policy of involving youth into science. Firstly, we have to clarify the concept of "factor". Etymological dictionaries show that the "factor" is an essential circumstance of a process or phenomenon, or a driving force of a process (phenomenon), which determines its character or individual features [2]. The second explanation is applicable to this research. The driving force of the policy of involving young people to science are state programs in the socio-economic, educational, scientific and innovative areas. Defined goals and functions are its characters that form the policy of involving youth into science.

Youth, educational, scientific and innovation policies are part of the socio-economic policy of the state. These areas of state policy are strategic for Turkmenistan. We studied long-term state programs of socio-economic development for 2022-2052 and short-term state programs of youth, educational, scientific and innovation policy for 2012-2016; for 2015-2020; for 2019-2025 years were studied.

The long-term program of our country for the next 30 years is the National Program of Socio-Economic Development of Turkmenistan for 2022-2052. This program's aim is to develop the digital economy and information society. As it is known, the society by D. Bell's theory, the modern society is based on qualified in scientific and technic specialties personnel, high tech (knowledge-intensive) production, innovative education. Innovative and digital development requires highly qualified personnel, i.e. developed human capital and education economy. These points are developed with a consistent educational and scientific policy. These two areas of socio-economic development are the main directions of our state [6].

This program also provides for regional development of scientific and industrial areas, where appropriate educational and scientific infrastructure for training local scientific and technical personnel should be reformed to high technology industry.

The education and science system is moving into a digital field, where the innovative economy is based on:

- for fundamental scientific research, development of scientific and innovative industry;
- the use of digital and innovative technologies in education and the development online learning; an increase the number of scientific and technical clubs, groups, societies depending on age;
- creation of a system for the high-quality development of human capital, this is sports and recreation, scientific and technical, creative and cultural infrastructure [6].

Using content and retrospective analysis of these documents allowed us to determine the boundaries of the policy of involving young people to science. Thus, the development path for 2012-2016 of the education system was identified:

- creation of modern infrastructure, improvement of the material and technical base of educational and scientific systems.
- to select scientific and technical gifted youth by new forms of Olympiads and contests;
- achieving early intellectual development of children by creating development centers for children and youth;
- creation of general education institutions (grammar schools, specialized schools, boarding schools for talented children) with in-depth study of natural, mathematical and humanitarian scientific fields;
- creation of a system of awards for the achievements of schoolchildren and students;
- continue work on preparing students for international Olympiads [6] .

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These transformations in the educational system of Turkmenistan have become fertile ground for the creation and improvement of a system for involving young people to science.

The goal of the state program for the development of science in Turkmenistan for 2012-2016 is the development of human capital through the creation of an education economy. To achieve these goals, the following functions of the program were revealed:

- creation of a system of encouragement of talented youth, development of intellectual consciousness of Turkmen youth, which will be the basis for intellectual power of the society. As for the policy of involving youth into science, this program assumes consistent direction of youth into scientific work, to research in universities, research institutes. Provide young scientific personnel with consistent social and economic assistance. It is also envisaged to involve youth to science and scientific research at all stages of education. As a result, it is possible to achieve independent management and self-financing of scientific and technical projects [6].

As a result of the implementation of this state program, the Technopark (2014), the Oguz han Engineering and Technology University (2016) under the Academy of Sciences of Turkmenistan were built and opened, and some universities in our country were reorganized into technical universities. These scientific and educational facilities are a separate segment of the policy of involving young people into science in Turkmenistan. In the 2016-2017 academic year, Councils of young scientists were created in universities and research institutes of Turkmenistan, which is also an integral part of the system of involving youth into science.

The second stage of state development programs relates to 2015-2020. These programs are characterized by an innovative and digital focus. Since Turkmenistan is rebuilding its economy to a digital and innovative vector, the preparation of scientific and technical potential as a result of these actions is expected to highly developed intellectual consciousness among young people and highly qualified human capital.

One of the main goals and objectives of the youth policy of Turkmenistan for 2015-2020 is to create conditions for scientific and technical creativity and research for young people [6]. It is also important to note the creation in 2017 of the Center for Young Scientists at the Academy of Sciences of Turkmenistan and the Makhtumkuli Youth Organization of Turkmenistan. This social organization accumulates scientific and technical endeavors of young scientists. They are young people, students, researchers and teachers under 35 years of age.

To achieve the set of goals, this program provides for the following activities:

- providing state support to young people engaged into scientific and technical activities in educational, scientific and research institutions of Turkmenistan.
- encouraging the discovery of scientific groups and societies, councils of young scientists, and research groups at universities.
- create a system of public-state cooperation in involving youth into science [6].

The State Program of Youth Policy of Turkmenistan for 2021-2025 highlighted the following factors of the policy of involving young people into science:

- patriotic education of youth based on scientific discoveries, on interesting scientific facts, i.e. according to the State policy programs on development of scientific and technical system of Turkmenistan;
- intensification of work on training young scientific personnel;
- identification of scientifically and technically talented youth and comprehensive state assistance them;
- coverage of scientific discoveries of young scientists and promotion the international cooperation [6];

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The state program on development innovative sciences in Turkmenistan was adopted in 2015. In accordance with it, highly specialized and integrated areas of science and technology is envisaged. The implementation of this state program provides for the opening of integrated and innovative specialties for research institutes, the science-intensive industry of Turkmenistan [6].

The innovation policy of Turkmenistan for 2015-2020 envisages the involving youth through the teaching integrated sciences, which will ensure the creation of a system for the consistent formation of a young scientist generation. This program based on these principles:

- consistent identification of talented youth and provision of state social support;
- involving children and students into science at all stages of education;
- work of scientific creative groups in innovative areas of science and technology.

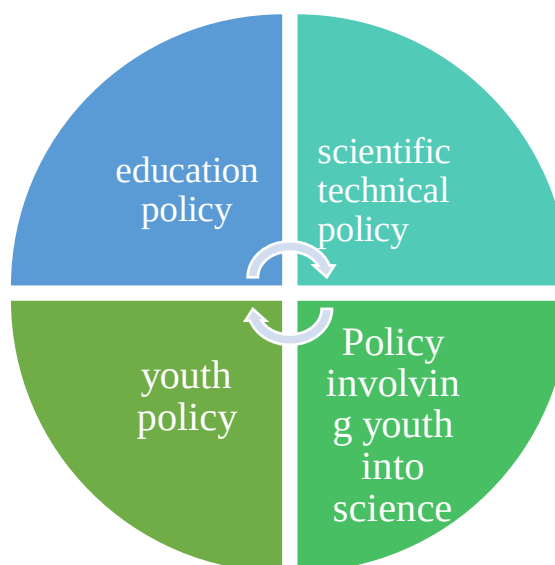
Several areas of scientific policy of Turkmenistan were developed during 2015-2020 years. These programs and concepts provide the development of modern directions of science, integrated scientific knowledge not only in universities, research institutes, industrial facilities, but also in general education and extracurricular institutions. To achieve this goal, curricula has to be prepared for in-depth study of exact, natural, integrated disciplines in general education. Also the Turkmen youth will gain in depth and widen integrated scientific knowledge in scientific and technical, innovative groups and societies through scientific and technical creativity. By this period were planned such activities as international Olympiads among students, scientific, technical and innovative project contests, research papers competition [6].

RESULTS

As a result, the following factors can be identified for involving young people into science in Turkmenistan:

- creation of an innovative education system using new types of training;
- development of scientific, technical and innovation systems;
- consistent development of youth involvement into science.

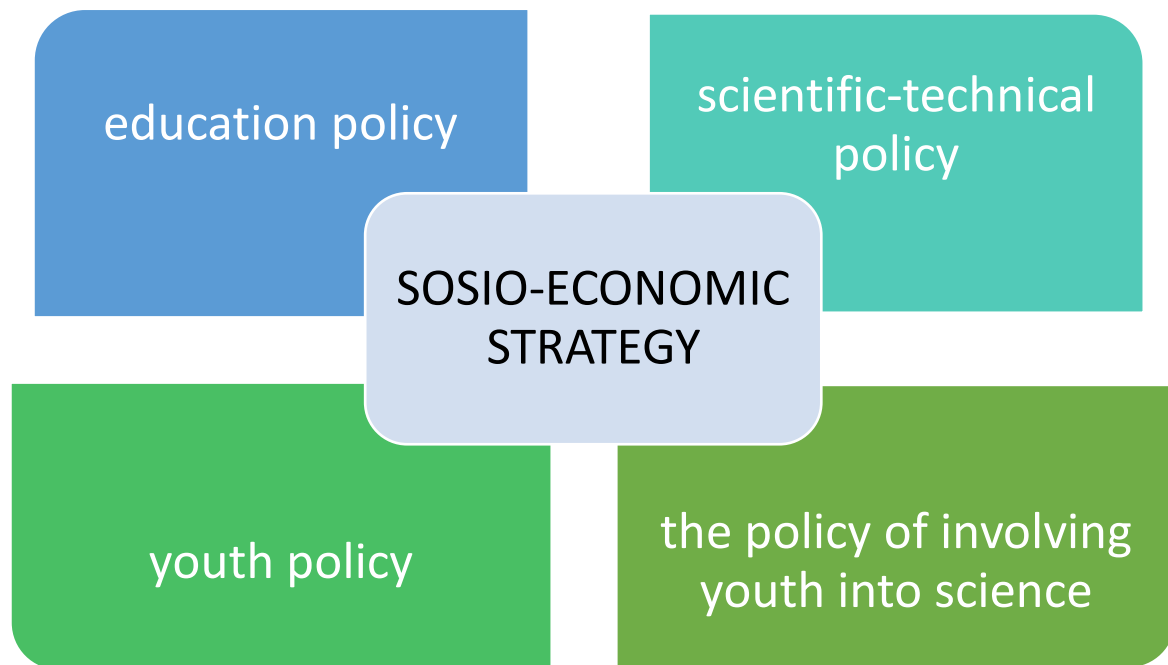
The studied documents helped to identify the main political factors in involving young people into science, which indicates the development of this system, which involves the joint work of scientific and educational institutions in the education of intellectually developed Turkmen youth. Gained results help us to see all policy directions that interact with the policy of involving youth into science (model #1).



Model #1 Interacting political spheres of involving youth into science

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The second model shows that the state strategic planning of socio-economic policy has to set such direction as “involving youth into science”. Because this policy direction will create intellectually developed human capital.



Model #2 General system of state planning

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THE IMPACT OF AI ON CREATIVITY

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ABSTRACT

The rise of artificial intelligence (AI) has sparked profound discussions about its implications for creativity. Once considered an exclusively human domain, creativity is now being reshaped by AI's capabilities to compose music, generate art, and even write literature. But does AI enhance human creativity, or does it threaten to undermine it?

This presentation explores the dual-edged nature of AI's impact on creativity, emphasizing both its potential to inspire and its risks of commodification. On one hand, AI serves as a powerful tool for artists, writers, and designers, offering new ways to brainstorm, iterate, and innovate. AI-driven platforms like DALL·E and ChatGPT have enabled creators to transcend traditional boundaries, fostering collaboration between human ingenuity and machine efficiency.

On the other hand, the proliferation of AI-generated content raises concerns about authenticity, originality, and the devaluation of human effort. When machines can replicate artistic styles and produce works indistinguishable from human creations, how do we define the essence of creativity?

This session argues for a balanced perspective, advocating for ethical frameworks and education to ensure AI serves as a complement rather than a competitor to human creativity. By embracing AI thoughtfully, we can unlock its potential to expand, rather than replace, our creative horizons.

Keywords: Artificial Intelligence, Creativity, Innovation, Social Media, Digital Media, Fake News

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COMPARATIVE ANALYSIS OF SYNTACTIC STRUCTURES IN MOUNTAIN ENVIRONMENTS USING ENGLISH AND KYRGYZ LANGUAGES

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ABSTRACT

In the present study, we compared the syntactical structures of the sentences in poems of two not related languages such as; English and Kyrgyz.

The main purpose of the article is to analyze the differences and similarities of syntactic structures in poetries in mountain environments both English and Kyrgyz languages. We used English poem; “My heart is in the Highlands” by well-known English poet R. Burn’s and Kyrgyz poem “The Kyrgyz Mountains” by famous Kyrgyz poet A.Osmonov for this study.

Data was collected through comparative method and interview. The study engaged 10 - 4th year students of 10 analytical lessons and 5 English language teachers and 5 Kyrgyz language teachers (all 10 teachers) who teach English and Kyrgyz literature lessons were interviewed. For showing results Venn’s diagram, a syntactic tree diagram (corpus analysis) and tables were used.

The study revealed that analyzing syntactic structures of sentences both English and Kyrgyz language was not easy for students and teachers as well. It turned out that Syntactic structures are different in both English and Kyrgyz language sentences.

The study implication is that teachers of both English and Kyrgyz languages should be provided more practices in analyzing Syntactic structures of different types of sentences and sentences in literary texts.

Keywords: Comparative, Syntactic Structures, mountain, environments

Introduction

According to N. Chomsky syntax is the study of the principles and processes by which sentences are constructed in particular languages. Syntactic investigation of a given language has as its goal the construction of a grammar that can be viewed as a device of some sort for producing the sentences of the language under analysis [2.p1.].

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Syntactic structures are the arrangements of words and phrases within a sentence, following the rules of syntax in a specific language. Syntactic structures dictate how elements combine to form grammatically correct and meaningful sentences, often relying on word order, grammatical relations.

Chomsky begins Syntactic Structures by aiming to construct a grammar that can be viewed as a device of some sort for producing the sentences of the language under analysis. The ultimate outcome of these investigations should be a theory of linguistic structure in which the descriptive devices utilized in particular grammars are presented and studied abstractly, with no specific reference to particular languages. One function of this theory is to provide a general method for selecting a grammar for each language, given a corpus of sentences of this language [p.11].

Another main task of this paper is to describe the importance of mountain environments in poets' work. The reason is that poems which are related to mountains will be analyzed in this paper.

Mountains become main topic of writers, whose life is closely connected place where they live. Mountains shape the weather and climate around us leading to complex and fascinating weather patterns.

Raindrops that fall on the mountain peaks freeze and turn into ice. These then form glaciers. As the glaciers melt, they turn into pure water, flowing down as rivers, which are considered very beneficial for health. In contrast, waters found within forests are stagnant and are considered swampy waters. Similarly to, in Kyrgyzstan, mountains influence the climate and play a role in the differentiation of the four seasons.

As Kyrgyzstan is mountainous country, so life of people is closely connected with mountains. People go to pastures in summer and graze their domestic animals and live there till the autumn. Therefore, mountains and climate become the main theme of the writers, poets who live in mountainous place. Mountains effect and motivate writers depict their environment, homeland climates. Writers describe the purity of mountain air, glacier water and others. Thus, the poems which we are going to discuss devoted to the mountains [4].

In this paper we are going to analyze syntactic structures of poems "My heart is in the Highlands" by English poet R.Burns and Kyrgyz poem "The Kyrgyz Mountains" by Kyrgyz poet Alykul Osmonov.

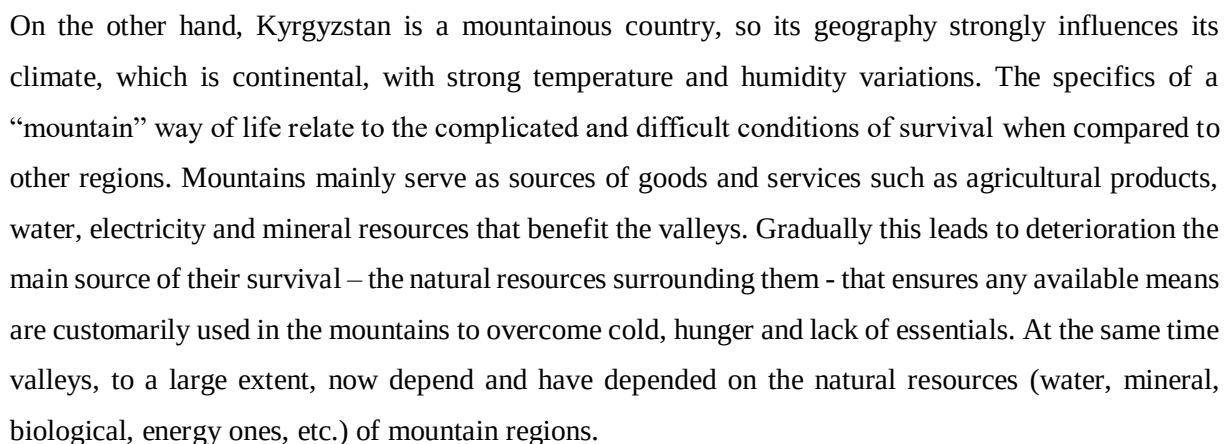
As English language belongs to German origin whereas Kyrgyz language has a different structure both in the roots of words and form of grammar, different origin. It belongs to Turkish origin. Therefore, those two languages have no common syntactic structure and lexicon. However, the theme and purpose of the poems are identical. Here R.Burn's poem; (See appendix C)

The main theme of Robert Burns's poem "My Heart's in the Highlands" is what the title indicates: his love for the Scottish Highlands. The poem expresses a sort of sentimental patriotism based on love of both idealized national character and landscape [9].

In one hand, the poem is actually a song, so the second stanza repeats as a refrain, stating over and over, "My heart's in the Highlands." The author Robert Burns who is a great lover of nature and looks on back and remembers the time when he had enjoyed with the nature. He used to go to highland often to play with the deer and to chase them. He exclaims that it was a beautiful journey and he also expresses his feeling that no place can match his highland. In the poem, he narrates that the highland mountains are always covered with the snow. He says that he is bored being in the city and he doesn't even mind a calamity such as a flood. He always wants to stay there in highlands [8]. We analyzed the poem using corpus analysis. We identified sentences phrasal structure. For instance; the word 'My' is pronoun phrase, heart's is noun phrase and 'Is' auxiliary verb, 'In' prepositional phrase, 'the' is article and Highland is noun phrase.

Here is a Syntax tree of the poem "My heart is in the Highlands" (see the abbreviations in Appendix B)

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Famous Kyrgyz poet A. Osmonov feels that the mountains are floating forever. In stanza 4-5 of poem The Kyrgyz Mountains, before the dawn of the world, the rocks give life to the earth and give it beauty. Kyrgyz Mountain is the favorite mountain of the people, and we don't pay attention to whether it will be a beautiful precious mountain. Here, he welcomes the first day, covers the night after everything, and gives his beauty in simple words. He compares the peaks of the mountains to the fangs of a lion, saying that the rocks grow like lions. Frozen ice shines like chocolate, and Kyrgyz girls' headdress are compared with sparkling stones. It is said that the mountains are piled up like a caravan. The comparison with the teeth of a lion, a camel, and a lion revealed to us an emotional image. We got information about mountain ranges, hills and valleys through the work of Kyrgyz Mountains. Mountains are people's mineral wealth, the source of nature, treasure, and a mine of livestock. Through this poetry, the poet describes the wonderful geological structure and meteorological severity of the mountains. It describes the suffering hell of the ancestors, who lived in conflict with the mountains throughout their lives, and the eternal floating of the mountains.

Importance of Poetry

Poem is defined as an arrangement of words written or spoken: traditionally a rhythmical composition, sometimes rhymed, expressing experiences, ideas, or emotions in style more concentrated, imaginative, and powerful than that of ordinary speech or prose; some poems are in meter, some in free verse [10].

Syntax in Poetry

Sentence structure helps create brevity in poetry, and brevity then goes on to control how often one takes a breath within the sentence; further amplifying the tone, and the mood of the poem [5].

The general word order of an English sentence is "Subject+Verb+Object". In poetry, however, the word order may be shifted to achieve certain artistic effects such as producing rhythm or melody in the lines, achieving emphasis, heightening connection between two words etc. The unique syntax used in poetry makes it different from prose. Let us consider the following examples of syntax:

For instance; Milton shifts words in his poems frequently. Let us analyze lines from his poem Lycidas: "Thee, Shepherd, thee the woods and desert caves,

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With wild thyme and the gadding vine o'ergrown,
And all their echoes mourn”

The modified word order in the above lines is Object+Subject+Subject Complement+Verb [7].

By rearranging the typical order of words, poets can draw attention to specific words or phrases, enhancing their emotional impact. For example, placing a crucial word at the beginning or end of a line can create a powerful effect. Syntax helps establish the voice of the poem. The structure of a sentence can enhance imagery and symbolism. Overall, syntax is a fundamental tool in a poet's arsenal, allowing for creativity and depth in expression, shaping the reader's experience and understanding of the poem [6].

M.Amirullah Khan states that poetry can be one of the most types of literature to bring to life for students. Teachers who use poetry in their lessons, they can give their students not only an increased awareness and understanding of English speaking cultures, but also great sensual, emotional, and intellectual pleasure. He continued saying that poetry is a special type of English which deserves study as much as they do perhaps more, since it touches learners’ personal feelings most closely. He mentioned the importance of personal feelings in any languages: to stimulate the typical rhythm of the language. One more importance of poems is that they frequently repeat words or patterns of sound [1.p.41].

Materials and Methods

The participants of the study were 10 4th year students of 10 analytical lessons and 5 English language teachers and 5 Kyrgyz language teachers (all 10 teachers) who teach English and Kyrgyz literature lessons were interviewed.

For identifying differences and similarities of Syntactic Structure of English and Kyrgyz language poems Comparative method was used. For investigating teachers’ knowledge about Syntactic Structure in both English and Kyrgyz languages interview was used.(see interview questions in Appendix A)

Procedure

Procedure was as follows: Students had analytical lesson once in a week. Usually in analytical lessons students are asked to read literary texts and to analyze using stylistic devices in order to comprehend text deeply. There were the following procedures were carried out. First, students learn syntactical and lexical level of the language. Having learnt those types of syntactical and lexical meaning of sentences student practice their learnt knowledge in reading literary texts. Last time we used two poems to analyze. For that we did some activities related to the task.

Activity: Comparative worksheet with excerpts from both poems of My heart is in the highlands by Robert Burns and The Kyrgyz mountains by Alykul Osmonov were given to students. The objective was that students had to identify and underline examples of repetition, inversion, or parallelism in both poems. 5 students were asked to analyze poem “My heart is in the Highlands” and other 5 students were asked to find parallelism, repetition and inversion in “The Kyrgyz Mountains”.

Comparative Worksheet:

Poems: “My Heart is in the Highlands” by Robert Burns and “The Kyrgyz Mountains” by Alykul Osmonov.

Instructions: Read the excerpts from both poems carefully.

Identify and underline examples of repetition, inversion, or parallelism in the text.

Answer the questions below each excerpt.

Excerpt 1: My Heart is in the Highlands (Robert Burns)

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My heart is in the Highlands, my heart is not here,
My heart is in the Highlands a-chasing the deer;
A-chasing the wild deer, and following the roe—
My heart's in the Highlands, wherever I go [3, p204.].

Questions:

What examples of repetition can you identify? Underline them in the text.

Find an instance of inversion (where the usual word order is reversed for emphasis). Highlight any examples of parallelism in the structure of the lines explain why they are parallel.

Excerpt 2: The Kyrgyz Mountains (Alykul Osmonov)

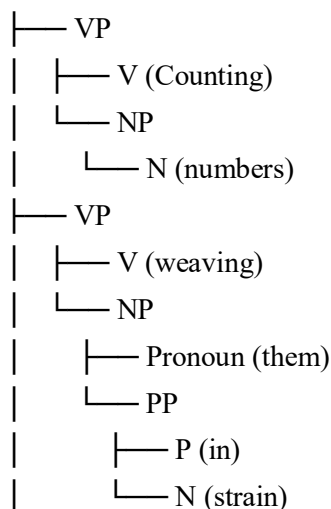
The Kyrgyz mountains, a cradle of dreams,
The Kyrgyz mountains, where the sunlight gleams.
They stand with pride, they rise so high,
They touch the stars, they kiss the sky.

In the Kyrgyz language, unlike English, verbs always appear at the end of a sentence. However, in poetry, we can see that the word order in a sentence can be disrupted.

Another task was that students made Syntactic Tree using one couplet of the poem of “The Kyrgyz Mountains”

Syntactic tree. Sentence 1

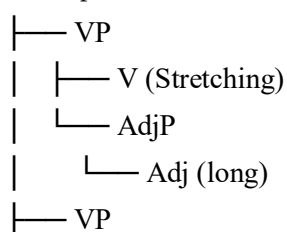
Participial Phrase (see the explanation of Abbreviation letters in Appendix B)



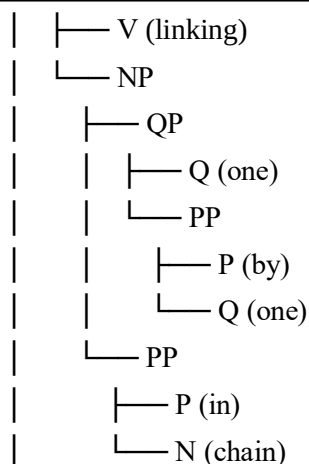
Sentence 2:

"Stretching long, linking one by one in chain."

Participial Phrase



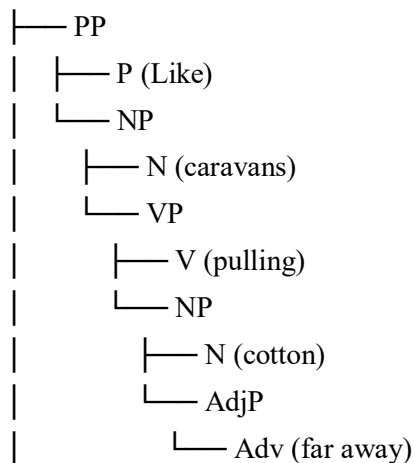
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Sentence 3:

"Like caravans pulling cotton far away."

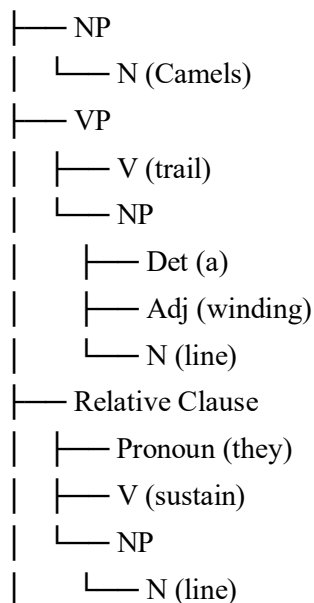
Simile Clause



Sentence 4:

"Camels trail, a winding line they sustain."

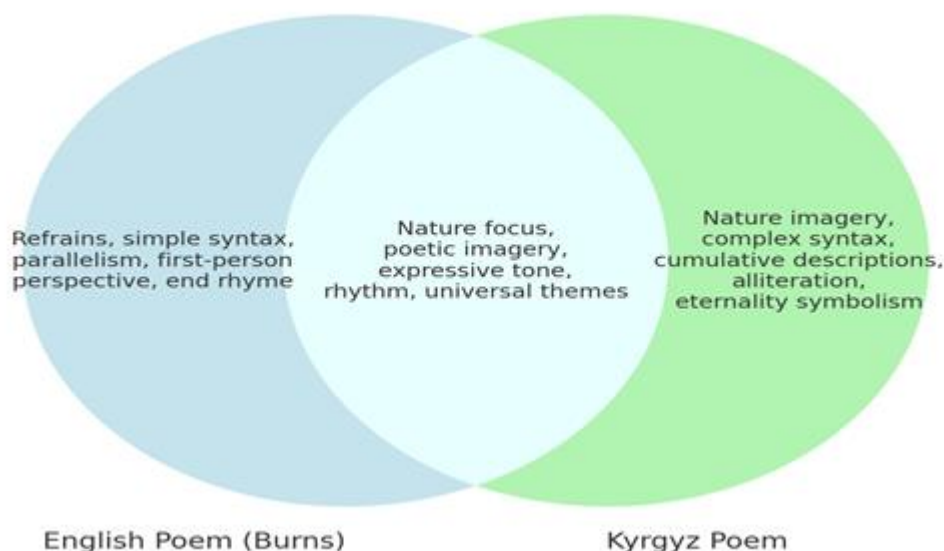
Tree Structure:



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Except, corpus analysis, below is given Venn's diagram of comparison of the syntactic structures and stylistic features of the two poems: Robert Burns' "My Heart is in the Highlands" (English) and the Kyrgyz poem "The Kyrgyz Mountains".

Comparison of Syntactic Structures in English and Kyrgyz Poems



Results

The result shows that in Robert Burns' poem "My Heart's in the Highlands," poet employs various literary devices, including parallelism and inversion, to convey his deep affection and longing for the Scottish Highlands.

Parallelism involves the repetition of similar grammatical structures to create rhythm and emphasize particular sentiments. Burns utilizes this technique throughout the poem. For instance: "Farewell to the Highlands, farewell to the North," "Wherever I wander, wherever I rove," "Chasing the wild-deer, and following the roe," These parallel structures underscore the poet's emotional connection to the Highlands and his sense of loss upon leaving.

Inversion, or the rearrangement of the conventional word order, is also present in the poem. An example is the line: "The birth-place of Valour, the country of Worth;" Here, Burns inverts the typical word order to highlight the virtues associated with the Highlands, emphasizing its noble characteristics.

In "The Kyrgyz Mountains" poem the followings were analyzed.

The first, Inversion: Кара зоолор ар кай жерде каркайып "Black cliffs stand tall in various places." etc).

The second, Repetition words; "мөңгү кетпей чокулары жалтырап" The peaks glisten, with the glaciers remaining."

The last is Parallelism; Арстандын азуусундай арсайып. Тонгон муздар шөкүлөдөй жаркырап- Their edges, sharp like diamond's gleam, Jagged as a lion's teeth, they seem.

Moreover, creating a Venn diagram comparing the syntactic structures of English and Kyrgyz poems involves identifying both unique and shared syntactic elements characteristic of poetic structures in both languages. Below is an outline for the table of students' findings in the both English and Kyrgyz poems. Comparative Table 1.

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Feature of R.Burn's poem	Shared Features of both poems	Unique feature of A.Osmonov's poem
Refrain usage: Repetition of the line "My heart is in the Highlands" creates melodic, lyrical quality	Focus on Nature: Both poems celebrate natural landscapes—Highlands for Burns, and Kyrgyz mountains for the Kyrgyz poem.	Imagery Rooted in Nature: Vivid descriptions of Kyrgyz mountains, glaciers, and storms reflect a deep cultural connection to the landscape.
Simple Sentence Structure Subject-Verb-Object For clarity and emotional resonance	Poetic Imagery: Use of descriptive language to evoke vivid mental pictures.	Complex Syntax: Use of subordinate clauses and inversions to maintain rhythmic syllable count (e.g., "Капа зоолор ар кай жерде каркайып" "Black cliffs stand tall in various places.").
Parallelism "Farewell to the mountains high covered with snow, Farewell to the straths and green valleys below" reflect symmetry	Expressive Tone: Both reflect deep admiration and emotional resonance with the subject.	Lines build on each other, describing physical and metaphorical attributes of the mountains. Арстандын азуусундай арсайып. Тоңгон муздар шөкүлөдөй жаркырап,
Personal connection First person perspective "My heart, my love" emphasizes personal attachment to homeland	Rhythmic Quality: Structured rhythm, whether through rhyme (English) or syllable count (Kyrgyz).	Frequent repetition of consonants (e.g., "мөңгү кетпей чокулары жалтырап" "The peaks glisten, with the glaciers remaining.").
	Universal Themes: Concepts of longing, beauty, and eternity in nature are central.	Symbolism of Eternality: Metaphors such as glaciers as crowns symbolize timelessness.
	End Rhyme: Regular ABAB rhyme scheme, characteristic of English (here, deer, roe, go. North, Worth etc) Kyrgyz poem (курашып, улашып, чубашып, каркайып, занкайып, жалтырап, жаркырап)	

The Result of teachers' interview was given in the following table

Syntactic Structure Comparison: English vs Kyrgyz

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Interview Results

Comparative Table 2

Aspect	English poetry	Kyrgyz poetry
Word Order	Fixed, analytical	Flexible, agglutinative
Use of repetition	Moderate	High
Rhythmic Syntax	Written tradition	Strong oral influence
Sentence Length	Varies significantly	Often longer

Discussion

The study showed that working on Syntactic Structures has been not effective unless there is no control condition. Students and teachers who participated in this study got benefit through identifying syntactic structures in both poems. Identifying a syntactic structure mean that when one stumbles over it ones and it helps students not confuse it with other language structures. They built ability to identify similarities and differences of both poems given above.

Conclusion

In this article we compared two poems in English and in Kyrgyz languages. We analyzed the syntactic structures of the two poems ("My Heart's in the Highlands" by Robert Burns and «The Kyrgyz Mountains» by A.Osmonov), we could compare various linguistic features such as sentence structures, repetition, parallelism and inversion.

We came to conclusion that poems about mountains are used to teach learners to admire the beauty of their motherland in educational institutions; in kindergartens, at schools and at higher educational institutions. Poems help to teach citizens to take care of the nature and to protect mountains and animals where they live.

Those poems imbued with love for one's native land is especially relevant today. Although the poets in the previous centuries did not face the environmental problems that our generation needs to solve, they speak about their native places with such heartfelt feeling that it makes us think about the state of the parks, villages and mountain areas that we visit. To be proud of the fatherland, like Robert Burns, A.Osmonov we need to take care of it and keep it clean.

At result, the study implication is that teachers of both English and Kyrgyz languages should be provided more practices in analyzing Syntactic structures of different types of sentences and sentences in literary texts.

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APPENDIX A. Interview questions

1. What does syntactic structure stand for? Could you explain, please?
2. What syntactic structures do authors use for emphasis in their poetry?
3. How do they modify sentence structure in response to meter or rhyme constraints?
4. Can you provide examples of when they intentionally invert word order?
5. How does oral tradition impact authors' syntax choices?
6. How does the syntax of Kyrgyz poetry differ from English poetry in your experience?

Appendix B

Abbreviations

1. NP –Noun phrase
2. V-Verb
3. N-noun
4. PP- Pronoun phrase
5. P- Preposition
6. P-participle phrase
7. AdjP- Adjective phrase
8. Adv- adverb

Appendix C

1. “My Heart’s in the Highlands” by R. Burns

My heart's in the Highlands, my heart is not here,
My heart's in the Highlands, a-chasing the deer;
Chasing the wild-deer, and following the roe,
My heart's in the Highlands, wherever I go.
Farewell to the Highlands, farewell to the North,
The birth-place of Valour, the country of Worth;
Wherever I wander, wherever I rove,
The hills of the Highlands for ever I love.
Farewell to the mountains, high-covered with snow,
Farewell to the straths and green vallies below;
Farewell to the forests and wild-hanging woods,
Farewell to the forests and wild-hanging woods

2. “Kyrgyz mountains” (translation version) by A.Osmonov

Counting numbers, weaving them in strain,
Stretching long, linking one by one in chain,
Like caravans pulling cotton far away,
Camels trail, a winding line they sustain.

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Black cliffs stand tall in scattered might,
Layered thick, towering to the height.
Their edges, sharp like diamond's gleam,
Jagged as a lion's teeth, they seem.
The peaks, where glaciers never fade,
Shimmer like crowns of ice displayed.
No bird dares cross from side to side;
Only trembling storms scrape by in stride.

КЫРГЫЗ ТООЛОРУ (Original version) Алыкул Осмонов, кыргыз эл акыны.

Тоого тоолор курамалап, курашып,
Узун тартып, уламалап, улашып,
Алда кайда кебез тартып келаткан,
Кербенчинин төөлөрүндөй чубашып.(strain)
Кара зоолор ар кай жерде каркайып,
Катмарлашып, калың тартып заңкайып.
Алмаз сындуу көккө тийген миздери,
Арстандын азуусундай арсайып.
Мөңгү кетпей чокулары жалтырап,
Тоңгон муздар шөкүлөдөй жаркырап,
Ар жагынан бер жагына куш эмес,
Араң гана бороон өтөт калтырап.

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NUTRITIONAL APPROACH IN FAMILIAL MEDITERRANEAN FEVER

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ABSTRACT

Familial Mediterranean fever (FMF) is a genetic disorder characterised by recurrent inflammatory attacks. Acute and short episodes of inflammation with fever lead to marked inflammation of the abdomen, lungs and joints. Treatment usually focuses on symptom management with medication. However, in our research, some patients report that certain foods trigger attacks. The aim of this study is to determine the food groups that trigger attacks in patients with FMF and to develop nutritional strategies that can be applied in addition to drug treatment. Thus, the role of nutrition in the management of the disease will be emphasised and the quality of life of patients will be improved. Individuals who had been diagnosed with FMF for at least 1 year and were over 18 years of age were included in the study. Data were collected from the participants about their dietary routines before and after the attacks and the foods thought to trigger the attacks. These data were analysed and the components contained in triggering food groups were evaluated. As a result of the study, it is predicted that nutrition is a supportive factor in reducing the frequency of FMF attacks. The identification of trigger foods reveals the importance of nutritional therapy in the treatment process for FMF patients and emphasises the necessity of individualised diet programmes. In the management of the disease, individualised dietary plans should be prepared together with drug therapy and patients should be ensured to avoid foods that trigger attacks. This approach may contribute to more effective management of FMF patients.

Keywords: Familial Mediterranean Fever, Nutrition, Trigger Foods, Diet

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ANALYSIS OF THE IMPACT OF DIETARY AWARENESS ON HEALTH-PROMOTING BEHAVIOURS OF YOUNG PEOPLE

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ABSTRACT

Introduction. Healthy eating involves providing the body with valuable nutrients in the right proportions and quantities. The way of eating and daily eating habits have a huge impact on health.

Objective. To study the impact of nutritional education on the health-promoting behaviors of young people.

Research material and method. A pilot study was conducted on a group of 20 people aged 17-21 (average age 19). The study was based on surveys conducted before and after workshops on the principles of healthy eating.

Results. The study showed that 52% of people believe that they eat healthily, of which only 48% take care of proper hydration during the day, and the majority of respondents (90%) eat sweets, of which 47% eat them almost every day.

After conducting educational workshops raising awareness of healthy eating, the number of people who believe that they eat healthily increased by 33 percent. The number of people taking care of proper hydration increased to 71%, and 81% of respondents limited their consumption of sweets.

Conclusions. Preventive and educational activities concerning healthy eating bring measurable health benefits, constitute an important social aspect and a basis for continuing research.

Keywords: diet, healthy eating, health education, nutritional education

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EVOLVING IDEOLOGIES AND PERSONAL NARRATIVES: A JOURNEY THROUGH POLITICAL AND SOCIAL CHANGE THROUGH LITERATURE (BASED ON LEA YPI BOOK “FREE”)

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ABSTRACT

This study investigates the interplay between personal narratives and evolving political ideologies, utilizing autobiographical elements and historical contexts. Through the experiences of Lea Ypi, the research examines transformative periods of political upheaval and social change, and their impact on individual and collective identities.

The analysis begins with contrasting evolutions, from media influence on public perception to the symbolic significance of everyday objects like the pioneer’s scarf. These elements are explored to understand broader societal shifts and the persistence of ideological constructs.

Key themes include the role of education and political indoctrination, illustrated through the education system, and the influence of family heritage on personal beliefs. The study also addresses static variables of revolution and dynamic processes of participation and competition within the political landscape.

Theoretical frameworks such as nationalism and liberal democracy provide a foundation for analyzing the development of beliefs and ideologies. The research categorizes these beliefs into static and evolving constructs, demonstrating how personal and collective identities are shaped and reshaped over time.

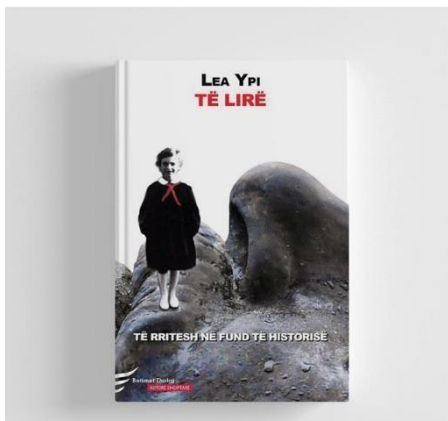
Case studies from the autobiography highlight the resilience and adaptability of individuals amidst political and social transformations. The narrative of Lea Ypi’s family, from aristocratic roots to revolutionary involvement, serves as a microcosm of broader historical trends.

In conclusion, this study offers a comprehensive analysis of the evolution of ideologies and personal narratives, emphasizing the enduring impact of political and social change on individual and collective identities through literature. It provides insights into the processes of ideological formation and transformation, contributing to a deeper understanding of the complex relationship between personal experiences and broader societal dynamics.

Keywords: Ideology, personal narrative, political change, social transformation, education, nationalism, thinking skills, family heritage, participation, literature

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INTRODUCTION



This study examines the initial segment of the Ypi Family narrative, emphasizing the dimensions of the propaganda machine and its role in shaping collective beliefs.

These beliefs ultimately disintegrated with the fall of the communist system.

By analyzing the propaganda machinery, the study also underscores its implications for individual freedom.

MATERIALS AND METHODS

We analyze Ypi's story (based on the book *Free: Coming of Age at the End of History*, 2021) to illustrate how physical (urban), social, and educational realities shape collective beliefs, which in turn reinforce obedience to an ideology through processes of repetition and internalization (Ypi, 2021).

Inspired by Lea Ypi's work as a political scientist and her memoir, this analysis explores the mechanisms of propaganda and examines their functions using autobiographical research, life stories, and life narratives. We recognize that the narrator's memory, along with the analysis and interpretation by both the narrator and the researcher, are intertwined and co-defined through social and cultural relations. These elements are considered interconnected and complementary in our research (Abrahão, 2012).

The autobiographical element strategically centers on a child transitioning into a teenager, who intuitively questions their environment. Through internal monologues driven by unanswered questions, the protagonist explores dilemmas, formulates analyses, and sometimes manages to develop responses. This cognitive process generates an internal reality that challenges the external ideological framework (Flower & Hayes, 1981).

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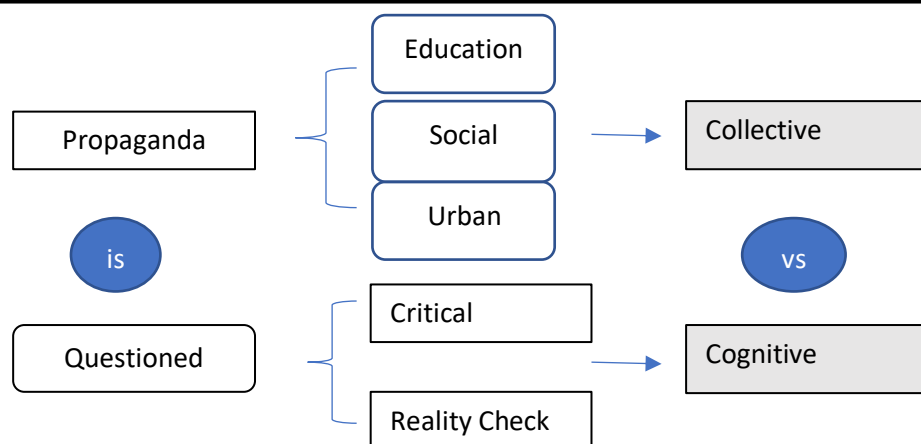


Fig. 1 Research Hypothesis explains the correlation between Individual Cognitive Process and Collective Ideology creating A Self Political Behavior explored through a Cognitive Writing Theory

Research Hypothesis:

The communist regime in Albania systematically reduced the space for individual cognitive processes and critical thinking, instead promoting collective actions and reinforcing a collective ideology through propaganda. This propaganda was disseminated through ideological beliefs mainstreamed via education systems, urban symbols, and social interactions. Children, by nature, raised unintentional questions about such behavior, motivated by critical thinking and analysis of symbols and social interactions. This new cognitive individual process had the potential to erode the established ideology.

In our research, we employ the theory of political self as a framework, specifically utilizing Albert Bandura's social learning theory. This theory, proposed by Bandura, posits that individuals can acquire learning through observation and imitation, which helps explain the mechanisms of propaganda (Bandura, 1977). We combine this with cognitive theories, suggesting that mental activities (e.g., analysis and critical thinking) and social interactions mediated by steered symbols and language, as described in the theory of symbolic interactionism by George Herbert Mead and Max Weber, are important determinants of behavior (Callero, 2003; Nickerson, 2023).

I. Propaganda Machinery in Communist Albania

Propaganda is a highly specific method of disseminating ideology, designed to be persuasive and with an immediate impact on its audience. Whether visual, oral, or written, propaganda is brief, rhetorically compelling, and broadly acceptable. Propaganda guides our thinking, prompting us to interpret experiences in particular ways. Successful propaganda draws on familiar words and images, shaping how we make sense of our lives and give them meaning. It subtly redefines and reframes beliefs we already hold (Umbach, n.d.). As Christopher Browning (1992) explains, it is not the propaganda itself that turns people into fanatical supporters of an ideological cause, but the alignment of ideological ideas with lived experiences and group dynamics. Lea Ypi's memoir illustrates how these lived experiences were shaped and directed by educational systems, urban spaces, and social dynamics.

The Role of Education in Shaping Collective Beliefs

The educational system in communist Albania played a key role in shaping collective beliefs and fostering ideological conformity among the children and youth. Through carefully designed curriculum, cultural indoctrination, and the strategic use of state-sponsored celebrations, the system perpetuated myths, stifled critical thinking, and reinforced collectivist ideals that aligned with the goals of the ideology.

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Ideological Indoctrination: The Mythologization of Leaders

Central to the educational narrative was the glorification of political figures like Joseph Stalin and Enver Hoxha. Superficial and fabricated attributes were emphasized, such as Stalin's "smiling eyes" and "childlike laughter," which painted him as a benevolent, almost mythical figure. These portrayals aimed to instill admiration and loyalty but also fostered confusion among children, whose intuition sometimes contradicted the official narrative. For example, the insistence that Stalin's habit of keeping a hand in his pocket was harmless created dissonance with the cultural norms taught to children, such as that keeping hands in pockets signified bad manners. These inconsistencies subtly undermined the trust children might otherwise have placed in the system.

Suppression of Critical Thinking

The educational system discouraged critical thinking by rewarding conformity and punishing deviation. Children were evaluated based on their adherence to rules, with rewards such as flags for those who conformed and criticism for those who questioned. This dynamic cultivated an environment where appearance and obedience were prioritized over genuine understanding or critical analysis.

Promotion of Collectivism and Demonization of Capitalism

The curriculum extolled collectivism as a moral and practical necessity, emphasizing that everyone works better when we share everything together. This ideology was juxtaposed against a vilified portrayal of capitalism, where only the names of business owners and their heirs were recognized, while workers were depicted as oppressed and invisible.

Children were taught to view tourists and foreigners—symbols of the bourgeois class—with suspicion. Accepting gifts or engaging with them was prohibited, reinforcing a narrative of moral superiority and self-reliance while simultaneously isolating the population from external influences.

Celebrations as a Tool for Education and Indoctrination

In communist Albania, celebrations were a strategic tool for shaping collective beliefs and reinforcing ideological conformity, particularly among children. These events went beyond mere festivities, serving as structured opportunities to instill loyalty, collectivist values, and admiration for the regime.

Public holidays celebrated milestones of socialism, labor achievements, and the glorification of political leaders. Through parades, performances, and mandatory participation, children were educated to see themselves as integral to socialist vision. Celebrations emphasize discipline, unity, and the moral superiority of collectivism while vilifying external influences like capitalism and individualism.

By integrating education with celebratory rituals, the regime ensured that ideological messages were emotionally resonant and deeply embedded in the social fabric.

The Role of Social Relations in Shaping Collective Beliefs

In communist Albania, social relations were a powerful medium through which collective beliefs were shaped, often through the dissemination of fabricated narratives and ideological constructs. These relationships, spanning family, neighbors, and institutional dynamics, played a dual role in promoting conformity and ideological control while simultaneously exposing children to alternative values and possibilities.

The Family as a Parallel Narrative

Within the family, particularly through figures belonging to past generations (like the grandmother/fathers who lived in another ideological system) children happened to encounter a counter-narrative to the state-imposed ideology. The previous educated and progressive generations embodied values of intellectualism, morality, and cultural heritage that contrasted sharply with the collectivist dogma promoted by the regime.

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Social Dynamics and the Reinforcement of Conformity

Outside the family, social relations were tightly controlled by the state, with institutions such as the Education Commission and the Education Section ensuring compliance with ideological norms. These institutions dictated educational curricula, monitored behavior, and cultivated an environment where deviation from the norm was met with social ostracism.

Volunteerism, for example, was framed as a moral obligation, where failure to participate in collective tasks like cleaning neighborhoods resulted in public shaming. Such practices reinforced the collectivist ethos while suppressing individuality and dissent.

Neighborly relationships, too, were a mix of camaraderie and surveillance. Meals and social gatherings could quickly shift from friendly exchanges to tense encounters, with individuals wary of betrayal or ideological divergence. This constant tension cultivated a culture of caution and conformity, as individuals navigated the complexities of trust and loyalty in their immediate social circles.

Institutional Control and the Fragmentation of Trust

Both formal institutions, such as the school, and informal ones, like street life, exerted significant influence over individuals' lives. They dictated career paths, monitored personal behavior, and fostered a reliance on state authority, reinforcing the norms of conformity and the notion of what it meant to be "right". This pervasive control fragmented trust within communities, as individuals learned to navigate a system where loyalty to the state often superseded personal relationships.

Even within seemingly apolitical settings, such as interpersonal relations or social events, the regime's influence was omnipresent. Children were taught to view authority figures as infallible and to accept state or social narratives without question, suppressing the individual agency.

The Role of Material Culture and Urban Space in Collective Beliefs

In communist Albania, goods and urban spaces became key tools for shaping collective beliefs and fostering ideological conformity. Through the strategic use of symbols, controlled urban public space, and access to material culture, the regime influenced how individuals, especially children, interpreted their social reality and internalized the values of the state.

Indoctrination Through Cultural and Material Symbols

Material and cultural symbols were another avenue through which beliefs were shaped. Items such as imported lace dresses or red schoolbags marked individuals as "different," inviting ridicule and reinforcing the social pressure to conform. At the same time, exposure to Western media, such as Bob Dylan's music or foreign advertisements, created a cognitive dissonance between the state's portrayal of the West as decadent and the allure of its cultural and material richness.

Symbols of Material Goods as Ideological Constructs

Material goods were imbued with ideological significance, often serving as markers of loyalty or resistance to the regime. Items such as imported consumer products—like the much-desired can of Coca-Cola—were framed as corruptive diversions introduced by imperialist forces to undermine unity and solidarity.

Magazines such as *Yllka* and *Horizonti* reinforced this dichotomy. They portrayed capitalists as morally degenerate and wealthy children as selfish and uncharitable, in stark contrast to the egalitarian values promoted by the state. Through these narratives, children were taught to view material goods not as neutral objects but as ideological symbols.

The Urban Space as a Controlled Environment

Urban spaces were designed to reflect the values of the regime and reinforce its ideological messaging. The Pioneer's Shop, for example, served as a centralized location where all school-related items were

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purchased, symbolizing the state's control over education and the daily lives of children. Similarly, the “currency shop,” where imported goods could be bought, represented a space where dreams collided with the stark realities of economic inequality and state control.

The act of queuing for necessities became a normalized experience that reinforced the narrative of collective struggle and the regime's centrality in providing for the people.

Indoctrination Through Urban Interactions

Interactions within urban spaces were carefully curated to maintain ideological conformity. The portrayal of tourists as bourgeois outsiders, for example, fostered a mix of curiosity and disdain among the population. Their distinct clothing, hairstyles, and fragrances contrasted with the uniformity promoted by the regime, creating a sense of “otherness” that reinforced the state's condemnation of capitalist decadence.

Similarly, the presence of street children, described as noisy and unruly, instilled a mixture of fear and respect. This dichotomy reflected broader societal tensions and served as a cautionary tale about the consequences of deviating from the collective norms.

Educational and Cultural Spaces

The classroom was another controlled space where ideological beliefs were reinforced. Stories of poor individuals who participated in the anti-fascist struggle, visits from leaders to the homes of martyrs, and the vilification of the “class enemy” were woven into the fabric of daily education. These narratives not only glorified the regime’s ideology but also instilled a sense of moral obligation to uphold its values.

Religious institutions were reimagined as sites of ideological competition, with slogans such as “Allah-Ak-Bar” equated to “Long Live the Party.” By appropriating the language and symbolism of faith, the regime sought to supplant religious belief with loyalty to the state.

CONCLUSION

The exploration of belief formation in communist Albania, as presented in Lea Ypi’s *Free: Coming of Age at the End of History* (Ypi, 2021), provides profound insights into how ideology permeates every aspect of life while underscoring the resilience of human agency. Ypi’s narrative captures the multifaceted ways in which the regime sought to control thought and behavior yet also reveals the enduring tensions between imposed conformity and the human spirit's quest for autonomy.

Firstly, *Free* highlights how education operated as a vehicle for ideological indoctrination. Through public holidays, mythmaking, and carefully curated cultural narratives, the regime suppressed critical inquiry and enforced collectivist ideals. Ypi’s account brings to light the enduring tension between ideological loyalty and the innate human desire for curiosity and doubt that lingered beneath the surface of such rigid systems.

Secondly, Ypi vividly portrays social relations as a battleground for belief formation. While the regime relied on institutions, language, and cultural norms to maintain conformity, the family and other intimate spaces emerged as quiet refuges for resistance. These moments of subtle dissent reveal the delicate balance between compliance and the desire for truth and autonomy, which permeates her memoir.

Lastly, *Free* examines how material culture and urban spaces were leveraged as tools of control. Through the careful manipulation of goods and the design of environments that emphasized collectivism and austerity, the regime aimed to reinforce its ideological narrative. However, Ypi’s reflections also expose the cracks in this facade, as the allure of foreign goods and curiosity sparked by tourists revealed the limits of ideological control and the universal human longing for individuality and freedom.

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OĞUZ ATAY'IN TUTUNAMAYANLAR ROMANINDA LAYTMOTİF TEKNİĞİ LEITMOTIVE TECHNIQUE IN OĞUZ ATAY'S NOVEL "TUTUNAMAYANLAR"

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ÖZET

Türk edebiyatının önemli isimlerinden Oğuz Atay, roman, öykü ve oyun yazarıdır. Türk edebiyatının ilk postmodern romanı sayılan *Tutunamayanlar* adlı eserini yazmıştır. Atay'ın eserlerinde arayış, yalnızlık, yabancılaşma, kimlik kaybı, bilinçaltı, bilinçdışılık, aşk, benliğin çoğullanması vb. konular ön plana çıkar. *Tutunamayanlar* romanı yazarın ilk eseri olarak 1969 yılında yayımlanmıştır. Büyük birikim gerektiren bu eser, edebiyattan siyasete, tarihten psikolojiye kadar derin bir bilgi birikiminin ürünüdür. Leitmotif, müzikte nakarat veya bir müzik parçasının tekrarı anlamına gelen bir kelimedir. Bu kavram, bir romanda sıkça tekrarlanan, yine konu ve kişilerle ilgili bir kelime topluluğu, herhangi bir beyit ve sözdür. Bu kavram, öncü motif terimiyle de ifade edilir. Ancak bir romanda tekrarlanan her unsur bir leitmotif değildir. *Tutunamayanlar* romanı, ilgi çekici konusunun yanı sıra anlatım teknikleriyle de dikkat çekmektedir. Özellikle bilinç akışı, iç monolog ve leitmotif vb. teknikler göze çarpar. *Tutunamayanlar*'da sıkça kullanılan tekrarlar, Olric'in "efendim"leri, Turgut'un sıkça kullandığı "bat dünya bat" yine Turgut'un "o zamanlar Olric yoktu" leitmotifleridir. Romanın ilk bölümündeki "o zamanlar Olric yoktu" cümlesi bir leitmotiftir ve Turgut'un kimlik arayışında olmadığı, "tutunan" biri olduğu zamanları ifade eder. Olric'in "efendim" ifadesi sıklıkla Turgut'un kendisiyle hesaplaşmasını ortaya koyar. Romanda öne çıkan bir diğer motif ise "bat dünya bat" ifadesidir. Bu, dış dünyayla çatışma içinde olan bireyin dünya görüşünü ve psikolojik yapısını yansıtır. Bu çalışmanın amacı Oğuz Atay'ın *Tutunamayanlar* romanındaki motifleri ortaya koymaktır.

Anahtar Kelimeler: Oğuz Atay, *Tutunamayanlar* romanı, Laytmotif tekniği.

ABSTRACT

One of the important names of Turkish literature, Oğuz Atay is a novelist, short story writer and playwright. He wrote *Tutunamayanlar*, which is considered the first postmodern novel of Turkish literature. In Atay's works, issues such as search, loneliness, alienation, loss of identity, subconscious, unconsciousness, love, pluralization of self etc. come to the fore. The novel *Tutunamayanlar* was published in 1969 as the author's first work. This work, which requires great accumulation, is the product of deep knowledge from literature to politics, from history to psychology. A leitmotif is a word in music that means a chorus or the repetition of a piece of music. This concept is a group of words, any verse, and words that are frequently repeated in a novel, again related to the subject and people. This concept is also expressed with the term leading motif. However, not every repeated element in a novel is a leitmotif. The *Tutunamayanlar* novel draws attention not only with its interesting subject but also with its narrative techniques. In particular, techniques such as stream of consciousness, internal monologue and leitmotif etc. stand out. The repetitions frequently used in *Tutunamayanlar*, Olric's "efendim"s, Turgut's frequently used "bat dünya bat" are again Turgut's "there was no Olric back then" leitmotifs. The sentence "There was no Olric back then" in the first part of the novel is a leitmotif and expresses the times when Turgut was not searching for an identity and was a "tutunan" one. Olric's "efendim" statement often reveals Turgut's reckoning with himself. Another motif that stands out in the novel is

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the expression “sink world sink”. This reflects the worldview and psychological structure of the individual who is in conflict with the outside world. The aim of this study is to reveal the motifs in Oğuz Atay’s novel *Tutunamayanlar*.

Key words: Oğuz Atay, The Novel of *Tutunamayanlar*, Leitmotive Technique

GİRİŞ

Türk edebiyatının önemli isimlerinden olan Oğuz Atay (12 Ekim 1934, İnebolu - 13 Aralık 1977, İstanbul), roman, öykü ve oyun yazarıdır. O, Türk edebiyatının ilk postmodern romanı olarak kabul edilen *Tutunamayanlar*’ı kaleme almıştır. Küçük yaşlardan itibaren Batı’dan Stendhal, Oscar Wilde, James Joyce, Franz Kafka ve Dostoyevski’nin Türk edebiyatından ise Yusuf Atılgan, Kemal Tahir, Ahmet Hamdi Tanpınar ve Sabahattin Ali’nin kitaplarını okur. Atay’ın eserlerinde arayış, yalnızlık, yabancılaşma, kimlik kaybı, bilinçaltı, bilinç dışılık, aşk, benlik çoğullaması vb. hususlar öne çıkar. “Atay’ın kahramanları genel itibarıyla yaşama tutunamayan ve toplum içinde çatışma yaşayan insanlardır.” (Altıntaş, 2024: 41). Bu kişiler genel olarak patolojik özellikler gösterirler.

Eserleri:

Roman: *Tutunamayanlar* (1969), *Tehlikeli Oyunlar* (1973), *Bir Bilim Adamının Romanı* (1975); Hikâye: *Korkuyu Beklerken* (1975); Günce: *Günlük* (2004), *Eylembilim* (2004); Tiyatro: *Oyunlarla Yaşayanlar*. Yazar, *Türkiye’nin Ruhu* adlı eserini tamamlayamadan hayata veda eder.

Tutunamayanlar, 1969 yılında yazarın ilk eseri olarak yayımlanır. “Altı aylık gibi süre zarfında tamamladığı eser yedi yüz yirmi dört sayfa şeklindedir. Büyük birikim gerektiren bu eser edebiyattan politikaya, tarihten psikolojiye kadar derin bilginin ürünüdür.” (Altıntaş, 2024: 44). Atay, 1970’te *Tutunamayanlar* ile TRT roman ödülünü alır.

Laytmotif (leitmotif), müzikte nakarat veya bir müzik parçasının tekrarı anlamına gelen bir sözcüktür. Almanca *leiten* sözcüğü, “öncülük etmek, önden gitmek” kökünden gelir ve “leit” ve “motiv” kelimelerinin birleşmesiyle oluşmuştur. Laytmotif, bir yapıtta tekrar edilen söz veya davranış olabildiği gibi bir nesne de olabilir. “Terim ilk olarak, Richard Wagner’in eserlerinde tekrarlanan müzikal temaları veya cümleleri tanımlamak için Hans von Wolzogen tarafından kullanılmıştır. Wagner’in operaları, laytmotifi müzikal öneme sahip konuma yükselten ilk eserlerdendir. Wagner müziğinin belirleyici özelliği olan bu kavram bir kompozisyon tekniğidir.” (Bağcı, 2022: 688). Müzikte laytmotif, ahengi artıran önemli bir unsurdur.

Laytmotif, bir romanda sık sık tekrarlanan söz grubu, herhangi bir dize, yine konu ve kişilerle ilgili tekrarlanan kelimelerdir. (Tekin, 2010: 252). Bu kavram, öncü motif tabiriyle de karşılaşılır. Bununla beraber romanda her tekrar edilen unsur laytmotif değildir. “Kavramın en belirgin özelliği tekrarların kurguya katkı sağlamasıdır. Yazar-eser-okur düzleminde bir anlatım tekniği olarak ön plana çok çıkmayan öncü motif kullanımı, eserin olay örgüsünde belirgin bir anahtar rol üstlenen sembolik ifade ve söz kalıplarıdır.” (Bayındır, 638: 2024). Tekrar edilen unsurlar belirli aralıklarda ve anlamsal derinlik içerisindeyse o zaman laytmotif özelliği kazanır. Laytmotifin belli bir ilgi alanının, etki gücünün olması gerekir.

Edebi metinlerde yapılan tekrarların bir kısmı estetik ve sanatsal değer taşımasıyla beraber, metne anlam derinliği de katabilir. “Metin içinde tekrarlanarak eserin yapısal unsurları arasında özellikle vurgulanmak isteneni belirginleştiren bir öge şeklinde tanımlanabilecek laytmotif kavramının da kültür bilimlerinin çeşitli dallarında farklı kullanım alanları kazandığı ve nüans düzeyinde de olsa değişiklik gösteren anlamlarla yüklendiği görülebilir.” (Apaydın, 2021: 29). Laytmotif tekniği, edebi eserlere imgesel zenginlik, devamlılık, anlam çoğulluğu, akıcılık, devamlılık, bütünlük katabilir. “Laytmotif eserdeki bir konunun, bir kişinin daha belirgin hâle gelmesine hizmet edebilir. Yazar bu teknikle belli

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bir durumu vurgulamış, somutlaştırmış olur. Müzikal bir atmosfer, bir ritim, ahenk oluşturarak eserin estetik değerine katkı sağlayabilir. Karakterizasyonu güçlendiren bir unsur olarak kullanılabilir. Nesne, düşünce ve olayların tekrarı bir karakterin iç dünyasıyla ilgili önemli işaretler verebilir.” (Bağcı, 2022: 691). Bu işaretler, önceden bahsedilen bir olayı anımsatabilir.

1. TUTUNAMAYANLAR ROMANININ BÖLÜMLERİ, KONUSU VE KURGUSU

1.1. Tutunamayanlar Romanının Bölümleri ve Konusu

Oğuz Atay, *Tutunamayanlar* romanını sevdiği kadın Sevin’e i için” ithaf eder. Ayrıca intihar ederek ölmüş olan arkadaşı Ural’ı da unutmaz ve “Ural’ın hatırasına” ifadesini kullanır. Eser, Ömer Madra imzalı “Ön Söz” ve Enis Batur’un “Geleceği Elinden Alınan Adamın Geçmişi de Elinden Alınacak Diye Korkuyorduk” yazısı ile başlar. Roman, “Sonun Başlangıcı”, “Yayımlayıcının Açıklaması” ve sonda yer alan “Turgut Özben’in Mektubu” dışında dört ana bölümden oluşur.

Romanda tutunamayan, kaybeden (loser) ve kimlik sorunsalı yaşayan kişiler etrafında kurgulanmıştır. Romanda olaylar XX. Yüzyılın ikinci yarısında, bir gece, bir mühendis olan Turgut Özben’in evinde başlar. Yazar, Turgut Özben için, “*O zamanlar daha Olric yoktu, daha o zamanlar Turgut’un kafası bu kadar karışık değildi*” (s.25) der. Selim Işık, Turgut’un üniversiteden arkadaşıdır. O, bir gün arkadaşı Selim Işık’ın intihar haberini bir gazeteden öğrenir. Özben, bu haber karşısında adeta yıkılır. Daha sonra Selim’in intihar sebebini araştırmaya başlar. Birkaç kişi ile görüşükten sonra Süleyman Kargı ile görüşür. Kargı ona Işık’ın “Dün, Bugün, Yarın” başlıklı 600 mısralık şiirini (Şarkılar) verir. Şiirin “İthaf ve Mukaddime” adlı kısmında Selim Işık’ın psikolojik durumu hakkında ip uçları açığa çıkar. Şiirin ikinci bendinde Selim’in yaşantısında yalnızlık içerisinde cansız bir hayat sürdüğü ve intihara meyilli olduğu anlaşılır:

“Selim Işık tek ve Türk. Ve duygulu, amansız.

Sabırsız ve olumsuz, yaşantısında cansız

Sanılırdı; gerçektir, hayır gerçek değildi.

Tutunamayanların tarihine eğildi.

Kelime ve yalnızlık hayatın tadı tuzu

Kucaklamak isterdi ölümü ve sonsuzu.” (Atay, 2014: 114).

Ölümü ve sonsuzu kucaklamak isteyen Selim hayata mağlup olan biridir. Turgut, Selim’i az tanıdığını anlar. Daha sonra Selim’in arkadaşlarından Günseli ile konuşur. Onun anlattıklarından da yola çıkarak Selim Işık’ın bir “Tutunamayan” olduğunu fark eder. Turgut, Selim’in intihar sebebini araştırırken kendi yaşamını sorgular. Bu arada onun ikinci ben’i olan Olric ortaya çıkar. “Selim’in intihar sebeplerini araştırana kadar da anlaşılamamak hakkında düşünmemiştir bile. Öyle ki Selim’in intiharı ile hepsi ile tanışmış ve düşünmeye başlamıştır. Soyadının da getirisi ile bu aşamada “özben” liğine inecektir. Hayali arkadaşı “Olric”, Turgut’la sürekli birlikte. Belli bir süreden sonra ise Turgut’un öz benliği şeklinde Olric karşımıza çıkmaktadır. Romanın sonunda Turgut tutunandan tutunamayana dönüşmüş olup, tutunduğu her şeyi yani işini ve ailesini bırakarak bir trene binerek hayatından uzaklaşmayı tercih etmektedir (Kadak, 2019: 45-46). Kendisini alışkanlıkların ve törelerin yönlendirdiğini düşünen Turgut, kimlik arayışı içine girer. Turgut Özben Selimleşir ve kendisini bir “tutunamayan” olarak görür. Turgut Özben, romanın sonunda bir trene binerek uzaklaşır.

1.2. Tutunamayanlar Romanının Kurgusu

Roman, Selim Işık’ın intihar haberini bir gazeteden öğrenen Turgut Özben’in bu intiharın sebeplerini araştırması ve kendisinin de bir tutunamayan olduğunu öğrenmesi ve arayışlara girmesi üzerine kurgulanmıştır. *Tutunamayanlar* tam anlamıyla bir başkaldırı romanıdır. İçerik, kurgu, dil, biçim gibi

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etkenlerde edebî başkaldırı metni olan bu eserde bilhassa burjuva yaşam şekli, gelenekler, eğitim sistemi ve Türk aydınının durumu gibi birçok element eleştirilmiştir (Şahin, 2016: 327). Oğuz Atay, bu romanda modern dünyanın silikleştirdiği, kendiliğini oluşturmaya engellediği ve benlik parçalanmasına uğramış kişinin kaotik yapısını gözler önüne serer.

Tutunamayanlar'da Turgut Özben ve Selim Işık öne çıkar. Bu isimler dışında Süleyman Kargı, Metin ve Günseli adlı karakterler de önem taşır. Roman, Selim Işık ve onun intiharının etrafında kurgulanmıştır. Dış dünya tarafından anlaşılamayan Selim, en önemli “tutunamayan”dır. Canı sıkılan Selim’in yolu ışıklı değil, karanlıktır. Yıldız Ecevit’e göre Selim’in soyadının “Işık” olması, “İsa Mesih” e göndermedir. Bu yüksek ihtimaldir çünkü Selim de Atay gibi günlük yazmaktadır ve günlüğünde İsa Mesih’ten sıkça bahsedilmektedir. Selim İsa’ya hayranlık duymaktadır çünkü İsa Mesih’i insanlığı kurtaracak bir umut şeklinde görmektedir. Selim’e göre İsa ile Selim aynı görevi yerine getirmektedir (Altıntaş, 2024: 46). İkisi de adeta insanlığın yükünün ağırlığını omuzlarında taşırlar.

Roman, Turgut Özben ve Selim Işık üzerinde yoğunlaşmakla beraber 1930-1960 arası Türkiye’sinden manzaralar da sunar. “Buna göre eğitim sisteminden aileye, Batılılaşma probleminden kaynaklara dönme eğilimlerine kadar bir dizi sorunsal bu romanın eleştirisi oklarından nasibini alır.” (Kolcu, 2017: 556). Bu bağlamda romanda hem bireysel hem de toplumsal yönlerin birlikte yer aldığını belirtmek gerekir.

2. TUTUNAMAYANLAR ROMANINDA LAYTMOTİF

Tutunamayanlar ilginç konusu yanı sıra anlatım teknikleri bakımından da dikkat çeker. Özellikle bilinçakışı, iç monolog, Selim’in günlükleri Kutsal Kitab’ın (İncil) hikemî ve dînî tarzı, Tiyatro tarzı *Tutunamayanlar* kelimesinin bir sözlük maddesi şeklinde açıklanması, Turgut’un mektubu Batı ve Türk müziğini anlatan makale tarzı, Metin’in Selim hakkında yazdığı mektuba karşı yazılmış mahkeme tutanağı, diyalog, leitmotive vb. unsurlar öne çıkar.

Tutunamayanlar’da rastlanan bir özellik de laytmotiftir (leitmotive). Bu sözcük, müzikten edebiyata geçen bir terimdir ve bir müzik parçasının tekrarlanan nakaratlarıdır. (Eşitgin, 1999: 123). “Edebiyatta özellikle roman türünde rağbet gören teknik olarak ‘leitmotiv’, türlü vesilelerle tekrarlanan ifade kalıbıdır.” (Tekin, 1989: 92). Romanda karakter çizme, imge, gizem ve atmosfer oluşturmada laytmotifin önemi büyüktür. *Tutunamayanlar*’da sıkça kullanılan Olric’in “efendim”leri, Turgut’un sıkça kullandığı “bat dünya bat” ve Turgut’un “o zamanlar henüz Olric yoktu” sözleri, “Tabancayı aldı ve ateş etti”, “tutunamayanlar” ve “ne yapmalı?” ifadeleri laytmotiftir. Bunları şöyle ifade edebiliriz:

2.1. “O zamanlar henüz Olric yoktu” laytmotifi

Romanın ilk kısmında geçen “*O zamanlar henüz Olric yoktu*” (s.25) cümlesi bir laytmotif olup Turgut’un kimlik arayışında olmadığı ve “tutunan” bir olduğu zamanları ifade eder:

“Olay, XX. yüzyılın ikinci yarısında, bir gece, Turgut’un evinde başlamıştı. O zamanlar daha Olric yoktu, daha o zamanlar Turgut’un kafası bu kadar karışık değildi.” (Atay, 2014: 24).

“O zamanlar, henüz, Olric yoktu; hava raporları da günlük bültenlerden sonra okunmuyordu. Henüz durum, bugünkü gibi açık ve seçik, bir bakıma da belirsiz değildi.” (Atay, 2014: 24).

“Turgut, bütün bunları o sırada mı düşündü, yoksa sonradan, o anı hatırladığı zaman, öyle düşündüğünü mü sandı? Bilemedi: çünkü o zaman henüz Olric yoktu. Henüz durum bugünkü gibi açık ve seçik, bir bakıma da belirsiz değildi.” (Atay, 2014: 36)

Olric’in olmadığı zamanlarda modern yaşamın ve geleneklerin yönlendirdiği Turgut, ikinci ben’i olan Olric ortaya çıktığında huzursuz olur ve arayışlar içerisine girer.

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2.2. Olric'in "efendim" sözleri

Selim'in intiharından sonra sarsılan Turgut Özben, bir süre sonra kendisini alışkanlıkların ve kuralların yönlendirdiğini fark eder. Çıkış yolları arayan Turgut, bir süre sonra "Selimleşir". İkinci ben'i Olric'in ortaya çıkması kişinin kendisiyle yüzleşmesi için önem arz eder. Olric, sık sık Turgut'a "efendim" diyerek onunla "alaylı" bir şekilde konuşur:

"Efendimiz biraz daha iyi hissediyorlar mı kendilerini? Demek savaşırken güneş gözlerine geliyordu? Evet efendimiz: doğru dürüst görememişler düşmanı. Kılıçların ısıltısı gözlerini kamaştırmış: her yer beyaz görünmüş gözlerine. Beyazdan kör olmuşlar. Karda dolaşan insanlar da böyle olurlarmış diyorlar Olric. Doğrudur Efendimiz. Kar da güneş gibi yakarmış. Her şeyi duyuyoruz, hiçbir şeyi bilemiyoruz Olric." (Atay, 2014: 277).

Turgut ile Olric'in konuşmaları patolojik bir hale dönüşür. Bir yere kısırlanmışlık duygusunu ruh dünyasında hisseden Turgut, adeta sayıklarcasına konuşmalarına devam eder:

"Hürriyet kötü bir kavram Olric. Öyle, anlattıkları gibi özlenecek bir ortam değil. Bu hürriyet, kulağıma kötü şeyler fısıldıyor Olric. Duymak istemiyorum. Hayır, çalışacağım önce: araştıracağım. Bütün gücümü bu araştırmaya vereceğim. Bitkinlikten, hürriyeti düşünemeyecek duruma gelinceye kadar çalışacağım. Yeter bu miskinlik! Demek aylardır ölüyordum ben. Peki bu nasıl iş Olric? Selim de başka türlü yaşadı: yani, yaşayamadı, öldü. Belki de bu görev size verildi, efendimiz. Selim, sadece ışık mı tuttu Olric? Belki de, efendimiz. Hiç olmazsa düşünmeyi öğretseydi bana ölmeden önce. Bu kadar gizlenmeseydi. Gizlendiğini sanmıyorum, efendimiz. Biliyorum, çok şey öğrendim Olric: fakat ölümü?" (Atay, 2014: 348).

Bireyin kendisiyle alay edercesine konuşmasının ve kendisi ile alay etmesinin bir rahatlama yöntemi olduğu bilinir. Turgut, başkasının kendisine söyleyemediklerini Olric vasıtasıyla kendi kendisine söyler: "Beni şımartıyorsun Olric. Zarar yok efendimiz: çünkü artık sizi kimse şımartmayacak. Beni korkutuyorsun Olric. Siz istemeyeceksiniz efendimiz. Güzellikleri kendiniz bulup çıkaracaksınız artık. Selim'in ölümünden de çıkarabilecek miyim? Çıkaracaksınız efendimiz." (Atay, 2014: 350).

Kişinin zayıf yönlerini bilmesi, kendisini tanımasıyla alakalıdır. Bu sebeple insanın olaylar karşısında karar verebilme gücü biraz da kendisini tanımasıyla ilgilidir. Turgut da kendisini zaman zaman azizlikle suçlar. Bu bir bakıma onun yaşam hakkında sorgulamalar yapmasına da izin verir:

"Benim gibi zayıf ve korkak birinin bu işin üstesinden gelmesi mümkün mü? Mümkündür efendimiz. Benim gibi, günlük yaşantı batağına saplanmış biri ne yapabilir Olric? Her yaşantınızda Turgut'luk olduktan sonra gerisinin ne önemi var efendimiz? Anlamadım Olric. Anladınız efendimiz. Anlamaktan korkuyorsunuz sadece. Ben Turgut'um Olric. Turgut Özben. Bunca rezilliğimden sonra nasıl... Ölmekten mi korkuyorsunuz efendimiz? Bilmiyorum Olric. Büyük bir karışıklık ve belirsizlik seziyorum. Yaşantılarıma verdiğim eski anlamlar, birer birer kaçıyor. Yeni anlamlar veremiyorum kelimelere. Ben Selim değilim Olric. Selim romanları okuya okuya Selim'liğe özenen bir Don Kişot olmaktan korkuyorum." (Atay, 2014: 417).

Turgut'un ikinci ben'iyle konuşmalarından onun kadın ve aşk konusundaki duygu ve düşüncelerini de bulmak mümkündür: "İlk buluştuğumuz gün hemen şiirler okudu bana Nâzım'dan. Böylece elimi tutmaya cesaret etti." Kadınlar geçerken dönüp bakmayan bir masal kahramanıydı. Bu masalı yürütecek miyiz Olric?" (Atay, 2014: 446). Bu hususta da Olric, "Evet efendimiz. Dünyada bir tane kahraman bulunmalı." (Atay, 2014: 446). der. Turgut, Olric'e "beni hiç bırakma" der, Olric de onu hiç yalnız bırakmayacağını söyler.

2.3. Turgut'un "Bat dünya bat" sözü

Tutunamayanlar romanının adeta "motto"sı (sloganı) olan "bat dünya bat" laytmotifi, eserdeki karamsar havayı artırır. İnsanın iç dünyasının, karmaşık bilinç yapısının ve dış dünya ile uyumsuzluğun

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bir yansıması olan bu söz, kaotik bir yapı gösterir. Turgut'un "bat dünya bat" sözü, onun tutunamayan bir insan olduğunu işaret eder:

"Kocaman adamlar, bir çocuğun, büyümüş de küçülmüş bir çocuğun, kendilerine ders verdiğini düşünmeden, eğilmişler radyonun üstüne: üçgeni dinliyorlar. Matematik piyesi oynuyorlar Olric. Babası, öğrenci olan oğluna, arada bir aferin, diyor. Ocakçı, kendi bilmiş gibi sevinçli: gülümsüyor. Bat dünya bat. Böyle giderse her mahallede bir Dostoyevski çıkacak Olric. Dünya borsalarında Dostoyevski hisseleri düşecek. Her hafta bir Karamazov, yeraltınız kadar yeraltı. Ne diyelim? Ne dersin Selim? Bizim anlamadığımız bir şeyler dönüyor. Herkes marifetini ortaya döküyor. Yabancı ülkelerde öğrendikleri en son numaraları yapıyorlar." (Atay, 2014: 588).

Turgut'un bunaltılı bir ruh haline bürünmesi, Selim'in intiharı ile paralellik gösterir. Selim'in ölümü Turgut'un yaşamını anlamsız hale getirir. Turgut, her geçen gün hiçleşmeye doğru sürüklenir:

"Sen öldün; ben de koridorlarda, anlamsız bekleyişlerin içinde ölüyorum. Gerçekten öldün mü Selim? Bu yalnızlık dolu koca dünyada bütün tutunamayanları öksüz bırakıp gittin mi? Bat dünya bat! Talih! İki gözün kör olsun da piyango bileti sat! Midem yanıyor: içkiden kurtarılacak ilk mide. Yangından kurtarılacak ilk mide. Benim midem. Benim kalbim." (Atay, 2014: 297).

"Kenan duymuş mudur olayı? Duymuşsa bir süre kendine gelememiştir. Görünüşe bakma; Alaman Japon'u gibi sağlam değildir. İçi zayıftır. Anarşist değil ya: elbette üzölmüştür. Polis hafiyesi Metin. Milli Emniyet mensubu liseli. Bat dünya bat. Bir kadının ayağına bastı. Artık özür dilemek gerek." (s.314)

Dış dünyadaki kaotik yapıyla uzlaşamayan, modernizmin kurallarının baskısını her geçen gün daha yoğun hisseden ve Selim gibi intihara sürüklenen Turgut, hayata hoşnutsuz açıdan bakar. Selim'in ölümü Turgut'un ruh dünyasında derin yaralar açar ve o da "bat dünya bat" der:

"Elini hırsla direksiyona vurdu. Ölseydim de bu günleri görmeseydim! Selim bir şey söyle, nasıl bir şaka olduğunu anlat bana bunun. Bat dünya bat. Ya da aklımı başımdan alın da Olric'le birlikte mısır satalım cami avlularında. Geceleri yatalım taşlar üstünde, Selim'in şarkılarını başımıza yastık yaparak. Sonra birden, Rockefeller'in kızı geliyor, on yüz bin liraya satın alıyor şarkıları; "pop music" yapıyorlar. Biz yastıksız kalıyoruz." (Atay, 2014: 401).

Turgut, psikolojik yaralanmalar içerisinde kaotik bir dünyaya adım atar. Hatta Selim'in ölümünden bile kendisini suçlamaya başlar. Bu sebeple de "bat dünya bat" der:

"Turgut mektubu elinden bıraktı. Bat dünya bat. Bu yalancı herifin Selim'i kirletmesine izin verdiğim için, buna yol açtığım için, ben de sokaklarda sürünürüm inşallah. Kendini savunamayacak bir canım Selim'i ne durumlara düşürüyorum. Bütün bu kötölüklerden kaçmak istedin canım Selim; seni öldükten sonra da rahat bırakmıyoruz. Gerçek sandığımız aldanışları, bir bir yüzüne vuruyoruz. Yalnız bir noktada yanılıyor: bütün bu olaylar içinde Selim'liğin ne olduğunu aramıyoruz." (Atay, 2014: 416).

Tutunamamak yazara göre bir kabahat değil, hatta acınacak bir durumdur Turgut'a göre: "Tanrı, tutunamayanlardan rahmetini esirgemesin. Bat dünya bat! Sonunda Metin'e de acıyacak mıydık?" (Atay, 2014: 438). Turgut'un trajik yapısı Olric'le olan sohbetlerine de yansır: "Akşamüstü işimiz bitince bir çeşmenin yanına çömelip kazandığımız paraları sayacağız Olric. Bizi gören insanların yüzlerini hatırlayıp gülüşeceğiz. Bat dünya bat diyeceğiz. Sonunda bizi kör ettin. Çok güleceğiz Olric; çok güleceğiz. Gözleri yaşarmıştı. Kaçalım buradan Olric. Elâleme rezil olacağız." (Atay, 2014: 545). Tutunamayan insan tipi, gerek patolojik yapısı gerekse yaşama ironik yaklaşmasından dolayı "bat dünya bat" ifadesini kullanır.

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2.4. Tutunamayanlar / tutunamamak

Roman, “tutunamamak” izleği çerçevesinde kurgulanmış bir eserdir. Karakterlerin hemen hepsi “tutunamayan” kişilerdir. Romanın da ismi olan bu ifade, bir laytmotif özelliği de gösterir. “Onların akılsız, duygusuz ve bilgisiz olduklarını bildiğim için, haklı çıkmalarına bütün kalbimle ve aklımla ve öfkemle isyan ediyorum. Ben haklı çıkmalıyım. Olmadı. Sebep olanların gözü kör olsun! Bir zamanlar tutunamayanlar diye bir söz etmişim.” (Atay, 2014: 610). diyen roman karakteri, iç dünyasındaki patolojik yapının etkisiyle “tutunamayan”ın ötesinde bir ruh haline bürünmüştür artık.

Romanda “tutunamayan” tip Garip Yaratıklar Ansiklopedisinden alıntı ile tarif edilir:

“Tutunamayan (disconnectus erectus): Beceriksiz ve korkak bir hayvandır. İnsan boyunda olanları bile vardır. İlk bakışta, dış görünüşüyle, insana benzer. Yalnız, pençeleri ve özellikle tırnakları çok zayıftır. Dik arazide, yokuş yukarı hiç tutunamaz. Yokuş aşağı, kayarak iner. (Bu arada sık sık düşer). Tüyleri yok denecek kadar azdır. Gözleri çok büyük olmakla birlikte, görme duygusu zayıftır. Bu nedenle tehlikeyi uzaktan göremez. Erkekleri, yalnız bırakıldıkları zaman acıklı sesler çıkarırlar. Dişilerini de aynı sesle çağırırlar. Genellikle başka hayvanların yuvalarında (onlar dayanabildikleri sürece) barınırlar. Ya da terkedilmiş yuvalarda yaşarlar. Belirli bir aile düzenleri yoktur. Doğumdan sonra ana, baba ve yavrular ayrı yerlere giderler. Toplu olarak yaşamayı da bilmezler ve dış tehlikelere karşı birleştikleri görülmemiştir. Belirli bir beslenme düzenleri de yoktur.” (Atay, 2014: 149).

Yazar, tutunamayan insan tipini ironik ve mizahi bir üslupla garip bir yaratığa benzetir.

Yazara göre “tutunamayan” bir kişiye yardım bile edilebilir. “Onlar için bir şeyler yapmak arzusuyla kıvranıyorum bir yandan. *Tutunamayanlar* için şarkılar yazmışım bir zamanlar. Süleyman Kargı’da kaldı hepsi. Ne garip: bende bir sureti bile yok yazdıklarımın. Kimse, kendine karşı bu kadar ihmalci değildir.” (Atay, 2014: 671). Tutunamayan, sadece Selim Işık ve Turgut Özben değildir. Süleyman Kargı da onlardan biridir: “Tutunamayanlar arasında şerefli bir yeri olan Süleyman Kargı’yı da anmak isterim. (Bütün tanıdıklarımı ölmüş gibi düşünüyorum nedense. Hepsi için anma törenleri düzenlemek istiyorum. Hepsi de, sizden iyi olmasın çok iyi insandı.)” (Atay, 2014: 693).

Romanda Türk Tutunamayanları Ansiklopedisi adı altında bazı isimlerden söz edilir. Bunlar arasında Selim Işık ve Süleyman Kargı da vardır. “Gerçek tutunamayanlara saygım büyüktür. Onları bir ansiklopedide toplamak isterdim. Türk Tutunamayanları Ansiklopedisi. On iki fasikül bir cilt. On iki ciltte tamamlanacaktır. Üç fasikül bir harf, üç harf bir kelime, üç korner bir penaltı...” (Atay, 2014: 672). Yazar bu kısımda ironi ve mizahı iç içe kullanarak romana tematik bir zenginlik katmıştır.

Selim Işık bir tutunamayan olup çocukluk ve ilk gençlik yıllarından itibaren “tutunamayan” biri olma yolundadır. Askerliğini yaparken Süleyman Kargı’yla tanışır, davranışları sebebiyle azarlanır. Askerlik bitince açıkta kalır, iş bulamaz. Ona kimse sahip çıkmaz. “Kimse onun üstüne düşmedi. Üstüne düşülmesinden çok hoşlanırdı. Bilemediler. Bütün hayatınca konuştu. Sonunda tutunamayanlar diye bir söz çıkarabildi ortaya: bir tek kelime. Çoğul bir kelime. Unutmadığı bazı insanları birleştiren bir kelime. Bu sefer, düşüncesini Süleyman Kargı’dan başkasına açıklamadı. Süleyman da kimseye söylemedi.” (Atay, 2014: 708).

Turgut Özben, Tutunamayanlar ansiklopedisine kendisinin de girme ihtimalinin olduğunu belirtir: “Olric öyle söylüyor. Ben de kendime göre hazırlıklar yapıyorum. Olric’in temasları bitince yeniden müracaat edeceğim.” (Atay, 2014: 720). Romanda Turgut’un evinin burjuva yapısından da söz edilir. “Turgut; eşi Nermin, kızları Sevgi ve Tuna, küçük burjuva dostları Kaya ve ailesi ve kayınpederinden oluşan çevresi üzerinden küçük burjuva yaşamın eşya tutkusu, yapmacık halleri, alışkanlıkları eleştirilir.” (Çatalkaş, 2019: 26).

Oğuz Atay, *Tutunamayanlar* romanını yazmakla kalmaz aynı zamanda romanın yazılma sürecini de gözler önüne serer. “Turgut yol üzerindeki bazı kasabalara uğrar. Uğradığı bu kasabalardan birinde bir

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kitapçıya uğrayarak bazı kitaplar alır. Burada Olric'in baskıları ile kâğıt da alır. Yazmak istemeyen Turgut, Olric'in baskılarına dayanamaz ve *Tutunamayanlar* romanını yazacağı kâğıtları da alır.” (Çatalkaş, 2019: 26). Bu romanda tutunamamak ve “tutunamayan insan tipi” bir laytmotif şeklinde de kullanılmaktadır.

2.5. “Tabancayı aldı ve ateş etti” cümlesi

Tutunamayanlar romanında intihar izleği önemli yer tutar. Turgut, arkadaşı Selim Işık'ın tabancayla kendini vurduğunu öğrenmesinden sonra psikolojik çöküntü içerisine girer. Romanda “tabancayı aldı ve ateş etti” cümlesi, veya tabanca ve ateş etmek ile ilgili ifadeler de laytmotif olarak yer alır.

“Anlaşılmaz kelimeler yazmak istiyorum kâğıdın üstüne. Yıllardır benden beklenen bir hareket bu. ‘Tabancayı aldı ve ateş etti’ cümlesini yazmak istiyorum mesela. Yüzlerce defa, altalta. Aylardır bu cümle durup dururken kafama takılıyor. Eve gece yarısı döndüm. Annem uyandı hemen. Karşılıklı oturduk konuşmadan: bizim sessiz bir ayinimiz bu. Yolda Günseli'yle konuşmak istiyordum ve... adam tabancasını çıkarıp ateş etti. Evet, her düşüncemin başında ya da sonunda aklıma geliyor bu cümle. Bu deftere aklıma geleni yazarsam rahatlayacağımı sanıyorum. Yüz kere yazmak istiyorum: adam tabancasını çıkardı ve ateş etti. Çünkü yüz kere geliyor aklıma günde. Kime ateş etti? Bilemiyorum.” (Atay, 2014: 631-632).

Selim'in günlüklerini okuyan Turgut, onun intihardan önceki bunalımlı halini anlamaya başlar. “Selim'in artan korkuları ‘tabancayı aldı ve ateş etti’ cümlesinin sürekli tekrarlanmasıyla zirveye çıkar.” (Çatalkaş, 2019: 26). Bu ifade laytmotif şeklinde tekrarlanarak ve sonunda Selim intihar eder. Turgut, Selim'in günlüğünde *Tutunamayanlar* Ansiklopedisi yazma isteğini anladıktan sonra isminin bu ansiklopedide olmamasından dolayı üzülür. “Turgut, Süleyman Kargı'ya mektup yazarak şarkıları kendisine göndermesini ister. Süleyman Kargı bu şarkıları kendisine gönderir ve Turgut, bankadaki tüm parasını çeker, arabasını bırakır ve bitmeyen bir tren yolculuğuna çıkar. Turgut'u en son bir istasyonda görürüz, kalabalık arasında gözden kaybolur.” (Çatalkaş, 2019: 26). Roman, bitmemişlik havası içinde sonu belirsiz bırakılır.

2.6. “Ne yapmalı?” sözü

Tutunamayanlar romanında öne çıkan laytmotiflerden biri de “ne yapmalı?” ifadesidir. “Turgut, içine girecekmiş gibi eğilerek okuduğu satırlardan uzaklaştı. Yavaş yavaş başını kaldırdı masadan. Kalın parmaklarının orta boğumlarıyla gözlerini kaşıdı; dudaklarını ileri uzatarak, bir şey söyleyecekmiş gibi oynattı hafifçe. ‘Nasıl düşünmeli? Ne yapmalı?’ diye belli belirsiz mırıldandı. Ne yapmalı? Ne yapmalı? Makalenin adı buydu galiba: ‘Ne yapmalı?’ Şu makaleyi aramalı.” (Atay, 2014: 81-82) der.

Turgut'un kararsızlıkları ve çıkışsızlığı onu arayışlara iter. Bu bakımdan çareler arayan Özben, “ne yapmalı” sözünü tekrarlar. “Onun iyiliği için. Kime iyilik? Bilmiyorum. Öyle söyleyiverdim işte. Durmadan çalışacağıma söz vermişim ya... Peki ne yapmalı? Evet ne yapmalı? Dur bakalım; Ne Yapmalı'yı arayalım önce. Hayır arama, kapıyı kapa ve çık. Olmaz, Selim bile gülerdi böyle bir korkaklığa. O halde sonuna kadar git. O ne demek? Yani hepsini oku mu demek? Biliyorsun ne demek olduğunu. Hayır bilmiyorum. Evet biliyorsun. Hayır bilmiyorum” (Atay, 2014: 82).

İç ve dış çatışmalar içerisindeki kişi içinde bulunduğu kaotik ortamdan kurtulmanın yollarını arar. Kendi kendisine bazen “ne yapmalı?” sorusunu sorabilir. Romanda da bu soyu bir laytmotif olarak sık sık tekrarlanır: “Nasıl düşünmeli? Ne yapmalı?” diye belli belirsiz mırıldandı. Ne yapmalı? Ne yapmalı? Makalenin adı buydu galiba: “Ne yapmalı?” Şu makaleyi aramalı.” (Atay, 2014: 82). Ne yapmalı ifadesi bireyin telaşlı yapısından da kaynaklanır:

“Söylenerek yatağa oturdu; kâğıtları telaşla divana yaydı: ne yapmalı, ne yapmalı? İşte burada Ne Yapmalı. Buldum işte. Buyur oku: NE YAPMALI. Ne yapmalı? Bugüne kadar sürdürdüğüm gibi, çevremdeki kişilerin davranış ve tutumlarını bilinçsiz bir aldırmaçlıkla benimseyerek bu renksiz,

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kokusuz varlıkla yetinmeli mi; yoksa, başkalarından farklı olan, başkalarının istediğinden çok farklı, köklü bir eylem isteyen gerçek bir insan gibi bu miskin varlığı kökten değiştirmeli mi? (Atay, 2014: 93). Romanda “ne yapmalı?” ifadesinin cevabı bazen “önce kendini düzeltmelisin” cümlesiyle karşılık bulur. Sonuçta kendini çözemeyen kişinin kendi dışında hiçbir sorunu çözemeyeceği anlamı çıkarılır.

Sonuç

Oğuz Atay, Türk edebiyatının önemli yazarlarından biri olup özellikle *Tutunamayanlar* romanıyla tanınır. Onun roman karakterleri genel olarak yaşama tutunamayan ve çatışma yaşayan kişilerdir. *Tutunamayanlar* romanı, postmodernizmin birçok unsurunu barındırır. Bunlardan biri de laytmotiftir. *Tutunamayanlar*’da sıkça kullanılan Olric’in “efendim”leri, Turgut’un sıkça kullandığı “bat dünya bat” ve Turgut’un “o zamanlar henüz Olric yoktu” sözleri laytmotiftir. Romanın başında geçen “O zamanlar henüz Olric yoktu” cümlesi bir laytmotif olup Turgut’un kimlik arayışında olmadığı ve “tutunan” bir olduğu zamanları ifade eder. Selim’in intiharından sonra sarsılan Turgut Özben’in ikinci ben’i olan Olric ortaya çıkar. Olric’in Turgut’a sık sık “efendim” diyerek onunla “alaylı” bir şekilde konuşması da laytmotiftir. *Tutunamayanlar*’da sık sık geçen “bat dünya bat” laytmotifi, eserdeki kaotik bir yapıyı artırır. Turgut’un “bat dünya bat” sözü, onun tutunamayan bir insan olduğunu işaret eder. Romanda “tutunamamak/tutunamayanlar” ifadeleri de tekrarlanarak laytmotif olarak kullanılmıştır. Selim’in intihara sürüklenişinin anlatıldığı kısımlarda “tabancayı aldı ve ateş etti” cümlesi bir laytmotif olarak kullanılmıştır. Eserde sık sık kullanılan “ne yapmalı?” sözü de bir başka laytmotif olarak yer alır. Bu ifade bireyin içine düştüğü çıkmazların ve arayışlarının bir yansımasıdır.

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OĞUZ ATAY'IN "TUTUNAMAYANLAR" ROMANINDA KOLAJ COLLAGE TECHNIQUE IN OĞUZ ATAY'S NOVEL "TUTUNAMAYANLAR"

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ÖZET

Oğuz Atay, Türk edebiyatının önemli isimlerindendir. Yazar, eserlerinde düşünle gerçeğin iç içe olduğu bir tarz kullanır. Onun eserleri postmodernist roman kategorisinde yer alır. Oğuz Atay, eserlerinde modern şehir yaşamı içinde bireyin yalnızlığını ve toplumdan kopuşunu irdeler. Bu bakımdan kişinin iç dünyasını da başarıyla ortaya koyar. O, ilk postmodern Türk romanı olarak kabul edilen Tutunamayanlar adlı romanı ile tanınır. Tutunamayanlar'ı geleneksel roman tarzından ayıran en önemli unsurlardan biri "üstkurmaca"dır. Yazar, bu şekilde birçok öyküyü iç içe verir. Tutunamayanlar, içerisinde birçok postmodern unsur bulundurulur. Bunlardan biri de "kolaj"dır. Kolaj, düz bir yüzey üzerine fotoğraf, gazete kâğıdı ve benzeri nesnelerin yapıştırılmasıyla yapılan bir resimleme tekniğidir. Edebi eserlerde de kolaj yöntemi kullanılır. Bir edebi eserde, farklı türdeki yapıtların bulunması da kolaj yöntemidir. Burada önemli olan hazır ünitelerin bir araya getirilmesiyle bir kompozisyon oluşturmaktır. Bu Oğuz Atay'ın Tutunamayanlar adlı romanında kolaj tekniği önemli yer tutar. Bu teknik aynı zamanda "metinlerarası" bir özelliktir. Yazar romanda çok boyutluluğu yansıtmak için kolaj tekniğini de kullanır. Romanda farklı türler kullanılarak atektonik tarz tercih edilmiştir. Bütün bunlar "kolaj" olarak eserde yer alır. Romanda "kolaj" unsuru olarak şunlar yer alır: Selim'in günlükleri, Selim Işık'ın şiiri, Dini kitaplardan (Kur'an-ı Kerim, İncil), tiyatro metni, Selim'in "Ne Yapmalı?" başlığını taşıyan denemesi, sözlük maddesi, Selim ve Turgut'un mektubu, Batı ve Türk müziğini anlatan makale, mahkeme tutanağı, Dostoyevski'nin Yeraltından Notlar romanı, sinema, mitoloji vb. Bu çalışmada amaç, Oğuz Atay'ın Tutunamayanlar romanındaki "kolaj" unsurlarını ortaya çıkarmaktır.

Anahtar Kelimeler: Oğuz Atay, Tutunamayanlar Romanı, Kolaj Tekniği.

ABSTRACT

Oğuz Atay is one of the important names in Turkish literature. The author uses a style in which dreams and reality are intertwined in his works. His works are included in the postmodernist novel category. Oğuz Atay examines the loneliness of the individual and his separation from society in modern city life in his works. In this respect, he also successfully reveals the inner world of the person. He is known for his novel Tutunamayanlar, which is considered the first postmodern Turkish novel. One of the most important elements that distinguish Tutunamayanlar from the traditional novel style is "metafiction". The author interweaves many stories in this way. Tutunamayanlar contains many postmodern elements. One of these is "collage". Collage is a painting technique made by sticking photographs, newspaper paper and similar objects on a flat surface. The collage method is also used in literary works. The presence of different types of works in a literary work is also the collage method. What is important here is the creation of a composition by bringing ready-made units together. In this Oğuz Atay novel Tutunamayanlar, collage technique has an important place. This technique is also an "intertextual" feature. The author also uses collage technique to reflect multidimensionality in the novel. Different genres are used in the novel and atektonic style is preferred. All of these are included in the work as "collage". The following are included as "collage" elements in the novel: Selim's diaries, Selim Işık's

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poem, Religious books (Quran, Bible), theater script, Selim's essay titled "What Should Be Done?", dictionary entry, Selim and Turgut's letter, article describing Western and Turkish music, court minutes, Dostoyevsky's novel Notes from the Underground, cinema, mythology, etc. The aim of this study is to reveal the "collage" elements in Oğuz Atay's *Tutunamayanlar*.

Key words: Oğuz Atay, The Novel of *Tutunamayanlar*, Collage Technique

GİRİŞ

Oğuz Atay, Türk edebiyatının en önemli yazarlarından biridir. Onun eserlerinde yalnızlık ve yabancılaşmayı derinden hissedilen karakterler öne çıkar. Roman kahramanları genellikle modern dünyanın cenderesinde sıkışmış ve arayışlar içerisindeki kişilerden oluşur. Atay'ın romanlarında postmodernizmin birçok özelliği görülür. Özellikle üstkurmaya ve metinlerarasılık dikkat çeker. Onun bir başka özelliği de ironi ve mizahı yerli yerinde kullanmasıdır. Bilinçaltı ve iç monolog tekniklerini başarıyla kullanan yazar, çoğulcu anlatımı çok iyi kullanır. Atay'ın romanlarında kolajın da büyük önemi vardır. Kolaj, aslında bir resim tekniği olup resimden diğer sanat türlerine geçmiştir. Oğuz Atay'ın *Tutunamayanlar* romanı kolaj bakımından zengindir. Romanda kolaj unsurları olarak Selim'in günlükleri, Selim Işık'ın şiiri, dini kitaplardan izler (Kur'an-ı Kerim, İncil), tiyatro metni, Selim'in "Ne Yapmalı?" başlığını taşıyan denemesi, sözlük maddesi, Selim ve Turgut'un mektubu, mahkeme tutanağı, Batı ve Türk müziğini anlatan makale, tiyatro metni, Dostoyevski'nin *Yeraltından Notlar* romanı, sinema, mitoloji vb. yer alır.

1. KOLAJ NEDİR?

1.1. Kavram ve tanım

Kolaj (Fr. collage), genel olarak bir resimleme tekniği olup "kesyap" ifadesiyle de karşılaşılır. Kolaj, düz bir yüzey üzerine fotoğraf, gazete kâğıdı vb. nesnelerin yapıştırılmasıyla elde edilen bir tekniktir. "Kolajın tanımlamasını ilk yapan, plastik sanatlar alanında olduğu kadar yazınsal alandaki kullanımları konusunda kuramsal öneriler getirenlerin başında Louis Aragon gelmektedir. Onun Kolajlar başlıklı derlemesi (Aragon 2015), bu konuda kendince tanımlamalar yapan başka kuramcılara esin kaynağı olmuştur. Florian Rodari, Jacqueline Bernard, Antoine Compagnon, Grup µ üyeleri (Jacques Dubois, Francis Pire, Hadelin Trignon et Philippe Minguet), Gérard Genette, Marc Angenot, her ne kadar kendileri kolaj konusunda değişik kuramsal öneriler getirmişlerse de, L. Aragon'un bu konuda ilk girişimi başlatanlardan olduğu konusunda hemfikirdirler." (Aktulum, 2016: 4). Bu sözcük ilk olarak Kübistler tarafından kullanılmış olan bir terimdir. "Geniş anlamda kolaj, yani birbirine hiç benzemeyen öğeleri bir araya getirerek bir yapıt ortaya koyma tekniği ve bunun sonucundaki doku kopukluğunu yadırgamama özelliği şu ya da bu biçimde bütün sanatlarda görülür." (Lynton, 1991: 65). Bu sanatlardan biri de edebiyattır.

1.2. Edebiyatta kolaj ne demektir?

Edebiyatta kolaj, farklı metinlerin bir araya getirilmesiyle yapılan bir kompozisyonudur. Bu teknikle meydana getirilen romanlar, postmodern edebiyatın da ilgi alanına girer. Kolaj tekniğiyle oluşturulan romanlarda farklı özelliklere sahip metinler yer alır. Özellikle "mektup, tiyatro metni, günce, şiir parçaları, şarkı sözleri, bir sinema filmi ile ilgili hususlar, çalışma notları, dipnot, gazete yazıları, makale alıntıları, ilanlar, resmi belgeler, afişler, broşürler, takvim yaprağı vb." unsurlar bulunabilir. Bu hususlar modernist romanlarda da kullanılmasına rağmen, postmodern romanlarda kendine daha çok yer bulmaktadır. "Metinlerarası ilişkiler, montaj/kolaj, anırtırma, gönderme, bilinçli/kasıtlı zıtlık ilişkisi kurma, üslup benzeştirmesi gibi teknikler kullanılarak yapılabilmektedir." (Sarıççek, 2008: 195). Kolaj, aslında bir alıntı olup metinlerarası özellik gösterir. Bunun sebebi başka metinlerden kesilip alınan unsurlar yeni bir metne yapıştırılır.

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Farklı metinlerden yapılan alıntılar, yeni metnin bir “açık yapıt” veya “çoğul yapıt” olmasına vesile olur. “Kolaj iki aşamada gerçekleşen bir süreçtir: Önce bir bütünden bir unsur alınır ve başka bir bütün içerisine katılır. Kolajla bir “kesme” işlemi gerçekleştirilir, daha önce oluşmuş, var olan iletiler-metinler kesilip alınarak yeni bir yapıta sokulurlar.” (Aktulum, 2016: 7). Bu yeni yapıt, alıntı unsurların belli bir sistem ve düzen içerisinde bir araya getirilmesiyle oluşturulmuş metin olarak karşımıza çıkar.

Kolaj, bir metinlerarası yöntem olup başka türlerdeki metinlerin esere girmesiyle oluşur. “Bu şekilde dışarıdan alıntılanan bu unsurlar, yeni bir bağlamda yinelenerek, yeniden yazılarak metinlerarasılığın sınırları zorlanmış olur.” (Koçakoğlu, 2012: 106). Metin dışı başka nesneler/unsurlar metne bütünlük içinde yapıştırılır. “Dolayısıyla kolajda bir bütünlük oluşturacak şekilde metne harici bir nesnenin yapıştırılması demektir. “Metin bir yanda bir bütün olarak görünürken, diğer yanda kopukluk hissi verir.” (Güven, 2020: 388). Bu yöntemde yapılan eklemeler, özgün yapısıyla metne ilave edilir. “Dolayısıyla, kolaj farklı söylem alanına ait bir metin parçasının, kendi özgün biçimiyle ana metne yerleştirilmesi/yapıştırılması şeklinde uygulanan bir tekniktir.” (Akyıldız, 2015: 55). Kolaj yönteminin özünü yapıştırma meydana getirir.

2. TUTUNAMAYANLAR ROMANINDA KOLAJ YÖNTEMİ

Tutunamayanlar adlı roman, kolaj bakımından zengindir. Mektup, şiir, tiyatro metni, günlük, ansiklopedi, mahkeme tutanağı, dini metin unsurları, sinema, efsane, kitabe vb. unsurlar birlikte romandaki “kolaj”ı oluşturur. “Tutunamayanlar romanı herkesin bildiği gibi sadece aydınlara yönelik ironi dolu bir metin değil. Bununla bağlantılı olarak devletin işleyişi, bürokrasinin Kafkaesk bir tarzın eşliğindeki ironik anlatımı, Kitab-ı Mukaddes’teki ‘on emir’in parodisi olarak, Doğu-Batı sorunsalı gibi temalar da Atay’ın alaycı dilinden kurtulamamıştır.” (Tural, 2016: 42). Yazar, çoklu anlatım yöntemini kullanarak çok katmanlı bir eser vücuda getirmiştir.

Romanın asıl kurgusunu bir mühendis olan Turgut Özben’in, arkadaşı Selim Işık’ın intiharını araştırırken Selim gibi “tutunamayanlar” haline gelmesi oluşturur. Oğuz Atay’ın kurguladığı dünyada kişi kendi bunalımlarıyla baş başa kalmıştır. Bu bakımdan yalnızlık, bunalı ve ötekileşmeyi derinden hisseden Selim Işık, intihara kadar sürüklenir. Turgut, Selim’in intiharının sebeplerini araştırırken bir kısmını Selim’in yazdığı metinlere ulaşır. Daha sonra Selim’in “tutunamayan” arkadaşlarına ulaştırır. “Metnin ana omurgasını da bu metinleri ve kişileri arayış oluşturur. Selim’i araştırdıkça Turgut’un uğradığı değişim ve sonunda ‘Selimlik’i benimseyip kişilik bölünmesine uğrayarak ortadan kaybolması romanda olay olarak nitelendirebileceğimiz sınırlı motifler arasında sayılabilir.” (Apaydın, 2007: 48). Bunlar romanı çok katmanlı yapmakla beraber eserdeki mizah ve ironiyi de güçlendirir. “Postmodern sanatçı artık biçimsel üretimin tüketildiği ortamda eski biçimleri kullanma yoluna gider. Yazar romanda çok boyutluluğu yansıtmak için bilinen ifade kalıplarını kullanır ve başka metinlerden alıntılar yapar. *Tutunamayanlar*’da karşımıza sıkça çıkan bu tekniğe ‘kolaj’ tekniği denmektedir.” (İnan, 2004). Romanın dünyası bu teknikle daha da zenginleşir ve genişler.

Kolaj tekniği, *Tutunamayanlar* romanını çok boyutlu yapan unsurlardandır. Bu teknik “İlk bakışta roman dokusuna aykırı gibi gelen ama ana tematiğin bir parçası olan bir metnin dokuya katılması” (Ecevit, 1989, 88) şeklinde görülür. *Tutunamayanlar* romanında Turgut Özben ve Selim Işık romanın merkezinde yer alır. “Eserde tespit edilebilen kolaj parçaları Turgut Özben’in bölümlerinde karşımıza çıkar. Özben, Selim ile beraber yazdıkları kahraman biyografilerini, tesadüf ettiği bir makaleyi, Süleyman Kargı’dan aldığı dosyayı, Selim’in günlüğünü okuduğunda, devlet dairesinde tanıştığı kişi ile konuştuğunda, bir dizeyi şerh etmek için yazdığında okuyucuyu kolaj parçaları karşılar. Özben’in tüm bu eylemleri, romana kolaj tekniğinin sızmasını sağlar.” (Bekçi, 2023). *Tutunamayanlar*’daki kolaj unsurlarını şöyle ifade etmek mümkündür:

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2.1. Mektup tarzı:

Oğuz Atay'ın anlatılarında “mektup tarzı”nın önemli yeri vardır. *Korkuyu Beklerken*'de yer alan "Babama Mektup" bölümü, Kafka'nın “Babama Mektup” adlı eserini anımsatır. Ayrıca, Atay'ın babası Cemil Atay ile olan ilişkisinden izler taşır. *Tutunamayanlar* romanında da mektup tarzı dikkate değerdir. Eserde 27 defa mektup sözcüğü geçer. Romanda Hegel'e yazılan mektup önemli yer tutar. Yazar, mektubun sonunu İncil'den birkaç cümleyle bağlar: “Bundan dolayı eğer et yediğim için kardeşim inciniyorsa, dünya durdukça bir daha et yemem. Yeter ki kardeşim incinmesin” (Atay, 2007: 178).

Romanda, Turgut'un Selim'den kalan mektupları inceleyerek onu intihara götüren sebepleri daha iyi kavramaya çalışır. Selim, Turgut'un evlenmesinden sonra ona ağır eleştirilerde bulunur: “Benim bütün işim oyundu, bunu biliyorsun Turgut. Hayatım, ciddiye alınmasını istediğim bir oyundu. Sen evlendin ve oyunu bozdun. Bütün hayatımca nasıl oynayabilirdim? Sen de dayanabildin mi? Sen de ürkütücü bir gerçekle bozdun bu oyunu.” (Atay, 2007: 30-31). Selim, Turgut'un evlenmesinden dolayı yalnız kaldığını düşündüğünden arkadaşına sitem eder.

Romanın sonunda TURGUT ÖZBEN'İN MEKTUBU başlıklı yedi sayfalık bir bölüm yer alır. Özben, 26 Temmuz 1970 tarihli mektubunu “Tutunamayanlara” (Atay, 2007: 724) ifadesiyle kaleme alır. Turgut, burada kendisinden, Olric'den ve tanıdıklarından bahseder:

“Sonra, kendi kendime konuşuyorum: Kışlık sarayında, Olric'le konuşuyorum. İkimiz de üşümeye başladık. Sıcak ülkelerden kaçtık; soğuk ülkelerde üşüyoruz. Durmadan dudaklarımı oynattığım için, beni garip bakışlarla süzüyorlar. Beni neşelendir Olric, diyorum. Olric'se, deliler gemisinden söz ediyor bana. Onun da kararlılığı kalmadı. Garip hikâyeler anlatıyor. Dediğine göre, geçen gün kaldırımdayattığını gördüğümüz adam saralı değilmiş: Hazreti İsa'ymış. Bizi denemek için, öyle boylu boyunca yatıyormuş.” (Atay, 2007: 719).

Tutunamayanlar romanında Selim'in Hz. İsa'ya yazdığı mektup oldukça dikkat çekicidir. Burada Selim'in iç dünyasındaki karmaşayı, patolojik yapısını, yalnızlığını ve arayışlarını görmek mümkündür. Bir bakıma arınma isteğini de ortaya koyar:

“Bir hafta yattı evde, şiş ayağının üstüne basamadığı için. (Ötekilere bir şey olmamıştı.) İçkiyi bırakmaya karar verdi. Durmadan İncil okudu. Can sıkıntısıyla günler geçti. Sonunda dayanamadı; oturdu, İsa'ya kısa bir mektup yazdı:

Sevgili İsa,

Bütün olanlar için özür dilerim. Kabahatin bende olduğunu biliyorum. Günlerdir durmadan seni düşünüyorum. Kitabını elimden bırakmıyorum. Bütün meselelerde sen haklısın. Bugün düşündüklerimi, seninle birlikte olduğumuz gün bilseydim, her şey başka türlü olurdu. Fakat, göreceksin, bir daha buluşursak nasıl istediğin gibi bir adam olacağım. O kadar değiştim ki beni tanıyamayacaksın. Çarşamba günü annemler evde yoklar. Gelebilirsen rahat rahat konuşuruz.

Seni-Seven

Selim

İsa gelmedi.” (Atay, 2007: 154)

2.2. Günlük

Tutunamayanlar'da önemli bir unsur da “günlük”tür. Özellikle Selim'in günlükleri ve notları, hem onun psikolojik yapısını ortaya koymada hem de kurgunun daha iyi anlaşılmasında dikkate değer. Selim'in intihar etmeden önceki günlerini anlatan 2-3-4-6 Mart tarihli günlük pasajları önem taşır:

“Şimdi yatağıma büzülmüş, büyük bir dehşetle, genç Alving'in beyninin nasıl yumuşadığını düşünüyorum. Ya korkusu? Tıpkı benim korkuma benziyor. Yatağa uzandım ve kıvıldamadan yattım.

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Beynimin yumuşamasına engel olmak istiyordum. Kımıldamazsam bunu başaracağımı sanıyordum. Henüz aklım başımdaydı. Beynimin erimesine karşı tedbir olarak kımıldamadan yatarken, bir yandan da bunun aptalca bir çare olduğunu biliyordum. Demek ki aklımı koruyabiliyordum. Belki korkumun değil, fakat düşündüğüm çarenin saçmalığının farkındaydım. Korkum da yersiz olabilirdi.” (Atay, 2007: 609),

Selim’in günlüklerinde onun hayatından bazı kesitler bulunmakla beraber, iç dünyası hakkında da ip uçları yer alır

2.3. Dini Kitaplar (Kur’an, İncil)

Romanda bir başka kolaj unsuru da dini kitaplardır. Yazar, Kur’an ve İncil’den alıntılar yaparak tematik genişlik sağlar. Bununla beraber dini alıntılar yer yer değiştirilerek mizahi ve ironik anlamlar oluşur.

Selim Işık’ın şiirinde Kura’an-ı Kerim’den de alıntılar yer alır:

“Ankara’nın bütün küçük kubbeleri camilerini

Ve kararmış kiremitli mescitlerini dolaştık.

‘İnna ateyna

Kelkevser, fesalli lirabbike... hüvel ebter.’

Körpe dizlerde derman biter

Yatsı namazında, yanlış mırıldanılan kelimeler sırasında

Palabıyıklı, sakallı ve yırtık çoraplı cemaat arasında

Dini bütün iki Türk çocuğu kilimler üstünde yatar

kalkar

Sürekli (kendine amansız.) İlahiler, dualar...

Allahın peşinde

Yirmi bin fersah. Temmuz güneşinde, ağustos güneşinde,

Kirli şadırvanların çamurlu taşlarına” (Atay, 2007: 130-131).

Yazar, İncil’den ise şöyle alıntı yapar: “Önce Kelime vardı,” diye başlıyor Yohanna’ya göre İncil. Kelimeden önce de Yalnızlık vardı. Ve Kelimeden sonra da var olmaya devam etti Yalnızlık... Kelimenin bittiği yerde başladı; Kelime söylenmeden önce başladı. Kelimeler, Yalnızlığı unutturdu ve Yalnızlık, Kelimeyle birlikte yaşadı insanın içinde. Kelimeler, Yalnızlığı anlattı ve Yalnızlığın içinde eriyip kayboldu.” (Atay, 2007: 151). Daha sonra yalnızlığın büyüyerek dayanılmaz hale geldiği belirtilir.

2.4. Sinema

Romanda bir başka kolaj da “sinema”dır. Sinema, Selim Işık’ın yaşamında önemli yer tutar. O, ilk kültürünü de sinemadan almıştır: “Selim Işık, ilk kültürünü, Sümer sinemasıyla Sus sinemasını birleştiren uzun ve geniş merdivenin Sus sinemasının girişine doğru bir sahanlık meydana getirmek üzere genişlediği düzlükte tezgâhını kuran esmer, her zaman iki günlük sakalla gezen -ne zaman tıraş olurdu? Selim hiç rastlamamıştı” (Atay, 2007: 215).

Onun korku filmlerine olan ilgisi de dikkat çekicidir. “Frankeşayn’a Karşı Kurt Adam filmini gördükten sonra (filmin yarısında çıktığı halde gecelerce uyuyamamıştı) Sus sinemasının yakınına biraz içi burkularak yaklaştıysa da, günde beş kuruşa kiraladığı ve fazla para gitmesin diye bir günde bitirdiği seri romanların çekiciliği ağır bastı.” (Atay, 2007: 215). Ayrıca, “Mavi Kuş” filmini gördükten sonra, Sus sinemasının da eski korkutuculuğunu kaybettiği ifade edilir. “Maurice Maeterlinck’in bir

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oyunundan alınan bu filmde ölümden sonrasıyla doğumdan öncesini, aynı ülkede geçen olaylar dizisi olarak görmek, Selim’e belirsiz bir haz ve endişe vermişti. Yalnız, mavi kuşun filmde nasıl yer aldığını ve ne olduğunu hiçbir zaman hatırlayamadı.” (Atay, 2007: 215).

Romanda sinema unsuru olarak James Mason ve Ava Gardner’dan söz edilir. Bu, kolajın bir başka yönünü oluşturur:

“Sonunda, Hollywood filmlerinde pek rastlanmayan bir şey oluyor: ikisi de ölüyor. Konuyu bu duruma getirdikten sonra, oğlanla kızı öldürmeden işin içinden çıkabilecek bir senarist de göremiyorum doğrusu. Ölüm sahnesi akşam cereyan ediyor. Sabah, ağlarını çeken balıkçılar, Uçan Hollandalı ile Pandora’nın cesetlerini -balıklarla birlikte- buluyorlar. Böylece Uçan Hollandalı -adam- isteğine kavuşuyor. Gemiye ne olduğu hakkında bir bilgi verilmiyor. Galiba, filmin başlarında, Hollanda sarayları, eski kıyafetlerle James Mason’un Tanrıya nasıl karşı geldiği ve karısının nasıl korktuğu gösteriliyor ama asıl film Uçan Hollandalı, Ava Gardner’le tanıştıktan sonra başlıyor.” (Atay, 2007: 156).

2.5. Mahkeme Tutanağı

Tutunamayanlar romanında yer alan “mahkeme tutanağı” da bir başka kolaj unsurudur. Yazar, Selim ve Turgut’un tartışmalarından oluşan ve mahkeme tutanağı üslubu içinde kaleme aldığı metin şöyledir: “Bin Dokuz Yüz Elli Üç Yılını Tarih için önemli bir dönem yapan işbu tartışma zabıtları, iki nüsha olarak tanzim ve taraflar arasında imza edilmiştir. (Buraya bir de ‘teati’ kelimesini ekleyebilseydik ne iyi olacaktı. Olmadı).

Başkan	Üye
Turgut Özben	Selim Işık
(imza)	(imza)

Eki: Selim Işık’ın hatırı için kabul edilen tamamlayıcı mahiyetteki makalesi. (Atay, 2007: 81).

2.6. Roman göndermeleri

Tutunamayanlar’da başka romanlara ve yazarlara göndermeler de vardır. Selim konuşma içerisinde Dostoyevski’ye göndermede bulunur: “Peki Selim, ayı-dayı Makyavel oyunlarının zavallılığını nasıl olur da göremezsin? Selim : ‘Rezilliğimden’ dedi. ‘Biliyorsun, Yeraltından Notlar’da Dostoyevski...” (Atay, 2007: 60). Romanda geçen “humiliation” (Atay, 2007: 60) sözü “aşağılanmış ve hakarete uğramış” anlamlarına gelmekle beraber, Dostoyevski’nin bazı roman karakterlerinin önemli bir yönünü teşkil eder.

2.7. Şiir

Bu romanda şiirin de dünyasına girilir. Selim Işık’ın DÜN, BUGÜN, YARIN başlıklı şiiri 600 mısradan oluşur. Şiirin başında epigram olarak Türkçe, İngilizce ve Fransızca sözcüklerden oluşan bir epigram yer alır:

“When I was a little child,

Bir yokluktu Ankara.

Après moi dull and wild

Town ne oldu, que sera?” (Atay, 2007: 114)

Romanda ayrıca “dandini dandini dasdana” ninnisinin farklı versiyonuna da yer verilir. (Atay, 2007: 174).

Ayrıca King Solomon Speare’e ait şiir de yer alır:

“Mükemmel bir daire çizilemeyeceği gibi,

Aklın ve tecrübenin de insanı idaresi kolay değil.

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Tanrı çizmiyor her zaman kaderimizi;
Madde ve ruh arasına çizilen sınırdaki kesinlik yok.
Büyük ihanetler pençesinde tutuyor insanı,
Büyük karışıklıklardan kaçtığı yerlerde bile.” (Atay, 2007: 142).

2.8. Şarkı sözleri

Tutunamayanlar romanında kolaj unsuru olarak “Sevdim Bir Genç Kadını” şarkısından bir parçaya da yer verilir. “Neden daldın Turgut? Bir şey mi düşünüyorsun? Hem de nasıl: bir bilsen korkudan dudağın uçuklar. “Ben mi? Düşünüyordum: keman çalarım demiştim de. Kemanlı bir tane vardı. Dur dur hatırlayacağım. Evet işte:

Sevdim bir genç kadını

Ansam onun adını

Her şey benim olsa bile

Yaşarım hayalinle

Kemanımla ona bir ses

Verebilseydim eğer...” (Atay, 2007: 269).

Romanda ayrıca Recaizade Mahmut Ekrem’in “Güzelim” adlı şarkısından da alıntı yapılır: “Nedir bu nâz-ı tegafül zaman zaman güzelim / Kaşındır bu eziyetli imtihan güzelim.” (Atay, 2007: 271).

2.9. Sözlük

Romanda sözlük kullanımı da bir kolaj unsuru olarak yer alır. Yazar, “Kamus-u Berceste-i Türki” adlı sözlükten yararlanır: “Bu konuda başvurduğum “Kamus-u Berceste-i Türki” şunları yazıyor: ‘Türkler, Orta Asya’dan anavatanına göç etmeden önce, bütünüyle bir kabile hayatı yaşıyorlardı. Çadır medeniyetinin gereklerine göre kurulmuş bir toplum düzenleri vardı. Bu düzenin, bugünkü hayat şartlarından ne kadar uzak olduğunu, artık dilimize yerleşmiş olan, cam, hasır, kravat, kira (ev kirası), kiraz, hafif, masa, tabak, tabut, müzik, tahsil, mezar, karyola, kelime, cümle gibi kelimelerin bu dilde bilinmemesiyle (Öztürk dili demek istiyor) kanıtlayabiliriz. (Atay, 2007: 138). Yazar, sözlükten yararlanarak romanın anlam dünyasını zenginleştirir.

2.10. Ansiklopedi maddesi

Tutunamayanlar romanında ansiklopedi maddelerinden de yararlanır. *Encyclopedia Israelica* adlı eserde Solomon IV (Speare) adlı kişiden bahsedilir: “Solomon IV (Speare), Milattan Önce 563 yılında Ben-i İsrail kavminin Tefazuli kabilesinin (Tribus Intergralis) bir söylentiye göre başkanı, bir başka kaynağa göre de (Bak: İbni Mahmut el Silâhi, Milletler ve Mızraklar Tarihi, Cilt VII, S.967-9) kargıcı başısı imiş. Matematik problemleriyle uğraşmış birçok amatör bilim adamı yetiştirdiği söylenen bu kavmin adına, M.S. VII. yüzyıldan itibaren tarih kitaplarında rastlanmıyor. Hayatının ilk yıllarında büyük bir varlık gösteremeyen Salomon Speare’nin yıldızı, otuz beş yaşından sonra parlıyor. (Atay, 2007: 139).

Eserde *Garip Yaratıklar Ansiklopedisi*’nden söz edilir. Burada bir yaratık formatında “tutunamayan”ın ne olduğu üzerine bilgiler verilir: “Tutunamayan (disconnectus erectus): Beceriksiz ve korkak bir hayvandır. İnsan boyunda olanları bile vardır. İlk bakışta, dış görünüşüyle, insana benzer. Yalnız, pençeleri ve özellikle tırnakları çok zayıftır. Dik arazide, yokuş yukarı hiç tutunamaz. Yokuş aşağı, kayarak iner. (Bu arada sık sık düşer). Tüyleri yok denecek kadar azdır. Gözleri çok büyük olmakla birlikte, görme duygusu zayıftır. Bu nedenle tehlikeyi uzaktan göremez. Erkekleri, yalnız bırakıldıkları zaman acıklı sesler çıkarırlar. Dişilerini de aynı sesle çağırırlar.” (Atay, 2007: 149). Tutunamayan insan tipini garip bir hayvan formatında veren Atay, bir nevi grotesk yapıyı da kullanmış olur.

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2.11. Bilimsel kitap

Romanda bazı bilimsel kitaplardan da izle görmek mümkündür: “Hayatının ilk yıllarında büyük bir varlık gösteremeyen Salomon Speare’nin yıldızı, otuz beş yaşından sonra parlıyor. Speare, hayatını kazanmaya, ister -İbni Mahmut’a göre kargıcı başlıkla, ister -Ansiklopediye göre- matematikçilikle başlamış olsun, önemli olan, kabile tarihinde bu yaştan sonra yer almasıdır. Belki de iki işi aynı zamanda yapıyordu. Yalnız burada, Edward Spiral’in, ‘Trivial Aspects of Great Mathematicians - Büyük Matematikçilerin Küçük Tarafları’ adlı eserinde ileri sürülen görüşü de belirtmeden geçemeyeceğiz.” (Atay, 2007: 138). Ayrıca, “Loves and Adventures of Secondary Biblical Heroes, Abraham Talmud, New York, 1916” adlı eserden de söz edilir.

2.12. İlahi parçaları

Romanda Yunus Emre’nin “Şol Cennetin Irmakları” adlı ilahisine ironik ve mizahi bir gönderme vardır: “Hiç olmazsa biraz dudaklarını oynatsana!

Şol cennetin ırmakları, akar Allah deyu deyu.

Öğle namazında güneş, yakar Allah deyu deyu.

Geç katıldı bu kervana, Allahım yakındır sana,

Bir o yana bir bu yana, bakar Allah deyu deyu.” (Atay, 2007: 131).

Yazarın bu tutumu onun hayata bakışı ve roman anlayışı ile yakından ilgilidir. Postmodern romanlarda çokça görülen ironi ve mizah burada da kendini gösterir.

2.13. Kitabe

Romanda kolaj unsuru olabilecek bir başka unsur “kitabe”dir. Yazar, kitabenin adının BİLİĞ-TENÜZ olduğunu ifade eder: “Bilinen Gök-Türk yazılarına benzemiyormuş bunlar. Sanki yazarlar bunların anlamının bilinmesini istemiyormuş. Sonunda, Sovyet Sosyalist Cumhuriyetler Birliği’ne göre, Sovyet; Demokratik Alman Cumhuriyeti’ne göre de Alman bilginleri şifreye benzeyen yazıları çözmüşler. Yazıtın adı: BİLİĞ-TENÜZ; Bilgi Denizi anlamına geliyor. Yazıyı okudukça bunun, bugünkü ansiklopedilere benzer bir şey olduğunu görmüşler. Taşların toplamı -kaybolanlar dışında- bugünkü kitap sayfasıyla on iki bin sayfa ediyor ve bu hacmiyle dünya ansiklopedileri arasında yedinci sırayı alıyor. Bundan iki bin on dört yıl önceki bilgileri kapsadığı düşünülürse, birinci sırayı alıyor demektir benzerleri arasında (eğer bir benzeri bulunursa).” (Atay, 2007: 146). Oğuz Atay, kitabe türünü kullanarak romanın tematik dünyasını zenginleştirir.

2.14. Efsane

Tutunamayanlar romanında “dandini dandini dasdana” ninnisinin Kutlug Dandini (ya da Batılı tarihçilere göre Dandin) ve Farsus Dasdana adlı Ortaçağın ürkütücü kardeşlerinin efsanevi hikayesinden geldiği ifade edilir. “Kutlug Dandini (ya da Batılı tarihçilere göre Dandin) ve Farsus Dasdana, İsa’dan sonra VII. yüzyılda Anadolu’da yaşadığı sanılan efsaneler kahramanı Hartug Dandin’in oğulları. Hristiyan azizlerinden Gordalos’a göre, İsa’nın doktrinini yaymak üzere Mezopotomya’dan Nevşehir’e göç etmiş bir din adamı bu Hartug.” (Atay, 2007: 169). Yazar, ninnideki “dandini dandini dasdana” sözlerin bu iki kardeşin adları Kutlug Dandini ve Farsus Dasdanina’dan geldiğini söyler.

SONUÇ

Oğuz Atay, Türk edebiyatının en önemli yazarlarından. Onun romanlarında postmodern unsurlar önemli yer tutar. Atay’ın romanlarında kolaj unsurları dikkat çeker. Kolaj, genel olarak bir resimleme tekniği olup “kesyap” ifadesiyle de karşılanır. Kolaj, düz bir yüzey üzerine fotoğraf, gazete kâğıdı vb. nesnelerin yapıştırılmasıyla elde edilen bir tekniktir. Edebi eserlerde kolaj yöntemi, farklı türlerdeki eserlerden yararlanılmasıyla yapılır. *Tutunamayanlar* romanı da kolaj bakımından zengindir. Romanda kolaj unsurları olarak Selim’in günlükleri, Selim Işık’ın şiiri, efsane, dini kitaplar (Kur’an-ı Kerim,

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İncil), tiyatro metni, Selim'in "Ne Yapmalı?" başlığını taşıyan denemesi, sözlük maddesi, Selim ve Turgut'un mektubu, tiyatro metni, mahkeme tutanağı, Batı ve Türk müziğini anlatan makale, mitoloji, Dostoyevski'nin Yeraltından Notlar romanı, sinema vb. yer alır.

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THE WRITTEN AND ARCHAEOLOGICAL LEGACY OF MANICHAISM - THE TRANSFORMATIVE POWER OF CROSS-CULTURAL INTERACTION

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ABSTRACT

Manichaeism, emerging in the 3rd century CE in Mesopotamia, is a unique belief system shaped through written texts, artistic representations, and processes of cultural interaction. This study examines the written and archaeological legacy of Manichaeism within the framework of cross-cultural adaptation and interaction, focusing on its transformative influence across different regions.

The written sources of Manichaeism provide a rich foundation for understanding how this belief system adapted to diverse cultures and the societal impacts of these processes. Early texts such as those by Alexander of Lycopolis and Hegemonius recorded the fundamental principles of Manichaeism, while Islamic scholars like Ibn al-Nadim, al-Biruni, and al-Shahrastani documented the intersections of Manichaeism with other intellectual traditions. Manuscripts discovered in the Turfan excavations, written in Syriac, Sogdian, and Uighur, reveal the linguistic and conceptual adaptations of the faith. Similarly, Manichaean manuscripts found in Medinet Madi and Kellis in Egypt, including letters of Mani and hymns, illustrate the spread of Manichaeism across different geographies. The Cologne Mani Codex offers profound insights into the life and teachings of Mani.

This study demonstrates that the written and artistic elements of Manichaeism served not only as religious instruments but also as mechanisms for cultural adaptation. Manichaeism interacted with and was reshaped by every culture and civilization it encountered, undergoing aesthetic, conceptual, and linguistic transformations through its encounters with systems like Buddhism, Zoroastrianism, and Christianity. Illustrated manuscripts and iconographic depictions stand out as key tools of communication and transformation in this context.

The written and archaeological legacy of Manichaeism provides a distinctive perspective for examining processes of cultural change and adaptation. This research highlights the transformative power of this legacy in cross-cultural interaction, contributing to a broader understanding of the historical development of social and intellectual structures.

Keywords: Manichaeism, Cross-Cultural Interaction, Written Sources, Medinet Madi Manuscripts, Turfan Excavations

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EĞİTİM FAKÜLTESİ ÖĞRENCİLERİNİN İLETİŞİM BECERİLERİNİN FARKLI DEĞİŞKENLER AÇISINDAN İNCELENMESİ EXAMINING THE COMMUNICATION SKILLS OF EDUCATION FACULTY STUDENTS ACCORDING TO VARIOUS FACTORS

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ÖZET

Bu araştırmanın amacı eğitim fakültesi öğrencilerinin iletişim becerilerinin çeşitli değişkenler açısından incelemektir. Araştırman nicel araştırma yöntemine göre yürütülmüştür ve ilişkisel tarama modeli kullanılmıştır. Araştırmanın örneklem grubunu İstanbul Sabahattin Zaim Üniversitesi eğitim fakültesinde öğrenim gören 211 öğretmen adayı oluşturmaktadır. Araştırmada veri toplama aracı olarak “iletişim becerileri değerlendirme ölçeği” ile iletişim bilgi ve demografik form kullanılmıştır. Araştırmada verilerin normal dağılmadığı tespit edildiğinden nonparametrik testler kullanılmıştır. Veriler Mann-Whitney Testi ve Kruskal-Wallis Testine göre çözümlenmiştir. Araştırma sonuçlarına göre, kız öğrencilerin iletişim beceri puanları, erkek öğrencilere göre daha yüksek olduğu görülmüştür. Demokratik ailelerin çocuklarında iletişim becerilerinin daha yüksek olduğu görülmüştür. Anne-baba birlikteliği açısından iletişim becerilerinin etkilenmediği belirlenmiştir ve bu durumun diğer araştırma sonuçlarıyla örtüşmediği görülmüştür. Kardeş sayısı ve yaş değişkeni bağlamında iletişim becerilerinin etkilemediği belirlenmiştir. Sonuç olarak öğretmen yetiştirmesi nedeniyle eğitim fakültelerinde iletişim becerisi çok önemli bir durumdur. Çünkü, öğretmenlik mesleğinin en önemli özelliklerinden biri iyi bir konuşmacı olmak ve doğru iletişim kurma kabiliyetine sahip olmaktır. Bu sebeple eğitim fakültelerinde, iletişim becerisi ile ilgili eğitimler üzerine yoğunlaşmalı, iletişim becerilerini geliştiren etkinliklere önem verilmeli, geleceğin öğretmenlerinin iletişim becerileri geliştirilmelidir.

Anahtar kelimeler: İletişim, iletişim becerileri, eğitim fakültesi öğrencileri

ABSTRACT

The purpose of this research is to examine the communication skills of education faculty students in terms of various variables. The research was conducted according to the quantitative research method and the relational screening model was used. The sample group of the study consists of 211 teacher candidates studying at the Faculty of Education of Istanbul Sabahattin Zaim University. In the study, “communication skills assessment scale” and communication information and demographic form were used as data collection tools. Since it was determined that the data were not normally distributed in the study, nonparametric tests were used. The data were analyzed according to the Mann-Whitney Test and Kruskal-Wallis Test. According to the research results, communication skill scores of female students were found to be higher than male students. It was seen that communication skills were higher in children of democratic families. It was determined that communication skills were not affected in terms of mother-father togetherness and this situation was not consistent with other research results. It was

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determined that communication skills were not affected in terms of the number of siblings and age variables. As a result, communication skills are very important in education faculties due to teacher training. Because, one of the most important characteristics of the teaching profession is to be a good speaker and to have the ability to communicate correctly. For this reason, education faculties should focus on trainings related to communication skills, importance should be given to activities that develop communication skills, and the communication skills of future teachers should be developed.

Key words: Communication, communication skills, education faculty students

GİRİŞ

İnsanlar arasında anlaşmada en önemli unsur iletişimdir. İletişim becerilerinin iyi olması kişiler arası ilişkiyi kuvvetlendirir. Bu iletişim becerileri aynı zamanda mesleki anlamda da insanları çok iyi bir noktaya getirir. Dökmen (1989)'e göre iletişim kişinin bazı semboller aracılığıyla karşısındakini etkileme sürecidir. İletişim temel olarak anlaşılmayı hedefler. Duygu, düşünce veya bilgilerin iki ya da daha fazla varlık arasında her türlü yolla karşılıklı iletilmesi durumudur (Karaca, 2016). İletişim tarihi insanlık tarihiyle başlamıştır. İnsanlar toplu halde yaşadığı için doğayla ve diğer insanlarla ilişki kurmada iletişim gerekli ve zorunlu olmuştur (Işık,2012). İletişim becerilerinin iyi olması kişiler arası ilişkiyi kuvvetlendirir. Bu iletişim becerileri aynı zamanda mesleki anlamda da insanları çok iyi bir noktaya getirir. Öğretmenlik mesleğinde iletişim becerilerinin kuvvetli olması oldukça önemli bir gerektir. Eğitim sistemi ne kadar iyi olursa olsun öğretmenin iyi bir iletişim becerisi yoksa verilen emekler boşa gidebilir. Sınıf yönetiminin ve öğrenimin etkili olmasını engelleyebilir. Öğretmen sadece öğrencilerle değil, veliler ve ekip arkadaşları ile de iyi bir iletişim içinde olmalıdır. Çünkü bu süreç tamamen bir ekip işidir.

Yapılan araştırmalar sonucu öğretmenler üzerine bu konunun fazlasıyla araştırıldığı görülmüştür. Pehlivan (2005), sınıf öğretmenliği ana bilim dalında öğrenim gören öğretmen adaylarının iletişim becerisi algılarının sınıf düzeyleri ve cinsiyetlerine göre farklılık gösterip göstermediğini araştırmıştır. Tunçeli (2013), Okul öncesi öğretmen adaylarının öğretmenlik mesleğine ilişkin tutumları ile iletişim becerileri arasındaki bağlantıyı incelemiştir. Başka bir araştırmada ise sınıf öğretmeni adaylarının iletişim beceri düzeylerinin çeşitli değişkenler açısından incelendiği görülmüştür (Ünal, Elkatmış, 2014). Bu araştırmalarda eğitim fakültelerinde bölüm bazlı öğretmen adaylarının incelendiği görülmektedir. Bundan dolayı bu araştırmada eğitim fakültesinde öğrenim gören öğretmen adaylarının çeşitli değişkenlere göre iletişim becerisinin incelenmesi amaçlanmıştır.

YÖNTEM

Bu araştırma eğitim fakültesi öğrencilerinin iletişim becerilerini çeşitli değişkenler açısından incelemek amacıyla yapılmıştır. Araştırma nicel bir araştırmadır. İlişkisel tarama modeli kullanılmıştır.

ÇALIŞMA GRUBU

Araştırmanın örneklem grubunu 2022-2023 güz döneminde İstanbul Sabahattin Zaim Üniversitesi eğitim fakültesinde öğrenim gören toplam 211 öğretmen adayı oluşturmaktadır.

VERİ TOPLAMA ARAÇLARI

Araştırma grubunu oluşturan öğrencilerin iletişim becerilerini ortaya koymak ve veri elde etmek için araştırmacı tarafından "İletişim bilgi ve demografik özelliklerini" içeren form hazırlanmıştır. Formda öğrencinin; cinsiyeti, ebeveynlerinin tutumu, ailesinin ekonomik düzeyi, kardeş sayısı, yaşı, anne baba birlikteliği, problemli bir durum ile karşılaştığında onu sağlıklı bir iletişim ile çözmeye çalışma durumu, çocuklar ile iletişim kurarken onların her sorusunu özenle açıklama durumuna yer verilmiştir.

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İletişim Becerilerini Değerlendirme Ölçeği kullanılmıştır. Bu ölçek Korkut (1997) tarafından geliştirilen iletişim becerileri ölçeğidir. Öncelikle lise öğrencilerine göre hazırlanan bu ölçek daha sonra üniversite düzeyine ve 61 yetişkine uygulanmıştır. Ölçek 5'li likert tipi bir ölçek ve toplamda 25 maddeden oluşmaktadır. Maddeler her zaman (5), sıklıkla (4), bazen (3), nadiren (2), hiçbir zaman (1) olacak şekilde derecelendirilmiştir. Ters madde bulunmamaktadır.

UYGULAMA SÜRECİ

Veriler 18.10.2022-30.11.2022 tarihleri arasında toplanmıştır. Uygulama yapılabilmesi için gereken izinler alınmış olup uygulama aşamasında ölçekler araştırmacı tarafından uygulanmıştır. İletişim bilgi formunun nasıl uygulanacağı hakkında öğrencilere bilgi verilmiştir. Öğrencilerin yaklaşık olarak 5 dakikada cevaplamaları bitirdikleri gözlemlenmiştir.

VERİLERİN ANALİZİNDE KULLANILAN İSTATİSTİKSEL YÖNTEMLER

Araştırmada elde edilen bulguların istatistiksel analizlerini yapmak için SPSS programından faydalanılmıştır. İletişim ölçeği toplam puanları ve alt boyutlarından elde edilen toplam puanların normallik testi yapılmıştır. Çarpıklık (-,799) ve basıklık (2,685) değerleri elde edilmiştir. Basıklık değeri -2 ve 2 arasında olmadığı için testin sonucu anlamlı çıkmamıştır. Bu sebeple anlamlı olmayan iki seçenekli sorularda Mann-Whitney U Testi kullanılırken, 3 seçenekli sorularda Kruskal-Wallis Testi kullanılmıştır.

BULGULAR

Araştırmanın verilerine bakıldığında 172'ü (%81,6) kadın, 39'ü (%18,4) erkek öğretmen adaydır. Araştırmaya katılanların 100 'ü (%47,3) 18-20, 98'i(%46,4) 20-24, 13'ü(%6,1) 25 ve üstü yaş grubundadır. 53'ünün(%25,1) aile geliri 5000-7000, 109'unun (%51,6) 7000-15000, 49'unun(%23,2) 15000 üzerinde olduğu görülmüştür. Araştırmaya katılanların içinde 3(%1,4) kişinin hiç kardeşi yoktur. 1-3 arasında kardeşi olan 117(%55,4) kişi, 3 ve üzeri kardeşi olan kişi sayısı 90(%42,6) kişidir. Aile tutumları ele alındığında 39(%18,4) kişinin ailesi otoriter 65(%30,8) kişinin demokratik aile 107(%50,7) kişinin muhafazakâr aile tutumuna sahip olduğu görülmüştür. Araştırma grubundan 197 (%93,3) kişinin anne ve babası birlikte, 8 (%3,7) kişinin anne ve babası ayrı, 6 (%2,8) kişinin anne ve babasından en az biri vefat etmiş. Araştırma grubunda olan 201 kişi (%95,2) problemleri bir durum ile karşılaştığında onu sağlıklı bir iletişim ile çözmeye çalışırken 10 kişi (%4,8) ise onu sağlıklı bir iletişim ile çözmeye çalışmadığını ifade etmiştir. 173(%81,9) kişi çocukları ile iletişim kurarken onların her sorusunu özenle açıkladığını, 38(%18,1) kişinin ise çocukların her sorusunu özenle açıklamadığını belirtmiştir.

Öğrencilerin iletişim becerileri değerlendirme ölçeğinden aldığı puanların iki değişken ortalamaları arasındaki farkların anlamlılığını test etmek için yapılan Mann Whitney U Testinin sonuçlarına Tablo 1'de yer verilmiştir.

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Tablo 1. Öğrencilerin İletişim Becerileri Değerlendirme Ölçeği Puanlarının Bazı Değişkenlere Göre U Testi Sonuçları

Değişkenler		N	Sıra Ortalaması	Sıra Toplamı	U	P
Cinsiyet	Kadın	172	111,10	19109,00	2477,000	,011
	Erkek	39	83,51	3257,00		
Sorular cevaplanır mı	Evet	173	114,59	19824,00	1801,000	,000
	Hayır	38	66,89	2542,00		
Problemli bir durum ile karşılaştı	Evet	201	108,67	21843,00	468,000	,004
	Hayır	10	52,30	523,00		

Öğrencilerin “İletişim Becerileri Değerlendirme Ölçeği” puanları cinsiyete göre anlamlı farklılıklar göstermektedir ($U=2477,000$ $p<.05$). Sıra ortalamaları dikkate alındığında kadın öğrencilerin sınav kaygılarının erkek öğrencilerden yüksek olduğu görülmektedir.

Öğrencilerin “İletişim Becerileri Değerlendirme Ölçeği” puanları “Çocuklar ile iletişim kurarken onların her sorusunu özenle açıklayabilir misin?” sorusuna göre anlamlı farklılıklar göstermektedir ($U=1801,000$ $p<.05$). Sıra ortalamaları dikkate alındığında evet yanıtını verenlerin hayır yanıtını verenlerden daha yüksek olduğu görülmektedir.

Öğrencilerin “İletişim Becerileri Değerlendirme Ölçeği” puanları “Problemli bir durum ile karşılaştığında onu sağlıklı bir iletişim ile çözmeye çalışır mısın?” sorusuna göre anlamlı farklılıklar göstermektedir ($U=468,000$ $p<.05$). Sıra ortalamaları dikkate alındığında evet yanıtını verenlerin hayır yanıtını verenlerden daha yüksek olduğu görülmektedir.

Öğrencilerin iletişim becerileri değerlendirme ölçeğinden aldığı puanların üçlü değişken ortalamaları arasındaki farkların anlamlılığını test etmek için yapılan Kruskal Wallis Testi Sonuçlarına Tablo2’de yer verilmiştir.

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Tablo 2.Öğrencilerin İletişim Beceri Ölçeği Puanlarının Bazı Değişkenlere Göre Kruskal Wallis Testi Sonuçları

Değişkenler		N	Sıra Ortalaması	Sd	Ki Kare	P
Yaş	18-20	100	109,95	2	,888	,641
	20-24	98	101,80			
	25 ve üstü	13	107,31			
Ailenin aylık geliri	5bin-7bin	53	111,11	2	,649	,723
	7bin-15bin	109	105,56			
	15.000+	49	101,46			
Kardeş sayısı	0	3	78,67	2	5,340	,069
	1-3	117	113,95			
	3 ve üzeri	90	95,41			
Aile yapısı	Otoriter	39	104,87	2	5,878	,049
	Demokratik	65	120,71			
	Muhafazakâr	107	97,48			
Anne baba birlikteliği	Evet	197	106,61	2	,422	,810
	Hayır	8	92,44			
	Biri vefat etti	6	103,92			

Öğrencilerin “İletişim Becerileri Ölçeği” puanları öğrencilerin yaşlarına göre anlamlı farklılıklar göstermemektedir ($p>.05$). Öğrencilerin “İletişim Becerileri Ölçeği” puanları ailenin aylık gelirine göre anlamlı farklılıklar göstermemektedir ($p>.05$). Öğrencilerin “İletişim Becerileri Ölçeği” puanları kardeş sayılarına göre anlamlı farklılıklar göstermemektedir ($p>.05$). Öğrencilerin “İletişim Becerileri Ölçeği” puanları anne-baba birlikteliğine göre anlamlı farklılıklar göstermemektedir ($p<.05$).

Öğrencilerin “İletişim Becerileri Ölçeği” puanları aile yapılarına göre anlamlı farklılıklar göstermektedir ($p<.05$). Demokratik ailelerin çocuklarında iletişim becerileri daha gelişmiş olduğu görülmektedir.

TARTIŞMA VE SONUÇ

Bu araştırma eğitim fakültesi öğrencilerinin iletişim becerilerinin çeşitli değişkenler üzerinden incelenmesini amaçlamıştır. Araştırmada öğrencilerin cinsiyet, yaş, aylık gelir, aile yapısı, kardeş sayısı, çocuklar ile iletişim durumu ve problemleri bir durum ile karşılaştığında sağlıklı iletişim kurma durumları değişkenlere göre puan ortalamalarının farklılaşma durumu incelenmiştir. Elde edilen bulgular bu bölümde yorumlanmıştır.

Araştırma bulgularına göre kadın öğrencilerin iletişim becerileri erkek öğrencilerden daha yüksek görülmüştür. Benzer şekilde Çiftçi ve Taşkaya (2010) çalışmasında kadın öğrencilerin iletişim

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becerilerinin erkek öğrencilerden daha yüksek olduğunu belirlemiştir. Uygun ve Arıkan (2019) da kadınların iletişim becerilerinin erkeklere göre daha yüksek olduğunu tespit etmiştir. Ancak Can ve Bozgün (2021) yaptığı çalışmada cinsiyete göre anlamlı farklılık saptamamıştır. Pehlivan (2005) ise iletişim becerileri algısının 1. sınıftan 4. sınıfa doğru artış gösterdiğini ve kadın öğrencilerin iletişim becerilerinin daha yüksek olduğunu tespit etmiştir. Kadınların erkeklere göre iletişim becerilerini daha iyi olmasını Korkut (1997) tarafından sosyalleşme sürecine bağlanmıştır.

Yaş değişkeninin iletişim becerileri bakımından anlamlı bir farklılığı görülmemiştir. Benzer şekilde Korkut (1997) çalışmasında, öğrencilerin yaşları ile iletişim becerileri ölçeğinden aldıkları puanlar arasında anlamlı bir fark olmadığı sonucuna varmıştır. Bozkurt ve diğerleri (2003)'nin çalışmalarında da yaş değişkenine göre anlamlı bir farklılık görülmemiştir. Bu duruma araştırma grubuna katılan bireylerin yaşlarının birbirlerine çok yakın olmasından kaynaklanıyor olabileceği söylenebilir. Pehlivan (2005) ise iletişim becerileri algısının 1. sınıftan 4. sınıfa doğru artış gösterdiğini belirlemiştir. Yılmaz (2011), yaptığı çalışmada kişilerin yaşları ile iletişim becerileri ölçeğinden aldığı puan arasında anlamlılık olduğunu, bireylerin yaşları arttıkça iletişim beceri düzeylerinin de arttığı sonucuna ulaşmıştır.

Ailenin aylık geliri ile iletişim becerileri düzeyi arasında anlamlı bir fark görülmemiştir. Tepeköylü ve diğerleri (2009)'nin araştırmasında da ailenin aylık gelir düzeyi arasında anlamlı ilişki bulunmadığı belirtilmiştir. Korkut (1997) yaptığı çalışmada aile gelir düzeyi ile etkili iletişim beceri düzeyleri arasında anlamlı bir farklılığa rastlamamıştır.

Kardeş sayısı ile iletişim becerileri arasında anlamlı bir fark görülmemiştir. Bingöl ve Demir (2011) çalışmasında kardeş sayısı ile iletişim becerileri arasında anlamlı bir ilişki saptamamıştır. Korkut (1997) ise çalışmasında kardeş sayısı değişkenine göre anlamlılık belirlemiştir.

Aile yapısı ile iletişim becerileri arasında anlamlı bir farklılık belirlenmiştir. Demokratik ailelerin çocukları muhafazakâr ve otoriter ailelerin çocuklarına göre iletişim becerilerinin daha yüksek olduğu görülmüştür. Bingöl ve Demir (2011) aile yapısı ile öğrencilerin iletişim becerileri arasında anlamlı bir farklılık görememiştir.

Anne baba birlikteliği açısından ele alındığında anlamlı bir farklılık görülmemiştir. Literatür incelediğinde çocuklar açısından ebeveyn kaybı, akademik başarıda düşüşe, düşük benlik saygısına sahip olmalarına ve daha fazla dıştan denetimli ve bağımlı olmalarına sebep olmaktadır. Ebeveyn kaybı nedeniyle erken yaşta alınan sorumluluk çocuğun ileriki yaşamında ve evlilik yaşamında kırılmalara neden olabilmektedir (Şentürk, 2006). Boşanma durumu çocuğu, anne veya babanın ölümünden daha çok etkilemektedir. Çünkü çocuğun boşanmaya uyum sağlaması, ölüme uyum sağlamasından daha uzun bir süreç gerektirmektedir (Özgüven, 2014). Bu çalışmada anlamlı bir farklılık çıkmaması dikkate değer olmuştur.

Sonuç olarak, erkeklerde iletişim becerileri kadınlara göre daha düşük olduğu görülmüştür. Kadınların daha sosyal olmaları bu durumu etkiliyor denilebilir. Anne baba birlikteliğinin iletişim becerilerini etkilemediği sonucuna varılmıştır ancak bu sadece örneklem grubunu yansıtmaktadır. Bu durumun öğretmen adayları üzerinde etki oluşturabileceği literatürle desteklenmiştir. Demokratik ailelerin çocuklarında iletişim becerisi daha yüksek olduğu sonucuna varılmıştır. Aylık gelir düzeyi, yaş ve kardeş sayısının da etkilemediği sonucuna varılmıştır.

Öğretmen yetiştirmesi nedeniyle eğitim fakültelerinde iletişim becerisi için yapılan çalışmalar çok önemlidir. Çünkü, öğretmenlik mesleğinin en önemli özelliklerinden biri iyi bir konuşmacı olmak ve doğru iletişim kurma kabiliyetine sahip olmaktır. Bu sebeple eğitim fakültelerinde, iletişim becerisi ile ilgili eğitimler üzerine yoğunlaşılmalı, iletişim becerilerini geliştiren etkinliklere önem verilmelidir. Ayrıca, eğitim fakültesi hatta imkân varsa diğer fakültelerde dahil olmak üzere öğrencilere diksiyon

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dersi verilmelidir. Üniversitelerin öğrenciler için çeşitli kitap ve makale okuma çalışmalarına teşvik edici çalışmaları olmalıdır. Öğretmen adayları tiyatro veya drama kurslarına yönlendirilerek iletişim becerilerinin gelişmeleri sağlanabilir. Öğretmenlerin iletişim becerileri ne kadar iyi olursa anlatmak istediğini karşı tarafa o kadar iyi aktarır ve etkili bir öğretmen olmayı başarır. İyi ve etkili bir öğretmen olmak için iletişim becerileri çok büyük bir öneme sahiptir. Bu konuda öğrencileri meslek hayatına hazırlayan üniversitelerin çok büyük rolleri var.

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NEBULIZER THERAPY IN CHILDREN: ACOUSTIC ENHANCEMENT

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ABSTRACT

The aim of this study is to review research on nebulizer therapy in children and the application of acoustic improvement to this therapy.

Method: This descriptive study was conducted using the document analysis technique through a literature review of databases.

Findings: As of December 2024, data were obtained from a total of 40 academic sources, including 14 doctoral theses and 26 master's theses published on YOK National Thesis Center, Google Scholar, and PubMed. Numerous publications and articles on the subject were reviewed, and it was generally observed that the number of master's theses exceeded the number of doctoral theses. Findings from the reviewed studies showed that the rate of children using the inhaler correctly was low. The examined theses and studies suggest that acoustic improvement has the potential to improve treatment outcomes and increase motivation.

Conclusion: The results of this study indicate that acoustic improvement can be a significant supportive element in inhaler therapies, potentially increasing treatment adherence and effectiveness in children. It is recommended that larger-scale studies be conducted.

Keywords: Nebulizer, inhalation, child, fear.

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THE EFFECT OF VAGINAL INFECTIONS ON WOMEN'S DAILY LIVES

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ABSTRACT

Introduction. Vaginitis is a term used to describe an infection or inflammation of the vagina, which includes symptoms such as abnormal vaginal discharge, foul odor, irritation, itching, or burning. Although there are many causes, microorganisms are generally responsible for its occurrence. The most common causes of vaginitis are bacterial vaginosis (40-45%), vulvovaginal candidiasis (20-25%) and trichomoniasis (15-20%). Noninfectious vaginitis, namely atrophic, irritant and allergic vaginitis, are less common (5-10%). Although vaginitis symptoms negatively affect women's quality of life, they may perceive it as a minor problem and not seek diagnosis and treatment, and this situation may continue for a long time. If recurrent vaginitis is not treated, it negatively affects women's physical life, emotional, sexual and social relationships. Vaginitis is a serious women's health problem that causes serious health consequences such as chronic diseases, infertility, ectopic pregnancy, pelvic inflammatory disease, increased risk of sexually transmitted infections and cancer, as well as lack of self-confidence, social isolation, depression and a decrease in quality of life. With the deterioration of the defence mechanisms constituting the structure of the reproductive system by microorganisms, reproductive system infections occur. Seen rather frequently in adult women, the reproductive system infections are among the most frequently encountered complaints in outpatient applications. One of these infections, vaginitis is the infection or inflammation of vagina. Vaginitis is characterised by bad smell, pain, irritation, inflammation, itchiness and vaginal discharge. Left untreated, it can cause pelvic inflammatory disease. This circumstance may conduce to complications such as infertility, ectopic pregnancy, preterm birth, low-birth-weight baby and chorioamnionitis. All these complaints affect women's reproductive and sexual health, quality of life, and even their psychology adversely. Daily lives of women diagnosed with vaginitis are also extremely negatively affected. In the studies conducted, women stated that they felt depressive and upset with accompanying negative body image, low self-respect, disappointment and desperation due to the symptoms of vaginitis. The effect of evidence-based, current alternative therapies and aftercare against these infections, which are exceptionally simple and which a woman encounters at least once in her life cycle, in recent years is at an undeniable level. Viewing the literature, the genital hygiene practices, the use of probiotics/yoghurt, propolis, and herbal treatments of vaginitis. The primary roles of the nurse in the management of vaginal infections are changing the risky health behaviours, prevention of the emergence and repetition of the vaginal infections, and, following the current literature, providing education and consultancy.

Keywords: vaginitis; psychosocial impact; alternative therapy; women's health

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A REVIEW ON THE ANTICANCER POTENTIAL OF TERPENOID-BASED ESSENTIAL OILS

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ABSTRACT

Secondary metabolism plays a key role in plant adaptation to environmental stress, with terpenoids being a major group of plant secondary metabolites. These compounds are essential in plant defense and have shown notable antiproliferative and cytotoxic activities against various cancers, including prostate, glioblastoma, melanoma, breast, colon, ovarian, liver, uterine, lung, oral, leukemia, kidney, bone, pancreatic, and skin cancers. Terpene-based essential oils (EOs) have demonstrated promising anticancer effects by inducing apoptosis in cancer cells (e.g., LNCaP, PC3, T98G, Caco-2) without affecting normal cells. Specific compounds, such as jacaric acid and β -bisabolol from *Hypericum hircinum* and *Zanthoxylum tinguassuiba*, show selective induction of apoptosis and enhanced therapeutic activity. EOs from plants like *Guatteria pogonopus*, *Satureja khuzistanica*, and *Pinus wallichiana* have demonstrated significant anticancer effects, modulating key pathways such as apoptosis, ROS production, and cell cycle regulation. The potential of terpenoids in cancer treatment continues to grow, offering new avenues for therapeutic strategies. This review synthesizes global literature on the anticancer properties of terpenoid-based EOs, focusing on studies that assess antiproliferative, cytotoxic, and apoptotic effects on various cancer cell lines. The information was gathered from scientific databases such as Pub Med, Scopus, Web of Science, and Google Scholar, etc.. The aim of this review is to evaluate the anticancer potential of terpenoid-based EOs, focusing on their mechanisms of action and therapeutic applications in cancer prevention and treatment. The review also emphasizes the need for further research into the biosynthesis and regulatory mechanisms of terpenoids to optimize their clinical use. Terpenoids show significant anticancer potential due to their antiproliferative and cytotoxic properties. However, further research is required to optimize their clinical applications, especially in terms of biosynthesis, transport, and regulation.

Keywords: essential oil, terpenoids, antitumor activity, secondary metabolites.

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MASING AT LIMIT CYCLE ARISING DUE TO THE STARK DYNAMICAL FREQUENCY SHIFT: TWO APPROACHES

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ABSTRACT

Recently, we considered the possibility of the maser output affecting the sample, emitting it. This effect is similar to the effect on the emitting sample of an electromagnetic field from an external source, leading to Stark dynamic frequency shift (SDS). To our mind, the similar absorption should exist at the inverted (operating) transition with the difference that the latter is the partial reabsorption of the own emitted power, which leads to the masing self-termination. This phenomenon is combated using repumping. If the repumping is not sufficiently effective, then unwanted absorption of the maser emission cannot be avoided and leads to SDS. We had carried out a bifurcation analysis of a nonlinear system of ordinary differential equations describing masing from spin triplet states taking into account SDS. It was found that saddle-node (SN) bifurcation can occur — SN disappears and a stable limit cycle (LC) appears. It was shown that the presence of LC leads to the appearance of two harmonics in addition to the main line of maser emission. If they merge with it, they can widen the masing line in its central part. Our investigation had a semi-classical character. Now we accompany our main analytics by its quantum-mechanical analogs with a “dictionary” of translating formulas from one language to another. To our mind, this will enrich the picture of the general understanding of different phenomena in the “spin triplet transition + cavity” system, will be instructive for researchers working in this area and will contribute to join efforts on the creation of a continuous-wave maser based on spin triplet states. Since broadening of the maser output is an undesirable phenomenon, our results can help get rid of it. Our semi-classical investigation is an example (among many others) of the application of nonlinear dynamics to actual problems in quantum electronics.

Keywords: maser, dynamic Stark effect, limit cycle, broadening of masing line

INTRODUCTION

Solid state masers are applied, as low-noise MW amplifiers and as a frequency standard in metrology and quantum electronics, where they can help also to explore fundamental problems. Besides, the outstanding properties of solid masers enable them to be used in medical imaging, airport security scanning, deep space communication and radio astronomy. Till 2012 the most realizations of solid state masers required low temperatures and strong constant magnets, which made them bulky and expensive. In 2012 the first solid state maser operating at room temperature in Earth's magnetic field in a pulse regime was elaborated by the Maser Group of London Imperial College (Oxborrow et al., 2012). A crystal of an optically pumped pentacene-doped p-terphenyl (P:TP) was used there as an emitter, exploiting photo-excited spin triplet states (STS) in organic pentacene molecules. Subsequently, this Group continued to work on pulsed generation of a maser, obtaining a number of very interesting results (Arroo et al., 2021; Oxborrow et al., 2012; Breeze et al., 2015; Breeze et al., 2017; Salvadori et al., 2017). We contributed to the interpretation of these experiments (Fokina and Elizbarashvili, 2021; Fokina and Elizbarashvili, 2022-2024). However, for the most of the practical applications of maser

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(EPR tomography, astronomy, etc.), it was important to create a continuous wave maser. It should be noted that the organic gain medium host (para-terphenyl) during the first attempts could not withstand continuous optical pumping due to its poor thermal conductivity and low melting point. The future efforts (Wu et al., 2020) used the luminescent concentrator, which appeared both well-matched spectrally to the P:TP optical-absorption bands and provided an effective thermal anchorage of the P:TP crystal to a solid “substrate” material (namely Ce:YAG) exhibiting high thermal conductivity and volumetric heat capacity. These measures helped to avoid thermal and/or photochemical damage (scorching) at the crystal’s surface and to realize a quasi-continuous-wave masing. Alternatively, a continuous-wave room-temperature maser using STSs of the optically pumped nitrogen-vacancy (NV^-) defect centres in diamond was created in 2018 (Breeze et al., 2018). An interesting feature of this generation was observed: at the edge of the emission spectrum, slightly above threshold the emission had narrow linewidth (~ 50 Hz). However, the emission line appeared sufficiently strongly broadened near its centre. It has been suggested that this phenomenon is caused by the occurrence of limit cycle (LC) during masing. We set ourselves the task of qualitatively describing the arising of an LC during continuous maser generation and also, if possible, analytical calculation of its frequency and finding out the consequences of its appearance on the width of the emission line. In doing so, we had in view a maser operating with P:TP, as an emitting sample, since the energy level structure of NV^- defect centre in diamond is very complicated (Arroo et al., 2021; Breeze et al., 2018; Wen et al., 2023). Also, the following should be mentioned: the masing duration of Ref. (Oxborrow et al., 2012) was rather low. It was found that applying either a longer or a more powerful optical pumping input to the crystal did not substantially extend this duration. It was also found that increasing the quality factor of the microwave mode that the maser cavity supported, also did not substantially extend it. The inventor of (Oxborrow, 2017) has discovered that the cause of the self-termination observed with the prototype maser assembly in particular and a common and severe impediment to the realization of continuously working masers based on the spin-polarized triplet states of optically excited organic molecules more generally is bottlenecking in the lower maser level, having a decay lifetime out of the triplet state that is substantially longer than the decay lifetime of the upper maser level. Because decay out of the lower maser level is slow, the molecule naturally loiters in this level for a relatively long time causing a build-up on population in the lower maser level, and hence, unwanted reabsorption of the maser mode. The invention (Oxborrow, 2017) consists in the use of repumping emitting molecules by stimulated absorption from a repumping drive out of the lower maser level into the auxiliary one. On arriving at the auxiliary level, the molecules more rapidly decay back to the singlet ground state via a relatively fast reverse intersystem crossing process. This repumping strategy solved the self-termination problem for the assembly of Ref. (Oxborrow, 2017; Wu et al., 2020). But if the repumping is not sufficiently effective, then unwanted absorption of the maser emission cannot be avoided. To our mind, such reabsorption of the maser mode can result in feedback leading to interesting nonlinear behavior of the maser. In this paper, we consider feedback through a dynamic Stark shift in the generation frequency. We should like to note that our equations are model ones; however, for convenience we keep the same notations of levels as for pentacene, although the numerical data do not correspond to the Ref. (Oxborrow et al., 2012).

PROBLEM STATEMENT

First of all, we would like to note that feedback due to the Stark dynamical shift of the generation frequency seems to us to be the reason for the appearance of the limit cycle (LC) during continuous generation: the sufficiently intensive microwave field, generated by the pumped sample with the inverted energy levels acts also on the sample emitting it in the same way as an external e.m. field does it. Considering, in order to clarify the fundamental possibility of such a phenomenon, a model spin

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system similar to that of P:TP (Arroo et al., 2021, Oxborrow et al., 2012; Breeze et al., 2015; Breeze et al., 2017, Salvadori et al., 2017), we have obtained that analogously to (Pantell and Puthoff, 1969, Fig. 5.6), the corresponding shifted frequency has the form

$$\left| \omega_0^{Z-X} \right|_{\text{eff}} = \left| \omega_0^{Z-X} \right| + (g\mu_B)^2 (b_K^{Z-X})^2 (2h^2 \Delta^{Z-X})^{-1}, \quad (1)$$

where $\Delta^{Z-X} \equiv \left| \omega_0^{Z-X} \right| - \omega_c$; $\omega_0^{Z-X} = (E^Z - E^X) / h < 0$, with $E^Z < E^X$ as inverted energy levels **Z,X** of spin triplet state and $\left| \omega_0^{Z-X} \right|$, $\left| \omega_0^{Z-X} \right|_{\text{eff}}$ as the absolute values of the proper frequencies of this pumped transition without and with the account for the Stark shift effect, respectively. The other values are determined below.

Further, we will consider the case when the linewidth of the maser cavity is much smaller than the EPR width of a pair of the inverted spin triplet levels of the emitting sample. It should be noted that such ratio is the only one allowing continuous generation without any transient coherent effects, which we would like to avoid in this paper. Otherwise, subject to additional conditions, the arising generation will take form of the following sequence of events (Bösiger et al., 1976): after turning on the pumping, a superradiance pulse in the form of a powerful delayed short burst occurs (Fokina and Elizbarashvili, 2021 and references therein), after that — the Rabi oscillations, see, for instance (Breeze et al., 2018, Fokina and Elizbarashvili, 2022-2024), and only then — the non-coherent continuous generation. All the three types of masing are observed in (Wu et al., 2020), though they are not so pronounced as in Ref. (Bösiger et al., 1976). The reason for these three types of masing in (Wu et al., 2020) is the fact that there the linewidth of the maser cavity is greater than the EPR width of a pair of the inverted spin triplet levels of the emitting sample. The following system of the ordinary differential equations (ODE)¹¹ was derived by us for the case of Fig. 3.17a of Ref. (Pantell and Puthoff, 1969) with the allowance for the Stark dynamical shift of the energy difference of ZX levels (our semi-classical obtaining of this system will be described elsewhere):

$$dr / dt' = -rq \cos^2 \delta - (r-1) \equiv P(r, q) \quad (2.1)$$

$$dq / dt' = -fq + f [1 + (K / \chi) q] (\cos^2 \delta / x_0) rq \equiv Q(r, q), \quad (2.2)$$

with the following list of symbols:

$$r \equiv P^{Z-X} / P_e^{Z-X}, \quad q \equiv h^{-2} (g^{Z-X} \mu_B)^2 T_2^{Z-X} T_e^{Z-X} b_K^2; \quad x_e \equiv T_{\text{Re}}^0 / T_2^{Z-X}; \quad \chi \equiv \Delta^{Z-X} / (T_2^{Z-X})^{-1};$$

$$(\cos^2 \delta)^{-1} = 1 + \chi^2; \quad K \equiv (T_e^{Z-X})^{-1} / 2\omega_c \ll 1, \quad f \equiv 2\tau_c^{-1} / (T_e^{Z-X})^{-1}, \quad (3)$$

and with the following decoding of them:

P^{Z-X} is the polarization of Z-X transition, P_e^{Z-X} is its steady state value, which is reached by means of the mutual action of pumping (W_p^X rate) and pumping-repumping (W_p^Z rate), level population decay (k^X, k^Z rates) and spin-lattice relaxation ($2W_{SLR}^{Z-X}$ rate), the result of these processes being phenomenologically described by the term $(P^{Z-X} - P_e^{Z-X}) / T_e^{Z-X}$; b^2 is the squared amplitude of the varying magnetic field in a resonator; $(T_2^{Z-X})^{-1}$ is the linewidth of EPR of Z-X transition, which is

¹¹ The differentiation in Eqs. (2) is carried out with respect to the dimensionless time $t' = t \cdot (T_e^{Z-X})^{-1}$.

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supposed to be of the Lorenz form; $2\tau_c^{-1} = \omega_c / Q$ is the full bandwidth of the resonator, Q and ω_c are its quality factor and natural frequency, respectively. The Stark dynamical shift is described in (2) by the term $(K / \chi)q$ with $K / \chi = (T_e^{Z-X})^{-1} (T_2^{Z-X})^{-1} / (2\omega_c \Delta^{Z-X})$ (see Fig. 5.6 in (Pantell and Puthoff, 1969); $(T_{Re}^{Z-X})^{-1} = \eta_0 \mu_0 h^{-1} (g^{Z-X} \mu_B)^2 n_{ex}^{Z-X} Q |P_e^{Z-X}| \cos^2 \delta^{Z-X} \equiv (T_{Re}^0)^{-1} \cos^2 \delta^{Z-X}$ is the reciprocal radiation damping time of a resonator with a sample in it (Abragam, 2006; Pomerantsev et al., 1972) under conditions of the steady state generation; μ_B is the Bohr magneton; g^{Z-X} is the g -factor of Z-X transition, which we assume to be isotropic; n_{ex}^{Z-X} is the concentration of the states with the inverted Z-X levels; η_0, μ_0 are a magnetic mode filling factor by a sample, and the magnetic constant, respectively. If during the masing the participation of the Z and X levels in P:TP is only considered, and the spin-lattice relaxation rates do not depend on a transition direction ($W_{SLR}^{Z-X} = W_{SLR}^{X-Z} \equiv W_{SLR}$, the equality being valid at room temperatures), then, using kinetic equations of Ref. (Zulich et al., 1974), the following values for $P_e^{Z-X}, (T_e^{Z-X})^{-1}$ can be obtained:

$$P_e^{Z-X} = \left[W_p^Z - W_p^X + (k^X - k^Z) / 2 \right] \left[2W_{SLR} + (k^X + k^Z) / 2 \right]^{-1}; \quad (T_e^{Z-X})^{-1} = (k^X + k^Z) / 2 + 2W_{SLR}. \quad (4)$$

From here, the necessary condition for inversion (namely, $P_e^{Z-X} = -|P_e^{Z-X}|$; $W_p^X + k_Z / 2 > W_p^Z + k_X / 2$) is difficult to satisfy in P:TP because of the bottlenecking effect due to its small k_Z , leading to the self-termination of maser emission from Z-X transition (Oxborrow, 2017). Here, we would like to mention that Eqs. (2) were obtained by us by means of truncation of the more general ODE system (Fokina and Elizbarashvili, 2021) with the help of applying the slaving principle to it (Haken, 1993) under conditions of the cavity decay rate smallness with respect to other decay rates of a model system "inverted STS transition + resonator" involved. To our mind, it is worth demonstrating, how almost the same ODE system can be obtained in the same way from another more general system of equations derived by means of a purely quantum-mechanical method, namely, from Eqs. of Ref. (Breeze et al., 2017, Supplementary Information) with the their notations:

$$\frac{d}{dt} \langle a^\dagger a \rangle = -\kappa_c \langle a^\dagger a \rangle + \kappa_c \bar{n} + ig_e (\langle S^+ a \rangle - \langle a^\dagger S^- \rangle) \quad (5.1)$$

$$\frac{d}{dt} \langle S^+ a \rangle = -\left(\frac{\kappa_c}{2} + \frac{\gamma}{2} + \frac{\kappa_s}{2} + i\Delta \right) \langle S^+ a \rangle - ig_e \left\{ \frac{\langle S^Z \rangle + 1}{2} + \left(1 - \frac{1}{N} \right) \langle S^+ S^- \rangle + \langle a^\dagger a \rangle \langle S^Z \rangle \right\} \quad (5.2)$$

$$\frac{d}{dt} \langle S^Z \rangle = -\gamma \langle S^Z \rangle - 2ig_e \frac{1}{N} (\langle S^+ a \rangle - \langle a^\dagger S^- \rangle) \quad (5.3)$$

$$\frac{d}{dt} \langle S^+ S^- \rangle = -(\gamma + \kappa_s) \langle S^+ S^- \rangle + ig_e \langle S^Z \rangle (\langle S^+ a \rangle - \langle a^\dagger S^- \rangle). \quad (5.4)$$

Here, $\kappa_c = \omega_c / Q$ is the cavity photon decay rate; γ is the spin-lattice relaxation rate; $\kappa_s = 2 / T_2$ is the spin dephasing rate, $\bar{n} = 1 / (e^{\omega_c / k_B T} - 1)$ is the average thermal photon population in the cavity, and

$$g_e^2 \Big|_{(Breeze \ et \ al., \ 2018)} = (\gamma^{Z-X})^2 (\mu_0 h \omega_c / 2V_m) N_e^{Z-X} \quad (6)$$

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is the spin-photon coupling squared, where V_m is the volume of the magnetic mode in the cavity; $\gamma^{Z-X} = \hbar^{-1} g^{Z-X} \mu_B$ is the gyromagnetic ratio for Z-X transition. Eq. (6) can be rewritten in the other form

$$g_e^2|_{(Breeze \text{ et al., 2018})} = (T_{Re}^0)^{-1} \tau_c^{-1} |P_e^{Z-X}|^{-1}; \quad g_e^2|_{(this \text{ paper})} = (T_{Re}^0)^{-1} \tau_c^{-1} \quad (7)$$

derived in (Fokina and Elizbarashvili, 2022-2024). At that, the representations (7) are a key one to bring quantum-mechanical description of the dynamics of the coupled system "inverted STS transition + resonator" in accord with our semi-classical description. Transformation of the closed set of coupled equations of Ref. (Breeze et al., 2017, Supplementary Information) to our system (2) can be done by means of the following steps:

1) Constructing an equation for the variables $(\langle S^+ a \rangle - \langle a^\dagger S^- \rangle)$ and $(\langle S^+ a \rangle + \langle a^\dagger S^- \rangle)$ from Eq. (5.2) and its Hermitian conjugate:

$$\begin{aligned} \frac{d}{dt}(\langle S^+ a \rangle - \langle a^\dagger S^- \rangle) = & -\frac{\kappa_s}{2}(\langle S^+ a \rangle - \langle a^\dagger S^- \rangle) - i\Delta(\langle S^+ a \rangle + \langle a^\dagger S^- \rangle) - \\ & -2ig_e \left[\frac{\langle S^z \rangle + 1}{2} + \left(1 - \frac{1}{N}\right) \langle S^+ S^- \rangle + \langle S^z \rangle \langle a^\dagger a \rangle \right] \end{aligned} \quad (8.1)$$

$$\frac{d}{dt}(\langle S^+ a \rangle + \langle a^\dagger S^- \rangle) = -\frac{\kappa_s}{2}(\langle S^+ a \rangle + \langle a^\dagger S^- \rangle) - i\Delta(\langle S^+ a \rangle - \langle a^\dagger S^- \rangle) \quad (8.2)$$

2) Considering variables $\langle S^+ S^- \rangle$, $(\langle S^+ a \rangle - \langle a^\dagger S^- \rangle)$ and $(\langle S^+ a \rangle + \langle a^\dagger S^- \rangle)$, as the fast ones, because of the supposed smallness of κ_c , and, in accord with this, equating their derivatives to zero under the slaving principle (Haken, 1993). From the equations, obtained in this manner, it follows that

$$\langle S^+ S^- \rangle = \frac{ig_e \langle S^z \rangle}{\gamma + \kappa_s} (\langle S^+ a \rangle - \langle a^\dagger S^- \rangle); \quad (\langle S^+ a \rangle - \langle a^\dagger S^- \rangle) \approx -\frac{4ig_e}{\kappa_s [1 + (2\Delta / \kappa_s)^2]} \langle S^z \rangle \langle a^\dagger a \rangle, \quad (9)$$

where the assumption $\langle S^z \rangle \langle a^\dagger a \rangle \gg (\langle S^z \rangle + 1)/2$, natural for the masing, is used. Eqs. (9) give the possibility to exclude the fast variables from (5.1,3), thus the remaining equations can be written in the following form:

$$\frac{d\langle a^\dagger a \rangle}{dt} \approx -\kappa_c (\langle a^\dagger a \rangle - \bar{n}) + \frac{4g_e^2}{\kappa_s [1 + (2\Delta / \kappa_s)^2]} \langle S^z \rangle \langle a^\dagger a \rangle \quad (10.1)$$

$$\frac{d\langle S^z \rangle}{dt} \approx -\gamma \langle S^z \rangle - \frac{8g_e^2}{N\kappa_s [1 + (2\Delta / \kappa_s)^2]} \langle S^z \rangle \langle a^\dagger a \rangle. \quad (10.2)$$

3) Conversion of (10) to our variables by means of correlations

$$\langle S^z \rangle_{Br} = r \langle S_e^z \rangle_{Br} = -r P_e^{Z-X} = r |P_e^{Z-X}|; \quad \langle a^\dagger a \rangle = \frac{V_m}{2\mu_0 \hbar \omega_c} (T_2^{Z-X})^{-1} (T_e^{Z-X})^{-1} \gamma_e^{-2} q, \quad (11)$$

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where the first one is the result of the r definition, while the second one is the result of q definition and of the equating of two formulae for the emitted power: $W_{class} = (V_m \tau_c^{-1} / 2\mu_0) b^2$ and

$W_{quant} = \hbar \omega_c \langle a^\dagger a \rangle \tau_c^{-1}$. Further, the ratios:

$$\Delta = \omega_c - \omega_s \rightarrow -\Delta^{Z-X}; \quad -2\Delta / \kappa_s = \chi; \quad \kappa_s = 2(T_e^{Z-X})^{-1}; \quad \kappa_c = 2\tau_c^{-1} \quad (12)$$

should be used. Supposing that $\langle a^\dagger a \rangle \gg \bar{n}$ (advanced masing), and taking into account the Stark dynamical frequency shift, the ODE system (2) is readily obtained from (10) with the difference that the first equation takes the form $dr/dt' = -r - rq \cos^2 \delta$, and instead of $t' = t \cdot (T_e^{Z-X})^{-1}$ there is $t' = t \cdot 2W_{SLR}$. This difference is clear: in contrast to the situation of the stationary generation considered here, in (Breeze et al., 2017) the case of pulsed generation is studied without the constant pumping, hence, $(T_e^{Z-X})^{-1} \rightarrow 2W_{SLR}$, due to which r tends to almost zero. It should be mentioned that our ODE system (2) can be obtained in the same way from Eqs. (1-6) of Ref. (Wu et al, 2020), with the account of the equality $\langle N_x \rangle = (\langle S^Z \rangle + 1) / 2$. Taking the opportunity, we'd like to note that, where the well-known value of cooperativity $C = 4g_e^2 / \kappa_s \kappa_c = 4g_s^2 N_e^{Z-X} / \kappa_s \kappa_c$ appears in the formulas, it should be replaced by the value $C|P_e^{Z-X}|$ according to (Fokina and Elizbarashvili, 2022-2024). Further, our main formulas are accompanied by their quantum analogies in square brackets at $K=0$, too.

BIFURCATION ANALYSIS OF THE ODE SYSTEM

The ODE system of Eqs. (2) describes the continuous masing from the spin-triplet $Z-X$ transition coupled to the resonator, to the pumping devices and to the lattice. Eqs. (2) have two equilibrium states (steady state solutions):

$$\text{I. } r_{st} = 1; \quad q_{st} = 0 \rightarrow [\langle S^Z \rangle = -P_e^{Z-X}; \quad \langle a^\dagger a \rangle = 0] \quad (13)$$

with the Jacobian matrix

$$J_{st}^{Z-X}(I) = \begin{pmatrix} -1 & -\lambda x_e \\ 0 & f(\lambda - 1) \end{pmatrix} \quad (14)$$

$$\text{and II. } q_{st}^{Z-X} \neq 0; \quad r_{st}^{Z-X} = \frac{1 - (K / \chi x_e)}{\lambda - (K / \chi x_e)}; \quad q_{st}^{Z-X} = \frac{1}{\lambda x_e} \frac{\lambda - 1}{1 - (K / \chi x_e)} \quad (15)$$

$$\left[\langle S_{st}^Z \rangle = [1 + (2\Delta / \kappa_s)^2] / C; \quad \langle a^\dagger a \rangle_{st} = \frac{T_e^{-1} N_e^{Z-X}}{2C\kappa_c} \left\{ C|P_e^{Z-X}| - [1 + (2\Delta / \kappa_s)^2] \right\} \right]$$

with the Jacobian matrix

$$J_{st}^{Z-X}(II) = \begin{pmatrix} -1/r_{st}^{Z-X} & -r_{st}^{Z-X} \lambda x_e \\ (f/x_e)(1 - r_{st}^{Z-X})/r_{st}^{Z-X} & -f[1 - \lambda r_{st}^{Z-X} - 2(K/\chi x_e)(1 - r_{st}^{Z-X})] \end{pmatrix}, \quad (16)$$

where $\lambda \equiv \cos^2 \delta / x_e = x_e^{-1} (1 + \chi^2)^{-1}$; $\chi = -2\Delta / \kappa_s$; $K \equiv (T_e^{Z-X})^{-1} / 2\omega_c$; $(x_e)^{-1} = (C|P_e^{Z-X}|)$

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$$\left[\lambda = C |P_e^{Z-X}| \left[1 + (2\Delta / \kappa_s)^2 \right]^{-1}, \quad K / \chi x_e = -\frac{C |P_e^{Z-X}| \gamma \kappa_s}{2\omega_c \Delta} \right].$$

The value $\langle S_{st}^Z \rangle = \left[1 + (-2\Delta / \kappa_s)^2 \right] / C$ coincides with $\langle S_{st}^Z \rangle = 1 / C$ of Ref. (Breeze et al., 2018) at $\Delta = 0$. Though in the experiment of Ref. (Breeze et al., 2018) the role of the control parameter (i.e. the parameter, which can be changed by an experimenter while monitoring the results of this changing) is played by the χ value through the detuning Δ^{Z-X} , here this role for simplicity will be temporarily transmitted to λ . Further, it was shown by us (Fokina and Elizbarashvili, 2022-2024) that in the bifurcation point $\lambda = \lambda_0 = 1$ of the ODE system (2) the two-fold saddle-node singular point disappears and at the proper change of the control parameter (decreasing of the detuning) a limit cycle appears from the separatrix of the saddle. The approximate procedure of the obtaining of the analytical periodical solutions of an ODE system from (Kondrat'eva, 2019), which is valid at t values near $t=0$, was used by us in (Fokina and Elizbarashvili, 2022-2024). As the first step of this procedure, we supposed that the solution of Eqs. (2) to a first approximation over a small parameter $\lambda - 1 \ll 1$ has the form

$$r(t) = a_0 + a_1 \cos \omega_{LC} t; \quad q(t) = d_0 + d_1 \cos \omega_{LC} t + c_1 \sin \omega_{LC} t \quad (17)$$

Substituting Eqs. (17) into Eqs. (2), the following value of the LC (or that of the auto oscillations) angular frequency squared was obtained:

$$\omega_{LC}^2 (true) = (2\tau_c^{-1})^2 (K / \chi x_e) \left[1 - (K / \chi x_e) \right] \left(\frac{\lambda - 1}{\lambda - K / \chi x_e} \right)^2, \quad (18)$$

$$\left[\omega_{LC}^2 (true) = \kappa_c^2 \left(-\frac{C |P_e^{Z-X}| \gamma \kappa_s}{2\omega_c \Delta} \right) \left[1 + \frac{C |P_e^{Z-X}| \gamma \kappa_s}{2\omega_c \Delta} \right] \left(\frac{\left[1 + (2\Delta / \kappa_s)^2 \right]^{-1} - (C |P_e^{Z-X}|)^{-1}}{\left[1 + (2\Delta / \kappa_s)^2 \right]^{-1} + \gamma \kappa_s / 2\omega_c \Delta} \right)^2 \right],$$

where the transition to the true measurable time $t = T_e^{Z-X} t'$ is accomplished (in the dimensionless version of ω_{LC}^2 , the value f^2 stands for $(2\tau_c^{-1})^2$). Eqs. (17), (18) are valid for the case of the implementation of the inequalities $(K / x_e) < \chi < \sqrt{(1 - x_e) / x_e}$, where $x_e < 1$ during the masing. The masing threshold value of the detuning is $(\Delta_{thr}^{Z-X})^2 = (T_2^{Z-X})^{-2} \{ (T_2^{Z-X} / T_{Re}^0) - 1 \}$ — for the greater detunings there should be no masing. The above inequalities in quantum-mechanical language read so:

$$KC |P_e^{Z-X}| < (-2\Delta / \kappa_s) < \sqrt{C |P_e^{Z-X}| - 1} \quad \text{with} \quad C |P_e^{Z-X}| > 1 + (2\Delta / \kappa_s)^2 \quad (19)$$

instead of $C > 1$ condition of (Breeze et al., 2018 and references therein), where $\Delta = 0$. It should be noted that to the approximation $T_1^{rep} = \infty, T_1^{idl} = \infty, T_1^{rep} / T_1^{idl} \neq \infty; \tau_U = \tau_L = k^{-1}$ and supposing $(T_1^{mas})^{-1} = W_{SLR}$, Eq. (2) of (Oxborrow, 2017) (for the notations see there) reads as

$$T_1^{eff} (T_1^{rep} = \infty, T_1^{idl} = \infty, T_1^{rep} / T_1^{idl} \neq \infty; \tau_U = \tau_L = k^{-1}) = \frac{p_U^{ISC} - p_L^{ISC}}{k + 2W_{SLR}} = \frac{W_p^X - W_p^Z}{W_p^Z + W_p^X} \frac{1}{k + 2W_{SLR}} = \frac{|P_e^{Z-X}|}{W_p^Z + W_p^X}$$

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Therefore, in the general case, but with $K=0$, the steady state masing criteria (19) should read so: $CT_1^{eff} (W_P^Z + W_P^X) > 1 + (2\Delta / \kappa_s)^2$, with the value of T_1^{eff} , defined in (Oxborrow, 2017). If $(T_1^{eff})^{-1} \approx \gamma = 2W_{SLR}$ and the pumping of the emitting transition $w \equiv \eta' (W_P^X - W_P^Z)$ (where η' is the scaling factor), is considered, as a control parameter, then from (19), and (4) it follows that its threshold value $w_{thr} \equiv \eta' (W_P^Z - W_P^X)_{thr}$ is equal to $w_{thr} = \{1 + (2\Delta / \kappa_s)^2\} \gamma \eta' / C$, which at $\Delta=0$ is close to the corresponding evaluation $w_{thr} = \gamma \eta' / (C-1)$ of (Breeze et al., 2018, Methods). This inaccurate coincidence, to our mind, is due to the fact that we are considering an advanced generation, i.e. the case $C \gg 1$, when the both formulae coincide with each other. From the inequality (19) it is seen, that the appearance of auto oscillations is possible only at negative Δ 's ($\omega_c < |\omega_0^{Z-X}|$). The numerical evaluation of LC frequency $\omega_{LC}(true) \approx 8.2 \times 10^4 s^{-1}$ was obtained by us for the following values of the parameters: $\chi = 0.001$; $x_0 = 0.8$; $K = 10^{-5}$; $Q = 2500$; $\omega_c = 2\pi \cdot 1.45 \cdot 10^9 s^{-1}$; $\tau_c \approx 0.55 \mu s$. This evaluation shows that the LC frequency is much smaller than the masing frequency ($\omega_{LC}(true) \ll \omega_c$). The dependence $\omega_{LC}(\chi)$ was plotted by us with the help of the analytics of the given paper with a small dynamical Stark shift, which “sinks” in the EPR linewidth, for $x_0 = 0.8$; $x_0 = 0.6$; $x_0 = 0.5$ and other above parameters (see Ref. (Fokina and Elizbarashvili, 2022-2024), Fig. 1). It is easily seen from there that the LC frequency has the greatest value in the closest neighbourhood of the center of the maser emission line, while it sharply decreases with the increase of the detuning. Besides, it is well-known (Andronov et. al., 2010) that a small initial “knock” is necessary for the exciting of the auto oscillations. With it, the phase trajectories of the arising LC at $x_0 = 0.8$ have the form, as in the Figure 2 in (Fokina and Elizbarashvili, 2022-2024). The physical reason for the appearance of a limit cycle under consideration seems to us as follows: at the sufficiently powerful masing, in the case when $|\omega_0^{Z-X}| > \omega_c$ the EPR line of the sample moves to the right of the frequency scale due to the dynamical Stark effect, and the overlap of the resonator and EPR lines (see Fig. 3.17a of (Pantell and Puthoff, 1969)) becomes worse. This favors the decrease of the radiated power. As a result of this decrease, the Stark shift decreases and the effective EPR line of the sample moves to the left. This promotes the increase of the masing power and so on.

DISCUSSION

The purpose of this section is to find out what consequences for the generation line follow from the fact of the appearance of LC. As it is described above, then low-frequency oscillations of the amplitude of the masing power value arise with a frequency equal to $\omega_{LC}^{Z-X}(true) \ll \omega_c$. At that, as is well-known (Reed, 1998), the appearance of two harmonics of summary and difference frequencies follows due to the amplitude modulation. Because of that, the microwave generation with frequencies $\omega_c \pm \omega_{LC}^{Z-X}$ can be observed at the maser output in addition to the main line centered approximately at ω_c . If $\omega_{LC}^{Z-X}(true) \gg (T_2^{Z-X})^{-1}$, then in the generation spectrum two harmonics $\omega_c \pm \omega_{LC}^{Z-X}$ should be observed (if the resolution of the receiving equipment allows this). If the resolution does not allow or $\omega_{LC}^{Z-X}(true) \approx (T_2^{Z-X})^{-1}$, then the harmonics merge with the main generation line and broaden it. Thus,

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it is shown here that then the width of the generation line in its central part increases by a factor $\omega_{LC}^{i-j}(true) / (T_2^{Z-X})^{-1} \propto f$. The area of this broadening is limited by the detunings

$$(\Delta^{Z-X})^2 < (T_2^{Z-X})^{-2} (x_e^{-1} - 1) \rightarrow [\Delta^2 < (\kappa_s^2 / 4)(C|P_e^Z| - 1)]. \quad (29)$$

On the other hand, the steady state generation intensity increases with increasing of $1 - x_e \equiv (x_e^{-1} - 1) / x_e^{-1}$ (Fokina et al., 1995). Thus, stimulating generation by increasing $(x_e^{-1} - 1) / x_e^{-1}$ will automatically lead to an increase of the frequency region of broadening the maser emission line. This is not surprising, since it is the presence of emission that leads to the emergence of a limit cycle and, as a consequence, broadening of the emission line. Therefore, the only way to get rid of this undesirable phenomenon is repumping (Oxborrow, 2017) leading to a decrease in $f = 2\tau_c^{-1} / (T_e^{Z-X})^{-1}$ by increasing $(T_e^{Z-X})^{-1}$.

CONCLUSION

Thus, it is proved above that Eqs. (2) describe the possibility of limit cycle arising due to the Stark dynamical frequency shift. Moreover, it is demonstrated that the appearance of LC occurs due to SN bifurcation. This situation differs from the situation in Ref. (Fokina, 1988), where the appearance of LC was explained by the Hopf-Andronov bifurcation (the second one bifurcation from the two possible LC bifurcations in the two-dimensional case). Almost complete equivalence of our initial equations with the semi-classical description of the MW field to equations obtained purely quantum mechanically by other authors is demonstrated. At the same time, it seems to us that our method of describing the dynamics of the coupled system “inverted STS transition + resonator” as the more visual one also has the right to be used. It is shown that the presence of LC can lead to the appearance of two harmonics in addition to the main line of maser emission. If they merge with it, they can widen the masing line in its central part. A similar broadening was observed in the experimental work (Breeze et al., 2018), where it was noted that the broadening was caused by the appearance of LC. Since broadening of the maser output is an undesirable phenomenon, our results can help get rid of it. Recommendations are presented, based on our analytics.

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DESIGN AND MANUFACTURING OF JEWELRY MACHINE

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ABSTRACT

With technological developments, the jewelry manufacturing sector is growing all over the world, and with this, the need for constant production of new machines arises. However, the need for constant new designs in jewelry products requires the production of innovative and multifunctional machines. In the jewelry manufacturing sector, machines that perform intensive chip removal operations such as engraving, engraving, drilling and cutting are widely used. The machines needed by large-scale mass production companies and small-scale production companies differ. While high-capacity and larger machines are preferred in the former, low-capacity, smaller and more economical machines are preferred in the latter.

In this study, a machine that can perform engraving, drilling and cutting operations on gold and silver products for use in small-scale production workshops has been designed and manufactured. In the machine produced, machining operations can be performed on flat plates, as well as engraving, writing and drilling operations can be performed both inside and outside of circular-shaped products such as rings and bracelets.

Keywords: Jewelry Machines, Jewelry Engraving, Marking, Cutting

INTRODUCTION

An examination of machinery employed in the jewelry manufacturing sector reveals the frequent use of precision casting, chain-making, pressing, welding, cleaning, rolling, plating, polishing, peening, engraving, three-dimensional wax model making, and injection wax modeling machines. Furthermore, CNC milling machines capable of cutting, engraving, carving, marking, and drilling are actively utilized in various stages of jewelry production. These machines predominantly operate with computer-aided technology. Consequently, the use of 3, 4, or 5-axis CNC machines has become widespread in the jewelry manufacturing industry.

Jewellery CNC machines are specifically designed for cutting, shaping, and processing precious metals such as gold, silver, and platinum, as well as for preparing wax models employed in jewelry casting technology. Compared to traditional jewelry-making techniques, these machines offer enhanced speed, precision, and efficiency. Advancements in jewelry design software (RhinoGold, Gemvision Matrix, JewelCad, Firestorm CAD, ZBrush, 3Design), coupled with the increasing complexity of designs and the demand for precision jewelry, have led to the growing importance of these machines, with new models constantly emerging [01-02]. The utilization of computer-aided machines facilitates faster production within the jewelry manufacturing. Moreover, it enables the creation of customized jewelries, ensures high repeatability and precise conformity of identical products, and fosters greater design freedom and high precision tolerances in production, thereby significantly benefiting the industry [03-05]. Figures 1 and Figure 2 below illustrate some of the CNC machines used in the jewelry production and making jewelry and wax models on these machines, respectively.

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Figure 1. Some CNC machines used in the jewelry industry [6-8]

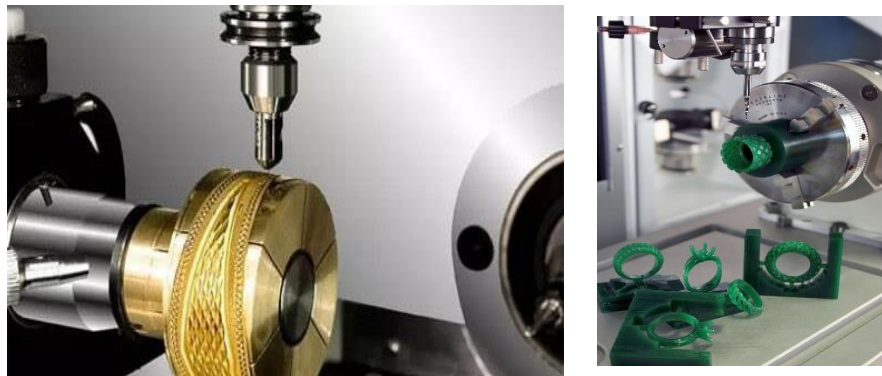


Figure 2. Jewelry and wax model making with CNC machine [9, 10]

In this study, a new generation jewelry engraving machine that can be used in the jewelry manufacturing industry and has an affordable cost was designed and manufactured. While the operating principle of this machine is fundamentally the same as that of CNC routers, it incorporates an additional rotary axis beyond the three translational movements in cartesian coordinates. Thus, the machine possesses a total of four controlled axes of motion: three linear and one rotational. While the linear axes facilitate three-dimensional machining on flat-surfaced materials, the rotary axis enables operations on and within the inner surfaces of circular objects such as rings and bracelets.

MATERIALS AND METHODS

The machine produced within the scope of the project has a machining area of 200mmx200mm (x and y axes). The machine's spindle has a travel capacity of 100 mm in the direction perpendicular to this machining area (z axis). A drawing showing the machining volume and axis movements of the machine is given in Figure 3.

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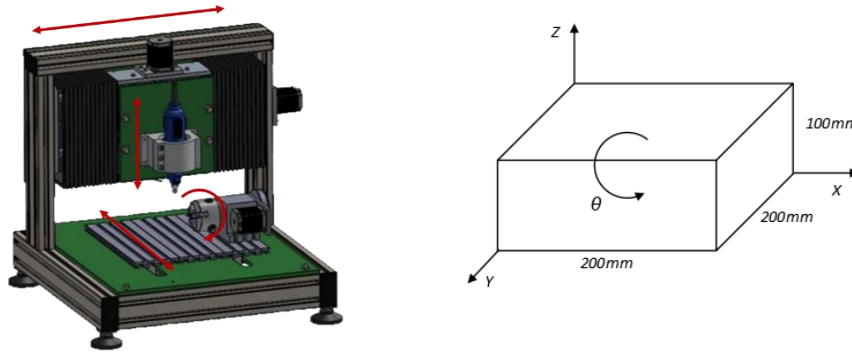


Figure 3. Axis movements of the produced machine

The rotary axis here is provided by a lathe chuck mounted on the machining table (the table itself does not rotate). Each axis movement is achieved using stepper motors. The constraints and design parameters of the machine are given in Table 1.

Table 1. Design parameters and constraints

Parameter	Value
Work space (x, y,z) (mm)	200, 200, 100
Max speed (m/s)	0.1
Max acceleration (m/s ²)	100
Max deflection (mm)	0.01
Max mass (kg)	40

After determination of the workspace of the machine the required engineering calculations were performed. In this context, the required force to cut gold or silver plates under determined operation conditions was calculated using Equation 1.

$$F_c = k_s a_p f \quad (1)$$

Where, F_c , k_s , a_p and f represents the cutting force (N), specific cutting force coefficient for the material (N/mm²), depth of cut (mm) and feed rate (mm/min), respectively.

The cutting force creates a bending moment on the gantry and the spindle. This moment needs to be considered when designing the frame and selecting linear guides. The bending moment was calculated using Equation 2.

$$M = F_c L \quad (2)$$

Here M and L are the bending moment (Nm) and the distance from the cutting force to the support point (m)

The torque required from the motor is directly related to the cutting force and the radius of the tool or spindle. The torque was calculated using Equation 3.

$$T = F_c r \quad (3)$$

Where, T and r are the required torque (Nm) and the radius of the tool or spindle (m).

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The motor speed is determined by the desired spindle speed or the required linear speed of the axes. It's important to select motors with appropriate speed ranges and acceleration capabilities. The electric motor power should be sufficient to overcome the cutting forces and accelerate the moving parts. The required power was calculated using Equation 4.

$$P = \frac{M\omega}{\eta} \quad (4)$$

In Equation 4, P , ω and η represent the required motor power (W), angular velocity (rad/s) and motor efficiency, respectively. The angular velocity can be calculated from the desired spindle speed or the linear speed of the axes.

To ensure the machine meets the specified mass constraint, its frame is constructed using aluminum sigma profiles (Figure 4).

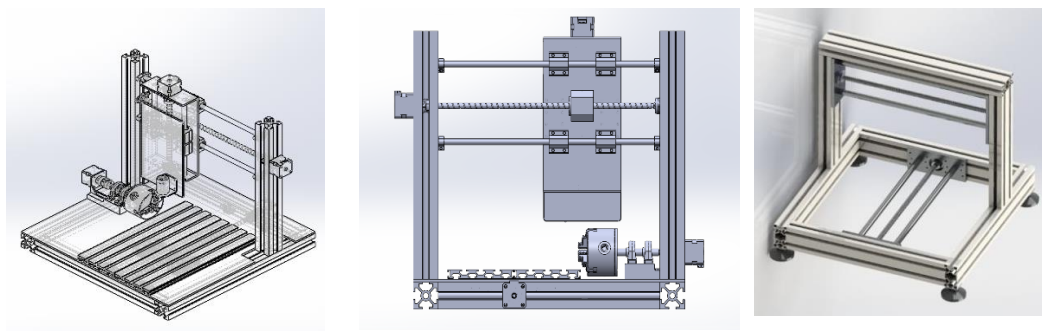


Figure 4. Frame of the produced machine

Translational movements are achieved using lead screws on each axis, and these lead screws are driven by stepper motors used on the respective axes. The stepper motors are connected to the lead screws using couplings and are supported by end bearings at their other ends (Figure 5).

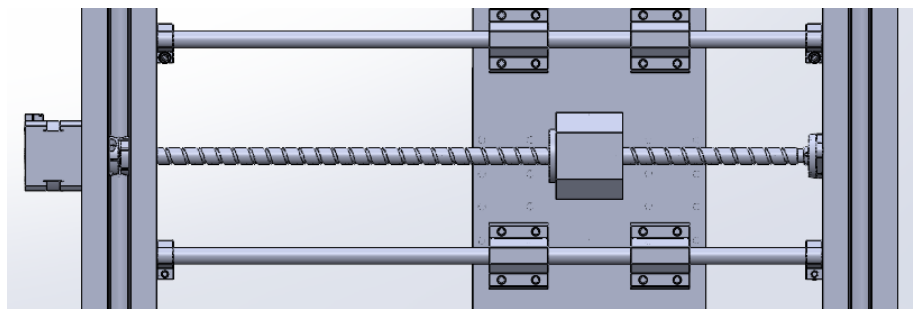


Figure 5. Motion and bearing components of the produced machine

To enable linear movement of the axes, shafts are used in parallel on both sides of the lead screws and supported by linear bearings. These shafts are connected to the machine frame using fixed bearings at both ends. Deflection calculations for the shafts used in each axis were performed using Equation 5.

$$\delta = \frac{PL^3}{48EI} \quad (5)$$

Where, δ , P , L , E and I represents the deflection (m), acting force (N), length of the shaft (m), modulus of elasticity (Pa) and moment of inertia (m^4), respectively. To achieve smooth linear motion on each

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axis according to the specified design parameters, 16 mm diameter chrome shafts and 12 mm diameter lead screws, which offer a high degree of safety, were used. In addition, the torsional stresses on the lead screws were checked and determined to be within safe limits.

To enable the machine to process products with circular geometries, such as rings and bracelets, both internally and externally, a rotary axis was implemented. This rotary axis is provided by a lathe chuck connected to a stepper motor (Figure 6). The work piece is attached to this lathe chuck. Subsequently, machining operations can be performed through the movements of the other axes and the rotation of the spindle.

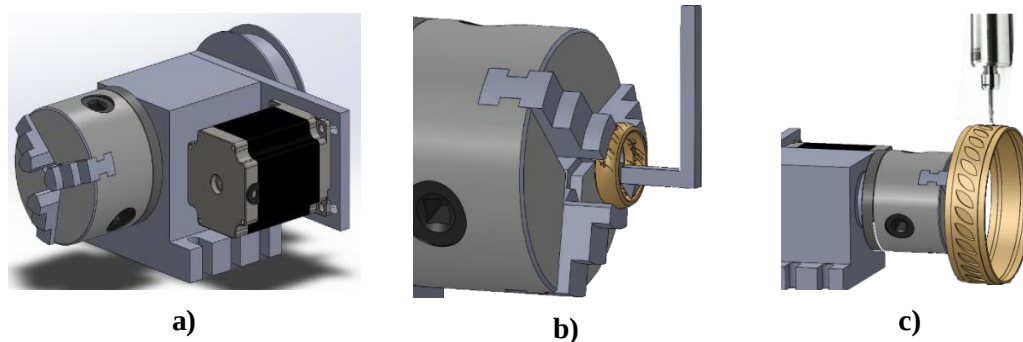


Figure 6. Rotary axis of the machine, a) rotary axis assembly, b) machining the inside of a ring, c) machining the surface of a bracelet

The image in Figure 6b shows an application of engraving text on the inside of a ring. The engraving tool used for this purpose has a detachable structure that allows it to be attached to and removed from the plate holding the spindle on the machine's vertical (z) axis. In this operation, the machine performs linear movements vertically and horizontally, while the lathe chuck holding the ring rotates. This allows for the inscription of text inside the ring.

Similarly, as shown in Figure 6c, it is also possible to perform machining and create patterns on the surface of bracelet products or rings. Figure 7 shows a design rendering of the machine with all its parts assembled.

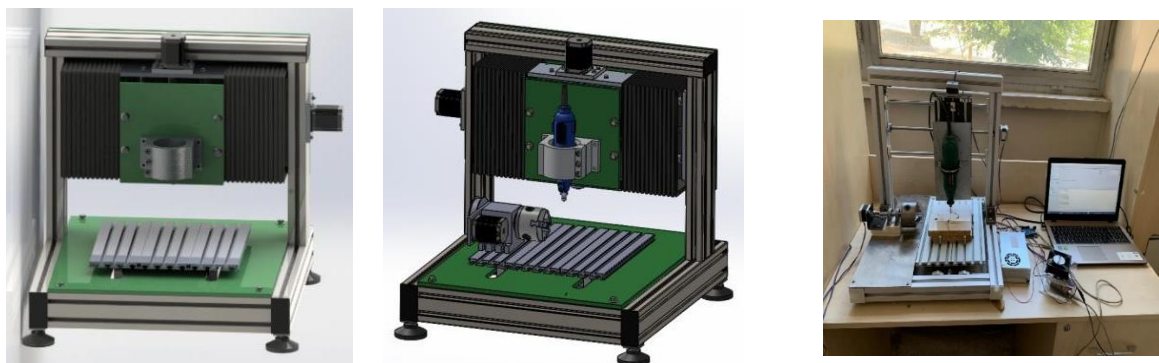


Figure 7. Final design of the machine

Following the necessary power calculations, stepper motors were selected to provide the desired performance. Nema17-1.3A stepper motors were used on all axes. To drive the motors, A4988-2A

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stepper motor drivers were employed for each motor, along with a UNO CNC Shield to house the drivers. An Arduino Mega 2560-R3 was used to control the system. A 12V power supply provides power to the system, and an emergency stop button was included for safety. A visual representation of the machine's electrical and control system is shown in Figure 8.

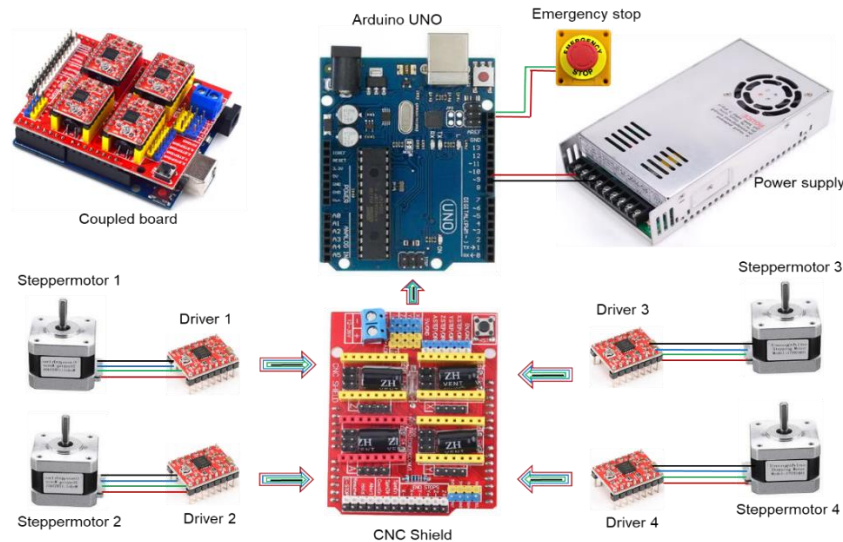


Figure 8. Electrical and control system of the machine

Following the completion of the machine's final assembly, testing and validation studies were conducted. In this context, taking into account dangerous resonance frequencies, the machine was tested for processing some experimental samples, ensuring operation outside these frequency values. First, the necessary calibration procedures were carried out for each axis movement of the machine. For this purpose, each axis was operated to perform a predetermined movement, and how this movement actually occurred was checked using measuring instruments. For example, programming was done for the machine to move 30 mm on the x-axis, and the motor on that axis of the machine was run. The actual distance traveled by the machine for this 30 mm input was measured, and the calibration process was carried out accordingly. After the completion of the calibration process, toolpaths of solid models created using a 3D drawing program are generated, and G codes are obtained, and model processing is carried out with the line-by-line processing of these codes. Figure 9 illustrates some examples of these applications.

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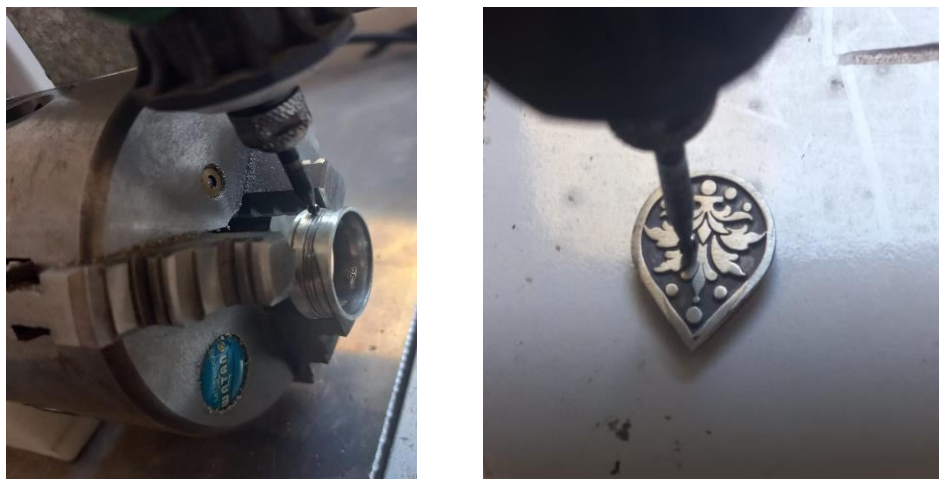


Figure 9. Some applications on the produced machine

CONCLUSION

In this study, a jewelry engraving machine that can be used in the jewelry manufacturing sector was designed and manufactured. With the produced machine engraving, drilling and cutting operations on gold and silver products for use in small-scale production workshops can be made. In the machine produced, machining operations can be performed on flat plates, as well as engraving, writing and drilling operations can be performed both inside and outside of circular-shaped products such as rings and bracelets. The main highlights of the machine can be conclude as:

1. Cost-effectiveness with offering a significantly lower cost compared to imported machines marketed in the jewelry manufacturing sector.
2. With compact and versatile design it allows for benchtop use without taking up much space, making it suitable for a wide range of jewelry manufacturers, from small to large-scale producers.
3. It Enhances capabilities with the fourth rotation axis and interchangeable head design provide several advantages:
 - Enables drilling and engraving operations on the inside and outside surfaces of circular products like rings and bracelets.
 - Facilitates polishing operations on the surfaces of circular products.
 - Allows for tasks such as inscribing text, creating patterns, or cutting on the inside or outside of products like rings and bracelets.
4. It can be used for jewelry engraving applications in a common and labor-intensive technique in jewelry manufacturing.

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PROTECTIVE ROLE OF PROBIOTIC ON TESTICULAR GERM CELLS AGAINST EXPERIMENTAL TESTIS TOXICITY WITH 4-VINYLCYCLOHEXENE DIEPOXIDE 4-VİNİLSİKLOHEKSEN DİEPOKSİT İLE DENEYSEL TESTİS TOKSİSİTESİNE KARŞI PROBİYOTİĞİN TESTİKÜLER GERM HÜCRELERİ ÜZERİNDEKİ KORUYUCU ROLÜ

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ABSTRACT

Objectives: 4-Vinylcyclohexene diepoxide (VCD) disturbs morphology, sperm parameters, and oxidative stress in rat testes. Several studies have focused on the high potential effects of probiotics (PB) on the reproductive system. This study aimed to explore the possible beneficial effects of PB in rats exposed to VCD-induced testicular toxicity.

Methods: Wistar rats received oral VCD at 350 mg/kg/day for 28 consecutive days. Additionally, oral PB containing 2×10^9 CFU/mL of non-functional NBL PB Gold (Nobelpharma) were treated daily for 7 days with 500 µL of PB oral gavage. A sterile saline solution (SS) was utilized as the control (C). Histological analysis of the testes was carried out using hematoxylin and eosin (H&E) and Mason's Trichrome (MT) staining. Immunohistochemical (IHC) analysis was conducted for endothelial (e), inducible (i) nitric oxide synthase (NOS), and caspase- 3 (CAS3). Serum superoxide dismutase (SOD) and malondialdehyde (MDA) levels were assessed using commercially available ELISA kits.

Results: VCD treatment notably decreased body and testis weights, decreased Johnson scores, increased oxidative stress and apoptotic index, and reduced the epithelial cell height in the seminiferous tubules of the testes. Compared to the C group, VCD significantly reduced SOD activity while markedly elevating MDA levels in the testes. The sperm analysis of VCD-treated rats revealed a marked reduction in epididymal sperm count, progressive sperm motility, testicular sperm count, and daily sperm production in comparison to the C group. IHC assessment showed considerable increases in the expression of iNOS, eNOS, and caspase-3 proteins in the testes of VCD-treated rats, indicating testicular degeneration. PB administration reversed all these changes, leading to significant improvement in testicular function ($p < 0.001$).

Conclusion: Exposure to VCD leads to testicular dysfunction in rats through the impairment of antioxidant enzyme activities, an increase in oxidative stress markers, and the induction of apoptosis. The findings of this study suggest that PB could serve as a protective and/or therapeutic agent, particularly in cases of male infertility induced by testicular toxicity.

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Keywords: 4-Vinylcyclohexene diepoxide, Testis, Toxicity, Sperm, Oxidative Stress, Apoptosis, Probiotics

ÖZET

Amaçlar: 4-Vinilsikloheksen diepoksit (VCD), sıçan testislerinde morfoloji, sperm parametreleri ve oksidatif stresi bozmaktadır. Birçok çalışma, probiyotiklerin (PB) üreme sistemi üzerindeki yüksek potansiyel etkilerine odaklanmıştır. Bu çalışma, VCD ile indüklenen testis toksisitesine maruz kalan sıçanlarda PB'nin olası faydalı etkilerini keşfetmeyi amaçlamaktadır.

Yöntemler: Wistar sıçanlarına, 28 ardışık gün boyunca günde 350 mg/kg VCD oral olarak verilmiştir. Ek olarak, 2×10^9 CFU/mL içeren fonksiyonel olmayan NBL PB Gold (Nobelpharma) içeren oral PB, sıçanlara 7 gün boyunca günde 500 µL oral gavaj şeklinde verilmiştir. Kontrol grubu (C) olarak, steril tuzlu su çözeltisi (SS) kullanılmıştır. Testislerin histolojik analizleri, hematoksilin ve eozin (H&E) ve Mason Trikróm (MT) boyamaları ile yapılmıştır. Endotel (e) ve indüklenabilir (i) nitrik oksit sentaz (NOS) ve kaspaz-3 (CAS3) için immünohistokimyasal (IHC) analiz gerçekleştirilmiştir. Serum süperoksit dismutaz (SOD) ve malondialdehit (MDA) düzeyleri, ticari olarak temin edilebilen ELISA kitleri ile değerlendirilmiştir.

Bulgular: VCD tedavisi, vücut ve testis ağırlıklarını belirgin şekilde azaltmış, Johnson skorlarını düşürmüş, oksidatif stresi ve apoptoz indeksini artırmış ve seminifer tübüllerin epitelyal hücre yüksekliğini azaltmıştır. Kontrol grubuna kıyasla, VCD, testislerde SOD aktivitesini anlamlı şekilde düşürürken, MDA seviyelerini önemli ölçüde artırmıştır. VCD ile tedavi edilen sıçanların sperm analizleri, epididimal sperm sayısı, progresif sperm motilitesi, testis sperm sayısı ve günlük sperm üretiminde belirgin bir azalma göstermiştir. IHC değerlendirmesi, VCD ile tedavi edilen sıçanların testislerinde iNOS, eNOS ve kaspaz-3 proteinlerinin ekspresyonunda önemli artışlar göstermiş, bu da testis dejenerasyonuna işaret etmiştir. PB uygulaması, bu değişikliklerin tümünü tersine çevirerek testis fonksiyonunda anlamlı bir iyileşme sağlamıştır ($p < 0.001$).

Sonuç: VCD'ye maruz kalma, sıçanlarda antioksidan enzim aktivitelerinin bozulması, oksidatif stres belirteçlerinde artış ve apoptozun indüklenmesi yoluyla testis disfonksiyonuna yol açmaktadır. Bu çalışmanın bulguları, PB'nin özellikle testis toksisitesinden kaynaklanan erkek infertilitesi vakalarında koruyucu ve/veya tedavi edici bir ajan olarak kullanılabileceğini önermektedir.

Anahtar Kelimeler: 4-Vinilsikloheksen Diepoksit, Testis, Toksikite, Sperm, Oksidatif Stres, Apoptoz, Probiyotikler

Giriş

Erkek infertilitesi oranlarındaki artış, önemli bir sağlık sorunu olarak dikkat çekmektedir. Bu artışın temel etkenlerinden biri, küresel ekonomik faaliyetlerin büyük bir kısmının, günümüzde yaygın olarak kullanılan ve biyolojik sistemler üzerinde zararlı etkiler yaratabilen 4-Vinilsikloheksen diepoksit (VCD) gibi kimyasal maddelere bağımlı olmasıdır. Bu kimyasallar, özellikle endüstriyel üretim süreçlerinde kritik bir rol oynamalarına rağmen, insan sağlığı üzerinde olumsuz etkiler ortaya koymaktadır. VCD, genellikle lastiklerin sertleştirilmesi, alev geciktirici maddeler, plastikler ve pestisitlerin üretimi sırasında oluşan 4-vinilsikloheksenin bir yan ürünüdür. VCD, oksidatif stresin artmasına ve reaktif oksijen türlerinin (ROS) birikimine yol açabilir. Bu biyokimyasal süreçler, sperm fonksiyonu ve spermatogenez üzerinde zararlı etkiler oluşturmakta ve erkek infertilitesi ile diğer üreme bozukluklarına sebep olabilmektedir.

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İnsanların çevresel kirleticilere maruz kalması, azalmış üreme kapasitesi, bozulmuş spermatogenez, kriptorşidizm, hipospadias, adet düzensizlikleri, gebelik kayıpları ve doğum sonrası gelişim anomalileri gibi çeşitli üreme sağlığı problemleriyle ilişkilendirilmiştir. İnfertilite oranlarındaki artış, küresel ekonomik faaliyetlerin büyük bir kısmının, modern yaşamda yaygın olarak kullanılan ancak zararlı etkiler gösteren bu kimyasal maddelere bağımlı olmasıyla doğrudan ilişkilidir. Endüstriyel düzeyde, VCD epoksitleri, epoksi reçineleri ve kauçuk malzemelerinin üretiminde çözücü olarak kullanılmaktadır. VCD, oositler üzerindeki yaygın zararlı etkileri ve kemirgenlerde karaciğer, böbrek ve testis toksisiteleri ile ilgili yapılan bazı araştırmalar nedeniyle, endüstriyel bir mesleki sağlık riski olarak kabul edilmektedir. VCD'nin erkek üreme sistemi üzerindeki toksik etkilerine dair önceki çalışmalar, farelerde testis germ hücreleri üzerinde toksisiteye neden olduğunu ortaya koymuştur. Özellikle, 30 gün süresince uygulanan VCD tedavisi (320 mg/kg/gün, i.p.), spermatogonium ve spermatositlerin hasar görmesine bağlı olarak testis ağırlığında önemli bir azalma ve olgun sperm hücrelerinin kaybına yol açmıştır.

Memeli testislerinin spermatogenez ve steroidogenez gibi iki temel işlevi, üreme başarısı için kritik öneme sahiptir. Testis fonksiyonu, reaktif oksijen türlerinin (ROS) üretimi ve bunların endojen antioksidanlarla temizlenmesi arasındaki dengeye bağlıdır. Araştırmamızda, 4-Vinilcikloheksen (VCH) ve 4-Vinilcikloheksen Diepoksit (VCD) ile maruz bırakılan *Drosophila melanogaster* modellerinde, antioksidan sistemdeki bozulma ile birlikte ROS ve azot bileşiklerinin üretiminde artış gözlemlenmiştir. Ayrıca, VCD'nin oksidatif strese yol açtığı ve bu etkinin sıçanlarda karaciğer ve böbreklerde oksidatif hasara neden olduğu belirlenmiştir. Çevresel kirleticiler, aşırı ROS üretimiyle testis fonksiyonlarını olumsuz etkileyebilir.

Apoptozis, germ hücreleri ile somatik Sertoli hücreleri arasındaki hassas dengeyi düzenleyerek spermatogenezde önemli bir rol oynar. Apoptozis, oksidatif stres gibi çeşitli uyarılar ve patofizyolojik durumlar tarafından tetiklenebilen programlanmış hücre ölümüdür. Artan ROS üretimi ve oksidatif değişiklikler, spermatojenik hücrelerde apoptozis ve infertilite gibi birçok patolojik durumu tetikleyebilir.

4-Vinilcikloheksen Diepoksit (VCD), testis germ hücrelerine zarar verdiği bildirilmiş olsa da, VCD'nin testisler üzerindeki toksik etkilerini ortaya koyan biyokimyasal ve moleküler mekanizmalar tam olarak aydınlatılmamıştır. VCD'ye maruz kalmanın testislerde ve epididimde oksidatif stres ve inflamasyona neden olacağı ve bunun sonucunda sıçanlarda üreme fonksiyon bozukluklarına yol açacağı öne sürülmüştür. Bu çalışmada, oral yoldan VCD'ye maruz bırakılan sıçanların testis ve epididimlerinde spermatogenik parametreler, hormonal düzeyler, antioksidan savunma mekanizmaları, apoptotik biyolojik göstergeler ve histolojik değişikliklere dair bazı fonksiyonel değişiklikler sunulmuştur.

4-Vinilsikloheksen Diepoksit (VCD), özellikle boyalar ve yapıştırıcılarda yaygın olarak kullanılan, onkojenik özelliklere sahip bir çevre kirleticisidir. Bu nedenle, VCD'ye yüksek konsantrasyonlarda maruz kalan endüstri çalışanları risk altındadır. VCD, sıçan ve farelerde primordial ve primer foliküllere zarar verebilen tek kimyasal madde olarak tanımlanmıştır. Ancak, VCD'nin erkek farelerde doza ve zamana bağlı testis toksisitesine yol açtığını gösteren yalnızca bir çalışma vardır ve bu etkilerin apoptotik süreçlerle ilişkili olduğu öne sürülmüştür.

Tüm bu bulgular ışığında, bu çalışma, VCD kaynaklı testis toksisitesi gösteren ve göstermeyen farelerde reaktif oksijen türlerinin (ROS) testis üzerindeki etkilerini araştırmak amacıyla tasarlanmıştır.

Materyal ve Metot

Kimyasallar

VCD (CAS: 106-86-6; %96), epinefrin, indirgenmiş glutatyon, tiyobarbiturik asit, 5',5'-ditiobis(2-nitrobenzoik asit) ve 1-kloro-2,4-dinitrobenzen, Sigma Chemical Co. (St. Louis, MO, ABD) tedarik

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edilmiştir. Diğer tüm reaktifler analitik kaliteye sahip olup, British Drug Houses (Poole, Dorset, İngiltere) tarafından sağlanmıştır.

Deney Hayvanları ve Protokol

Tüm deney boyunca MCBÜ Deney Hayvanları Uygulama ve Araştırma Merkezinden temin edilen 250±50 gram ağırlığında toplam 40 adet yetişkin erkek Wistar albino sıçan kullanıldı. Sıçanlar, iyi havalandırılan bir ortamda bulunan plastik kafeslere yerleştirilmiş ve deney öncesinde bir hafta boyunca çevresel koşullara uyum sağlamaları sağlanmıştır. Hayvanlar, sıçan peletleri ve su ile serbestçe beslenmiş, ayrıca 12 saat aydınlık: 12 saat karanlık döngüsüne uygun doğal fotoperiyotta tutulmuştur. Deney prosedürler, gerekli onaylar alındıktan sonra ve MCBÜ Etik Komitesi tarafından belirlenen yönergelere uygun olarak gerçekleştirilmiştir.

Sıçanlar, rastgele seçilerek ve her biri 10 bireyden oluşan dört farklı gruba ayrılmıştır. Grup I'deki sıçanlar sadece mısır yağı oral olarak almış ve kontrol grubu olarak belirlenmiştir. Grup II, III ve IV'teki sıçanlar sırasıyla 28 gün boyunca, vücut ağırlıklarına göre 100, 250 ve 500 mg/kg dozlarında oral olarak VCD'yle maruz bırakılmıştır. Bu çalışmada kullanılan VCD dozları, önceki araştırmalarda sıçan ve farelere çeşitli sürelerde 40 ila 1000 mg/kg arasında uygulanan dozlarla karşılaştırılarak seçilmiştir. Ayrıca, bu dozlar (100, 250 ve 500 mg/kg), önceki çalışmamızda yapılan maruziyetlerin ardından 28 gün boyunca erkek ve dişi sıçanlarda hepatik ve renal oksidatif hasara yol açtığı tespit edilmiştir.

Hayvan Eutanazisi ve Protokol

Son maruziyetten 24 saat sonra, sıçanların son vücut ağırlıkları ölçüldü ve sıçanlar, servikal dislokasyon yöntemiyle eutanazi edilmeden önce retro-orbital venöz pleksustan kan örnekleri alındı. Elde edilen kan örnekleri, 3000 g'de 10 dakika santrifüj edilerek plazma ayrıştırıldı. Plazma, ELISA şerit okuyucusu (Robonik India Private Limited, Mumbai, Hindistan) kullanılarak analiz edilmeden önce -20 °C'de dondurularak saklandı. Testisler ve epididimler derhal çıkarıldı, tartıldı ve ardından biyokimyasal analizler ile histolojik incelemeler için uygun işlemlere tabi tutuldu. Testislerin veya epididimin ağırlıkları hesaplandı.

Sperm Progresif Hareketliliği Testi

Sıçanların sperm progresif hareketliliği, Zemjanis [20] tarafından tanımlanan prosedüre uygun olarak değerlendirildi. Kısaca, cauda epididimis cerrahi bıçakla kesildikten sonra, sperm steril bir cam levha üzerine yerleştirildi. Ardından, 37°C'ye ısıtılmış %2,9 (w/v) sodyum sitrat dehidrat solüsyonu sperm örneğine ilave edilip dikkatlice karıştırıldı ve 24 × 24 mm boyutlarında bir lamel ile kapatıldı. Sperm hareketliliği, 200x büyütme altında, faz kontrast mikroskobu ile en az 10 mikroskobik alanda gözlemlendi. Hareketlilik, her bir alanda ilerleyen sperm, ardından hareketsiz ve ilerlemeyen sperm sayılarak tespit edildi. Elde edilen veriler, sperm progresif hareketliliğinin oranı şeklinde raporlandı.

Epididimal Sperm Sayısının Değerlendirilmesi

Epididimal sperm sayısı, Dünya Sağlık Örgütü (WHO) tarafından önerilen yöntemlere uygun olarak belirlendi. Kısaca, cauda epididimis, steril normal tuzlu su ile homojenize edilerek, ardından bir naylon ağ ile süzüldü. Elde edilen sperm örneği, 5 µL'lik bir miktarı 95 µL seyreltici solüsyon (5% (w/v) NaHCO₃ ve 0,25% (w/v) tripan mavisi içeren 0,35% (w/v) formalin) ile karıştırıldı. Seyretilen sperm örneğinin 10 mikrolitresi, hemositometre üzerine yerleştirildi ve Neubauer sayma odası (Derin 1/10 m; LABART, Münih, Almanya) kullanılarak 400x büyütmede mikroskop altında sayıldı. Sayımdan önce, örnek nemli bir ortamda 5 dakika bekletilip, hücrelerin çökmesi sağlandı.

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Sperm Canlılığı ve Morfolojik Anormallikler Testi

Sperm canlılık oranı, literatürde belirlenen metodolojiye göre tespit edilmiştir. Kısaca, sperm süspansiyonunun bir kısmı, bir cam levha üzerinde yayıldıktan sonra, başka bir cam levha ile silinerek, %1 (w/v) eozin ve %5 (w/v) nigrosin içeren %3 (w/v) sodyum sitrat dehidrat solüsyonunda boyandı. Sperm morfolojik anormalliklerinin tespiti için, sperm hücreleri damıtılmış su ve etanol karışımında (2:1 oranında) çözülerek, içerik olarak 0,2 g eozin ve 0,6 g fast green içeren bir reaktif ile boyandı. Morfolojik inceleme sırasında her sıçandan toplam 400 sperm hücresi değerlendirildi.

Testis Sperm Sayısının Belirlenmesi

Testis sperm sayısı ve günlük sperm üretimi, Blazak ve arkadaşlarının önerdiği protokole göre her gruptan alınan dondurulmuş sol testis örnekleri kullanılarak belirlenmiştir. Kısaca özetlemek gerekirse, testisler kapsülden çıkarıldıktan sonra %0,01 (v/v) Triton X-100 içeren soğuk fizyolojik tuzlu suda homojenize edilmiştir. Elde edilen homojenatın bir kısmı, cam bir şişeye aktarılmış ve dondurularak saklanmıştır. Sonraki aşamada, örnekler Neubauer hemositometresine yerleştirilmiş ve ışık mikroskobu altında 100x büyütme ile iki kez sayılmıştır. Spermatogenezin 17-19. adımlarına karşılık gelen spermatid özelliklerine sahip uzun spermatid çekirdeklerinin ortalama sayısı hesaplanmıştır. Bu veriler, gram testis başına toplam spermatid sayısını elde etmek için kullanılmıştır. Ayrıca, gelişen spermatidlerin sıçanlarda ortalama 6,1 gün boyunca bulunduğu göz önüne alınarak, testis başına spermatid sayısı, günlük sperm üretimini hesaplamak amacıyla 6,1'e bölünmüştür.

Biyokimyasal Analizler

Testis ve epididim örnekleri, fosfat tamponunda (pH 7,4) homojenize edilip, 10.000 g'de 15 dakika santrifüj edilmiştir. Elde edilen süpernatant, biyokimyasal analizler için ayrılmıştır. Protein konsantrasyonu, Lowry metoduyla; süperoksit dismutaz (SOD) aktivitesi, Misra ve Fridovich yöntemine göre; katalaz (CAT) aktivitesi, Clairborne metoduyla; glutatyon peroksidaz (GPx) aktivitesi, Rotruck prosedürüyle; glutatyon-S-transferaz (GST) aktivitesi, Habig yöntemiyle; indirgenmiş glutatyon (GSH) seviyeleri, Jollow metodu ile belirlenmiştir. Hidrojen peroksit üretimi, Wolff protokolüne; lipid peroksidasyonu, Farombi yöntemine göre malondialdehit (MDA) seviyesiyle ölçülmüştür.

Işık Mikroskopik İnceleme

Testis ve epididim örnekleri, Bouin solüsyonu ile sabitlenip, Bancroft ve Gamble protokolüne göre histolojik işleme tabi tutulmuştur [34]. Sabitlenen dokular, alkolle dehidre edilip, ksilenle temizlenmiş ve parafinle infiltrasyon yapılmıştır. Mikrotomla 4–5 µm kalınlığında kesitler alınarak slaytlara yerleştirilmiş, hematoksilin-eozin ile boyanmış ve ışık mikroskobunda incelenmiştir. Fotomikrograflar, kontrol ve tedavi grupları arasındaki karşılaştırmalar için kör gözlemle çekilmiştir.

Testiküler iNOS, eNOS ve Kaspaz-3 Ekspresyonlarının İmmünohistokimyasal Değerlendirmeleri

Bouin solüsyonu ile sabitlenmiş testis dokuları, parafine gömülmüş ve 5 µm kalınlığında kesitler elde edilmiştir. Elde edilen kesitler, silan kaplı slaytlara yerleştirilmiş, ardından ksilenle deparafinize edilerek, dereceli alkol çözeltilerinde rehidrate edilmiştir. Antijen geri kazanımını sağlamak amacıyla, kesitler 95°C'de 30 dakika süreyle 10 mM sitrat tamponu (pH 6.0) içinde muamele edilmiştir. Endojen peroksidaz aktivitesinin inhibe edilmesi için, kesitler %1,5 (v/v) H₂O₂ ile 10 dakika süreyle inkübe edilmiştir. Sonrasında, dokular 10 mM PBS-0,05% Tween 20 (pH 7.5) ile yıkanmış ve iNOS, COX-2, kaspaz-9 ve kaspaz-3 protein ekspresyonlarını değerlendirmek amacıyla tavşan poliklonal antikoları (ABCAM Scientific Corporation) kullanılarak veya birincil antikor uygulanmadan (negatif kontrol) 4°C'de bir gece süreyle inkübe edilmiştir. Kesitler, PBS-Tween 20 çözeltisi ile iyice yıkandıktan sonra, biyotinlenmiş keçi anti-tavşan antikoları ile 30 dakika ve avidin-biyotin peroksidaz kompleksi ile 30 dakika inkübe edilmiştir. Bağlanan antikolar, diaminobenzidin (DAB) ile görselleştirilmiş ve bağışıklık

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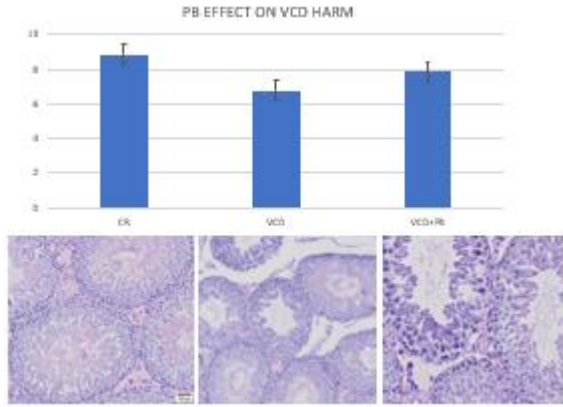
kompleksleri %0,05 DAB çözeltisiyle tespit edilmiştir. Boyama işleminin ardından kesitler, hematoksinin ile karşı boyanmış ve ışık mikroskobu altında incelenmiştir. Görüntüler, Sony Dijital Kamera ile kaydedilmiştir. Pozitif hücrelerin oranı, çalışmaya kör olarak dahil edilen araştırmacılar tarafından değerlendirilmiş ve COX-2, iNOS, kaspaz-9 ve kaspaz-3 protein ekspresyonları kantitatif olarak ölçülmüştür. Her grup için toplam 20 gözlem yapılmış ve göz başına 10 kesit üzerinden değerlendirme gerçekleştirilmiştir. Elde edilen veriler, yüzdelik dilim olarak sunulmuştur.

İstatistiksel analizler

İstatistiksel analizler Graph Pad Prism (Sürüm 6.0) ile gerçekleştirildi ve veriler ortalama $\pm$ standart sapma olarak ifade edildi. İstatistiksel olarak anlamlı farklar, tek yönlü varyans analizi (ANOVA) ve ardından post hoc karşılaştırmalar için Bonferroni testi kullanılarak belirlendi. $P < 0,05$ istatistiksel olarak anlamlı kabul edildi.

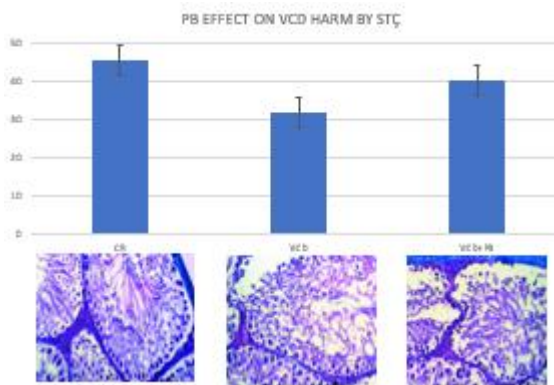
Sonuçlar

Johnsen skoru (Şekil 1), VCD ve VCD+PB gruplarında kontrol grubuna kıyasla istatistiksel olarak anlamlı derecede daha düşük bulunmuştur ($p < 0,01$). VCD+PB grubunda ise, VCD grubuna kıyasla skorlar istatistiksel olarak anlamlı bir şekilde daha yüksek bulunmuştur ($p < 0,05$).



Şekil 1. Johnsen skoru.

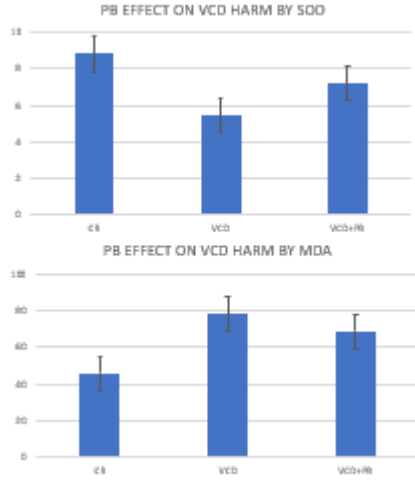
Testiküler seminer tübüllerindeki epitelyal hücre yüksekliği (ECHST), VCD ve VCD+PB gruplarında kontrol grubuna kıyasla istatistiksel olarak anlamlı derecede daha yüksek bulunmuştur (Şekil 2) ($p < 0,001$). Bununla birlikte, VCD grubunda ECHST, kontrol grubuna kıyasla istatistiksel olarak anlamlı derecede düşük bulunmuştur ($p < 0,001$). VCD+PB ile tedavi edilen hayvanlarda ise, ECHST kontrol grubuna kıyasla istatistiksel olarak anlamlı derecede düşük, ancak VCD grubuna kıyasla anlamlı derecede yüksek bulunmuştur (her iki grup için $p < 0,001$).



Şekil 2. STC.

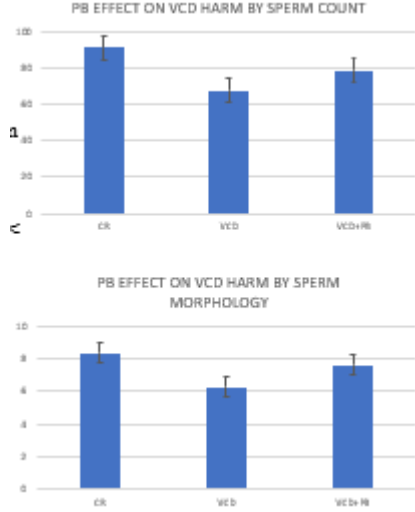
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Kontrol grubuna kıyasla, VCD testislerde SOD aktivitesini belirgin şekilde azaltmış ve MDA düzeylerini önemli ölçüde artırmıştır (Şekil 3). PB uygulaması, bu değişiklikleri anlamlı bir şekilde tersine çevirmiştir ($p < 0.001$).



Şekil 3. SOD ve MDA.

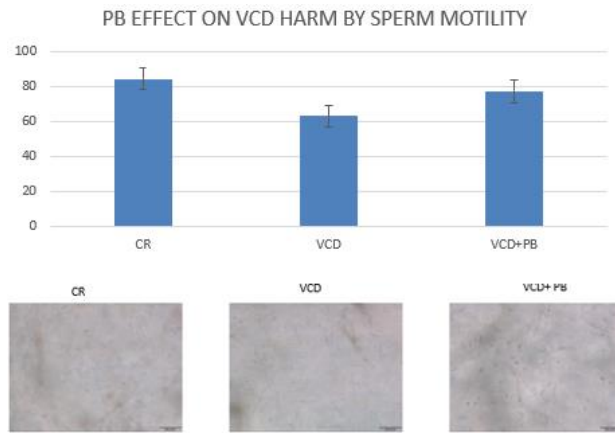
VCD ile tedavi edilen sıçanların sperm analizleri, kontrol grubuna kıyasla epididimal sperm sayısı, progresif sperm motilitesi, testis sperm sayısı ve günlük sperm üretiminde belirgin bir azalma göstermiştir (Şekil 4). PB uygulaması, bu değişikliklerin tamamını anlamlı bir şekilde tersine çevirmiştir ($p < 0.001$).



Şekil 4. Sperm analizi.

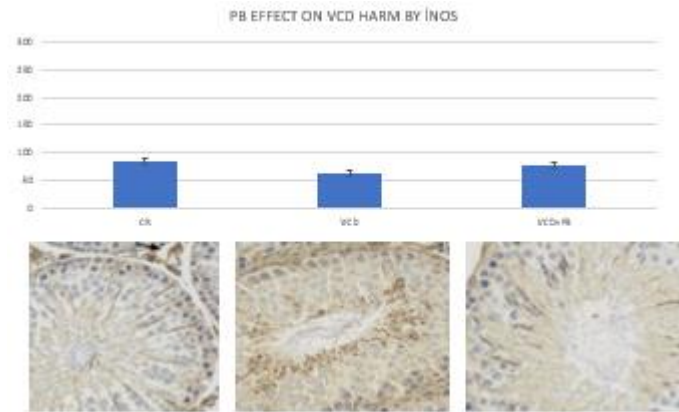
VCD ile tedavi edilen sıçanların sperm analizleri, kontrol grubuna kıyasla epididimal sperm sayısı, progresif sperm motilitesi, testis sperm sayısı ve günlük sperm üretiminde belirgin bir azalma göstermiştir (Şekil 5). PB uygulaması, bu değişikliklerin tamamını istatistiksel olarak anlamlı bir şekilde tersine çevirmiştir ($p < 0.001$).

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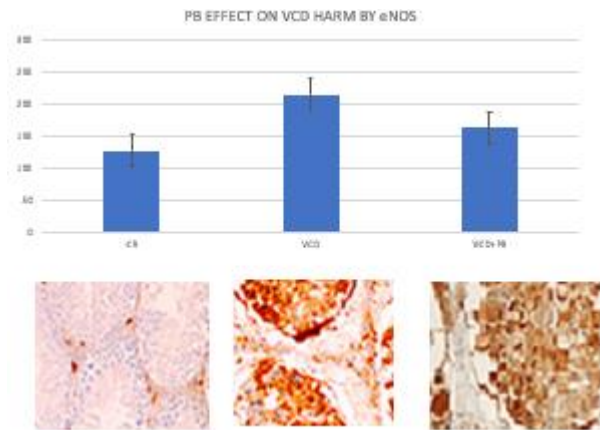


Şekil 5. Sperm hareketliliği.

Oksidatif stres örnekleri, e-NOS ve i-NOS ile incelendiğinde, bu modelin etkin bir stres yarattığı ve PB ile bu stresin azaldığı tespit edilmiştir (Şekil 6-7).



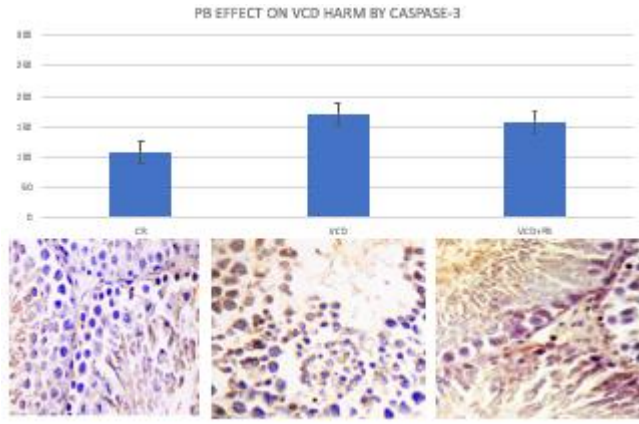
Şekil 6. iNOS.



Şekil 7. eNOS.

Apoptoz için CASPAZ-3 ile immünohistokimyasal analiz yapıldığında, bu modelin tüm belirteçler için anlamlı bir başarı sağladığı gözlemlenmiştir. Ayrıca, modelin interensek ve ekstrensek apoptotik yolağın kullanıldığı sonucuna varılmıştır (Şekil. 8).

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Şekil 8. Kaspaz 3.

IHC değerlendirmesi, VCD ile tedavi edilen sıçanların testislerinde iNOS, eNOS ve kaspaz-3 proteinlerinin ekspresyonunda belirgin artışlar saptanmış; bu da testis dejenerasyonuna işaret etmiştir (Fig. 6-8). PB uygulaması, bu değişikliklerin tümünü istatistiksel olarak anlamlı bir şekilde tersine çevirmiştir ($p < 0.001$).

Tartışma

Vinilsikloheksen diepoksit (VCD), çeşitli organları olumsuz yönde etkileyebilen yaygın bir endüstriyel çözücüdür. VCD'nin faydalarına rağmen, maruziyeti sıçanların böbrek ve karaciğer dokularında oksidatif hasara neden olan oksidatif stresle ilişkilendirilmiştir. Ancak, VCD maruziyetine bağlı erkek üreme toksisitesinde oksidatif stresin rolü üzerine herhangi bir çalışma yapılmamıştır. Testisler ve epididim, yüksek konsantrasyondaki doymamış lipidler nedeniyle oksidatif strese karşı son derece hassastır. Bu organlar, süperoksit dismutaz (SOD), katalaz (CAT), glutatyon peroksidaz (GPx) ve glutatyon S-transferaz (GST) gibi enzimatik antioksidanlar ve enzimatik olmayan antioksidan olan glutatyon (GSH) ile donatılmış, reaktif oksijen türlerinin (ROS) detoksifikasyonunu sağlayan bir sistemle korunmaktadır. Mevcut çalışmada, VCD ile tedavi edilen sıçanlarda testis ve epididimal SOD aktivitesindeki azalma, süperoksit radikallerinin birikmesini ve dolayısıyla dokularda oksidatif stresin artışı işaret eden enzim inhibisyonunu göstermektedir. Ayrıca, testislerdeki CAT aktivitesindeki azalma, testislerin muhtemelen VCD maruziyeti nedeniyle hidrojen peroksidi etkili bir şekilde ortadan kaldıramaması veya testislerde artan ROS üretimi nedeniyle enzimin inaktivasyonunu düşündürmektedir. Bununla birlikte, bu çalışmada epididimal CAT aktivitesindeki artış, hücresel düzeyde yüksek konsantrasyonda bulunan güçlü bir oksidan olan H₂O₂'nin etkilerini dengelemek amacıyla indüklendiğini gösterebilir. Testiküler ve epididimal SOD aktivitesinin VCD maruziyetine karşı farklı tepkiler vermesi, şu anda tam olarak anlaşılmamış olmakla birlikte, bu farklılıkların organlara özgü özelliklerle ilişkili olabileceği düşünülmektedir.

Mevcut çalışmada, VCD, seminifer tübüllerin bazal membranında ve germ epitelinde düzensizlik, dejenerasyon, vakuolizasyon ve germ hücre kaybı gibi çeşitli histolojik değişikliklere yol açmıştır. Johnsen skorları, VCD ile tedavi edilen hayvanlarda önemli ölçüde azalmıştır; bu, VCD'nin farelerde indüklediği histolojik değişiklikleri yansıtmaktadır. Önemli olmasa da, VCD enjeksiyonunun ardından RES tedavisi Johnsen skorlarında hafif bir düşüşe neden olmuştur. Günlük 20 mg/kg dozda uygulanan RES'in, VCD ile meydana gelen testis hasarını iyileştirdiği öne sürülebilir. İmmünohistokimyasal çalışmaların sonuçları da bu bulgularla paralel bir şekilde ilerlemiştir. Benzer şekilde, Soylemez ve ark. tarafından yapılan bir çalışmada, 10 mg/kg dozda RES'in Johnsen skorlarını kontrol seviyelerine yükselttiği belirlenmiştir. Bu çalışmadaki bulgular, bizim sonuçlarımızı desteklemektedir.

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Histolojik analizde, VCD'nin ECHST'de bir azalmaya ve muhtemelen spermatogenezin bozulmasından kaynaklanan apoptotik hücre sayısında bir artışa neden olduğu bulunmuştur. VCD ile oluşan bu tür etkiler, adriamisin, bleomisin, siklofosamid ve doksorubisin gibi antineoplastik ajanların kullanımına benzer şekilde gözlemlenmektedir. Hooser ve ark. tarafından yapılan bir çalışmada, VCD'nin farelerde testis germ hücre nekrozuna neden olduğu bildirilmiştir. Yazarlar, VCD'nin DNA sentezi ve replikasyonunu bozarak testis toksisitesine yol açtığını öne sürmüşlerdir. Sperm hücresi zarının büyük bir kısmı, sitoplazmada düşük seviyede antioksidan enzimler içeren doymuş yağ asitlerinden oluşur. Denatürasyon ve parçalanmayla ilişkili oksidatif stres, anormal sperm üretiminde önemli bir rol oynamaktadır. Önceki bazı çalışmalar, doksorubisinin ayrıca DNA parçalanmasına ve kromozomal hasara yol açtığını öne sürmüştür, bu da oksidatif stresin artmasına, hareketli sperm sayısının yükselmesine ve anormal sperm yüzdesinin artmasına neden olmuştur. Drosophila melanogaster modelinde, 5 gün boyunca vinil sikloheksen (VCH) maruziyeti, reaktif oksijen ve nitrojen türlerini (ROS ve RNS), süperoksit dismutaz, Nrf-2 ve MAPK-2'nin mRNA gen ifadesini artırmış, antioksidan enzim seviyelerini değiştirmiş ve δ -ALA-D ve AChE aktivitelerini inhibe etmiştir. Hem VCH hem de VCD'nin toksik etkilerini desteklemek amacıyla yakın zamanda yapılan bir çalışmanın yürütülmesi önem taşımaktadır.

Apoptozis, toksisitede büyük bir rol oynamaktadır. Çalışmamızda, apoptozu göstermek için Bax ve Bcl2 ile immünohistokimyasal boyama kullanılmıştır. Ancak, günlük 20 mg/kg dozda RES tedavisi, VCD tarafından indüklenen apoptotik hücre sayısını azaltmıştır. RES'in, oksidatif stres tarafından indüklenen lipid peroksidasyonunu ve DNA hasarını önlediği bilinmektedir. Buna göre, RES'in seminer tübüllerdeki oksidatif stresi azalttığı ve sperm olgunlaşmasını artırdığı öne sürülmüştür.

Mevcut çalışmanın sonuçları, PB'nin özellikle testis toksisitesinden kaynaklanan erkek kısırlığı vakalarında koruyucu ve/veya tedavi edici bir ajan olarak kullanılabileceğini göstermektedir. Kısırlık, büyük bir sağlık sorunu olup, pek çok farklı nedene dayanabilmektedir. Mevcut çalışmada, farelerde RES ile günlük tedavi, herhangi bir olumsuz etki olmaksızın hipotalamo-hipofiz-gonadal eksenini uyarmış ve antioksidan etkisi ile VCD kaynaklı testis hasarını iyileştirmiştir. Bu çalışmada, VCD uygulaması, sıçanların testis ve epididimlerinde GSH seviyesini ve GPx aktivitesini etkilemeden, GST aktivitesini artırmıştır. Bu bulgular, GSH döngüsü yoluyla eş zamanlı telafi edici GSH senteziyle peroksit içeren metabolitleri detoksifiye etmeyi hedefleyen oksidatif strese adaptif bir yanıt olduğunu göstermektedir. Lipid peroksidasyonu, ROS tarafından çoklu doymamış yağ asitlerinin oksidasyonunu içeren ve ardından 4-hidroksi-2-nonenal ve MDA gibi reaktif aldehitlere dönüştürülen lipid peroksil radikalleri ve lipid hidroperoksitleri üreten bir süreçtir [37,38]. Bu nedenle, VCD ile tedavi edilen sıçanların testis ve epididimlerdeki yüksek MDA seviyesi, bu çalışmada VCD'ye maruz kalma, testis ve epididimde oksidatif hasarın indüklendiğini ortaya koymaktadır. Ancak, VCD ile tedavi edilen sıçanlarda histopatolojik lezyonlar gözlemlenmemiştir. Bu bulgu, önceki çalışmalarla uyumludur. VCD ile tedavi edilen sıçanların testislerinde gözlemlenen azalmış sperm yoğunluğu ve belirgin dejenerasyon, oksidatif hasarın spermatogenezini olumsuz etkilediğini göstermektedir. İlginç olarak, VCD'nin sperm canlılığı ve morfolojisi üzerindeki etkisi bulunmamıştır; bununla birlikte, sperm hareketliliği ve sayısındaki azalma, spermin dölleme yeteneğini zayıflatarak infertiliteye yol açabileceğini düşündürmektedir.

VCD ile tedavi edilen sıçanlarda testiküler COX-2 ve iNOS ekspresyonundaki artış, inflamatuvar yanıtın bir göstergesidir. iNOS'un aşırı nitrik oksit (NO) üretimi, süperoksit anyonlarıyla reaksiyona girerek peroksinitrit radikali oluşturabilir ve bu da testiküler toksisitenin başka bir mekanizmasını işaret eder. Apoptotik hücre ölümü, testiküler germ hücre popülasyonunun düzenlenmesinde kritik rol oynar. Hücre dışı stres sonucu mitokondriyal hasar, sitokrom c salınımına yol açar ve bu da apoptoz sürecini tetikler. İmmünohistokimyasal analizler, VCD tedavisi ile kaspaz-9 ve kaspaz-3

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ekspresyonunun arttığını ve bu aktivasyonun apoptozu tetikleyen alt akış sinyal yollarını başlattığını göstermektedir.

Sonuç olarak, bu çalışmadan elde edilen bulgular, VCD tedavisinin endokrin baskılamaya, antioksidan enzim aktivitelerinin bozulmasına, oksidatif stres biyobelirteçlerinde artışa, inflamasyona ve sıçanlarda apoptoz yoluyla testis ve epididimal disfonksiyonlara neden olduğunu ilk kez ortaya koymuştur.

Sonuç

Vinilsikloheksen diepoksit (VCD), yüksek reaktiviteye sahip bir bileşiktir ve endüstriyel alanda çalışan birçok birey, bu bileşiğin yüksek konsantrasyonlarına maruz kalmaktadır. Kimya sanayisinde ve sentetik iplik ile halı üretiminde yaygın bir şekilde kullanılmaktadır. VCD, Salmonella bakteri sistemi üzerinde mutajenik etki gösterir; DNA ile etkileşime girerek, DNA sentezini inhibe eder ve germ hücrelerinde hasara yol açar. Hooser ve arkadaşları tarafından gerçekleştirilen bir çalışmada, VCD'nin DNA sentezini ve hücre replikasyonu (farklılaşmış spermatogonyalar ve pre-leptoten spermatositler) bozarak erkek farelerde testis toksisitesine yol açtığı ileri sürülmüştür. VCD'ye maruz kalma, antioksidan enzim aktivitelerinin azalmasına, oksidatif stresin artmasına ve apoptozun tetiklenmesine bağlı olarak testis fonksiyonlarında bozulmalara neden olmaktadır. Bu bulgular, PB'nin özellikle testis toksisitesi nedeniyle başarısız olduğu erkek infertilitesi vakalarında koruyucu ve/veya terapötik bir ajan olarak potansiyel kullanımını işaret etmektedir.

Teşekkür ve Bilgilendirme

Bu araştırma Manisa Celal Bayar üniversitesi Rektörlüğü Bilimsel Araştırma Projeleri Koordinasyon Biriminin desteğiyle yapılmıştır. Katkılarından dolayı teşekkür ederiz.

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ERGONOMIC JAR LID OPENING MACHINE DESIGN FOR ELDERLY AND DISABLED PEOPLE

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ABSTRACT

Recent technological advancements have led to the widespread adoption of mechatronic devices in both industrial and domestic settings. There is a growing interest in assistive devices specifically designed for home use. This surge in popularity can be attributed to the desire to address daily needs more effectively and minimize living expenses. Consequently, a plethora of products aimed at assisting with household chores and reducing workloads are continuously emerging.

Opening jars in a domestic kitchen environment presents a significant challenge for many individuals. While seemingly a simple task for most, it can prove difficult or even impossible for those with limited hand strength or disabilities. This study focuses on the design of a novel jar opening device aimed at facilitating daily kitchen tasks for individuals with conditions such as arthritis, stroke-induced weakness, or limited hand strength. The proposed device enables effortless opening of various jar sizes, thus promoting independence and enhancing overall quality of life.

Keywords: Lid opening mechanism, mechanism design, kinematic analysis

INTRODUCTION

With the technological developments brought by modern times, mechatronic devices are widely used both in industrial areas and in home environments. The interest in the use of assistive devices designed especially for home use is increasing day by day. This interest stems from the desire to respond to people's daily needs more effectively and to minimize their living expenses. In this sense, it is seen that many products that will help people with housework and lighten their workload enter our lives every day. Figure 1 below shows some devices designed and produced to help people in the home environment.

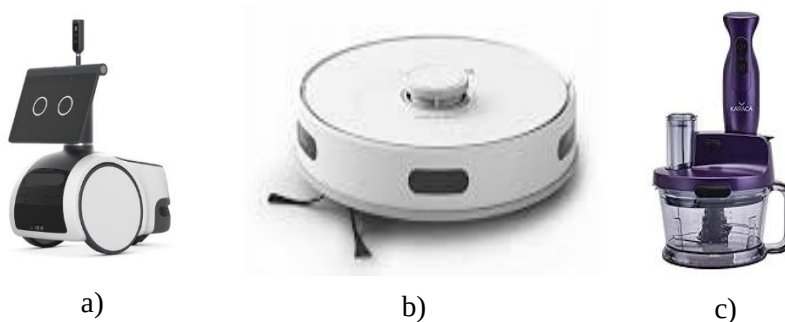


Figure 1. Some assistant robots used at home, a) home patrol robot [1], b) home sweeping robot [2], c) multi-purpose kitchen robot [3]

It is seen that many types of these devices are produced to help with housework, from those designed for the most basic tasks such as orange juicer to some devices with much more complex structures and artificial intelligence. The main purpose of producing these devices is to help people with housework and to lighten the workload, either automatically controlled or with human-machine interaction.

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Opening the lids of glass jars used in the kitchen at home is seen as a very difficult task for many people. Although opening glass jars may seem like a simple task for most people, this task can sometimes become impossible for individuals with weak hand strength or disabilities (Figure 2).



Figure 2. Difficulties in opening jar lids

In this context, there are many studies on determining the torque required to open jar lids and making ergonomic designs. Voorbij and Steenbekkers [4], conducted a study with 750 participants, asking them two questions about how they open jars at home. Using a force transducer, they measured the torque required to open jars. They concluded that if the opening torque was reduced to 2 Nm, 100% of users aged 20 to 30 and 97.6% of users aged 50 to 94 would be able to open jars without difficulty. Yen et al. [5], conducted controlled laboratory tests with older women with hand function limitations to evaluate different jar lid designs (diameter, height, top shape, side shape, and surface texture). They determined that lid height was a highly influential parameter in terms of usability, and designs with a hexagonal top shape and convex side shape were perceived as better. Dianat et al. [6], evaluated the potential mismatch between the wrist torque strength of 758 participants (384 males and 374 females) aged 5–74 years in Iran and the torque required to open vacuum-sealed jars. The study found a considerable mismatch (25%–100%) between the required torque to open existing jars and the participants' wrist torque strength, particularly for females and those aged 5–9 years. Therefore, they proposed a torque limit of 1.8 Nm for opening jars for the entire population. McGee and Mathiowetz [7] evaluated the ecological validity of a device used to measure hand forces during jar opening, assessing how well it reflects real-life hand use and whether it can provide reliable data in future studies of women with hand osteoarthritis. Carse et al. [8] used a novel load measuring device to characterise the forces used by young and older adults when opening jars. They observed that older adults used lower squeeze forces and higher compressive forces on the jar lid compared to younger adults. Additionally, they found that older adults tended to open the jar slower and used a higher proportion of their maximum grip strength. Lorentzon et al. [9], developed a prototype product named MAGIC-HAND to open jars and packages. The device automatically centers the package, grips its base, senses the height of the closure, grips it, and twists it open. With this device, users can open jars and packages with considerable ease. Ellingson et al. [10] developed a device that allows healthcare professionals to better understand the dynamics of jar opening and train individuals in optimal hand/grip mechanics. This device, which measures the forces and moments applied during jar opening, provides a realistic opening experience and can help healthcare professionals evaluate and offer improvement strategies for patients suffering from debilitating osteoarthritis, fibromyalgia, or other neuromuscular conditions. Chang et al. [11] investigated the role of the thumb in jar opening, a task often perceived as challenging for women in daily living. In experiments with 16 young female participants, they determined that the force and torque of the thumb were influenced by grasp pattern, while its torque contribution was affected by jar-holding position.

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They showed that the thumb's torque contribution ranged from 17.4% to 23.9%, suggesting that the thumb applies a force equivalent to the other digits, rather than simply acting as a counter force.

This study focuses on the development of a device designed to assist individuals with disabilities, weakened hand strength, or illnesses by facilitating the easy opening of jar lids. The developed device accommodates various jar lid sizes and operates effectively with low energy consumption.

MATERIALS AND METHODS

Conceptual Design

In this section, the materials and methods used in the study are explained. In this context, conceptual design studies were carried out first. In order to open the jar lid, the device must first grasp the jar with a mechanism and hold it steady with a certain pressure force. In addition, the jar lid must be grasped and held tightly with another mechanism in a similar manner. In this way, it is ensured that the lid resists the torque required for opening without slipping. Then, with another mechanism, the tightly grasped jar lid must be rotated by applying the necessary torque to open the lid. The visual related to this is given in Figure 3 below.

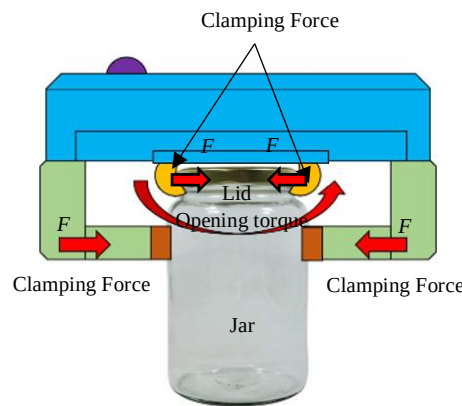


Figure 3. Conceptual design sketch

In the system illustrated in Figure 3, the user positions the device on top of the glass jar they wish to open and subsequently presses the activation button. The machine then proceeds to secure both the jar and its lid, applying a rotational force in the opening direction to release the lid. This clamping action is achieved through rack and pinion mechanisms, which transform the rotational motion of the motors into linear motion. To generate the necessary torque for the rotational movement, a planetary gear mechanism is employed. DC motors power both of these actions. A visualization of the design sketches produced for this purpose is presented in Figure 4.

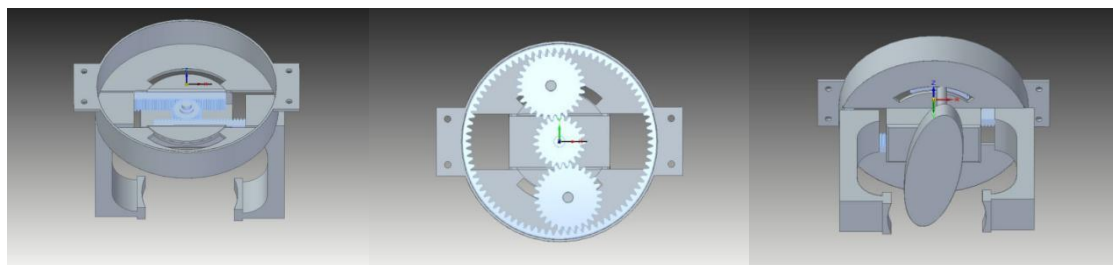


Figure 4. Design sketches illustrating the clamping and rotating mechanisms

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Calculating the Required Torque

The rotation torque required for the device to open the jar lid needs to be calculated. For this purpose, some experimental studies were conducted in the laboratory and the results obtained were compared with the literature. This setup utilizes a rigid steel rod with a diameter of 10 mm and a length of 1 m, acting as a lever arm. A vise secures the jar by clamping its lower portion radially. A pulley system and a force sensor are also incorporated. A rope connected to the force sensor is routed through the pulley system and wound around the end of the rigid rod. Pulling the end of the rope generates a force, and through the lever action of the rigid rod, a torque is produced. This force is incrementally increased until the jar lid is released, with the force sensor measuring the applied force. The measured values are collected using an Arduino and recorded on a computer (Figure 5).



Figure 5. Collection force data

According to the data obtained from the experiments, the average torque to open a glass jar was found to be 7.7 Nm. The average torque required to open a glass jar with a 85 mm lid was determined to be 8.9 Nm. The values are consistent with the torque values obtained in literature.

Design of Rack Gear and Planet Gear Mechanisms

Rack and pinion mechanisms were used to compress the jar and lid, and a planetary gear mechanism was used to provide the rotation movement. Thanks to the rack and pinion mechanisms, the linear movements required to compress the jar and lid were obtained. The designed rack and pinion mechanisms are shown in Figure 6.

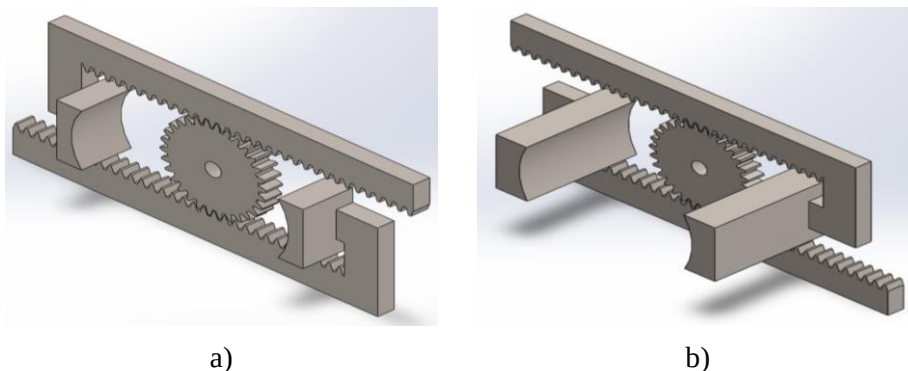


Figure 6. Rack and pinion mechanisms a) Lid clamping, b) jar clamping

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The rack and pinion mechanisms in Figure 7 consist of a circular drive gear in the middle and straight rack gears on the sides that are used to perform the compression process by making linear movements and are driven by the drive gear. The jaws on each rack provide the gripping and compression of the lid (Figure 6-a) and the jar (Figure 6-b). The jaw used for the jar has a wider form than the jaw used for the lid.

The planetary gear mechanism that will transmit the rotation torque required to open the jar lid is shown in Figure 7.

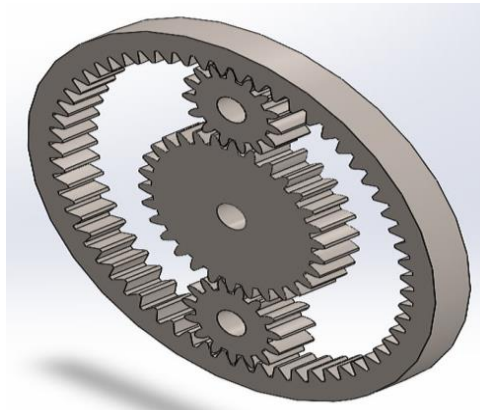


Figure 7. Planetary gear mechanism

The planetary gear mechanism in Figure 8 is driven by the electric motor from the sun gear in the middle and the movement is transferred to the ring gear to rotate the jar lid.

In order for each mechanism to work in a healthy and coordinated manner, the device body was designed and the mechanisms were placed in this body (Figure 8).

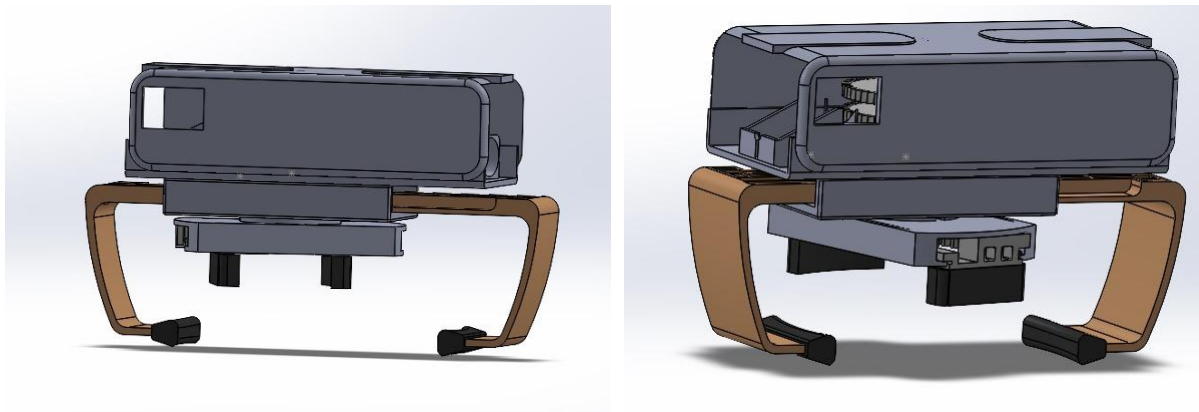


Figure 8. Assembled model of the device

RESULTS

Manufacturing drawings of all mechanical parts of the designed device were produced. For prototype production, all parts were produced from PLA material using a 3D printer and the device was assembled. Later, testing and verification studies were carried out and the improvement process was completed by

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observing that the device prototype could open jar lids. The final images of the manufactured device are given in Figure 9.



Figure 9. Prototype of the device

The device produced can open the lids of jars of different sizes whose lids have been compressed by vacuuming.

CONCLUSION

In this study, a device that allows jar lids to be easily opened has been developed in order to help disabled, handicapped or sick people and make their lives easier. In this context;

- The average rotation torque required to open jar lids has been calculated experimentally.
- The necessary conceptual design studies have been carried out for the device to fulfill its function.
- The linear motion required to tighten the jar and its lid has been provided by rack and pinion mechanisms and the designs of these mechanisms have been made within this scope.
- Since the rotation torque that needs to be applied to open the jar lid is a bit too much considering the dimensions of the mechanism, a planetary gear mechanism that can provide greater torque transmissions in smaller volumes has been designed and used for this purpose.
- A device body design has been made that can collectively store the rack and pinion mechanism that provides tightening of the lid, the rack and pinion mechanism that provides tightening of the jar and the planetary mechanisms that transmit the rotation torque.
- Manufacturing drawings of all mechanical parts that make up the device have been prepared and they have been produced from PLA material using a 3D printer.
- The prototype of the device was produced by combining the produced parts, and the device was made operational after the testing and verification studies were completed.

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EVALUATION OF THE IMPACT OF CAR WASTE ON SOIL BIOLOGICAL ACTIVITY

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ABSTRACT

INTRODUCTION. Soil, which is important for the formation of human life and health, is an external environmental object affected by harmful wastes from various sources. Traffic wastes have an important place among these pollution sources. As a result of these wastes mixing with the soil, more than 200 toxic substances such as carbon and nitrogen oxides, aldehydes, lead compounds, polycyclic aromatic hydrocarbonates, benzopyrene, etc. are released into the atmosphere. After a certain period of time, the structure of the soil microorganism complex, the self-cleaning process that provides the biological activity of the soil, is disrupted, as a result of which the number of pathogenic microorganisms resistant to toxic substances and the level of pollution increase.

Man-made chemical pollution of the soil affects the microbiological structure of the soil, its chemical transformations, the biochemical process complex and causes the ecological balance to deteriorate, which in turn affects the health of the population.

PURPOSE OF THE STUDY. A study was conducted on some microbiological indicators characterizing the biological activity of soil around highways, especially intercity highways in Azerbaijan. In microbiological studies, the total microbial count of the soil was determined by the Vinogradsky method in the modification of Shulgina. Here, the soil suspension was fractionated in the UZDN-1 apparatus for 3 minutes, after which the preparations were observed directly under the microscope.

Material and method of the study. According to the aim of the study, soil samples were taken from different parts of intercity highways of Azerbaijan Republic and after pretreatment the total number of microbes in the soil and the amounts of saprophytes, spore-forming microorganisms, actinomycetes and micromycetes were determined. The research was carried out by using microbiological methods. The number of saprophytic microbes at 20 m distance from intercity (Azerbaijan, Baku-Shamakhi highway) and international (Azerbaijan, Baku-Kazakh highway) highways were $1.14 \pm 0.04 \times 10^8$ and $0.93 \pm 0.04 \times 10^8$ KEV/g, respectively ($t=37.50$; $P=0.001$). These indicators are 42.38% ($2.69 \pm 0.13 \times 10^8$ KEV/g) of the indicators obtained by sowing 1 g of gray-brown soil taken from control areas into the

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nutrient medium and their numbers vary depending on the type of highway. It was $2.10-2.90 \times 10^4$ KEV/g and $3.0 \pm 0.014 \times 10^4$ KEV/g at 20-200 m distance from the roadbed and in the control area.

CONCLUSION. As a result of the studies, it was determined that various changes occurred in the soil microbiocenosis in the areas around the highway. Thus, the harmful compounds contained in the car waste have a strong effect on the general microbial population of the soil, causing a sharp decrease in the number of microbes of the soil - saprophytes and actinomycetes. As a result, it was determined that the number of spore-forming microorganisms and micromycetes resistant to the effects of transport waste increased, which is explained by the effect of waste on microbial antagonism in the soil. Assessment of the microbiocenosis status in the soil, examination of the degree of soil sensitivity to chemical pollution allows assessment of the biological activity of the soil and determination of the level of risk to the health of the population.

Keywords: car, harmful waste, microbiological structure of the soil.

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CHARACTERISTICS OF THE LANKARAN-ASTARA TEA

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ABSTRACT

Tea plants were first planted in Azerbaijan at the end of the 19th century, and scientific cultivation of tea began in 1929, and the establishment of industrial-scale plantations began in 1932 (1). The development of this sector accelerated further in the 1970s and 1980s. In order to meet the irrigation water needs of tea plantations, the Khanbulanchay reservoir with a capacity of 52 million cubic meters was built in the Lankaran region in 1976, and the Vilashchay reservoir with a capacity of 46 million cubic meters was put into operation in the Masalli region in 1986. Since that time, the area of tea plantations has expanded to 13.4 thousand hectares, and green tea leaf production has reached 34.5 thousand tons. At the same time, the construction of 14 tea leaf processing enterprises and 2 tea mills in the country has enabled the processing of 45 thousand tons of tea leaves per year, ensuring that 65-70 percent of the country's population's need for dry tea is met through local production (2).

As a result of scientific research, it has been determined that the natural climatic conditions and current soil conditions of about 21,000 hectares of land in the country, the main part of which falls on the Lankaran economic region, allow for the cultivation of tea plants in Azerbaijan (3).

Lankaran-Astara teas are a type of tea that grows and widespread in the southern regions of Azerbaijan, in the Lankaran and Astara regions. These teas are distinguished by their mild climate, soil quality, and natural conditions. These regions are considered one of the most important tea-growing centers in Azerbaijan.

Climate and Soil Conditions: The subtropical climate of the Lankaran-Astara region allows for high-quality tea. Also, the rich soils and favorable irrigation conditions here create perfect conditions for tea cultivation. Tea Types: This region mainly produces green tea and black tea. Lankaran-Astara teas are distinguished by their rich taste, aroma, and health benefits.

Production and Export: Lankaran and Astara play an important role in the tea production of Azerbaijan. The teas grown here are in great demand in the local market and abroad. Azerbaijani tea is especially popular in Russia, Turkey and other Asian countries (4).

Farming and Technology: Modern technologies are used in tea plantations in these regions, but traditional tea growing methods are also preserved. The production of dry and wet teas continues by hand.

Various events are also being held more widely for tourism purposes to promote the Lankaran-Astara teas. Tea growing occupies an important place in the social and economic life of the region.

The raw materials used for tea production are provided only by tea plantations located in the subtropical regions of Azerbaijan, Astara and Lankaran.

Tea is harvested twice a year, in May and August. During tea harvesting, the collection of tea leaves in the morning and by gentle female hands is one of the main conditions that affects the quality of the harvested product.

A person should consume up to 40 grams of water per kg of body mass per day. A person weighing 70-75 kg should consume 2800-3000 ml of water, tea and other watery foods per day. A person pays for 1200-1300 ml of that water at the expense of tea, coffee and other soft drinks. A person can live up to 40 days without consuming nutrients, but if he is dehydrated, he will die after 4-5 days.

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Food Properties - Lankaran and Astara teas are high-quality and richly-flavored beverages. These teas are obtained from tea plants grown in the temperate climate of the region and are very valuable in terms of nutritional value.

- Energy value: Teas are low-calorie beverages and are naturally low in sugar and fat. The calorie content of tea drinks depends mainly on their preparation method and added ingredients.
- Vitamins and minerals: Lankaran-Astara teas are naturally rich in vitamin C, B vitamins and minerals (such as manganese, calcium and potassium). This ensures that tea is beneficial for health.
- Antioxidants: Tea contains powerful antioxidant substances such as polyphenols, flavonoids and catechins. These substances prevent cell damage by neutralizing free radicals in the body and support overall health.

Physico-Chemical Properties

The physico-chemical properties of Lankaran-Astara teas determine their quality and natural composition.

- pH level: The pH level of teas varies between 6-7, which indicates that they are naturally neutral or weakly acidic. This does not have a harmful effect on the stomach when drinking tea.
- Color and odor: High-quality teas have a green or purple color. They naturally have a specific odor, which is the result of natural plant and natural fermentation processes.
- Ingredients: The chemical composition of tea contains substances such as polyphenols, tannins, caffeine and theobromine. These substances give the tea its characteristic taste and odor and have a physiological effect.
- Influencing factors: The composition and properties of tea can vary depending on the soil, climatic conditions, cultivation method and production process. These factors determine the composition and physico-chemical properties of tea.

Pharmacological Properties

The bioactive substances in Lankaran-Astara teas have various pharmacological effects:

- Stimulating and energizing effect: The caffeine and theobromine in the tea provide energy to the body and stimulate the nervous system. These substances increase attention and concentration.
- Antioxidant effect: The polyphenols and flavonoids in the tea protect the body from free radicals, support the health of the cardiovascular system and reduce the risk of cancer.
- Anti-inflammatory effect: The tannins in the tea have an anti-inflammatory effect. This can help prevent inflammatory processes.
- Effect on the stomach and digestive system: The catechins in the tea support the digestive system and can play a role in eliminating gastrointestinal problems.
- Antimicrobial and antiseptic effect: Some substances in Lankaran-Astara teas may be effective against microbes. This strengthens the immune system and prevents various diseases.

Conclusion. Since tea prepared on the basis of Azerbaijani plant raw materials is rich in biologically active substances, they have physiological significance for the human body. Drinks produced from Lankaran-Astara teas are natural and beneficial drinks that support human health with their nutritional, physicochemical and pharmacological properties. Teas play an important role in modern nutrition with both their nutritional value and the content of biologically active substances.

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OKUL ÖNCESİ DÖNEM ÇOCUĞU OLAN EBEVEYNLERİN DUYGUSAL İSTİSMAR POTANSİYELLERİNİN İNCELENMESİ EXAMINING THE POTENTIAL FOR EMOTIONAL ABUSE OF PARENTS WITH PRESCHOOL CHILDREN

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ÖZET

Okul öncesi dönem çocuğun gelişiminde kritik bir zaman aralığını oluşturmaktadır. Bu dönemde çocuk bilişsel, sosyal ve duygusal, dil, fiziksel gelişim alanlarında önemli ilerlemeler kaydetmektedir. Çocuğun doğduğu andan itibaren ilk iletişim kurduğu kişiler ebeveynleridir ve ebeveynlerin çocukla kurduğu olumlu ilişkiler çocuğun gelişiminde çok önemlidir. Ebeveynler ile çocuk arasındaki, çocuğa zarar verici bir ilişki olarak tanımlanan duygusal istismar ve çocuğun ihtiyacı olan sevgi, ilgi ve yakınlığın gösterilmediği duygusal ihmal kavramları son yıllarda giderek dikkati çeken ve gelişimsel zararları ortaya konulan iki temel kavramdır. Çocukluk döneminde yaşanan ihmal veya istismarın uzun dönemli olumsuz etkileri olduğu bilinmektedir. Ebeveynin çocuğuna gereken ilgi ve bakımı göstermeyerek duygusal istismara maruz bırakması çocuğun özgüvenini yitirmesine, değersiz hissetmesine neden olmaktadır. Olumsuz etkiler bunlarla sınırlı kalmayarak, çocuğun tüm hayatını etkileyerek, gelişimsel pek çok problemin yaşanmasına da neden olabilecektir. Bu araştırma, okul öncesi dönem çocuğu olan ebeveynlerin duygusal istismar potansiyellerinin (nedensel ve önleyici) incelenmesi ve etkili olabilecek etmenlerin ortaya çıkarılması amacıyla planlanmış betimsel tarama modelinde bir araştırmadır. Araştırmada ebeveynlerin özelliklerine ulaşabilmek için “Genel Bilgi Formu”, ebeveynlerin duygusal istismar potansiyelini belirlemek amacıyla “3-6 Yaş Çocuğa Sahip Ebeveynlere Yönelik Duygusal İstismar Potansiyeli Ölçeği” kullanılmıştır. Araştırma 2023-2024 eğitim öğretim yılı Ankara ili Etimesgut ilçesinde bulunan Milli Eğitim Bakanlığına bağlı okul öncesi eğitim kurumlarında öğrenim gören ve 3-6 yaş aralığında çocuğu bulunan 740 ebeveyn ile yürütülmüştür. Araştırma sonucunda elde edilen veriler SPSS programı kullanılarak analiz edilmiştir. Araştırma sonucunda, ebeveynlerin duygusal istismar potansiyelinin cinsiyet, anne öğrenim düzeyi, baba mesleği, çocuk sayısı, aile yapısı, ebeveynin çocuğu olacağını öğrendiğinde verdiği tepki, babanın günlük ekran kullanım süresine göre anlamlı farklılık gösterdiği tespit edilmiştir. Bunun yanı sıra ebeveynin yaşı, babanın öğrenim düzeyi, annenin mesleği, medeni durum, ebeveynin ilk anne/baba olma yaşı, bedensel veya ruhsal rahatsızlığa sahip olma durumu, annenin günlük ekran kullanım süresine göre anlamlı farklılık göstermediği görülmüştür. Araştırma sonuçları ilgili literatür ışığında tartışılarak, önerilerde bulunulmuştur.

Anahtar kelimeler: Preschool, Emotional Abuse, Potential for Emotional Abuse

ABSTRACT

The preschool period is a critical time period in the child's development. During this period, the child makes significant progress in cognitive, social and emotional, language and physical development. The first people the child communicates with from the moment of birth are their parents, and the positive

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relationships that parents establish with the child are very important in the child's development. Emotional abuse, defined as a harmful relationship between parents and children, and emotional neglect, in which the child is not shown the love, attention and closeness he needs, are two basic concepts that have attracted increasing attention in recent years and whose developmental harms have been revealed. It is known that neglect or abuse experienced in childhood has long-term negative effects. When a parent does not show the necessary attention and care to their child and exposes them to emotional abuse, it causes the child to lose self-confidence and feel worthless. The negative effects are not limited to these, they can affect the child's entire life and cause many developmental problems. This research is a descriptive screening model research planned to examine the emotional abuse potentials (causal and preventive) of parents with preschool children and to reveal the factors that may be effective. In the study, the "General Information Form" was used to access the characteristics of the parents, and the "Emotional Abuse Potential Scale for Parents with 3-6 Year-Old Children" was used to determine the emotional abuse potential of the parents. The research was conducted with 740 parents who have children aged 3-6 and studying in preschool education institutions affiliated with the Ministry of National Education in Etimesgut district of Ankara province in the 2023-2024 academic year. The data obtained as a result of the research were analyzed using the SPSS program. As a result of the research, it was determined that the emotional abuse potential of the parents differed significantly according to gender, mother's education level, father's occupation, number of children, family structure, the reaction of the parent when he/she learned that he/she was going to have a child, and the daily screen usage time of the father. In addition, it was observed that there was no significant difference according to the age of the parent, the father's education level, the mother's occupation, marital status, the age of the parent becoming a first mother/father, having a physical or mental disorder, and the daily screen usage time of the mother. The research results were discussed in the light of the relevant literature and suggestions were made.

Keywords: Preschool, Emotional Abuse, Potential for Emotional Abuse

GİRİŞ

Okul öncesi dönem çocukların çok yönlü ve hızlı ilerlemeler kaydettikleri, karakter yapılarının temellerinin oluşturulduğu ve ilköğretime hazırlık aşamasını içeren 3-6 yaş arasındaki dönemi kapsayan yaşamın kritik evrelerinden biridir (Avcı, Selçuk & Kaynak, 2019). Çocuklar okul öncesi eğitim kurumunda yeni bir sosyal çevre edinirler. Bu süreçte arkadaşlarıyla birlikte oyun oynama, paylaşma ve yardımlaşma gibi sosyal beceriler görülmektedir. Çocukların sosyal ilişkilerinin gelişiminde ebeveynleri ile yaşadığı deneyimler öncü rol oynamaktadır. Çocuğun doğduğu andan itibaren ilk iletişim kurduğu kişilerin ebeveynleri olduğu düşünüldüğünde, kurulan iletişimin niteliği ve aile üyeleri arasındaki etkileşim çocuğun çevresi ile olan etkileşimini de şekillendirmektedir (Senemoğlu, 2013). Temel ihtiyaçları zamanında karşılanan, ebeveynleri tarafından gerekli ilgiyi gören, olumlu iletişim kurulan çocuk güven duygusu içerisinde çevresini daha kolay araştırmakta ve keşfetmektedir (Akkuş, 2021). Ebeveynleri tarafından engellenen, duygusal istismara uğrayan, ebeveynleri ile çatışma yaşayan ve olumsuz bir iletişime maruz kalan çocuklar ise özgüven eksikliği yaşayarak ebeveynlerinden gördükleri olumsuz tavır ve tutumları arkadaşlarına sergileyebilmektedir. Duygusal istismar çocuğun gerek duyduğu ilgi ve bakımın sağlanmaması, zarar verici tavır ve tutuma maruz bırakılması, bilimsel ve toplumsal standartlara göre psikolojik olarak hasar görmesidir (Şenol, 2021). Duygusal istismarın tespiti diğer istismar türlerine göre vücutta belirgin bir iz görülmediğinden dolayı daha zor olmaktadır. Bu durumda kalp kırıklığı, duygusal örselenme, içe kapanıklık gibi soyut bulguların iyi bir şekilde analiz edilmesi gereklidir (Güdek, 2016). Duygusal istismar potansiyeli ise ebeveynin şu anki davranışlarının ilerleyen zamanlarda duygusal istismara neden olan davranışlara dönüşme ihtimali olarak ifade edilir

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(Lang vd., 2022). Anne- babanın yaşının küçük olması, düşük eğitim seviyesine ve düşük sosyo-ekonomik düzeye sahip olma, tek veya boşanmış ebeveyn olma, geniş aileyle yaşama durumu, ebeveyn tutumu, alkol/ sigara/ madde bağımlılığının olması, ebeveynin olumsuz çocukluk çağı deneyimleri, doğum sonrası depresyon ve güvenli bağlanmanın kurulamamış olması ebeveynin duygusal istismar potansiyelini arttıran risk faktörlerdir (Hughes & Cossar, 2016; Pekdoğan & Kahraman, 2021; Öztürk, 2023; Sidebotham vd., 2006; Yüksel & Yüksel, 2014; Zalewski vd., 2013). Duygusal istismarın çocuklar üzerindeki etkileri dil ve konuşma problemleri, konuşma gecikmesi, özgüven eksikliği, akademik başarının azalması, enürezis, enkoprezis, beslenme ve yeme bozuklukları, uyku bozuklukları, kaygı bozuklukları, parmak emme, yalan söyleme, suç işleme eğilim, empatik yoksunluk, dikkat dağınıklığı, öğrenme güçlüğü, depresyon, post-travmatik stres bozukluğu, kendine zarar verme ve intihar eğilimi, kişilik problemleri, ipotekli kimlik geliştirme, aileden uzaklaşma, içe kapanma ve agresif tavırlar olarak sıralanabilir (Kars, 1996; Bayraktar, 2015; Durmuşoğlu Saltalı, 2015; Polat, 2007; Tıraşçı & Gören, 2007). Yapılan çalışmalar incelendiğinde okul öncesi dönem çocuğa sahip olan ebeveynlerin duygusal istismar potansiyelinin farklı değişkenler açısından araştırıldığı ve babalarında araştırma kapsamına dahil edildiği çalışmaların az sayıda olduğu görülmüştür. Bu araştırma okul öncesi dönem çocuğu olan ebeveynlerin duygusal istismar potansiyellerinin (nedensel ve önleyici) bazı değişkenlere (yaş, cinsiyet, öğrenim düzeyi, meslek, medeni durumu, çocuk sayısı, ilk anne/baba olma yaşı, aile yapısı, çocuğu olacağını öğrendiğinde verdiği tepki, bedensel veya ruhsal rahatsızlığı olma durumu, günlük ekran kullanım süresi) göre farklılık gösterip göstermediğini belirlemek amacıyla yapılmıştır.

YÖNTEM

Araştırmanın Modeli

Okul öncesi dönem çocuğu olan ebeveynlerin duygusal istismar potansiyellerinin farklı değişkenler açısından incelendiği bu çalışmada betimsel tarama modeli kullanılmıştır. Betimsel tarama modeli şu an var olan veya geçmişte olmuş olan durumu olduğu şekliyle betimlemeyi amaçlar (Karasar, 2015).

Çalışma Grubu

Araştırmanın çalışma grubunu 2023-2024 eğitim öğretim yılında Ankara ili Etimesgut ilçesinde bulunan Milli Eğitim Bakanlığına bağlı okul öncesi eğitim kurumlarında öğrenim gören ve 3-6 yaş aralığında çocuğu bulunan ebeveynler oluşturmaktadır. Araştırmaya dahil edilen ebeveynlerin 376'sı anne (%50,8) iken, araştırmaya katılan baba sayısı 364'tür (%49,2). Araştırmaya katılan annelerin 64'ü (%17,1) 20-30 yaş arasında, 245'i (%65,3) 31-40 yaş arasında, 66'sı (%17,6) 41-50 yaş arasında bulunmaktadır. Araştırmaya katılan babaların ise 14'ü (%3,8) 20-30 yaş arasında, 219'u (%60,0) 31-40 yaş arasında, 132'si (%36,2) 41-50 yaş arasında bulunmaktadır. Annelerin öğrenim düzeyi incelendiğinde 19'u (%5,1) ilkökul ve altı, 128'i (%34,1) ortaokul veya lise, 74'ü (%19,7) ön lisans, 132'si (%35,2) lisans ve 22'si (%5,9) yüksek lisans ya da doktora düzeyinde eğitim almıştır. Babaların öğrenim düzeyi dikkate alındığında 16'sı (%4,4) ilkökul ve altı, 126'sı (%34,5) ortaokul veya lise, 44'ü (%12,1) ön lisans, 144'ü (%39,5) lisans ve 35'i (%9,6) yüksek lisans ya da doktora düzeyinde eğitim almıştır. Araştırmada ebeveyn meslek grupları ev hanımı/çalışmıyor, memur, işçi, serbest meslek, emekli ve diğer olmak üzere 6 grupta ele alınmıştır. Anne meslekleri incelendiğinde 235'i (%62,7) ev hanımı, 87'si (%23,2) memur, 26'sı (%6,9) işçi, 27'si (%7,2) serbest meslek grubunda çalıştığı görülmektedir. Baba meslekleri ele alındığında 137'si (%37,5) memur, 96'sı (%26,3) işçi, 120'si (%32,9) serbest meslek, 12'si (%3,3) emekli meslek gruplarında çalıştığı görülmektedir.

Veri Toplama Araçları

Araştırmada veri toplama aracı olarak “Genel Bilgi Formu (Ebeveyn)” ve “3-6 Yaş Çocuğa Sahip Ebeveynlere Yönelik Duygusal İstismar Potansiyeli Ölçeği” kullanılmıştır.

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“Genel Bilgi Formu” araştırmacı tarafından ebeveynlerin demografik özelliklerini belirlemek amacıyla ebeveyn yaşı, cinsiyeti, öğrenim düzeyi, mesleği, medeni durumu, çocuk sayısı, ilk ebeveyn olma yaşı, aile yapısı, hamile olduğunu/eşinin hamile olduğunu öğrendiğinde verdiği tepki, bedensel veya ruhsal rahatsızlığı, günlük ekran kullanım süresi olmak üzere toplam 11 sorudan oluşturulmuştur.

Pekdoğan ve Kanak (2019) tarafından geliştirilmiş olan “3-6 Yaş Çocuğa Sahip Olan Ebeveynlere Yönelik Duygusal İstismar Potansiyeli Ölçeği (DİPÖ)” ebeveynlerin duygusal istismarın farkında olmaları ve duygusal istismar potansiyellerini ölçme amacıyla geliştirilmiştir. 5’li likert tipi oluşturulan ölçek toplam 50 maddeden oluşmaktadır. Ölçeğin geçerlik ve güvenilirlik çalışmaları yapılmıştır. Nedensel alt boyutu, anne-babaların çocuklarına karşı olumsuz tutum ve davranışlarını kapsayan, duygusal istismara neden olan davranışları ölçen 29 maddeden oluşmaktadır ve bu bölümde ters puanlanan madde bulunmamaktadır. Nedensel alt boyutundan alınabilecek en yüksek puan 145 ve en düşük puan ise 29 puandır. Ölçeğin nedensel alt boyutu, yüksek puan alan ebeveynlerin, çocuklarına yönelik duygusal istismar potansiyeline neden olan davranışlarının fazla olduğunu göstermektedir. Önleyici alt boyutunda ise anne ve babaların duygusal istismarı önlemeye yönelik davranışlarını ölçen 21 madde yer almaktadır ve bu bölümde bütün maddeler ters puan olarak hesaplanmaktadır. Önleyici alt boyutundan alınabilecek en yüksek puan 105 ve en düşük puan 21’dir. Önleyici alt boyutundan yüksek puan alan ebeveynlerin çocuklarına karşı duygusal istismarı önlemeye yönelik davranışlarının da yüksek olduğu şeklinde değerlendirilmektedir. Ölçeğin geliştirilmesi aşamasında ölçek toplamına ait Cronbach Alpha güvenilirlik katsayısı 0,97 olarak tespit edilmiştir. Ölçeğin alt boyutlarına ilişkin güvenilirlik katsayıları incelendiğinde nedensellik ve önleyici alt boyutlarının Cronbach Alpha güvenilirlik katsayıları 0,96 olarak bulunmuştur (Pekdoğan ve Kanak, 2019). Bu araştırmada ölçme aracının güvenilirlik katsayısı değerlerine tekrar bakılmış ve ölçümlerin güvenilirliğine ait güvenilirlik katsayısı değeri (Cronbach Alpha (α)) nedensel alt boyutu için 0,82, önleyici alt boyutu için 0,88 ve ölçek maddelerinin toplamı için 0,77 olarak bulunmuştur. Elde edilen bulgular ölçekten elde edilen ölçme sonuçlarının güvenilir olduğunu göstermektedir.

Verilerin Toplanması ve Analizi

Araştırma verileri Gazi Üniversitesi Etik Kurulu ve Ankara İl Milli Eğitim Müdürlüğünden gerekli izinler alındıktan sonra gönüllü olarak katılım sağlamak isteyen ebeveynlerden toplanmıştır. Araştırma verileri SPSS programı kullanılarak analiz edilmiştir. Analizler yapılmadan önce kayıp verilerin bulunup bulunmadığını saptamak amacıyla veri setinde kayıp değer ve uç değerler incelenmiştir. Herhangi bir kayıp değer görülmemiştir. Bir diğer varsayım olan normallik varsayımı da incelenmiş ve çalışma grubunun 50’den fazla olması nedeniyle Kolmogorov-Smirnov testi uygulanmıştır. Araştırmada normallik testi neticesinde Kolmogorov-Smirnov testi sonuçlarının anlamlı çıktığı tespit edilmiştir. Ancak sonuçlar örneklem büyüklüğünden etkilenip yanlış sonuçlar verebildiğinden dağılımın normal olup olmadığına karar vermek için faktör puanlarının çarpıklık ve basıklık değerleri incelenmiş, değişkenlere ait çarpıklık ve basıklık değerlerinin normal dağıldığı görülmüştür. George & Mallery (2016) çarpıklık ve basıklık değerlerinin normal dağılım olarak kabul edilmesi için ± 2 puan arasında bulunması gerektiğini bildirmektedir. Bu çalışmada çarpıklık ve basıklık değerleri ± 1 aralığında yer almaktadır. Bunun yanı sıra histogramlar ve varyasyon katsayısı incelenmiştir. Normalliği desteklediği için parametrik istatistik tekniklerinin uygulanması kararlaştırılmıştır. Bu doğrultuda araştırmada, ebeveynlerinin duygusal istismar potansiyellerine ait 2 boyut (nedensel ve önleyici) ve toplam puanlarının demografik verilere göre farklılık gösterip göstermediği, bağımsız değişkenlerin grup sayısına göre, bağımsız örneklem için t testi ve Tek Yönlü Varyans Analizi (ANOVA) aracılığıyla incelenmiş olup anlamlı farklılık çıkanlarda, grup farklılıklarını tespit etmek için LSD testi uygulanmıştır. Yapılan analizlerde 0,05 anlamlılık değeri olarak belirlenmiştir.

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BULGULAR

Bu çalışmada “Okul öncesi dönem çocuğu olan ebeveynlerin duygusal istismar potansiyelleri (nedensel ve önleyici) bazı değişkenlere (yaş, cinsiyet, öğrenim düzeyi, meslek, medeni durumu, çocuk sayısı, ilk anne/baba olma yaşı, aile yapısı, çocuğu olacağını öğrendiğinde verdiği tepki, bedensel veya ruhsal rahatsızlığı olma durumu, günlük ekran kullanım süresi) göre farklılık göstermekte midir?” sorusuna cevap aranmıştır. Bu kapsamda analizler yapılmış ve elde edilen bulgular tablolar halinde sunulmuştur.

Tablo 1. Ebeveyn Yaşına Göre “Ebeveynlere Yönelik DİPÖ” Sonuçları

Faktörler	Değişken: Anne Yaşı	N	$\bar{X}$	s.s	F	P
DİPÖ Nedensel	20-30 yaş arası	64	36,40	9,10	1,491	0,227
	31-40 yaş arası	245	36,38	5,61		
	41-50 yaş arası	66	37,92	6,83		
	Toplam	375	36,66	6,55		
DİPÖ Önleyici	20-30 yaş arası	64	29,54	7,50	0,941	0,391
	31-40 yaş arası	245	28,63	4,97		
	41-50 yaş arası	66	29,48	7,22		
	Toplam	375	28,94	5,90		
DİPÖ Toplam	20-30 yaş arası	64	66,10	13,51	1,403	0,247
	31-40 yaş arası	245	64,93	8,90		
	41-50 yaş arası	66	67,25	12,25		
	Toplam	375	65,54	10,46		
Faktörler	Değişken: Baba Yaşı	N	$\bar{X}$	s.s	F	P
DİPÖ Nedensel	20-30 yaş arası	14	36,42	10,27	1,099	0,334
	31-40 yaş arası	219	36,62	6,30		
	41-50 yaş arası	132	37,75	7,79		
	Toplam	365	37,02	7,05		
DİPÖ Önleyici	20-30 yaş arası	14	29,78	7,61	1,018	0,362
	31-40 yaş arası	219	32,36	7,68		
	41-50 yaş arası	132	32,80	7,43		
	Toplam	365	32,42	7,59		
DİPÖ Toplam	20-30 yaş arası	14	66,21	15,86	0,988	0,373
	31-40 yaş arası	219	69,09	12,38		
	41-50 yaş arası	132	70,47	12,53		
	Toplam	365	69,48	12,58		

Tablo 1’ de ebeveynlerin duygusal istismar potansiyellerinin yaşlarına göre anlamlı farklılık oluşturmadığı görülmektedir ($p>0,05$). DİPÖ toplam puan ortalamaları incelendiğinde yaşları 41-50 yaş arasında bulunan annelerin ($\bar{X}=67,25$) ve babaların ($\bar{X}=70,47$) en yüksek puan ortalamalarına sahip olduğu görülmektedir.

Tablo 2. Ebeveyn Cinsiyetine Göre “Ebeveynlere Yönelik DİPÖ ” Sonuçları

Faktörler	Değişken: Cinsiyeti	Ebeveyn N	$\bar{X}$	s.s	t	P
DİPÖ Nedensel	Kadın	398	36,10	5,84	10,317	0,001*
	Erkek	342	37,70	7,68		
DİPÖ Önleyici	Kadın	398	30,40	6,90	1,151	0,284
	Erkek	342	30,95	7,12		

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DİPÖ Toplam	Kadın	398	66,46	10,85	6,565	0,011*
	Erkek	342	68,67	12,56		

Tablo 2 incelendiğinde ebeveynlerin duygusal istismar potansiyelleri ile cinsiyetleri arasında anlamlı farklılık olduğu görülmektedir (DİPÖ Nedensel, $t=10,317$; DİPÖ Toplam, $t=6,565$; $p<0,05$). DİPÖ toplam puan ortalamaları incelendiğinde erkeklerin ($\bar{X}=68,67$) kadınlardan ($\bar{X}=66,46$) daha fazla duygusal istismar potansiyeline sahip olduğu tespit edilmiştir.

Tablo 3. Ebeveyn Öğrenim Düzeyine Göre “Ebeveynlere Yönelik DİPÖ” Sonuçları

Faktörler	Değişken: Anne Öğr. Düzeyi	N	$\bar{X}$	s.s	F	P	Fark (LSD)
DİPÖ Nedensel	(1)İlkokul ve altı	19	42,15	10,43	4,335	0,002*	1>5
	(2)Ortaokul veya lise	128	36,76	6,04			1>4
	(3)Üniversite mezunu (önlisans)	74	36,62	8,27			1>3
	(4)Üniversite mezunu (lisans)	132	36,16	5,18			
	(5)Yüksek lisans veya doktora	22	34,40	3,33			
DİPÖ Önleyici	(1)İlkokul ve altı	19	31,47	7,61	1,639	0,164	
	(2)Ortaokul veya lise	128	28,92	5,97			
	(3)Üniversite mezunu (önlisans)	74	28,09	4,69			
	(4)Üniversite mezunu (lisans)	132	28,81	5,66			
	(5)Yüksek lisans veya doktora	22	30,45	8,29			
DİPÖ Toplam	(1)İlkokul ve altı	19	73,63	15,49	3,231	0,013*	1>5
	(2)Ortaokul veya lise	128	65,70	10,30			1>4
	(3)Üniversite mezunu (önlisans)	74	64,67	10,83			1>3
	(4)Üniversite mezunu (lisans)	132	64,81	9,01			
	(5)Yüksek lisans veya doktora	22	64,86	10,96			
Faktörler	Değişken: Baba Öğr. Düzeyi	N	$\bar{X}$	s.s	F	P	
DİPÖ Nedensel	(1)İlkokul ve altı	16	36,18	6,05	0,817	0,515	
	(2)Ortaokul veya lise	126	37,30	8,51			
	(3)Üniversite mezunu (önlisans)	44	37,70	7,50			
	(4)Üniversite mezunu (lisans)	144	37,11	5,97			
	(5)Yüksek lisans veya doktora	35	35,17	4,91			
DİPÖ Önleyici	(1)İlkokul ve altı	16	28,62	5,43	1,502	0,201	
	(2)Ortaokul veya lise	126	33,20	8,27			
	(3)Üniversite mezunu (önlisans)	44	32,63	7,35			
	(4)Üniversite mezunu (lisans)	144	31,98	7,00			
	(5)Yüksek lisans veya doktora	35	32,85	8,20			
DİPÖ Toplam	(1)İlkokul ve altı	16	64,81	9,21	1,061	0,376	
	(2)Ortaokul veya lise	126	70,54	14,01			
	(3)Üniversite mezunu (önlisans)	44	70,79	14,43			

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(4)Üniversite mezunu (lisans) 144 69,02 11,20

(5)Yüksek lisans veya doktora 35 68,02 11,13

Tablo 3 incelendiğinde babaların duygusal istismar potansiyeli öğrenim düzeyine göre herhangi bir farklılık oluşturmazken ($p>0,05$), annelerin duygusal istismar potansiyeli DİPÖ nedensel alt boyutunda ($F: 4,335$ $p<0,05$) ve DİPÖ toplamında ($F: 3,231$ $p<0,05$) öğrenim düzeyine göre anlamlı düzeyde farklılık oluşturmaktadır. Farkın kaynağını belirlemek amacıyla LSD çoklu karşılaştırma testi yapılmıştır. Puan ortalamaları incelendiğinde annelerin DİPÖ nedensel alt boyutu ($\bar{X}=42,15$) ve DİPÖ toplam puan ($\bar{X}=73,63$) ortalamalarında en yüksek puana sahip olanların ilkökul ve altı eğitim seviyesine sahip olduğu görülmüştür.

Tablo 4. Ebeveyn Mesleğine Göre “Ebeveynlere Yönelik DİPÖ ” Sonuçları

Faktörler	Değişken: Anne Meslek	N	$\bar{X}$	s.s	F	P	Fark (LSD)
DİPÖ Nedensel	(1)Ev Hanımı	235	37,22	7,07	1,785	0,150	
	(2)Memur	87	35,36	4,71			
	(3)İşçi	26	36,07	6,75			
	(4)Serbest Meslek	27	36,51	6,40			
	(5)Toplam	375	36,66	6,55			
DİPÖ Önleyici	(1)Ev Hanımı	235	28,84	6,12	1,358	0,255	
	(2)Memur	87	28,89	5,21			
	(3)İşçi	26	27,88	4,49			
	(4)Serbest Meslek	27	30,96	7,01			
	(5)Toplam	375	28,94	5,90			
DİPÖ Toplam	(1)Ev Hanımı	235	66,05	11,11	1,298	0,275	
	(2)Memur	87	64,03	8,04			
	(3)İşçi	26	63,96	9,92			
	(4)Serbest Meslek	27	67,48	11,73			
	(5)Toplam	375	65,54	10,46			
Faktörler	Değişken: Baba Meslek	N	$\bar{X}$	s.s	F	P	Fark (LSD)
DİPÖ Nedensel	(1)Memur	137	36,06	5,84	3,821	0,010*	1<3
	(2)İşçi	96	36,17	5,83			2<3
	(3)Serbest Meslek	120	38,75	8,94			4<3
	(4)Emekli	12	37,41	3,70			
	(5)Toplam	365	37,02	7,05			
DİPÖ Önleyici	(1)Memur	137	31,96	7,87	0,282	0,838	
	(2)İşçi	96	32,80	8,00			
	(3)Serbest Meslek	120	32,59	6,95			
	(4)Emekli	12	32,91	7,59			
	(5)Toplam	365	32,42	7,59			
DİPÖ Toplam	(1)Memur	137	68,02	11,45	1,749	0,157	
	(2)İşçi	96	68,91	12,05			
	(3)Serbest Meslek	120	71,51	14,24			
	(4)Emekli	12	70,33	9,45			
	(5)Toplam	365	69,48	12,58			

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Tablo 4’ de görüldüğü üzere ebeveynlerin duygusal istismar potansiyeli anne mesleğine göre anlamlı farklılık göstermezken ($p>0,05$), baba mesleğinde DİPÖ nedensel alt boyutunda anlamlı farklılık oluşturduğu görülmektedir ($F:3,821$, $p<0,05$). Farkın kaynağını belirlemek amacıyla LSD çoklu karşılaştırma testi yapılmıştır. Puan ortalamaları incelendiğinde DİPÖ nedensel alt boyutunda en yüksek puanı elde eden annelerin ev hanımı olduğu ($\bar{X}=37,22$), babalarda ise en yüksek puanı serbest mesleğe sahip olan babaların elde ettiği görülmektedir ($\bar{X}=38,75$).

Tablo 5.Ebeveyn Çocuk Sayısına Göre “Ebeveynlere Yönelik DİPÖ” Sonuçları

Faktörler	Değişken: Çocuk Sayısı	N	$\bar{X}$	s.s	F	P	Fark (LSD)
DİPÖ Nedensel	(1)Tek çocuk	178	35,61	5,57	9,206	0,001*	1<3
	(2)İki çocuk	405	36,46	5,83			2<3
	(3)Üç çocuk	126	39,43	10,12			
	(4)Dört ve daha fazla çocuk	31	38,25	5,45			
	(5)Toplam	740	36,84	6,80			
DİPÖ Önleyici	(1)Tek çocuk	178	29,69	6,71	2,068	0,103	
	(2)İki çocuk	405	30,74	7,30			
	(3)Üç çocuk	126	31,69	6,47			
	(4)Dört ve daha fazla çocuk	31	30,87	6,23			
	(5)Toplam	740	30,65	7,00			
DİPÖ Toplam	(1)Tek çocuk	178	65,25	10,05	7,040	0,001*	
	(2)İki çocuk	405	67,15	11,34			1<3
	(3)Üç çocuk	126	71,28	14,27			2<3
	(4)Dört ve daha fazla çocuk	31	69,12	10,35			
	(5)Toplam	740	67,48	11,71			

Tablo 5 incelendiğinde ebeveynlerin duygusal istismar potansiyeli çocuk sayılarına göre DİPÖ nedensel alt boyutunda ($F:9,206$ $p<0,05$) ve DİPÖ toplam puanda ($F:7,040$ $p<0,05$) anlamlı farklılık oluşturduğu görülmektedir. Puan ortalamaları incelendiğinde en yüksek puana sahip olan ebeveynlerin sırasıyla üç çocuğa, dört ve daha fazla çocuğa sahip olduğu tespit edilmiştir (DİPÖ Nedensel $\bar{X}=39,43$; DİPÖ Önleyici $\bar{X}=31,69$; DİPÖ Toplam $\bar{X}=71,28$).

Tablo 6.Ebeveynin Aile Yapısına Göre “Ebeveynlere Yönelik DİPÖ” Sonuçları

Faktörler	Değişken: Aile yapısı	N	$\bar{X}$	s.s	F	P	Fark (LSD)
DİPÖ Nedensel	(1)Geniş Aile	119	37,81	7,38	2,802	0,061	
	(2)Çekirdek Aile	613	36,70	6,69			
	(3)Parçalanmış Aile	8	32,75	3,19			
	(4)Toplam	740	36,84	6,80			
DİPÖ Önleyici	(1)Geniş Aile	119	31,54	7,88	1,881	0,153	
	(2)Çekirdek Aile	613	30,52	6,84			
	(3)Parçalanmış Aile	8	27,50	2,87			
	(4)Toplam	740	30,65	7,00			
	(1)Geniş Aile	119	69,45	13,12	3,410	0,034*	2<1

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DİPÖ	(2)Çekirdek Aile	613	67,19	11,42	3<1
Toplam	(3)Parçalanmış Aile	8	60,25	5,80	
	(4)Toplam	740	67,48	11,71	

Tablo 6’da ebeveynlerin duygusal istismar potansiyelinin aile yapısına göre DİPÖ toplamında anlamlı farklılık oluşturduğu görülmektedir (F:3,410 p<0,05). Puan ortalamaları incelendiğinde en yüksek puana sahip olan ebeveynlerin geniş aile yapısına sahip olduğu görülmektedir (DİPÖ Nedensel $\bar{X}$ =37,81; DİPÖ Önleyici $\bar{X}$ =31,54; DİPÖ Toplam $\bar{X}$ =69,45).

Tablo 7. Ebeveynin Çocuğu Olacağını Öğrendiğinde Verdiği Tepkisine Göre “Ebeveynlere Yönelik DİPÖ” Sonuçları

Faktörler	Değişken:Verdiği Tepki	N	$\bar{X}$	s.s	F	P	Fark (LSD)
DİPÖ	(1)Çok mutlu oldum	650	36,50	6,70	6,792	0,001*	1<3
Nedensel	(2)Normal karşıladım, beklediğim bir durumdu.	84	39,22	7,10			2<3
	(3)Üzüldüm, korktum, gebeliği sonlandırmak istedim	6	40,16	6,49			
	(4)Toplam	740	36,84	6,80			
DİPÖ	(1)Çok mutlu oldum	650	30,34	6,83	6,223	0,002*	1<3
Önleyici	(2)Normal karşıladım, beklediğim bir durumdu.	84	32,71	7,23			2<3
	(3)Üzüldüm, korktum, gebeliği sonlandırmak istedim	6	36,16	14,24			
	(4)Toplam	740	30,65	7,00			
DİPÖ	(1)Çok mutlu oldum	650	66,79	11,25	9,961	0,001*	1<3
Toplam	(2)Normal karşıladım, beklediğim bir durumdu.	84	72,22	13,28			2<3
	(3)Üzüldüm, korktum, gebeliği sonlandırmak istedim	6	76,33	19,47			
	(4)Toplam	740	67,48	11,71			

Tablo 7 incelendiğinde ebeveynlerin duygusal istismar potansiyeli çocuğu olacağını öğrendiğinde verdiği tepkiye göre anlamlı farklılık göstermektedir (DİPÖ Nedensel F:6,792 p<0,05; DİPÖ Önleyici F:6,223 p<0,05; DİPÖ Toplam F:9,961, p<0,05). Puan ortalamaları incelendiğinde “üzüldüm, korktum, gebeliği sonlandırmak istedim” seçeneğini işaretleyen ebeveynlerin en yüksek puana sahip olduğu görülmektedir (DİPÖ Nedensel $\bar{X}$ =40,16; DİPÖ Önleyici $\bar{X}$ =36,16; DİPÖ Toplam $\bar{X}$ =76,33).

Tablo 8.Ebeveynin Günlük Ekran Kullanım Süresine Göre “Ebeveynlere Yönelik DİPÖ” Sonuçları

Faktörler	Değişken: Anne ekran kul. süresi	N	$\bar{X}$	s.s	F	P	Fark (LSD)
DİPÖ	(1)0-1 saat arası	54	36,64	9,82	2,08	0,082	
Nedensel	(2)1-3 saat arası	212	36,16	5,42	7		
	(3)3-5 saat arası	83	37,36	5,66			
	(4)5-7 saat arası	20	40,20	9,09			
	(5)7 saat ve üstü	5	35,20	5,89			
	(6)Toplam	374	36,70	9,82			
DİPÖ	(1)0-1 saat arası	54	27,75	6,68	1,20	0,310	
Önleyici	(2)1-3 saat arası	212	28,96	5,69	2		

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	(3)3-5 saat arası	83	29,91	5,77				
	(4)5-7 saat arası	20	28,75	6,75				
	(5)7 saat ve üstü	5	30,80	8,04				
	(6)Toplam	374	29,01	5,96				
DİPÖ	(1)0-1 saat arası	54	64,20	14,05	1,52	0,194		
Toplam	(2)1-3 saat arası	212	65,00	9,27	6			
	(3)3-5 saat arası	83	67,39	9,25				
	(4)5-7 saat arası	20	68,95	14,81				
	(5)7 saat ve üstü	5	66,00	10,58				
	(6)Toplam	374	65,65	10,47				
Faktörler	Değişken: Baba ekran kul. süresi	N	$\bar{X}$	s.s	F	P	Fark (LSD)	
DİPÖ	(1)0-1 saat arası	43	35,30	8,95	3,26	0,012	1<5	
Nedensel	(2)1-3 saat arası	166	37,10	6,92	4	*	2<5	
	(3)3-5 saat arası	100	36,17	5,64			3<5	
	(4)5-7 saat arası	32	38,00	6,81			4<5	
	(5)7 saat ve üstü	25	41,04	8,35				
	(6)Toplam	366	36,98	7,05				
DİPÖ	(1)0-1 saat arası	43	29,41	6,52	2,61	0,035	1<5	
Önleyici	(2)1-3 saat arası	166	32,86	7,84	5	*	2<5	
	(3)3-5 saat arası	100	32,12	7,03			3<5	
	(4)5-7 saat arası	32	32,15	8,29			4<5	
	(5)7 saat ve üstü	25	34,96	7,60				
	(6)Toplam	366	32,33	7,58				
DİPÖ	(1)0-1 saat arası	43	64,72	12,35	3,63	0,006	1<5	
Toplam	(2)1-3 saat arası	166	70,11	12,95	4	*	2<5	
	(3)3-5 saat arası	100	68,29	10,83			3<5	
	(4)5-7 saat arası	32	69,84	14,06			4<5	
	(5)7 saat ve üstü	25	76,00	12,66				
	(6)Toplam	366	69,36	12,60				

Tablo 8 incelendiğinde annelerin duygusal istismar potansiyeli günlük ekran kullanım sürelerine göre anlamlı farklılık oluşturmazken ($p>0,05$), babaların duygusal istismar potansiyeli günlük ekran kullanım sürelerine göre anlamlı farklılık oluşturduğu belirlenmiştir (DİPÖ Nedensel $F:3,264$ $p<0,05$; DİPÖ Önleyici $F:2,615$ $p<0,05$; DİPÖ Toplam $F:3,634$ $p<0,05$). Puan ortalamaları incelendiğinde 5-7 saat aralığında ekran kullanan annelerin duygusal istismar potansiyeli en yüksek olarak tespit edilirken (DİPÖ Toplam $\bar{X}=68,95$), 7 saat ve üzeri ekran kullanan babaların en yüksek puanlara sahip olduğu tespit edilmiştir. (DİPÖ Nedensel $\bar{X}=41,04$; DİPÖ Önleyici $\bar{X}=34,96$; DİPÖ Toplam $\bar{X}=76,00$).

Bu bulguların yanı sıra araştırmada ebeveynlerin duygusal istismar potansiyeli ile medeni durumları arasındaki ilişki incelenmiş ve anlamlı düzeyde farklılık oluşturmadığı görülmüştür ($p>0,05$). Puan ortalamaları incelendiğinde DİPÖ nedensel alt boyutunda ($\bar{X}=37,38$) ve DİPÖ toplamında ($\bar{X}=69,38$) bekar/dul ebeveynlerin daha yüksek puanlar elde ettikleri saptanmıştır. Bir diğer bulguya göre ebeveynlerin duygusal istismar potansiyeli ile bedensel veya ruhsal rahatsızlığa sahip olma durumu arasındaki ilişki incelendiğinde anlamlı farklılık oluşturmadığı saptanmıştır ($p>0,05$). Puan ortalamaları incelendiğinde en yüksek puana sahip olan ebeveynlerin bedensel veya ruhsal rahatsızlığa sahip olduğu görülmektedir (DİPÖ Nedensel $\bar{X}=37,93$; DİPÖ Önleyici $\bar{X}=30,71$; DİPÖ Toplam $\bar{X}=68,65$).

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Araştırmada ebeveynlerin duygusal istismar potansiyelinin ilk defa anne/baba olma yaşına göre anlamlı farklılık gösterip göstermediği incelenmiş ve anlamlı bir farklılık oluşturmadığı görülmüştür ($p>0,05$). Puan ortalamaları incelendiğinde 20 yaş altında ilk kez anne olanların en yüksek puana sahip olduğu görülürken (DİPÖ Toplam $\bar{X}=68,45$), 36-40 yaş arasında ilk kez baba olanların en yüksek puan ortalamalarına sahip olduğu görülmüştür (DİPÖ Toplam $\bar{X}=70,34$).

TARTIŞMA

Araştırma bulgularına göre ebeveynlerin duygusal istismar potansiyelleri yaşlarına göre anlamlı farklılık oluşturmamaktadır. 41-50 yaş arasında bulunan ebeveynlerin duygusal istismar puanlarının daha yüksek olmasının nedeni ebeveynlerin yaşı ilerledikçe tahammül seviyelerinin azalması, yoğun iş temposu sebebiyle yorulan ebeveynlerin çocuklarına karşı daha anlayışsız davranmaları, araştırma yapılan bölgenin sosyo-kültürel özellikleri dikkate alındığında ebeveynlerin geleneksel tarzda çocuklarını yetiştirmeye çalışmaları olabilir. Literatür incelendiğinde ebeveynlerin duygusal istismar potansiyelinin yaş değişkenine göre farklılık göstermediğini destekleyen çalışmalar bulunmaktadır (Çardak, 2022; Cansız, 2021; Şenol, 2021; Akgün ve Çetin, 2020).

Araştırmada ebeveynlerin cinsiyetlerine göre duygusal istismar potansiyelleri incelendiğinde, erkeklerin duygusal istismar potansiyellerinde anlamlı farklılık olduğu görülmektedir. Bu durumun oluşmasında yoğun iş temposunda çalışmaları, geleneksel cinsiyet rollerine göre erkeklerin kadınlara göre duygularını daha az göstermek için daha sert bir duruş sergilemeleri, babaların annelere göre çocuk bakımında geri planda yer alması, ataerkil bir toplumda yetiştirme sonucu erkeklerin otorite olarak görülmesi, çocukken duygusal istismara maruz kalmaları olabilir. Alan yazın incelendiğinde araştırmanın bulgusunu destekleyen çalışmalar mevcuttur (Yalçın, Koçak ve Duman, 2014). Kanak ve Pekdoğan (2020) tarafından yapılan araştırma bu araştırmanın bulgusunun aksine annelerin duygusal istismar potansiyelinin daha yüksek olduğunu tespit etmiştir.

Araştırmanın bir başka bulgusu da babalarda duygusal istismar potansiyeli eğitim seviyesine göre anlamlı düzeyde bir farklılık oluşturmazken, annelerde DİPÖ nedensel alt boyutunda ve DİPÖ toplamında anlamlı düzeyde farklılık oluşturduğu saptanmıştır. Annelerden ilkokul ve altı seviyede eğitim düzeyine sahip olanların en yüksek puanı elde etmelerinin sebebi annelerin eğitim seviyesi düştükçe çocuklarını duygusal olarak istismar etmeye yönelik davranışlarının artması olabilir. Eğitim seviyesi düşük olan ebeveynlerin kriz anını yönetme becerisine sahip olmamaları, çocuk yetiştirme konusunda kendilerini yetersiz hissetmeleri, otoriter ebeveyn tutumu sergilemeleri, hangi davranışın duygusal istismar kapsamında değerlendirildiğini bilmemesi, duygusal yönetim ve stresle başa çıkma stratejilerine hakim olmamaları, eşinden gereken desteği görememesi ve bunun sonucunda çocuğuna karşı duygusal istismara neden olabilecek davranışları sergilemesine neden olabilir. Yapılan araştırmalar incelendiğinde ebeveynlerin eğitim seviyesi düştükçe duygusal istismara neden olan davranışlarının arttığı ve duygusal istismar farkındalığının azaldığı görülmektedir (Cansız, 2021; Akgün ve Çetin, 2020; Ersoy Quadir vd., 2019).

Araştırmada ebeveynlerin duygusal istismar potansiyeli anne mesleğine göre anlamlı farklılık göstermezken, baba mesleğinde DİPÖ nedensel alt boyutunda anlamlı farklılık oluşturduğu görülmektedir. Serbest mesleğe sahip olan babaların diğer meslek gruplarına göre DİPÖ nedensel alt boyutunda daha fazla puan elde etmesinde yoğun çalışma saatleri, aylık gelirin az olması, zor şartlar altında çalışma ve tatil günlerinde çalışmak zorunda olması çocuklarıyla daha az zaman geçirerek yeterli ilgiyi gösterememesine ve daha tahammülsüz olmalarına neden olabilir. Annelerin meslek gruplarına göre duygusal istismar potansiyeli puan ortalamalarına bakıldığında ev hanımı olan annelerin DİPÖ nedensel alt boyutunda en yüksek puana sahip olduğu görülmektedir. Bu durumun oluşmasında annelerin gün içerisinde hem ev içi sorumluluğu üstlenmeleri hem de çocuk bakımında yeterli desteği görememesinden kaynaklı olarak tahammül seviyelerinin azalması ve bunun sonucunda duygusal

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istismar potansiyelinin artmasına neden olabilir. Literatür incelendiğinde Ertaş (2020) tarafından yapılan araştırmada çalışmayan/ev hanımı olan annelerin daha yüksek düzeyde duygusal istismar potansiyeli sergiledikleri görülmüştür. Bu çalışmanın yanı sıra annelerin duygusal istismar potansiyelinin mesleğe göre anlamlı farklılık oluşturmadığı bulgusunu destekleyen birçok çalışma mevcuttur (Eyigün Kantürk, 2014; Pekdoğan, 2016; Can ve Beyazıt, 2018; Cansız, 2021; Demir, 2022).

Araştırmanın bulgusuna göre ebeveynlerin duygusal istismar potansiyeli medeni durumlarına göre anlamlı düzeyde farklılık göstermemektedir. Evli olan ebeveynlerin daha çok duygusal istismarı önlemeye yönelik davranışları varken, boşanmış olan ebeveynlerin duygusal istismara neden olan davranışlarının olduğu tespit edilmiştir. Ayrılmış olan ebeveynlerin artan kaygı ve stres durumları, ekonomik olarak sorumluluklarının artması, tek ebeveyn olmanın vermiş olduğu yük çocuklarına karşı daha sabırsız, sert ve anlayışsız davranmalarına sebep olabilir.

Araştırmada ebeveynlerin duygusal istismar potansiyeli çocuk sayılarına göre DİPÖ nedensel alt boyutunda ve DİPÖ toplamında anlamlı farklılık oluşturduğu görülmektedir. En yüksek duygusal istismar potansiyeli puanına sahip olan ebeveynlerin sırasıyla üç çocuğa, dört ve daha fazla çocuğa sahip olduğu tespit edilmiştir. Ailede çocuk sayısının artmasıyla birlikte ebeveynin çocuklarına ayırdığı zaman ve çocuklar üzerindeki kontrolü azalabilir; maddi ve manevi olarak daha fazla sorumluluğa sahip olan ebeveynin kaygı ve stres düzeyinin artmasıyla duygusal istismara neden olabilecek davranışları da artabilir. Yapılan çalışmalar ailedeki çocuk sayısı arttıkça ebeveynin duygusal istismara neden olan davranışlarının da arttığını göstermektedir (Topçu, 2009; Çetin ve Danacı, 2016; Ersoy Quadir vd., 2019; Özçevik, 2019; Cansız, 2021).

Araştırma bulgusuna göre ebeveynlerin duygusal istismar potansiyeli ilk defa anne/baba olma yaşına göre anlamlı farklılık oluşturmadığı görülmektedir. 20 yaş altında ilk kez anne olanların ve 36-40 yaş arasında ilk kez baba olanların en yüksek puan ortalamalarına sahip olduğu görülmektedir. Genç yaşta anne olan ebeveynlerin duygusal istismara neden olan davranışlarının daha yüksek olması tecrübesiz ve olgunlaşmamış olan annenin çocuğuna gereken desteği sağlayamaması, çocuk yetiştirmede tutarsız ve çelişkili davranışlarının olması, aralarında güvenli bağlanmayı oluşturamamasından kaynaklı olabilir. Babalarda ise geç yaşta baba olanlar ebeveynleri tarafından geleneksel tarzda yetiştirilmeleri, çocuğuyla arasında olan yaş farkından dolayı onu anlamakta ve bağ kurmakta zorluk yaşamalarına neden olabilir ve bunun sonucunda ebeveynin duygusal istismara neden olabilecek davranışları da artabilir. Nitekim yapılan çalışmalar genç yaşta anne olanların duygusal istismar potansiyeline neden olabilecek davranışları daha fazla sergilediklerini ortaya koymaktadır (Kanak ve Pekdoğan, 2020; Şenol, 2021; Al Dosari vd., 2017; Kurnaz, 2022).

Araştırma bulgusuna göre ebeveynlerin duygusal istismar potansiyelinin aile yapısına göre DİPÖ toplamında geniş aile olarak yaşayanların lehine anlamlı farklılık oluşturduğu görülmektedir. Bu durumun oluşmasında araştırmanın yapıldığı bölgenin sosyokültürel özelliği dikkate alındığında geniş aile olarak yaşayan ebeveynlerin çok sayıda kişinin sorumluluğunu üstlenme, birey sayısındaki artışa bağlı olarak ekonomik düzeydeki düşüş, çekirdek aileye gerekli ilginin gösterilememesi, büyüklerin yanında çocuğunu sevmeme geleneğinin varlığı, çocuk yetiştirmede büyükanne/büyükbabalar ile anne/babalar arasında yaşanan tutarsızlık ebeveynlerde strese ve kaygıya neden olabilir. Cansız (2021) tarafından yapılan araştırmada duygusal istismar potansiyeli önleyici alt boyutunda geniş aileye sahip ebeveynlerin çekirdek aileye sahip ebeveynlere göre anlamlı düzeyde yüksek puan aldıkları saptanmıştır.

Araştırmada ebeveynlerin duygusal istismar potansiyeli çocuğu olacağını öğrendiğinde verdiği tepkiye göre “üzüldüm/korktum/aklımdan gebeliği sonlandırmak geçti” düşüncesine sahip olanların lehine anlamlı farklılık göstermektedir. Plansız bir gebelik ebeveynler için hem maddi hem de manevi bir yük getirebilir. Annenin sık aralıklarla doğum yapması, erken ya da geç yaşta çocuk sahibi olma, çok

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sayıda çocuğa sahip olma, çocuk bakımı ile ilgili çevresinden yeterli desteği görememesi ebeveynin stres ve kaygı düzeyini arttırabilir. Bu şartlar altında doğan çocuk aile tarafından bir yük olarak görülerek ebeveynin duygusal istismar potansiyelinin artmasına neden olabilir. Literatür incelendiğinde araştırmanın bulgusunu destekleyen çalışmaların olduğu görülmektedir (Kurnaz, 2022).

Araştırmanın bir diğer bulgusuna göre ebeveynlerin duygusal istismar potansiyeli bedensel veya ruhsal rahatsızlığa sahip olma durumuna göre anlamlı farklılık oluşturmamaktadır. Bedensel veya ruhsal rahatsızlığa sahip olan ebeveynlerin duygusal istismar potansiyeli puanlarının daha yüksek çıkmasının nedeni ebeveynlerin hastalıktan kaynaklı stresle başa çıkamamaları, zaman zaman hastanede tedavi görmelerinden kaynaklı çocuklarından ayrı kalmaları, kendilerini yetersiz hissetmeleri, kullandıkları ilaçların yan etkisine bağlı olarak daha sinirli ve gergin olmaları olabilir. Literatürde ebeveynlerin bedensel veya ruhsal rahatsızlıklarının duygusal istismar potansiyeline etkisini inceleyen araştırma bulunmamakla birlikte benzer sonuçlar içeren araştırmalar yer almaktadır. Akkuş (2021) araştırmasında çocukluk çağına ait ruhsal travmalarını olan ebeveynlerin daha yüksek düzeyde duygusal istismar potansiyeline sahip olduğunu tespit etmiştir.

Araştırmada annelerin duygusal istismar potansiyeli günlük ekran kullanım sürelerine göre anlamlı farklılık oluşturmazken, babaların duygusal istismar potansiyeli günlük ekran kullanım sürelerine göre anlamlı farklılık oluşturduğu belirlenmiştir. Gün içerisinde 5-7 saat arası ekran kullanan annelerin ve 7 saat üzeri ekran kullanan babaların daha yüksek düzeyde duygusal istismara neden olan davranışlar sergilediği dikkat çekmektedir. Ebeveynlerin ekran kullanım süresinin uzaması çocuğun ihtiyaçlarının göz ardı edilerek ihmal ve duygusal istismara maruz kalmasına, çocuklarıyla kaliteli ve düzenli zaman geçirememelerine, çocuğun kendi yaş grubuna uygun olmayan içeriklere maruz kalmasına sebep olabilir. Yapılan bazı çalışmalar ekran kullanımının olumsuz tutum ve davranışları tetiklediğini göstermektedir (Uyar, Yücel ve Altınay, 2024).

SONUÇ

- Ebeveynlerin duygusal istismar potansiyeli ebeveynin yaşı, babanın öğrenim düzeyi, annenin mesleği, ebeveynin medeni durumu, ebeveynin ilk anne/baba olma yaşı, ebeveynin bedensel veya ruhsal rahatsızlığa sahip olma durumu, annenin günlük ekran kullanım süresine göre anlamlı farklılık göstermemektedir.
- Ebeveynlerin duygusal istismar potansiyeli cinsiyete göre nedensel alt boyutta ve ölçek toplamında anlamlı farklılık göstermektedir. Babaların annelere göre daha yüksek düzeyde duygusal istismar potansiyeline sahip olduğu görülmüştür.
- Ebeveynlerin duygusal istismar potansiyeli anne öğrenim düzeyine göre nedensel alt boyutta ve ölçek toplamında anlamlı farklılık göstermektedir. İlkokul ve altı eğitim düzeyine sahip olan annelerin daha yüksek düzeyde duygusal istismar potansiyeline sahip olduğu görülmüştür.
- Ebeveynlerin duygusal istismar potansiyeli babanın mesleğine göre nedensel alt boyutta anlamlı farklılık göstermektedir. Serbest mesleğe sahip olan babaların diğer meslek gruplarında çalışan babalara göre daha yüksek duygusal istismar potansiyeline sahip olduğu tespit edilmiştir.
- Ebeveynlerin duygusal istismar potansiyeli çocuk sayısına göre nedensel alt boyutta ve ölçek toplamında 3 çocuğa sahip olan ebeveynlerde anlamlı bir farklılık oluşturduğu belirtilmiştir.
- Ebeveynlerin duygusal istismar potansiyeli aile yapısına göre ölçek toplamında geniş aileye sahip ebeveynlerde anlamlı farklılık oluşturmaktadır.
- Ebeveynlerin duygusal istismar potansiyeli çocuğunu olacağını öğrendiğinde verdiği tepkiye göre tüm alt boyutlarda ve ölçek toplamında anlamlı farklılık göstermektedir. Ebeveynlerden “Üzüldüm, korktum, gebeliği sonlandırmak istedim” şeklinde düşünen ebeveynlerin daha yüksek düzeyde duygusal istismar potansiyeline sahip olduğu tespit edilmiştir.

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- Ebeveynlerin duygusal istismar potansiyeli babanın günlük ekran kullanım süresine göre ölçek toplamında ve tüm alt boyutlarda 7 saat ve üzeri ekran kullanımına sahip olanlarda anlamlı farklılık oluşturduğu gözlemlenmiştir.

ÖNERİLER

Bu sonuçlardan yola çıkılarak aşağıda bazı öneriler sunulmuştur.

- ✓ Ebeveynler duygusal istismar ve duygusal istismar potansiyeli hakkında bilgilendirilmelidir.
- ✓ Ebeveynlerin duygusal istismar potansiyeli kapsamında değerlendirilen davranışlar hakkında bilinçlendikten sonra yine de uygulamakta zorluk yaşıyorlarsa gerekli uzman desteğini almaları önemlidir.
- ✓ Risk grubunda yer alan ebeveynler iyi analiz edilerek gerekli ön eylem planları oluşturulmalıdır.
- ✓ Yapılacak olan araştırmalarda ebeveynlerin duygusal istismar potansiyeli farklı değişkenler ile boylamsal bir çalışma ile incelenebilir.

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PEACE DIPLOMACY: THE DYNAMICS OF TÜRKİYE'S MEDIATION ROLE BETWEEN ETHIOPIA AND SOMALIA

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ÖZET

Türkiye's diplomatic activities in the Horn of Africa stand out as part of its goal to contribute to peacebuilding and mediation efforts in the international community. The historical and political disputes between Ethiopia and Somalia, two of the most significant countries in the region, directly impact not only these two nations but also regional stability. Türkiye strengthened its ties with the region by establishing its embassy in Mogadishu, the capital of Somalia, and actively supporting Somalia's reconstruction process through humanitarian aid and development projects. These efforts have made Türkiye a reliable actor in the region, paving the way for its role as a mediator in Ethiopia-Somalia relations. In this context, this study examines Türkiye's mediation activities between Ethiopia and Somalia within the framework of peace diplomacy. It explores how Türkiye employed elements of soft power to build trust between the parties, as well as the strategies it developed based on diplomatic tools and international norms to maintain a balanced approach. Furthermore, the study evaluates the regional and international impacts of Türkiye's initiatives, assessing the effectiveness of its mediation role in peace processes. It argues that Türkiye's mediation efforts between Ethiopia and Somalia not only support regional stability but also offer a new perspective on peace diplomacy as a model for the field of international relations. In this regard, the study aims to highlight Türkiye's increasingly prominent role in global peacebuilding and the strategic significance of its diplomatic engagements in Africa.

Keywords: Peace Diplomacy, Türkiye's Mediation, Ethiopia, Somalia

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THE IMPACT OF TASK DESIGN ON COLLABORATIVE DYNAMICS AND INDIVIDUAL GROWTH

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ABSTRACT

This study investigates the impact of different task types—group tasks, pair tasks, and individual tasks—on students' collaborative behaviors and perceptions of motivation within the context of English Language Teaching (ELT). The study was conducted in a public university in Turkey, among 60 second-year ELT students attending an English Literature course. The study implemented a mixed-methods research design, combining quantitative surveys and thematic qualitative analysis of focus group discussion to provide a comprehensive analysis. The theoretical framework draws on collaborative learning theories and Task-Based Language Teaching (TBLT), emphasizing the role of interaction, mutual support, and authentic task design in language acquisition. Results indicated strengths and weaknesses for each type of task. The quantitative analysis brought out the individual tasks standing out in terms of uniqueness and accuracy of content, while group tasks excelled in the category of collaboration with shared understanding. On this basis, pair tasks emerged as a balance in output, both analytical and collaborative, for a large number of students. In addition, qualitative data from focus group discussions showed that group tasks encouraged multiple perspectives and elicited collaborative creativity, yet are prone to problems such as unequal participation; pair tasks allowed for focused collaboration and mutual accountability that could delve deeper into textual analysis, while individual tasks promoted autonomy, self-paced learning, and independent critical thinking. Suggestions for further research include investigating longitudinal impacts and other settings. Overall, given the focus of this investigation on the relationship between task design, learners' perceptions, and learning, some implications useful to educators seeking to renew or further refine their pedagogical approach can be brought forward from curriculum design to teacher training and innovative ELT pedagogies.

Keywords: Task-Based Language Teaching, collaborative learning theories, group tasks, pair tasks, individual tasks.

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UNRAVELING COMPLEXITY: EXPLORING THE SIMILARITIES BETWEEN LINGUISTICS AND REVERSE ENGINEERING

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ABSTRACT

This paper discusses the striking similarities in methodology and purpose between linguistics and reverse engineering as applied to decoding complex systems. Linguistics is the study of the structures and patterns of language, including deep grammar, syntax, semantics, and phonetic analysis, which explain the principles behind communication. Similarly, reverse engineering deals with the dissection of software or hardware systems, and scrutiny of code, circuits, and components that explain the architecture and functionality of a system. Both areas require a strong analytical method and an attentive eye for detail, either in linguistic structures or in technological designs. The paper discusses how linguistics and reverse engineering relate to investigating the evolutionary aspects of systems. Linguists investigate the historical development of languages and the tracing of their evolution through cultural interaction and change in society. On the other hand, reverse engineers study the evolution of technology by monitoring its advancement through innovation, adaptation, and iteration. This paper highlights how linguistics and reverse engineering share a fundamental objective: decoding complexity to expose the driving mechanisms behind communication and technology in our interconnected world. This is achieved by underlining the similarities that exist between linguistics and reverse engineering.

Keywords: Linguistics, Reverse Engineering, Similarities.

INTRODUCTION

The human capacity for language is a complex system of communication that expresses thoughts, feelings, and information through conventionalized symbols, either spoken, written, or signed. It is not a group of words put together, but an organized system with the most complex rules at every level. As Crystal (2008) summarizes, linguistics, being the scientific study of language, investigates this complexity by systematically studying the different aspects of language. By isolating the parts of language into these constituent parts, linguists wish to understand its underlying structure, how it is acquired, how it changes over time, and its role in human cognition and society. These various aspects are studied by other sub-disciplines of linguistics, such as phonetics, phonology, morphology, syntax, semantics, and pragmatics. For example, while phonetics is the study of speech sounds, phonology is the study of sound systems, morphology is the study of word formation, syntax concerns sentence structure, semantics deals with meaning, and pragmatics is the study of language use in context.

On the other hand, engineering in its broad sense is the application of scientific and technological principles to design, build, and maintain structures, machines, devices, systems, and processes, according to Pravin (2018). It covers everything from civil and mechanical to electrical and software engineering with their specific challenges and special ways of working. Engineering also involves the analysis and understanding of already existing systems, usually not as visible as the creation of new systems. In simple terms, reverse engineering is the dissection of a finished structure or system-physical object, software program, or biological system to understand its design, function, and principles underlying its operation (Eilam, 2005). Sometimes, "to learn about how something works, it is sometimes best to advance in reverse" (Eilam, 2005), and reverse engineering attempts to deduce

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knowledge of how a system was made by analyzing its components, their interaction with each other, and the architecture in the absence of any documents or blueprints. Being curious enough to take things apart and to scrutinize the pieces carefully is a practice that, ever since ancient times, has nurtured the minds and developed vital portions of civilization. For example, medical practices on cadavers, adapting new technological innovations, and even a child breaking toys into pieces to understand how they work are the result of curious minds. In this sense, curiosity is the key to science, as to reverse engineering as well. The term "reverse engineering" in this paper shall be used to loosely refer to it as a generic name to encompass several types of engineering.

Interestingly, it is deconstruction to bring out structures and functionalities, as in reverse engineering, which shares a striking methodological affinity with linguistics itself, which also seeks an understanding of the complex structure and function of language through systematic analysis and pattern recognition. In other words, the analytical approach of linguistics to deconstruction and pattern identification in a complicated language system closely resembles reverse engineering, another process equally driven by the unraveling of the pieces of complex mechanisms through painstakingly detailed observation and deduction. The present paper tries to identify major similarities between linguistics and reverse engineering, point out and show awareness about the systematic approach towards pieces and patterns to find a glimpse of the whole. This paper unfolds this way: after identifying some core similarities between linguistics and reverse engineering, specific examples are provided to demonstrate similarities. Then, the possible challenges and opportunities are discussed before summarizing the main points of the paper in the conclusion section.

The Core Similarities Between Linguistics and Reverse Engineering

When linguistics and reverse engineering are compared, some interesting similarities can be found at the heart of both fields. These similarities are analyzing the final structure, deconstructing complex systems, pattern recognition, problem-solving, and hypothesis testing, which are explained briefly below.

Analyzing the Final Structure: Both linguistics and reverse engineering analyze final structures. The final structure, of course, is the language for linguistics. Since language is a social contract among people, the linguists' approach is descriptive instead of prescriptive unless they aim to create another form of language. On the other hand, the final structure reverse engineers analyze is software, a machine, or any structures that have been formed previously. They research the structures of their interest and try to reverse the process of creation to achieve a better understanding of the structure under observation and to create a new structure.

Decomposing Complex Systems: The first similarity between the two is the breakdown of complex systems into smaller and understandable components. Linguists analyze language into phonemes, morphemes, syntax, and semantics and study the functions, structures, and relationships among pieces to reveal the mysteries of language or linguistic content. Reverse engineers similarly decompose a structure, a machine, or software into bits and pieces, blocks, functions, and code blocks to find out how the ultimate structure works.

Pattern Recognition: Both fields heavily rely on the identification of patterns since the observation of patterns can give a better view of the phenomenon being studied and allows scientists to make predictions concerning the structure under scrutiny. For instance, linguists recognize patterns in grammar, syntax, and word usage and try to find patterns to examine and explain how they function together to create a bigger structure. Similarly, reverse engineers identify patterns in codes, data structures, algorithms, or mechanical pieces and study them in terms of their structural and functional characteristics to see how they fit in the overall constituent.

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Problem Solving: A linguist and a reverse engineer are problem solvers. Linguists solve problems related to language, including ambiguity, translation, and evolution. They look to find causes and explain such problems. Reverse engineers solve problems on vulnerabilities and compatibility issues among pieces to optimize performance, adopt new technology, and enhance the overall structural or functional integrity.

Hypothesis Testing: Both disciplines use a scientific method in hypothesizing and data collection to analyze. Linguists test hypotheses related to the aspects of language structure and meaning and then, they create and test their hypotheses through very rigorous and extremely well-designed experiments looking into the nature and properties of linguistic constituents upon observing the patterns and pieces. The linguist would thereby induce the rules of the language from the patterns observed, much as the reverse engineer induces the design and functionality of systems by creating and testing hypotheses from his/her analysis of its constituent components. For instance, in system analysis, a reverse engineer makes and tests hypotheses concerning its design and implementation through careful analysis and experimentation.

Formulations regarding basic similarities noted in the above constitute, the steps linguists and reverse engineers take in analyzing the language or structure. Although the order of the steps for studying a language and/or a structure may depend on the aim of the researcher, analyzing the final structure via deconstructing complex systems and recognizing the patterns within to form and test a hypothesis from a problem-solving oriented point of view can be considered as the fundamentals of linguistics and reverse engineering.

Specific Examples

In this section, with consideration of the core similarities mentioned above, more specific examples from the practices of linguistics and reverse engineering are presented.

Hierarchical Structure and Decomposition: Linguistics and reverse engineering share a common focus on the components and the hierarchical relationship among them. For instance, sentences consist of phrases, which are themselves composed of words, which in turn comprise morphemes, which in turn are made up of phonemes. Linguistic constituents are studied in different branches. For example, morphology studies the morphemes for the rules of how these morphemes bind while syntax studies the words for how they combine to form grammatical as well as meaningful phrases and or sentences. Semantics studies the meaning within the constructed phrase or sentence while pragmatics studies the meaning beyond the constructed phrase or sentence. Therefore, it can be said that this hierarchical structure and decomposition is the basis of linguistic analysis.

On the other side, linguistics and reverse engineering have a concentration on structures that are bound to each other in a hierarchical system. For example, software systems are composed of modules, which further consist of functions, themselves composed of lines of code. The systems, fuel, ignition, and cooling, make up a car engine, with components including pistons, valves, and spark plugs. A building is composed of floors, walls, and a roof, which, in turn made of concrete, steel, and wood. A circuit board is composed of integrated circuits, resistors, capacitors, and other components interconnected by traces. Examples concerning different subfields of reverse engineering, such as computer, mechanical, construction, or electronics engineering, involve analyzing the hierarchy to which the components belong.

Identifying Relationships and Interactions: After the decomposition of a structure, identifying the relationship and the interaction among the pieces become part of the process. Syntax describes the relationship among words and studies the grammar rules that determine the order of the words within a phrase and/or a sentence. A simple example of this is seen in the agreement between a subject and a

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verb. Another example can be given from semantics, the study of how words relate to meaning. Semantic or thematic roles of the words in a sentence involve looking into how meaning is built through the relations between verbs and their arguments. For example, in "The dog chased the cat," "dog" is the agent, and "cat" is the patient. In pragmatics, or the study of meaning in context, the analysis of speech acts, "an attempt at doing something purely by speaking" (Trask, 1998: 189), has to focus on the relationship between contexts and utterances. For example, one can perform an act by uttering a phrase as a promise, a request, a command. However, the meaning of the speech act is quite changeable as the interaction between the context and the utterance influences it. The same interaction-identifying process is also seen in reverse engineering. As an example, reverse engineers working on software analyze the interaction of different functions in a program to understand how things like data and control flow work together. Similarly, knowing how elements of an engine, such as the pistons and valves interact; how the engine, transmission, and braking systems interact; or how signals propagate through a circuit and the interaction between various components is vital in software, mechanical, and electrical engineering.

Pattern Recognition: Pattern recognition forms an integral part of linguistics and reverse engineering. For example, the "-er" suffix is conventionally used to show an agent ("teach-er," "write-er," "sing-er"). Based on such a pattern, when linguists encounter new words that use that suffix, they understand what the word would mean. Another example concerns syntax. Since it is agreed upon that no language is word order free, some specific sentence structures are taken to be the default word order of a language. For example, the word order is SVO in English while it is SOV in Turkish. Therefore, detection of these patterns enables the linguist to parse and understand the sentences. Another example may come from discourse analysis. Discourse markers are words or phrases used in written or spoken language to connect and organize sentences and words such as "however," "therefore," "in addition," and "on the other hand" signal relationships between different parts of a text or conversation. The ability to identify these markers enables a linguist to trace the flow of ideas.

Similar examples can be seen in reverse engineering. For instance, a software engineer identifies the exact loop construct to loop through an array, or to use a particular syntax for handling exceptions, and he/she will understand the functionality of code snippets and reverse-engineer it. When a mechanical engineer recognizes patterns in the arrangement of gears and transmission systems, he/she can understand how speed and torque are transmitted in machines. Similarly, the identification of patterns of logic gates interacting with each other may enable an electronics engineer to reverse the functions of the circuit. The identification of the use of specific building materials in given locations can suggest to construction engineers such design priorities as insulation, fire resistance, or aesthetic appeal.

Problem-Solving: Linguists are scientists trying to solve problems in the final structure. For example, a linguist tries to solve the ambiguity in a sentence such as "he shot a man with a gun", which might mean either "he" shot a man with a gun or "he" shot a man who was carrying a gun, via using context, syntax, and semantics to resolve this ambiguity. Historical linguists aim at the reconstruction of proto-features of ancestral languages based on the analysis of their descendant languages, solving the complex problems regarding sound changes, grammatical shifts, and lexical evolution. A linguist working on language acquisition shows how children acquire language by mapping the sounds to meaning, segmenting continuous speech into words, and acquiring complex grammatical rules. Finally, translators are active problem solvers because translation between languages involves the solution of problems of lexical mismatch (words with no direct equivalents), structural differences (different word order), and cultural context.

On the other hand, reverse engineers are also active problem solvers as well. For example, software engineers detect and eliminate errors (bugs) in software by systematically solving the problem. Just like linguists, debuggers utilize many tools and methods that trace the execution of code, hence narrowing

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down the source of the error, thus being able to implement a fix. Mechanical engineers, on their part, employ modeling techniques with a concentration on resonance, damping, and structural design in making machines that work with the least vibration. In electronics engineering, the improvement of performance or efficiency of a circuit can be achieved by the selection of components, circuit layout, and power consumption. Construction engineering develops solutions for problems of structural design, material selection, and soil mechanics to build up structures, such as buildings and bridges, and to protect them from load and environmental effects.

Hypothesis Testing: To arrive at a finer understanding of the final structure, linguists and reverse engineers formulate hypotheses and then design an experiment or analysis in which data is collected and analyzed to support or refute the hypotheses. For instance, a psycholinguist might hypothesize that some sentence structures are more difficult for people to process than others. In this case, they would test their hypothesis using experiments on reaction times or eye movements while participants read or listen to sentences. A linguist might hypothesize that children acquire grammatical rules through exposure to positive hearing grammatically correct sentences rather than to negative evidence explicitly corrected for grammatical errors. They would then test this hypothesis by analyzing child language data to see if children make errors that would be expected if they were learning through negative evidence. A historical linguist might hypothesize that a certain sound change occurred in a language due to influence from a neighboring language. This would be tested by comparing the sound systems of the two languages and checking whether there is any borrowing or other form of linguistic contact. A linguist interested in syntax might hypothesize that some sentence type has an underlying syntactic structure. Then s/he would test this by seeing how that sentence behaves in different grammatical contexts such as passivized or made into a question.

Similar steps like the ones mentioned above are followed by the engineers too. For instance, a software engineer would assume a line of code or a particular input causes an error when debugging a software fault, and then, s/he may change the code or the input and observe the behavior of the program. Mechanical engineers may hypothesize that some material resists a load better under given conditions. They would test this by conducting stress tests on samples of the material. An electronics engineer might hypothesize that a circuit will consume a certain amount of power and would test this by measuring the current and voltage drawn by the circuit. A structural engineer might theorize that a building will sustain a particular wind load and would validate this by performing structural analysis calculations or through wind tunnel testing.

Challenges and Opportunities

Even though linguistics and reverse engineering share so much in common, there are some critical differences between the two fields. First, linguistic analysis is often concerned with abstract matters such as meaning, intention, and cultural context that are difficult to quantify or directly relate to engineering systems. Engineering systems, while complex, are more concrete and measurable in physical properties or code execution. Second, while linguistics has formal models, for example, formal grammar, these may or may not fit the formalisms used by engineering, circuit diagrams, CAD models, and code specification. Third, linguistic data is often free and abundant; texts, recordings, and corpora abound. Certain engineering fields also limit access to engineering design documents due to intellectual property or security concerns. Finally, while linguistics does seek objectivity, there is inevitably some degree of interpretation in considering meaning and context. Engineering analyses often seek a higher level of objectivity, as they are on precise measurement and calculation.

A fruitful interaction of linguistics with engineering in a cross-disciplinary approach is, indeed, possible. For instance, some ideas related to parsing, pattern recognition, and semantic analysis may be conceptualized from linguistic notions and applied to reverse engineering software, hardware, and other

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systems. The techniques of syntactic structure analysis can be adopted in code structure analysis, finding vulnerabilities, and a lot of security procedures. Furthermore, applying linguistic frameworks can enable insights into the deep hierarchical structure, interactions between constituent parts, and overall "grammar" of complex engineering systems. This will likely lead to more reverse engineering, debugging, and performance optimization. Another possibility could be code analyses. Linguistic analyses might be put into practice for more abstract analyses, concerned with what code says and means at the semantic level, rather than its strictly low-level makeup. This could imply several advantages, like better comprehension, bug detection, and security analysis of code. Finally, by understanding the principles of language evolution and adaptation, we can design more robust and adaptable engineering systems that can handle changing environments and requirements. The analogy is therefore especially useful for providing insight and opening up possibilities for research and innovation across disciplines, even when linguistic methods are not directly applicable to engineering problems. We can take advantage of these shared principles underlying deconstruction, pattern recognition, problem-solving, and hypothesis testing in both disciplines by combining strengths toward complex system understanding.

CONCLUSION

The investigation into the similarities between linguistics and reverse engineering offers a surprising convergence of methodology. Each of these practices deals with very different subjects, language and engineered systems, yet shares a common toolkit of analytical methods. The analytical methods for linguists and reverse engineers consist of dissections into constituent parts, identification of recurring patterns, formulation, and testing of hypotheses concerning underlying mechanisms. Although challenges exist, mainly concerning differences in abstraction, formalization, and the final structure, this cross-disciplinary approach presents huge opportunities. This can lead to several interesting applications of linguistic principles to engineering problems, providing enhanced reverse engineering tools, improved understanding of complex systems, and innovative approaches to code analysis. The concreteness of engineering systems can further provide a tangible framework for more abstract linguistic concepts. Ultimately, by recognizing this methodological kinship, we open avenues for valuable cross-disciplinary collaboration, fostering new insights and advancements in both the study of language and the analysis of engineered systems.

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TRACKED AUTONOMOUS BORDER SECURITY VEHICLE

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ABSTRACT

Ensuring the border security of a country is a crucial matter for the society to live in peace and safety. For this purpose, it is necessary to spend large amounts of money as well as to provide a serious amount of personnel. It is seen that with the developments in computer software and sensor technologies in border security, systems that will provide defense without using personnel are being developed day by day. One of the biggest problems here is the difficulty of security systems in distinguishing targets as living or non-living while performing target tracking and detection.

This study presents the design of a tracked autonomous border security vehicle capable of distinguishing between living and non-living targets. The developed system generally consists of an all-terrain vehicle capable of tracked movement, a surveillance and target designation system placed on this vehicle that can rotate 360°, and a weapon motion platform that can perform angular movements of -30° and 60°. Image processing algorithms utilizing OpenCV and YOLO platforms have been employed for target detection and classification (living-non-living, human-animal) in the system. Camera is used for target tracking, and an IR sensor block is employed to support the target classification process.

Keywords: Border security, defense system, target detection, target discrimination

INTRODUCTION

Ensuring border security of countries is a very important issue for the peaceful and secure living of the society. All countries in the world take precautions to protect their borders and spend huge amounts of capital for this purpose. In addition to spending huge amounts of money for this purpose, it is also necessary to provide serious personnel [1-3]. With the developments in computer software and sensor technology in border security, it is seen that attempts are being made to develop systems that will provide defense without using personnel [4-6]. One of the biggest problems here is the difficulties that security systems have in distinguishing targets as living or non-living while monitoring and detecting targets. Inadequacy of infrastructure and system in this field may also cause some undesirable negative events.

Many researchers are studying on border surveillance and ensuring border security. Vadivelan et. al [7] have studied on a system for border surveillance. This system uses wireless sensor networks, radars, cameras and drones to reduce the need for manpower and provide more effective surveillance. The system is designed with energy efficiency and longevity in mind. Tests have shown that the system is highly effective in detecting intrusions and requires little maintenance. Huu et al. [8], have developed a system to overcome the problems of traditional cloud-based surveillance systems, which processes data at the edge using "edge computing". This provides faster, more efficient and more secure surveillance. This system, called BorderEdge, can detect people by operating with high performance even on low-power devices. Laouira et al. [9], have designed a new system for border surveillance using cameras, sensors, radars and UAVs. This system can operate for longer periods of time by providing energy savings and balanced load distribution. As a result of their tests, they showed that the system successfully detects intrusions and is more efficient than similar systems. Nazir et al. [10], have presented an intelligent border surveillance system to monitor suspicious activities in border areas and manage

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dangerous situations with minimum human intervention. The system they presented can make decisions using context information, create plans to prevent damage, and adapt itself to the current situation. They demonstrated the efficiency and effectiveness of the system with simulations they conducted. Nakkach et al. [11], have presented an intelligent border surveillance system to monitor suspicious activities in border areas and control dangerous situations. The system they presented provides border surveillance by detecting and classifying people, animals and aircraft in the images captured by cameras. They presented the performances of different algorithms comparatively. Boukhalfa and Amine [12] have developed a system that monitors borders using images from drones to detect unauthorized entry and immediately notify soldiers. The system analyzes movements to identify threats, making border security more effective and cost-effective. Bhadwal et al. [13] have designed a system to increase border security in challenging areas. By detecting intruders and raising an alarm immediately, the system helps soldiers protect borders more effectively and cost-effectively. Girard et al. [14] proposed a hierarchical control architecture for border patrol missions using UAVs. They adopted a hierarchical control and planning structure to provide a systematic design framework for this complex system. They also investigated target tracking controllers, transition from patrol mode to pursuit mode and back, and randomization of patrol pattern. Monikha et al. [15] proposed a cost-effective surveillance robot for border surveillance and preventing terrorist infiltration. The proposed robot consists of two modules: surveillance unit and arm unit. The robot patrols predetermined routes along the border, detects intruders using ultrasonic sensors and transmits information to the operator via RF Transmitter when an intruder is detected. The robot's camera records real-time video and can be controlled via a smartphone using Bluetooth technology. When an intruder is detected, the operator moves the robot closer to the person to gather more information and the threat can be eliminated using a weapon.

In this study, an unmanned border security system that provides both active and passive protection has been developed. The developed system consists of an autonomous tracked land vehicle, a surveillance and target acquisition system that uses perimeter surveillance sensors placed on this vehicle, and a weapon system capable of rotating. The system can be used in two different modes: fully authorized and semi-authorized. In the fully authorized system, targets perceived as inanimate during surveillance in the operation and patrol area are destroyed. For the sake of life safety, the detected target is first warned verbally, and if there is no response to the warning, the system's destruction mechanism is activated. In the semi-authorized system, the target information perceived by the system as alive or inanimate is directly transmitted to the command and control unit. In this case, the authorization belongs to the relevant military headquarters unit.

MATERIALS AND METHODS

Within the scope of this study, an autonomous border security system that can distinguish between living and non-living targets has been developed. The system to be developed is generally an autonomous land vehicle that can move on tracks. This vehicle has a platform that can rotate 360° around the axis perpendicular to the ground. Surveillance and weapon systems have been added to this platform and can rotate 60° up and down. In this way, the system can autonomously perform its border security mission. In this context, the design of the land vehicle was carried out first. The constraints and design parameters determined for the land vehicle are given in Table 1.

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Table1. The constraints and design parameters for land vehicle

Parameter	Value
Max length (cm)	120
Max width (cm)	105
Max height (cm)	100
Max mass (kg)	1000
Min slope (%)	10
Min speed (km/h)	20
Acceleration 0-20 km/h (s)	5

In this case, first, the design calculations of the tracked all-terrain vehicle were made. For this, calculations were made for the entire system to be moved at the determined speeds with two track systems located on the sides of the vehicle and to be able to make lateral and vertical movements on the determined inclined surfaces. For this purpose,

- The vehicle's rolling resistance, air resistance, grade resistance and acceleration resistance calculations were made.
- Along with the general dimensions of the system, the track length and width suitable for rough terrain conditions were determined.
- The connection and pulling force calculations of the vehicle's tracks were made and the required track type was determined.
- Wheel and gear calculations were made.
- The required electric motor power for the vehicle was calculated.
- Necessary calculations were made for the design of the power transmission elements and the dimensions of these elements were determined.
- Necessary calculations were made to determine the bearing elements and types.

The resistance forces acting on the vehicle used for design calculations are shown below (Figure 1).

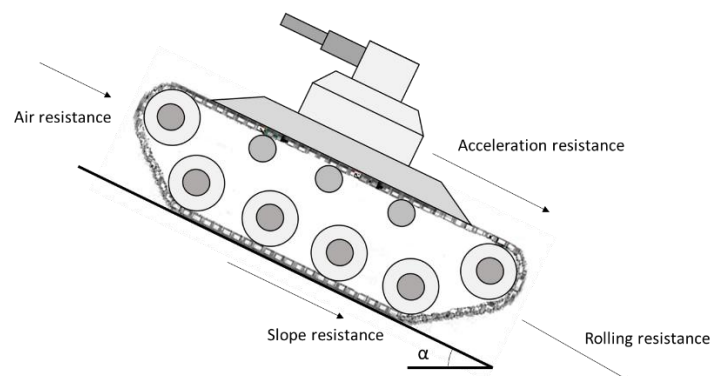


Figure 1. Forces acting on the vehicle

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These resistance forces make it harder for the vehicle to move and increase fuel consumption. In vehicle design, aerodynamic shapes, low rolling resistance tires, and lightweight materials are used to reduce these resistances.

The rolling resistance is caused by the deformation of the tires when they contact the road surface. Tire pressure, road surface, and tire composition affect this resistance. It is a resistance that the vehicle must overcome even when moving on a flat road. The rolling resistance has been calculated using Equation 1.

$$R_R = Gf_R \quad (1)$$

Here, R_R , G , and f_R represent the rolling resistance, the weight of the vehicle, and the rolling resistance coefficient, respectively. The rolling resistance coefficient can be taken as 0.08 for a tracked vehicle in off-road conditions.

Air or wind resistance is the resistance the vehicle encounters when moving through the air. Vehicle speed, shape, and air density affect this resistance. As speed increases, air resistance increases significantly. To calculate the air resistance, Equation 2 has been used.

$$R_w = \rho C_w A \frac{1}{2} (v_0 + v)^2 \quad (2)$$

Here, C_w , v_0 , v , ρ , and A represent the air drag coefficient, wind speed, vehicle speed, air density, and the projected area of the vehicle in the direction of motion, respectively.

Slope resistance is the extra force required to overcome gravity when a vehicle is moving uphill.

The steeper the slope, the greater the resistance. The vehicle requires more power when ascending a slope. The slope angle directly affects this. Equation 3 was used to calculate the slope (grade) resistance.

$$R_s = G \sin \alpha \quad (3)$$

Where R_s and α are the slope resistance and slope angle respectively.

Acceleration resistance is the force required to change the vehicle's speed (accelerate or decelerate). The mass of the vehicle and the amount of acceleration affect this resistance. It can be calculated using Newton's Law (Equation 4).

$$R_A = m_{eff} a \quad (4)$$

Where, R_A , m_{eff} and a represent the acceleration resistance, effective mass of the vehicle and the acceleration of the vehicle, respectively.

In addition to these calculations, calculations of the planetary gear mechanisms and transmission elements that transmit the rotational motion in the electric motor to the tracks have been made. Planetary gear mechanisms were used because they allow high cycle rates and high power transmission in small volumes.

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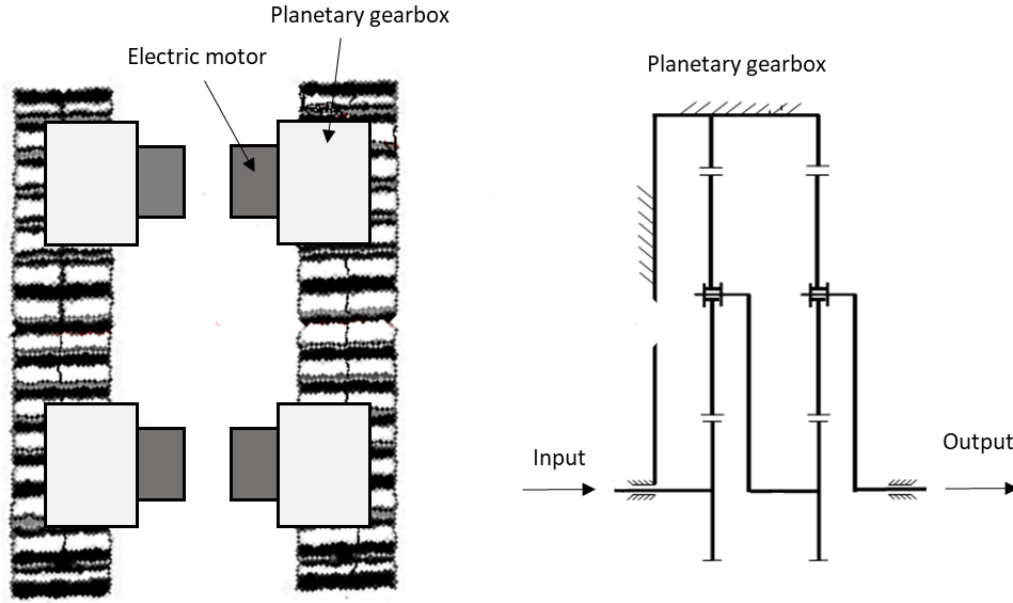


Figure 2. Planetary gearbox kinematic diagram used on the vehicle

Afterwards, studies were conducted for the design of the weapon motion platform. For this purpose, a weapon mechanism capable of performing a certain angular rotation on the surveillance and target acquisition system was placed in order for the vehicle to be able to perform aiming and firing at the target. This rotation is shown as the θ angle in Figure 2. This rotational movement is designed to be -30° and 60° with the horizontal axis in order to be able to intervene against land and air targets. A spur gear mechanism design was made for the rotational movement of the weapon mechanism. In this regard, a lockable system capable of scanning the determined total angle of 90° , that is, remaining fixed at the determined angle value, has been designed. This is quite important in terms of being able to perform precise firing.

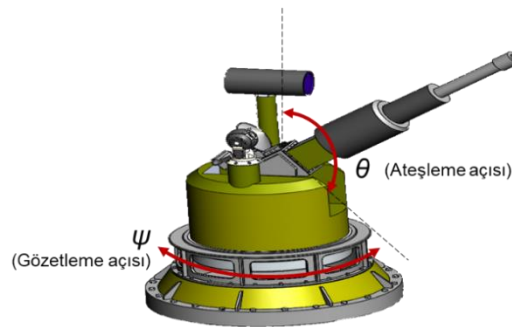


Figure 3. Weapon motion platform

A camera system and an IR sensor block were used in the process of observing and detecting targets. In the target determination process, image processing algorithms were used with OpenCV and YOLO platforms. In this way, targets can be distinguished as living and non-living, and target tracking can be performed. In addition, the target determination and tracking system is supported by the use of IR sensors (Figure 4).

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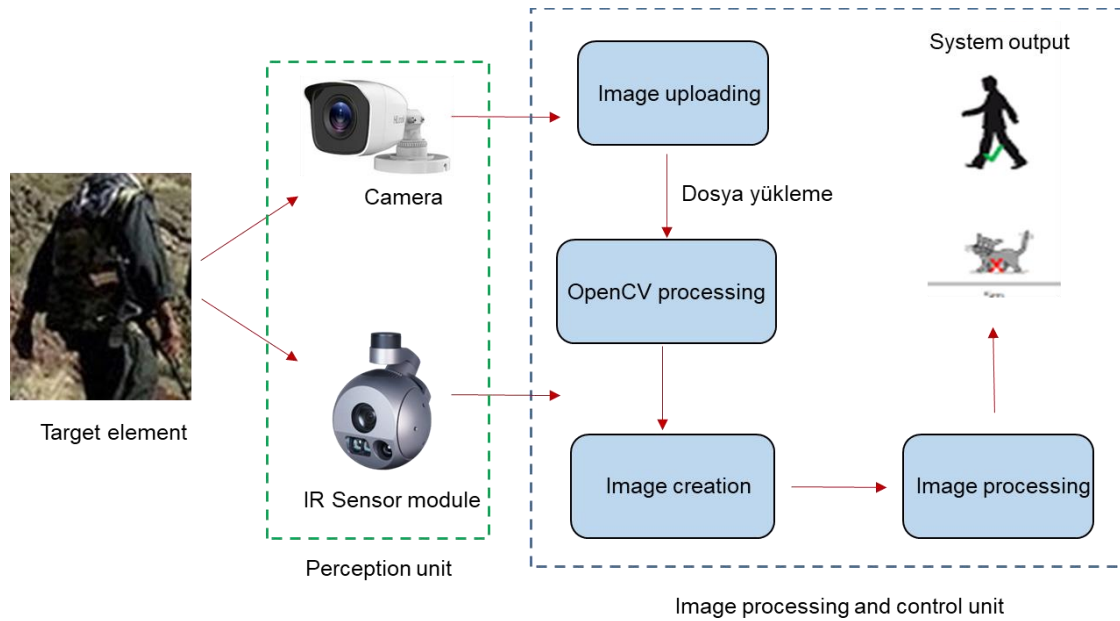


Figure 4. Target determination system diagram

A security procedure has been planned to be implemented after the detection of the target element and its classification as living or non-living. For this purpose, for example, when non-living elements such as drones, UAVs, UCAVs, and robot agents are detected, the system's firing mechanism is activated, the target is destroyed, and the details regarding the image information are transmitted to the headquarters unit. In the detection of a living element, the audible warning system is activated and warnings are given in different languages. However, information is sent to the headquarters unit. If an offensive movement is observed from the opposite side, the weapon firing mechanism is activated. The information gathered at the headquarters is evaluated, and a counter offensive can be carried out with the decision to be given by the headquarters (Figure 5).

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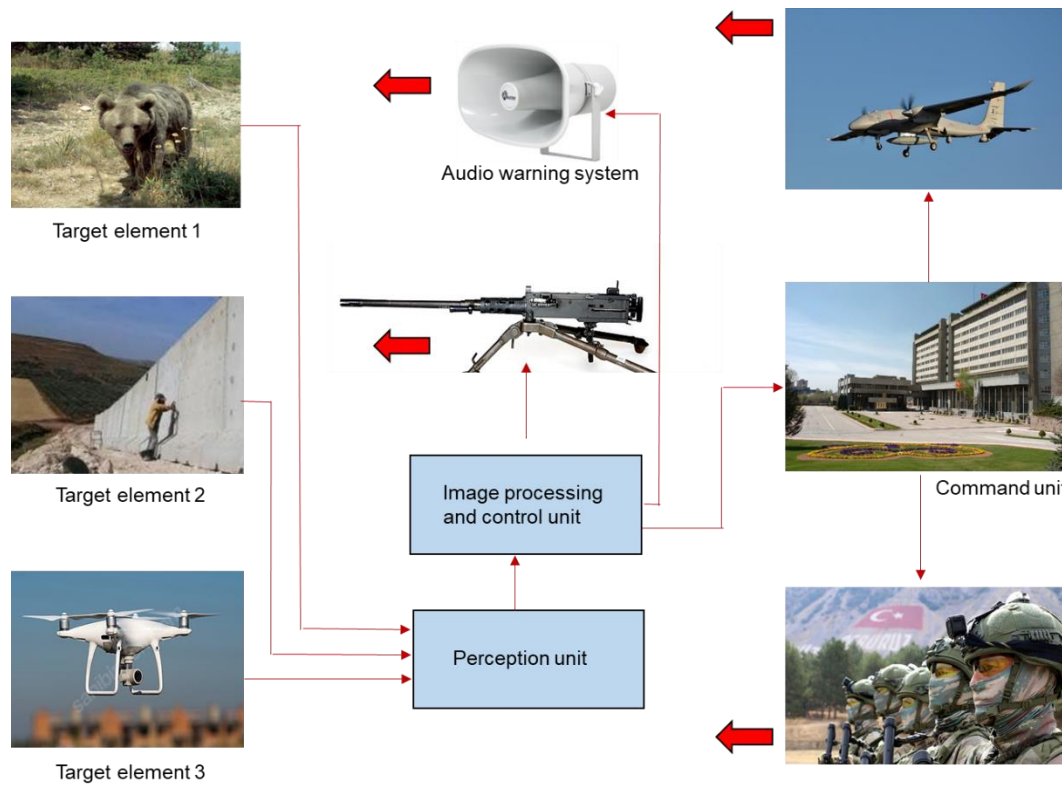


Figure 5. Security operation mechanism

CONCLUSION

In this study, an unmanned border security system that provides both active and passive protection has been developed. The unmanned and autonomous nature of the developed system is quite important both in terms of ensuring the safety of personnel and reducing the cost of use. The developed system consists of an autonomous all-terrain vehicle that moves on tracks, a weapon movement platform placed on this all-terrain vehicle that can rotate left-right and up-down (on 2 axes), and a surveillance and target determination system that uses environmental surveillance sensors. The system can be used in two different modes: Fully Authorized and Semi-Authorized. In the fully authorized system, targets perceived as inanimate during surveillance in the working and patrol area are destroyed. In terms of life safety, the detected target is first warned audibly, and if there is no response to the warning, the system's destruction mechanism operates. In the semi-authorized system, the target information perceived by the system as living or non-living is directly transmitted to the command and control unit. In this case, the authorization belongs to the relevant military headquarters unit. The prominent elements and effective outputs in the study can be summarized as follows:

- Since the developed system is unmanned and autonomous, the number of military personnel required to serve in border areas has been reduced and life safety has been ensured.
- Thanks to the ability to distinguish targets as living or non-living, civilian human or animal life safety is ensured. For this purpose, the detection and tracking of living targets was achieved by image processing with the use of OpenCV and YOLO platforms. In addition, IR sensors were also used.
- Border security platforms are generally used as fixed systems. The system developed within the scope of the project is capable of moving and can perform patrol duty between given coordinates. In this context, it can perform patrol duty autonomously between given coordinate points using GPS.

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- Thanks to the tracked movement system, it can work in rough terrain conditions. This provides a significant advantage considering that most of the border lines are rough and sloping.
- The developed system can be used effectively in the scope of the security of our military units within the borders, in addition to border security applications.
- Together with the IR sensor system, it can perform its duty without compromising security in all weather conditions (rain, snow, fog, etc.) when human vision is prone to error. For example, it is possible that a security vulnerability may occur due to the soldiers' eyes getting tired very quickly by using the night vision system.
- Thanks to the audible warning system on it, it is possible to take precautions against situations that may create negative consequences by sending warnings to living beings it encounters. For example, it is very important to ensure the safety of elements such as an animal living in nature or a civilian who is unconsciously in the area without posing a threat.

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THE IMPORTANCE OF INTRAVENOUS IMMUNOGLOBULINS IN THE TREATMENT OF ARDS DUE TO INFLUENZA B VIRUS

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ABSTRACT

Influenza virus (types A and B) can cause severe respiratory diseases. Severe cases of influenza B can lead to complications, especially pneumonia and ARDS. Acute respiratory distress syndrome (ARDS) is a critical pathological process, often characterized by a pronounced inflammatory response, developing hypoxemia due to damage to the alveolar network. During the inflammatory process,

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cytokine activity increases, which leads to a cytokine storm. Our goal in this article is to study the phenomenon of cytokine storm in pneumonia caused by influenza B, its pathogenesis, clinical course, as well as the use and significance of intravenous immunoglobulins (IVIG) during treatment. The co-authors were allowed to keep statistics and write an article based on the medical history and laboratory research statistics of the head of the MediClub hospital, Mr. Adnaev S., while maintaining the anonymity of the patient. We are aware of the decision of the Ministry of Health of the Republic of Azerbaijan dated 29.12.2011 No. 137 on the Rules of Ethical Conduct of Doctors.

According to the discharge summary of the medical history that we examined (medical history No. PK-117351), a male patient was admitted to the hospital with the diagnosis of "Acute respiratory disease of the lower respiratory tract caused by influenza B. Viral pneumonia of the lungs". The patient also has hypertension and non-insulin-dependent diabetes. The patient is 53 years old, weighs 80 kg; His height was 168 cm. CT revealed 60-70% damage to the lung parenchyma and a "ground glass" form. At different stages, the patient's peripheral and central hemodynamics, as well as laboratory analysis, and the concentration of immune system biomarkers were studied. Stage I is the period of admission to the intensive care unit; Stage II - 2-3 days of the disease; Stage III covers 5-6 days of the disease. Judging by the history of the disease, the patient had sharply high inflammatory indicators. His temperature was 38-39.5°C. When studying immunological laboratory parameters, it was established that the concentration of IL-6 in the first stage was high - 539.0 pg/ml. Thus, interleukin-6 (IL-6), a proinflammatory cytokine that regulates the inflammatory response, aggravates lung damage and plays an important role in the pathogenesis of ARDS. The patient received the first dose of IVIG 400 mg/kg (32 g) intravenously. In stage II, the concentration of IL-6 dynamically decreased by 2.39 times ($t=0.1$; $p_0<0.05$) compared to stage I and was 225.52 pg/ml. On the 4th day of the disease, the patient was prescribed IVIG 200 mg/ml. kg (16 g), administered intravenously, the concentration of IL-6 was 20.53 times compared to stage I ($t=2.4$; $p_0<0.01$); Compared with stage II, it decreased by 8.67 times ($t=0.3$; $p_1<0.05$) and is statistically significant. Thus, according to our results, the level of IL-6 in ARDS significantly affects the development and prognosis of the disease.

Although the use of IVIG in regulating the immune system and treating diseases by studying the level of IL-6 is financially expensive, we consider it an indispensable, admirable, accessible and interesting method of therapy.

Key words: IVIG, Influenza B, ARDS, pneumonia, respiratory failure, interleukin-6.

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ANALYSIS OF ZERO INTEREST LOAN CAMPAIGNS IN TERMS OF ISLAMIC LAW

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ABSTRACT

One of the characteristic features of Islamic economics is the prohibition of all forms of interest. So much so that even contracts that carry the suspicion of interest are considered as interest bearing transactions. While Islam recognises money only as a medium of exchange, other systems such as capitalism recognise it both as a medium of exchange and as a commodity with economic value. For this reason, Islam prohibits the sale of money as a commodity and the unfair earning of money from money. In Islamic economics, people's needs are not ignored and various 'interest-free financing' methods have been developed to meet cash needs. Zakat, charity and karz al-hasan are some of these methods. The most commonly used method by participation banks, which were established to carry out banking activities without interest, to meet people's basic needs such as houses and automobiles is murabahah. Thanks to this method, people can meet their financing needs in an interest-free manner. Conventional banks, on the other hand, offer 'zero-interest loan' campaigns to interest-sensitive individuals to obtain financing from them. Especially in the automobile sector, the zero-interest financing method has become very popular today. One of the campaigns offered to individuals for the purchase of Togg, Turkey's domestic and national car, is the mentioned zero-interest financing option. When the content of this campaign is examined, it is seen that there are three different parties in the sales contracts: the customer, Togg and the bank. In the transactions, it was observed that some parties made underpayments or received commissions. This brings to mind the possibility of the contract turning into an interest-bearing transaction. Based on all these issues, the aim of the study is to examine Togg and zero interest loan campaigns in general in terms of Islamic law. Content analysis method and document scanning/examination technique were used in the research. Whether these campaigns are really interest-free or not will be analysed in terms of Islamic law and a consistent result will be put forward.

Keywords: Islamic Law, Financing, Interest, Zero Interest Loan, Contract

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19. YÜZYILDA İSTANBUL'DAKİ İNGİLİZ OKULLARININ ETKİLERİ VE SÜRDÜRÜLEBİLİRLİĞİ

THE EFFECTS AND SUSTAINABILITY OF BRITISH SCHOOLS IN ISTANBUL IN THE 19TH CENTURY

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ÖZET

Bu çalışmanın amacı, 19. yüzyılda İstanbul'da açılan İngiliz okullarının Osmanlı eğitim sistemi üzerindeki etkilerini ve bu etkilerin sürdürülebilirliğini incelemektir. Bu bağlamda, İngiliz okullarının eğitimdeki rolü, toplumsal ve kültürel etkileri ile uzun vadeli sürdürülebilirlikleri değerlendirilecektir. Bu araştırma, tarihsel analiz ve literatür taraması yöntemleri kullanılarak gerçekleştirilmiştir. Osmanlı arşiv belgeleri, dönemin eğitim raporları ve ilgili akademik çalışmalar incelenmiştir. Ayrıca, İngiliz okullarının faaliyet gösterdiği döneme ait görsel ve yazılı kaynaklar da değerlendirilmiştir. İngiliz okullarının Osmanlı topraklarındaki varlığı, 19. yüzyılın başlarına kadar uzanmaktadır. İngiliz misyonerler, Osmanlı İmparatorluğu'nda eğitim faaliyetlerine yoğunlaşmış ve özellikle İstanbul'da birçok okul açmışlardır. Bu okullar, İngiliz hükümeti ve misyoner kuruluşlar tarafından maddi olarak desteklenmiş ve yerel elit ailelerin çocukları tarafından tercih edilmiştir. Elde edilen bulgulara göre, İngiliz okulları, Osmanlı İmparatorluğu'nda Batılı eğitim sistemlerinin tanıtılmasında önemli bir rol oynamıştır. Bu okullar, modern bilimler, matematik ve dil eğitimi gibi alanlarda yenilikçi müfredatlar sunmuştur. İngiliz okulları, Osmanlı toplumunda Batılılaşma hareketlerine katkıda bulunmuş ve farklı kültürlerin kaynaşmasına zemin hazırlamıştır. Bu okullarda eğitim gören öğrenciler, Batılı düşünce ve yaşam tarzlarını benimsemişlerdir. İngiliz okullarının sürdürülebilirliği, hem finansal destek hem de toplumsal kabul ile sağlanmıştır. Bu okullar, İngiliz hükümeti ve misyoner kuruluşlar tarafından maddi olarak desteklenmiş ve yerel elit ailelerin çocukları tarafından tercih edilmiştir. Sonuç olarak, 19. yüzyılda İstanbul'da açılan İngiliz okulları, Osmanlı eğitim sistemi üzerinde kalıcı etkiler bırakmış ve Batılılaşma sürecine önemli katkılarda bulunmuştur. Bu okulların sürdürülebilirliği, sağladıkları kaliteli eğitim ve toplumsal kabul ile mümkün olmuştur. Gelecekte yapılacak çalışmalar, bu okulların uzun vadeli etkilerini daha detaylı bir şekilde inceleyebilir.

Anahtar Kelimeler: Osmanlı Devleti, İstanbul, İngiliz Okulları, Sürdürülebilirlik

ABSTRACT

The aim of this study is to examine the effects of British schools opened in Istanbul in the 19th century on the Ottoman education system and the sustainability of these effects. In this context, the role of British schools in education, their social and cultural impacts, and their long-term sustainability will be evaluated. This research was conducted using historical analysis and literature review methods. Ottoman archival documents, educational reports of the period, and relevant academic studies were examined. Additionally, visual and written sources from the period when British schools were active were also evaluated. The presence of British schools in Ottoman territories dates back to the early 19th century. British missionaries focused on educational activities in the Ottoman Empire and opened many schools, especially in Istanbul. These schools were financially supported by the British government and missionary organizations and were preferred by the children of local elite families. According to the

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findings, British schools played a significant role in introducing Western education systems in the Ottoman Empire. These schools offered innovative curricula in areas such as modern sciences, mathematics, and language education. British schools contributed to the Westernization movements in Ottoman society and laid the groundwork for the fusion of different cultures. Students educated in these schools adopted Western thoughts and lifestyles. The sustainability of British schools was ensured by both financial support and social acceptance. These schools were financially supported by the British government and missionary organizations and were preferred by the children of local elite families. In conclusion, British schools opened in Istanbul in the 19th century left lasting impacts on the Ottoman education system and made significant contributions to the Westernization process. The sustainability of these schools was made possible by the quality education they provided and social acceptance. Future studies can examine the long-term effects of these schools in more detail.

Keywords: Ottoman Empire, Istanbul, British Schools, Sustainability

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ON GAMMA TERNARY SEMIGROUPS

Anila Peposhi

ABSTRACT

This paper introduces and investigates the algebraic structure of Gamma ternary semigroups, a generalization of classical ternary semigroups incorporating the concept of Gamma operations. The study explores foundational properties, characterizations, and the relationships between Gamma ternary semigroups and other algebraic systems. New structural results are established, including conditions for associativity, idempotence, and the existence of substructures like ideals and quasi-ideals. Applications of Gamma ternary semigroups in broader mathematical contexts are also considered, highlighting their potential relevance to multi-ary operations in algebraic frameworks. Examples are provided to illustrate the theoretical findings and clarify the implications of the introduced concepts.

Key words- Gamma ternary semigroup, Ideal, Quasi-ideal

1. Preliminary

Let us introduce some elementary concepts in Γ -ternary semigroups.

Definition 1.0. A Γ -ternary semigroup is an ordered system $(M, {}_M(\cdot)_\Gamma, {}_\Gamma(\cdot)_M)$ where M and Γ are two non-empty sets, ${}_M(\cdot)_\Gamma$ is a multiplication in M with elements of Γ , ${}_\Gamma(\cdot)_M$ is a multiplication in Γ with elements of M such that:

$$\forall a, b, c, d, e \in M \text{ and } \forall \alpha, \beta, \gamma, \delta \in \Gamma, (a\alpha b\beta c)\gamma d\delta e = a\alpha(b\beta c\gamma d)\delta e = a\alpha b\beta(c\gamma d\delta e)$$

Example 1.1. Let A and B be two sets. The set of mappings of A to B is a Γ -ternary semigroup if as Γ we get the set of mappings of B to A respected to the multiplication in M with elements of Γ and the multiplication in Γ with elements of M which are defined by the ordinary compositions $f_1 \circ \alpha \circ f_2 \circ \beta \circ f_3$ and $\gamma \circ g_1 \circ \delta \circ g_2 \circ \lambda$, respectively, for every mapping f_1, f_2, f_3, g_1, g_2 of A to B and every mapping $\alpha, \beta, \gamma, \delta, \lambda$ of B to A due to the associative law of mappings composition.

Example 1.2. Let M be the set of natural numbers in the form $4n + 3$ and Γ the set of natural numbers in the form $4n + 1$. We define a multiplication in M with elements of Γ by $a\alpha b\beta c = a + \alpha + b + \beta + c$ and a multiplication in Γ with elements of M by $\gamma a\delta b\lambda = \gamma + a + \delta + b + \lambda$. Since the ordinary addition of natural numbers has the associative property, then the ordered system $(M, {}_M(\cdot)_\Gamma, {}_\Gamma(\cdot)_M)$ is a Γ -ternary semigroup.

Definition 1.3. A Γ -ternary semigroup is an ordered pair $(S, s(\cdot)_\Gamma)$ where S and Γ are two non-empty sets and $s(\cdot)_\Gamma$ is a multiplication in S with elements of Γ such that

$$\forall a, b, c, d, e \in S \text{ and } \forall \alpha, \beta, \gamma, \delta \in \Gamma, (a\alpha b\beta c)\gamma d\delta e = a\alpha b\beta(c\gamma d\delta e)$$

Let $M = \{a, b, c, \dots\}$ and $\Gamma = \{x, y, z, \dots\}$ be two non-empty sets. M is called a Γ -ternary semigroup if

$$(1) \quad axbyc \in M$$

$$(2) \quad (axbyc)zdwe = axby(czdwe)$$

for all $a, b, c, d, e \in M$ and for all $x, y, z, w \in \Gamma$.

Example 1.4. Let $(S, \cdot)$ be a ternary semigroup and Γ any set. We define in S a multiplication with elements of Γ , $s(\cdot)_\Gamma$ by the multiplication of elements of the ternary semigroup $(S, \cdot)$, $a\alpha b\beta c = a \cdot b \cdot c$. Since the multiplication of the ternary semigroup $(S, \cdot)$ has the associative property we have

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$$a\alpha b\beta(c\gamma d\delta e) = a\alpha b\beta(cde) = ab(cde) = (abc)de = (abc)\gamma d\delta e = (a\alpha b\beta c)\gamma d\delta e.$$

Thus, the ordered pair $(S, s(\cdot)_\Gamma)$ is a Γ -ternary semigroup. Hence, since from every ternary semigroup S arise naturally a Γ -ternary semigroup we say (with understanding) that every ternary semigroup is a Γ -ternary semigroup and consequently we may consider Γ -ternary semigroups as a generalization of ternary semigroups.

Example 1.5. Let $S = [0, 1]$ and $\Gamma = \{\frac{1}{n} / n \in N\}$. We define in S a multiplication with elements of Γ , $(S, s(\cdot)_\Gamma)$, by the ordinary multiplication, that is to say, for every three real numbers a, b, c to the segment $[0, 1]$ and every two rational numbers $\alpha = \frac{1}{m}, \beta = \frac{1}{n}$ we have $a\alpha b\beta c = a \cdot \frac{1}{m} \cdot b \cdot \frac{1}{n} \cdot c = \frac{abc}{mn}$. The ordered pair $(S, s(\cdot)_\Gamma)$ is a Γ -ternary semigroup due to the associative law of the ordinary multiplication.

For Γ -ternary semigroups, as well as ternary semigroups, the notion of a Γ -ternary subsemigroup is given.

Definition 1.6. A non-empty subset S_1 of S is called a Γ -ternary subsemigroup of a Γ -ternary semigroup $(S, s(\cdot)_\Gamma)$ if $(S_1, s_1(\cdot)_\Gamma)$ is a Γ -ternary semigroup.

Let A and B be two non-empty subsets of a Γ -ternary semigroup S . In this case the note $AIBIC$ is used to show the set of all elements of S in the form $a\alpha b\beta c$ where $a \in A, b \in B, c \in C$ and $\alpha, \beta \in \Gamma$. If $A = \{a\}, B = \{b\}$ or $C = \{c\}$ then for simplicity, instead of notes $\{a\}IBIC, AI\{b\}IC, AIBI\{c\}, \{a\}I\{b\}IC, \{a\}IBI\{c\}, AI\{b\}I\{c\}, \{a\}I\{b\}I\{c\}$ we will use $aIBIC, AIbIC, AIBIc, aIbIC, aIBIc, AIbIc, aIbIc$.

Thus, a Γ -ternary subsemigroup of a Γ -ternary semigroup S is a non-empty subset S_1 of S such that $S_1\Gamma S_1\Gamma S_1 \subseteq S_1$.

If in Example 1.5 we get $S_1 = \left[0, \frac{1}{2}\right]$ then it is clear that the subset S_1 is a Γ -ternary subsemigroup of a Γ -ternary semigroup $(S, s(\cdot)_\Gamma)$.

Let S be a Γ -ternary semigroup and α, β two elements of Γ . We define a multiplication o in S by $aoboc = a\alpha b\beta c$, for every three elements of S . It is clear that (S, o) is a ternary semigroup. This ternary semigroup is denoted $S_{\alpha, \beta}$.

Definition 1.7. A Γ -ternary semigroup is called a Γ -ternary group if for any $\alpha, \beta \in \Gamma$, the ternary semigroup $S_{\alpha, \beta}$ is a group.

[4] Let S be a Γ -ternary semigroup and α, β two elements of Γ . An element e of S is called α, β -idempotent if $e\alpha e\beta e = e$. The set of all α, β -idempotents is denoted $E_{\alpha, \beta}$, whereas $\bigcup_{\alpha, \beta \in \Gamma} E_{\alpha, \beta}$ is denoted $E(S)$. The elements of the set $E(S)$ are called idempotents of S . A Γ -ternary semigroup S is called a Γ -idempotent semigroup if $S = E(S)$. If e is a α, β -idempotent of a Γ -ternary semigroup S , then we denote $e\alpha S\beta e\alpha S\beta e$ the set of elements in the form $(e\alpha s_1\beta e)\alpha s_2\beta e$, for any $s_1, s_2 \in S$, which we simply denote $e\alpha s_1\beta e\alpha s_2\beta e$. The set $e\alpha S\beta e\alpha S\beta e$ is a ternary subsemigroup $S_{\alpha, \beta} = (S, o)$ since we have $eoSoeoSoe = e\alpha S\beta e\alpha S\beta e$. Furthermore, a α, β -idempotent is the identity of this ternary subsemigroup since $eoeeoe = e$ and consequently we have $eoeeoe(eoSoeoSoe) = (eoeeoe)oSoeoSoe = eoSoeoSoe$, $(eoSoeoSoe)oeoe = eoSo(eoSoeeoe) = eoSoeoSoe$.

2. Ideals and quasi-ideals of Γ -ternary semigroups

Similar to ternary semigroups the notion of a left ideal, a right ideal, an ideal and quasi-ideal in Γ -ternary semigroups is introduced.

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Definition 1.8. A right ideal [left ideal, lateral ideal] of a Γ -ternary semigroup $(S, s(\cdot)_\Gamma)$ is a non-empty subset $R [L, M]$ of S such that $RISSIS \subseteq R [SISIL \subseteq L, SIMIS \subseteq M]$.

Definition 1.9. An ideal of a Γ -ternary semigroup $(S, s(\cdot)_\Gamma)$ is a non-empty subset of S which is simultaneously a right ideal, a left ideal and lateral ideal of S .

Definition 1.10. A quasi-ideal of a Γ -ternary semigroup $(S, s(\cdot)_\Gamma)$ is a non-empty subset Q of S such that $QISIS \cap SIQIS \cap SISIQ \subseteq Q$ and $QISIS \cap SISIQISIS \cap SISIQ \subseteq Q$.

It is clear that every left ideal [right ideal, lateral ideal, ideal, quasi-ideal] of a Γ -ternary semigroup S is a Γ -ternary subsemigroup of S . As well, every left [right, lateral] ideal of a Γ -ternary semigroup S is a quasi-ideal of S .

Similar to ternary semigroups we have this statement:

Proposition 1.11. A non-empty subset Q of a Γ -ternary semigroup S is a quasi-ideal of S if and only if Q is an intersection of a left, right and lateral ideal of S .

Proof. Assume that a non-empty subset Q of a Γ -ternary semigroup S is a quasi-ideal of this ternary semigroup. It easy to show that $Q \cup QISIS$ is a right ideal of S , $Q \cup SISIQ$ is a left ideal of S and $Q \cup SIQIS$ is a lateral ideal of S . The inclusion $Q \subseteq (Q \cup QISIS) \cap (Q \cup SISIQ) \cap (Q \cup SIQIS)$ is obvious. Conversely. Let a be an element of the intersection $(Q \cup QISIS) \cap (Q \cup SISIQ) \cap (Q \cup SIQIS)$. Then a is an element of Q or an element of the intersection $QISIS \cap SISIQ \cap SISIQ$. Since Q is a quasi-ideal of S , then in the second case we have $a \in QISIS \cap SISIQ \cap SISIQ \subseteq Q$. Thus, we have the inclusion $(Q \cup QISIS) \cap (Q \cup SISIQ) \cap (Q \cup SIQIS) \subseteq Q$ which together with the clear inclusion we mentioned above, show that $Q = (Q \cup QISIS) \cap (Q \cup SISIQ) \cap (Q \cup SIQIS)$. Thus, a quasi-ideal Q is an intersection of a left ideal $Q \cup SISIQ$, lateral ideal $Q \cup SIQIS$ and right ideal $Q \cup QISIS$. To show the rest of the statement suppose that Q is an intersection of a left ideal L , lateral ideal M and right ideal R of S . Thus, $Q = L \cap M \cap R$. Since L is a left ideal, M a lateral ideal and R a right ideal of S we have $QISIS \cap SISIQ \cap SISIQ \subseteq (L \cap M \cap R)ISIS \cap SI(L \cap M \cap R)IS \cap SISI(L \cap M \cap R) \subseteq LISIS \cap SIMIS \cap SISR \subseteq L \cap M \cap R = Q$ and consequently Q is a quasi-ideal of a Γ -ternary semigroup S .

Zero of a Γ -ternary semigroup S is called an element $0 \in S$ such that for asny element $a, b \in S$ and for any $\gamma, \delta \in \Gamma$ we have $a\gamma b\delta 0 = a\gamma 0\delta 0 = a\gamma 0\delta b = 0\gamma a\delta b = 0\gamma 0\delta 0 = 0$.

Theorem 1.12. For any Γ -ternary semigroup S without zero the following statements are equivalent:

- 1) There exist $\gamma, \delta \in \Gamma$ such that $(S, o) = S_{\gamma, \delta}$ is a ternary group
- 2) A Γ -ternary semigroup S has not any quasi-ideal different from S
- 3) A Γ -ternary semigroup S has not any right ideal, lateral ideal and left ideal different from S .

Proof. 1) $\Rightarrow$ 2) Assume the statement 1) is true and let Q be a quasi-ideal of a Γ -ternary semigroup S and a an element of Q . Then, $S = SoSoa = S\gamma S\delta a = Soa\delta S = S\gamma a\delta S = a\delta SoS = a\gamma S\delta S = S\gamma S\delta a \cap S\gamma a\delta S \cap a\gamma S\delta S \subseteq SISIQ \cap SIQIS \cap QISIS \subseteq Q$ and consequently $S = Q$.

2) $\Rightarrow$ 3) The implication is true since every left ideal, right ideal and lateral ideal of a Γ -ternary semigroup S is a quasi-ideal of S .

3) $\Rightarrow$ 1) Suppose the statement 3) is true. Let γ and δ be two elements of Γ . For every element $a \in S$ the set $a\gamma S\delta S$ is a right ideal of S since it is non-empty and $(a\gamma S\delta S)ISIS \subseteq a\gamma S\delta(SISIS) \subseteq a\gamma S\delta S$. Similarly we show that for every element $a \in S$ the set $S\gamma S\delta a$ is a left ideal of S and the set $S\gamma a\delta S$ is a lateral ideal of S . Since a Γ -ternary semigroup S has not any right ideal different from S , S has not any left ideal different from S and also it has not any lateral ideal different from S we have $a\gamma S\delta S =$

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$S, S\gamma a\delta S = S$ and $S\gamma S\delta a = S$. For every element $a \in S$ the following statements are true: $a\delta S\delta S = S, S\delta S\delta a = S$ and $S\delta a\delta S = S$ which show that $(S, \delta) = S_{\gamma, \delta}$ is a ternary group.

Corollary 1.13. *Let S be a Γ -ternary semigroup without zero. If $S_{\gamma, \delta} = (S, \delta)$ is a ternary group for some $\gamma, \delta \in \Gamma$, then $S_{\gamma, \delta}$ is a ternary group for any $\gamma, \delta \in \Gamma$.*

Proof. Assume $S_{\gamma, \delta} = (S, \delta)$ is a ternary group for some $\gamma, \delta \in \Gamma$. Then, by Theorem 1.12, 2) a Γ -ternary semigroup S has not quasi-ideals different from S . Also this theorem implies $S_{\gamma, \delta} = (S, \delta)$ is a ternary group for every $\gamma, \delta \in \Gamma$.

Thus, from the previous corollary we have:

A Γ -ternary semigroup S is a ternary group if and only if there exist two elements $\gamma, \delta \in \Gamma$ such that $S_{\gamma, \delta} = (S, \delta)$ is a ternary group.

Theorem 1.14. *Let S be a Γ -ternary semigroup with zero such that $SISIS \neq 0$. Then the following statements are equivalent:*

- (i) *There exist $\gamma, \delta \in \Gamma$ such that $S_{\gamma, \delta} = (S, \delta)$ is a ternary group with zero*
- (ii) *A Γ -ternary semigroup S has not quasi-ideals different from zero and S itself*
- (iii) *The only right ideals, left ideals and lateral ideals of a Γ -ternary semigroup S are both zero and S itself*

Proof. (i) $\Rightarrow$ (ii) Let Q be a quasi-ideal of S different from zero and a a non-zero element of Q . Then $S = S\delta S\delta a = a\delta S\delta S = S\delta a\delta S = S\gamma S\delta a = a\gamma S\delta S = S\gamma a\delta S = S\gamma S\delta a \cap a\gamma S\delta S \cap S\gamma a\delta S \subseteq S\gamma S\delta Q \cap Q\gamma S\delta S \cap S\gamma Q\delta S \subseteq Q$ and so $Q = S$.

(ii) $\Rightarrow$ (iii) It is clear.

(iii) $\Rightarrow$ (i) Suppose that the only right ideals of S are 0 and S itself. For any element $a \in S$ different from zero the set $a \cup aISIS$ is a right ideal of S since it is non-empty and $(a \cup aISIS)ISIS \subseteq aISIS \cup (aISIS)ISIS \subseteq aISIS \subseteq a \cup aISIS$. Since S has not right ideals different from zero and $a \cup aISIS \neq 0$ since $a \neq 0$, then we have $a \cup aISIS = S$. Thus $aISIS \subseteq (a \cup aISIS)ISIS = SISIS \neq 0$. On the other hand we have that $aISIS$ is a right ideal so $aISIS = S$. In a similar way it is shown that $SISISa = S$ and $SISaIS = S$. Thus, for every element $a \neq 0$ we have $a\delta S\delta S = S, S\delta a\delta S = S$ and $S\delta S\delta a = S$. These statements show that $S_{\gamma, \delta} = (S, \delta)$ is a ternary group with zero, for every $\gamma, \delta \in \Gamma$.

Remark 1.15. It is clear that 0 and S itself are left ideals, right and lateral ideals of S .

Corollary 1.16. *Let S be a Γ -ternary semigroup with zero such that $SISIS \neq 0$. If $S_{\gamma, \delta} = (S, \delta)$ is a ternary group with zero for some $\gamma, \delta \in \Gamma$, then S_{γ} is a ternary group with zero, for any $\gamma, \delta \in \Gamma$.*

Proof. By Theorem 1.12 we have that if $S_{\gamma, \delta}$ is a ternary group with zero, for some $\gamma, \delta \in \Gamma$ then S has not quasi-ideals different from zero and S itself. By this theorem we have also that (S, δ) is a ternary group with zero, for every $\gamma, \delta \in \Gamma$.

Now let S be a Γ -ternary semigroup with zero. Then S will be called a Γ -ternary group with zero if for every $\gamma, \delta \in \Gamma$, $S_{\gamma, \delta} = (S, \delta)$ is a ternary group with zero.

By Corollary 1.16 we have: *a Γ -ternary semigroup with zero S is a Γ -ternary group with zero if and only if there exist $\gamma, \delta \in \Gamma$ such that $S_{\gamma, \delta} = (S, \delta)$ is a ternary group with zero.*

Theorem 1.17. *Let S be a Γ -ternary semigroup without zero. Then the following statements hold:*

- (i) *S has not left [right, lateral] ideals different from S if and only if for all $s \in S$, $SISIS = S, [sISIS = S, SISsIS = S]$*

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(ii) If for all $s \in S$, $SISIs \cap SIIsIS \cap sISIS = S$ then S has not quasi-ideals different from S

Proof. (i) Let S be a Γ -ternary semigroup without zero which has not left [right, lateral] ideals different from S . Then, for all $s \in S$ we have $sIsIs \in SISIs$ so that $SISIs$ is non-empty. Also $SISIs(SISIs) \subseteq (SISIs)ISIs \subseteq SISIs$. Thus $SISIs$ is a left ideal of S , hence $SISIs = S$.

Conversely, suppose that for all $s \in S$, $SISIs = S$. Let L be a left ideal of S and $a \in L$. By assumption we have that for all $s \in S$, $SISIsa = S$. Since L is a left ideal we have $S = SISIsa \subseteq SISIsL \subseteq L$ so that $S = L$. This shows that S has not left ideals different from S . Similarly it is shown the case of right and lateral ideal.

(ii) Let S be a Γ -ternary semigroup without zero such that for all $s \in S$, $SISIs \cap SIIsIS \cap sISIS = S$. Let Q be a quasi-ideal of S and $k \in Q$. Then we have $S = ISIk \cap SIkIS \cap kISIS \subseteq ISIQ \cap SIQIS \cap QISIS \subseteq Q$ and so $S = Q$. This implies that S has not quasi-ideals different from S .

Similarly, we prove the following theorem:

Theorem 1.18. Let S be a Γ -ternary semigroup with zero. Then the following statements are true:

(i) S has not left [right, lateral] ideals different from zero and S if and only if for all $s \in S \setminus \{0\}$, $SISIs = S$, $[sISIS = S, SIIsIS = S]$

(ii) If for all $s \in S \setminus \{0\}$, $SISIs \cap (SIIsIS \cup SISIsISIS) \cap sISIS = S$ then S has not quasi-ideals different from S .

Proposition 1.19. Let S be a Γ -ternary semigroup without zero. Then, the intersection of a non-empty family of quasi-ideals [left ideals, right ideals, lateral ideals, ideals] of S is a quasi-ideal [left ideal, right ideal, lateral ideal, ideal] of S .

Proof. Let $(Q_i)_{i \in I}$ be a non-empty family of quasi-ideals of S . Then, for every $a, b, c \in \bigcap_{i \in I} Q_i$, $s_1, s_2, s_3, s_4, s_5, s_6 \in S$ and $\alpha, \beta, \gamma, \delta, \lambda, \mu \in \Gamma$ such that $s_1\alpha s_2\beta a = s_3\gamma b\delta s_4 = c\lambda s_5\mu s_6$ we have $s_1\alpha s_2\beta a = s_3\gamma b\delta s_4 = c\lambda s_5\mu s_6 \in SISIQ_i \cap SIQ_iIS \cap Q_iISIS \subseteq Q_i$, for every $i \in I$. Hence, $s_1\alpha s_2\beta a = s_3\gamma b\delta s_4 = c\lambda s_5\mu s_6 \in \bigcap_{i \in I} Q_i$. Thus $SISIs(\bigcap_{i \in I} Q_i) \cap SI(\bigcap_{i \in I} Q_i)IS \cap (\bigcap_{i \in I} Q_i)ISIS \subseteq \bigcap_{i \in I} Q_i$. This mean that $\bigcap_{i \in I} Q_i$ is a quasi-ideal of S . In a similar way we prove the case of left ideal, right ideal, lateral ideal and ideal.

In this proposition the condition that the intersection of a family of quasi-ideals being empty is essential. Let's give an example. The set of natural numbers N is a Γ -ternary semigroup if we get $\Gamma = \{1\}$ and as a multiplication in N with elements of Γ the ordinary multiplication. It is easy to show that for all $n \in N$ the set $Q_n = \{n+1, n+2, \dots\}$ is a quasi-ideal of a Γ -ternary semigroup N but $\bigcap_{i \in I} Q_i$ is empty since $m \in N, m \notin Q_m$.

Let X be a non-empty subset of a Γ -ternary semigroup S . From the above statement the intersection of all left ideals [right ideals, lateral ideals, ideals, quasi-ideals] containing X is a left ideal [right ideal, lateral ideal, ideal, quasi-ideal] of S since this intersection is non-empty given that it contains $X \neq \emptyset$. Precisely this left ideal [right ideal, lateral ideal, ideal, quasi-ideal] is called *left ideal [right ideal, lateral ideal, ideal, quasi-ideal] generated by X* and it is denoted $(X)_l [(X)_r, (X)_m, (X)_t, (X)_q]$.

It is easy to show that : $(X)_l = X \cup SISIX$

$$(X)_r = X \cup XISIS$$

$$(X)_m = X \cup SIXIS \cup SISIXISIS$$

$$(X)_t = X \cup SISIX \cup XISIS \cup SIXIS \cup SISIXISIS$$

$$(X)_q = X \cup (SISIX \cap (SIXIS \cup SISIXISIS) \cap XISIS)$$

Proposition 1.20. If X is a non-empty subset of a Γ -ternary semigroup S , then

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$$(X)_q = (X \cup SISIS) \cap (X \cup SIXIS \cup SISISIS) \cap (X \cup XISIS) = (X)_l \cap (X)_m \cap (X)_r$$

Proof. We denote $D = (X \cup SISIS) \cap (X \cup SIXIS \cup SISISIS) \cap (X \cup XISIS)$. Then $D = (X)_l \cap (X)_m \cap (X)_r$. By Proposition 1.19 we have D is a quasi-ideal of S containing X . Thus $(X)_q \subseteq D$. Again by this proposition we have $Q = (X)_q$ is in the form $(X)_q = Q = (Q \cup SISIS) \cap (Q \cup SIXIS \cup SISISIS) \cap (Q \cup XISIS)$. This statement and the inclusion $X \subseteq Q$ imply $D = (X \cup SISIS) \cap (X \cup SIXIS \cup SISISIS) \cap (X \cup XISIS) \subseteq (Q \cup SISIS) \cap (Q \cup SIXIS \cup SISISIS) \cap (Q \cup XISIS) = Q = (X)_q$. Since $D = (X)_l \cap (X)_m \cap (X)_r$ it follows the desired conclusion.

If the set X consists of a single element x then we have:

$$(x)_l = x \cup SISIS$$

$$(x)_r = x \cup xISIS$$

$$(x)_m = x \cup SIXIS \cup SISISIS$$

$$(x)_t = x \cup SISISx \cup xISIS \cup SIXIS \cup SISISxISIS$$

$$(x)_q = x \cup (SISISx \cap (SIXIS \cup SISISxISIS) \cap xISIS)$$

Thus $(x)_q = (x \cup SISISx) \cap (x \cup (SIXIS \cup SISISxISIS)) \cap (x \cup xISIS) = (x)_l \cap (x)_m \cap (x)_r$.

Definition 1.21. Center of a Γ -ternary semigroup S is called the subset $C(S) = \{a \in S / a\alpha b\beta c = b\alpha a\beta c = b\alpha c\beta a, b, c \in S \wedge \alpha, \beta \in \Gamma\}$.

Proposition 1.22. If $a\beta b\alpha c = b\beta a\alpha c = a\alpha b\beta c$ for all $a, b, c \in S$ and for all $\alpha, \beta \in \Gamma$, then the center of a Γ -ternary semigroup S is a Γ -ternary subsemigroup of S .

Proof. For any three elements $a, b, c \in C(S)$ and every $\alpha, \beta \in \Gamma$, $(a\alpha b\beta c)\gamma d\delta e = a\alpha(b\beta c\gamma d)\delta e = a\alpha(b\beta d\gamma c)\delta e = a\alpha(d\beta b\gamma c)\delta e = a\alpha(d\gamma b\beta c)\delta e = (a\alpha d\gamma b)\beta c\delta e = (d\alpha a\gamma b)\beta c\delta e = d\gamma(a\alpha b\beta c)\delta e$. Similarly the other statements are proved.

Now let's give the notion of the prim ideal of a Γ -ternary semigroup.

Definition 1.23. An ideal P of a Γ -ternary semigroup S is called prim if for any two ideals I_1 and I_2 of S , $I_1 \Gamma I_2 \subseteq P \Rightarrow I_1 \subseteq P$ or $I_2 \subseteq P$.

Theorem 1.24. An ideal P of a Γ -ternary semigroup S is prim if and only if for any two elements a, b of S , $(a)\Gamma(b) \subseteq P \Rightarrow a \in P$ or $b \in P$.

Theorem 1.25. Let S be a Γ -ternary semigroup and P an ideal of S . Then P is a prim ideal if and only if for any two elements a, b of S , $(\forall \gamma \in \Gamma, a\gamma b \in P) \Rightarrow (a \in P \text{ or } b \in P)$.

Proof. Let P be a prim ideal such that $a\Gamma b \subseteq P$ and $a \notin P$. Let x be an element of $(a)\Gamma(b)$. Since $a\gamma b \in P$ it is easy to show that $x \in P$. Thus $(a)\Gamma(b) \subseteq P$ and $a \notin P$ whence based on Theorem 1.24 it follows that $b \in P$.

Conversely, let I_1 and I_2 be two ideals of P such that $I_1 \Gamma I_2 \subseteq P$ and $I_1 \not\subseteq P$. Thus, we have that there exists an element $a \in I_1$ such that $a \notin P$ and $a\Gamma b \subseteq a\Gamma b \subseteq P$. From here it follows that $b \in P$. Thus $B \subseteq P$ which shows that P is a prim ideal.

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KUVVET VE HAREKET KONUSUNDA ÖĞRETİM YÖNTEMLERİNİN AKADEMİK BAŞARI ÜZERİNDEKİ ETKİSİ: BİR META-ANALİZ ÇALIŞMASI THE EFFECT OF TEACHING METHODS ON ACADEMIC ACHIEVEMENT IN FORCE AND MOTION: A META-ANALYSIS STUDY

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ÖZET

Kuvvet ve hareket konusu, doğadaki fiziksel olayların anlaşılmasında temel bir rol oynar ve öğrencilerin bilimsel düşünme becerilerini geliştirmelerine katkı sağlar. Bu çalışmada, Kuvvet ve Hareket konusunun öğretiminde kullanılan yöntemlerin öğrencilerin akademik başarıları üzerindeki etkisini belirlemek ve bu etkilerin yayın türü ile öğretim kademesine göre farklılığını incelemek amaçlanmıştır. Bu doğrultuda, meta-analiz yöntemi kullanılarak alan yazında yapılan deneysel çalışmalardan elde edilen veriler sistematik bir şekilde analiz edilmiştir. Bu amaçla 2000-2024 yılları arasında Türkiye’de yayımlanan ve içerme ölçütlerini taşıyan 42 deneysel çalışma meta-analiz yöntemiyle incelenmiştir. Meta-analize dahil edilen çalışmaların analizi sonucunda, rastgele etkiler modeline göre ortalama etki büyüklüğü 0.866 olarak hesaplanmıştır (95% GA [0.715, 1.017], $p < 0.01$). Etki büyüklükleri arasındaki varyansın anlamlılığını incelemek için gerçekleştirilen heterojenlik testi anlamlı bulunmuştur ($p < .05$). Analiz sonuçları öğretim kademesi ve yayın türünün anlamlı bir moderatör olmadığını ortaya koymuştur. Argümantasyon, bilgisayar destekli, probleme dayalı ve STEM öğretim yöntemleri ile gerçekleştirilen post hoc analizler, bu öğretim yöntemlerinin akademik başarı üzerindeki etkileri arasında istatistiksel olarak anlamlı bir fark olmadığını göstermiştir. Bu araştırma, 2000-2024 yılları arasında Türkiye’de yayımlanan 42 deneysel çalışmayla sınırlıdır. Ayrıca akademik başarıyı ölçen çalışmaların incelenmiş olması, öğretim yöntemlerinin diğer öğrenme çıktıları (tutum, motivasyon, eleştirel düşünme becerileri) üzerindeki etkilerini değerlendirmeyi mümkün kılmamaktadır. Bu kapsamda çalışmaların uluslararası bağlamda da incelenmesi, öğretim yöntemlerinin farklı kültürel ve eğitimsel ortamlardaki etkilerini ortaya koyabilir. Akademik başarı dışında, öğretim yöntemlerinin öğrencilerin tutumları, motivasyonları ve becerileri üzerindeki etkilerini de inceleyen meta-analiz çalışmaları yapılabilir.

Anahtar Kelimeler: Kuvvet ve hareket, Öğretim yöntemleri, Akademik başarı, Meta-analiz, Moderatör analizi.

ABSTRACT

The subject of force and motion plays a fundamental role in understanding physical phenomena in nature and contributes to the development of students' scientific thinking skills. In this study, it was aimed to determine the effect of the methods used in teaching the subject of Force and Motion on students' academic achievement and to examine the difference of these effects according to the type of publication and level of education. In this direction, the data obtained from empirical studies in the literature were systematically analyzed using meta-analysis method. For this purpose, 42 experimental studies published in Turkey between 2000 and 2024 and meeting the inclusion criteria were analyzed by meta-analysis method. As a result of the analysis of the studies included in the meta-analysis, the average

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effect size was calculated as 0.866 according to the random effects model (95% CI [0.715, 1.017], $p < 0.01$). The heterogeneity test performed to examine the significance of the variance between effect sizes was significant ($p < .05$). The results of the analysis revealed that teaching level and publication type were not significant moderators. Post hoc analyses conducted with argumentation, computer-assisted, problem-based and STEM teaching methods showed that there was no statistically significant difference between the effects of these teaching methods on academic achievement. This study is limited to 42 experimental studies published in Turkey between 2000 and 2024. In addition, the fact that studies measuring academic achievement were examined does not make it possible to evaluate the effects of teaching methods on other learning outcomes (attitude, motivation, critical thinking skills). In this context, examining studies in an international context may reveal the effects of teaching methods in different cultural and educational environments.

Keywords: Force and motion, Teaching methods, Academic achievement, Meta-analysis, Moderator analysis.

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INTERNATIONAL PROTECTION OF TRADEMARKS AT THE INTERNATIONAL LEVEL: A COMPARISON BETWEEN THE UK AND TURKIYE MARKANIN ULUSLARARASI DÜZLEMDE KORUNMASI: İNGİLTERE VE TÜRKİYE KARŞILAŞTIRMASI

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ABSTRACT

With globalization, dizzying advances in technology have eliminated international borders, causing local businesses to seek new markets. As a result, businesses have increased their capacities and turned to international markets. Among those affected by this process is undoubtedly the brand-oriented marketing sector. Because businesses must first determine their trademarks during the establishment phase and start the registration process of these brands. Trademarks used without registration pave the way for others to use them without authorization and even try to register them. This may lead to irreparable and undesirable consequences. Therefore, it is essential for businesses that intend to sell goods and services in foreign markets to protect their trademarks abroad. In other words, it is imperative for businesses operating in the international arena to register their trademarks in the countries in which they are interested. Therefore, the registration of the trademark abroad is of great importance.

Trademark protection is national. The trademark is protected only within the borders of the country in which it is registered. In this study, trademark registration processes in Turkey and the UK will be examined regarding the protection of trademarks at the international level, and the importance of registration will be revealed by comparing the trademark registration process from the application stage to the registration stage in the two countries through a literature review.

Keywords: Branding, Trademark Law, Trademark Registration, International Trademark Registration, UK, Turkey, WIPO, EUIPO

ÖZET

Küreselleşme ile birlikte teknolojiye baş döndüren ilerlemeler uluslararası sınırları ortadan kaldırarak yerel işletmelerin yeni pazar arayışına girmesine sebep olmuştur. Bunun sonucunda işletmeler kapasitelerini artırarak uluslararası pazarlara yönelmişlerdir. Bu süreçten etkilenenler arasında kuşkusuz marka odaklı pazarlama sektörü de yer almaktadır. Zira işletmeler kurulma aşamasındayken önce markalarını belirlemeli ve bu markaların tescil işlemlerini başlatmalıdır. Tescil ettirilmeden kullanılan markalar, başkalarının söz konusu markaları izinsiz kullanmasını ve hatta tescil ettirmesinin yolunu açmaktadır. Bu durum telafisi mümkün olmayan ve istenmeyen sonuçlar doğurmaktadır. Dolayısıyla yurtdışı pazarlarda mal ve hizmet satma niyetinde olan işletmelerin markalarını yurtdışında da korumaları zaruridir. Diğer bir deyişle, uluslararası alanda faaliyet gösteren işletmelerin ilgi alanlarına giren ülkelerde de markalarının tescillerini gerçekleştirmeleri gerekmektedir. Bu nedenle, markanın yurtdışında tescili büyük önem arz etmektedir.

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Marka koruması ulusaldır. Markan hangi ÷lkede tescil ettirildiyse yalnızca o ÷lke sınırları içinde korunmaktadır. Bu çalışmada, markanın uluslararası düzlemde korunmasına ilişkin olarak Türkiye ve İngiltere’de marka tescil süreçleri incelenecek olup literatür taraması üzerinden iki ÷lkede başvuru aşamasından tescil aşamasına kadar marka tescil süreci karşılaştırılarak tescilin önemi ortaya koyulacaktır.

Anahtar Kelime: Markalaşma, Marka Tescili, Uluslararası Marka Tescili, İngiltere, Türkiye, WIPO, EUIPO

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THE EFFECT OF NiO DOPING TO PCFC PERFORMANCE

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ABSTRACT

With the development of technology and increasing population, the need for energy is increasing day by day. There are many methods used to meet energy needs and one of them is fuel cells which convert the chemical energy in fuels directly into electrical energy.

The two most commonly used types of fuel cells are Proton Exchange Membrane Fuel Cells (PEM) and Solid Oxide Fuel Cells (SOFC). SOFCs stands out because having important advantages such as no usage of expensive catalysts and pure H₂ gas, which is disadvantage of PEM. However, the disadvantage of SOFCs is that they operate at very high temperatures. A solution for this problem is Protonic Ceramic Fuel Cells (PCFC) technology which allows the SOFCs to operate relatively at lower temperatures. Thus, lower-cost and lower-temperature SOFC systems can be obtained.

In this study, Yttrium (Y) doped electrolyte powders with the general formula Ba(Ce, Zr, Y)O were synthesized by the Glycine Nitrate Process (GNP). Then calcination process were applied at 900°C. NiO was added to reduce the sintering temperature and after the pellet production was carried out and, the sintering process applied again. After the analyzes were carried out and the results compared with the literature, the anode was produced with the NiO-BZCY powder extrusion device and the sintering process was repeated for the calcination process. NiO powder was coated on the anode using the dip-coating method and anode-supported PCFC fuel cells were produced. Scanning electron microscopy (SEM), X-ray Diffraction Analysis (XRD) and Differential Scanning Calorimetry (DSC) were performed and the results were compared with the literature. It has been observed that NiO doping reduces the sintering temperature from 1500°C to 1400°C. Additionally, it has been observed that grain boundaries decrease as grain sizes increase.

Keywords: NiO doping, PCFC, electrochemical energy, SOFC

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ESSENTIAL OIL MIXTURES USED IN AROMATHERAPY PREVENT THE SWIMMING AND SWARMING MOTILITIES OF *PSEUDOMONAS AERUGINOSA* PAO1

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ABSTRACT

Essential oils (EOs) are among the most widely used natural products worldwide. They have many applications such as pharmaceuticals, additives, food, and beverages. They can also be used in aromatherapy to treat several diseases in humans and plants and prevent bacterial infections. The present study aimed to investigate the inhibitory potentials of essential oil mixtures (EOMxs: EOMx-1 and EOMx-2) used in aromatherapy on the swimming and swarming behavior of the *Pseudomonas aeruginosa* PAO1 strain, which is controlled by quorum sensing (QS). In this study, EOMx-1 and EOMx-2 were purchased from different companies. The swimming and swarming motility of *P. aeruginosa* PAO1 in the absence and presence of EOMXs at the sub-MIC concentrations (MIC/2, MIC/4, MIC/8, MIC/16, MIC/32, and MIC/64) was evaluated using agar plates. The results showed that EOMx-1 and EOMx-2 significantly ($p<0.05$) inhibited the swimming motility of PAO1 at all the sub-MIC concentrations in the range of $67.74\pm1.00\%$ - $21.51\pm0.58\%$ and $67.03\pm0.55\%$ - $17.20\pm0.45\%$, respectively. EOMx-1 and EOMx-2 also reduced remarkably ($p<0.05$) the swarming motility of PAO1 at the sub-MIC concentrations (MIC/2, MIC/4, MIC/8, MIC/16) in the range of $54.35\pm0.50\%$ - $25.36\pm0.96\%$ and $43.94\pm0.57\%$ - $24.09\pm1.15\%$, respectively. In conclusion, EOMxs at different sub-MIC concentrations prevent the swimming and swarming motilities of PAO1 without hindering its growth; thus, they might be considered candidates for anti-pathogenic agents against *P. aeruginosa* PAO1 infections due to their ability to control QS. However, more detailed studies related to the pathogenicity of PAO1 need to be conducted to confirm these results and reveal the QS mechanism of action.

Keywords: Essential oil, *Pseudomonas aeruginosa* PAO1, swimming, quorum sensing, swarming, motility

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NEW ADVANCES IN THE TREATMENT OF NEUROTROPHIC DIABETIC FOOT ULCERS

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ABSTRACT

Neurotrophic ulcers significantly reduce the quality of life and working capacity of patients with diabetic foot. Their effective treatment still leaves much to be desired.

The study involved 114 patients aged 50-75 years with neurotrophic ulcers of various locations on the feet of diabetic etiology.

The examination of each patient included a detailed questionnaire, examination with photo documentation for dynamic monitoring of healing and results of laboratory and instrumental studies.

All patients, along with systemic therapy to correct important metabolic values, microcirculation parameters and blood sugar levels, underwent local treatment with daily debridement, sanitation, and dressing using Placenta compositum.

Placenta compositum is administered subcutaneously, intramuscularly, including segmentally in the around of the ulcers and suffering areas of foot as mesotherapy 1–2 times a week; in acute cases – 1 ampoule daily, for 2–3 days, or every other day No. 3–5.

Before treatment, the average size of neurotrophic ulcers was 6-8 cm². Studies have shown that approximately 20-25 days after systemic and local treatment, the wound size decreased by half, due to a decrease in local tissue hypoxia and improved microcirculation, foci of new granulation appeared. Predictors of positive dynamics, such as a decrease in inflammatory mediators (including C-reactive protein), normalization of blood sugar, the results of laboratory and instrumental studies, improved well-being of patients, against the background of their compliance with the doctor's recommendations also indicated a positive effect of the tactics used. It should be noted that the acceleration of the healing of neurotrophic ulcers of the diabetic foot occurred with a noticeable improvement in the general condition of patients, which contributed to an increase in the feeling of satisfaction of patients.

Key words: diabetic foot, neurotrophic ulcers, compositum placenta.

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A FREQUENCY-RECONFIGURABLE CIRCULAR MICROSTRIP ANTENNA WITH VARACTOR DIODES FOR MODERN COMMUNICATION APPLICATIONS

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ABSTRACT

Frequency reconfigurable antennas are devices capable of modifying their operating frequency in response to external signals or programmed commands. These antennas play a crucial role in modern communication systems, enabling optimal use of the radio frequency spectrum and improving transmission quality. In our work, we propose to simulate a frequency reconfigurable circular microstrip antenna based on the insertion of two BB809 varicap diodes on the patch, with a variable capacitance (0.02 pF - 0.8 pF). By incorporating these varactor diodes into the design of our antenna, the resonance frequency can be dynamically adjusted, allowing the antenna to operate over a wide frequency range (2.89 to 9.442 GHz). The presented reconfigurable antennas are printed in compact dimensions of $42 \times 42 \times 1.5 \text{ mm}^3$ using FR4 material with a relative dielectric constant of 4.3. Due to its flexible and extended range, as well as its small size and planar structure, it is well-suited for various applications such as 5G, Wi-Fi, radar systems for surveillance or detection, as well as satellite transmission services, C-band, and S-band, etc.

Keywords: Reconfigurable antennas, frequency reconfigurable antennas, varactor diode, WI-FI, C-band, 5G.

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THE ROLE OF WORD-OF-MOUTH MARKETING IN ALBANIA'S SMALL BUSINESS SECTOR

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ABSTRACT

Word of mouth (WOM) is one of the oldest and best marketing strategies, relying on organic conversations and recommendations between people to change behavior and purchasing decisions. This study aims to look at the role and effectiveness of WOM in Albanian small business sector, how it influences consumer behavior, builds brand trust and drives business growth. The research will look at the underlying factors that shape WOM in Albania, cultural norms, social networks and the growing impact of digital strategies.

The study uses both qualitative and quantitative methods to look at the strategies used by small businesses to use WOM marketing. Through surveys and interviews with business owners and consumers the research identifies the main channels of WOM dissemination, personal recommendations, informal conversations and online reviews. The study looks at the dual role of WOM in traditional and digital environments, social media and review websites.

Findings show that WOM marketing is a very effective and low cost strategy for Albanian small businesses, it influences purchasing decisions and builds long term customer loyalty. The study also looks at the challenges, managing negative WOM and being authentic in customer interactions.

In conclusion small businesses in Albania should combine WOM with digital strategies to reach and impact. Recommendations are to deliver exceptional customer experiences, incentivize positive WOM and address customer feedback to maintain a good reputation. By using WOM marketing small businesses in Albania can be more competitive and sustainable in a fast changing market.

Keywords: Word-of-mouth marketing, small businesses, Albania, customer trust, consumer behavior, digital platforms

INTRODUCTION

Word of mouth (WOM) is a timeless and powerful tool to influence consumer behavior, build trust and grow business. As one of the most authentic and credible marketing strategies, WOM is based on personal recommendations and organic conversations between people. In an era where digital platforms dominate communication, WOM marketing is evolving, combining traditional with digital. This study looks at the role and effectiveness of WOM marketing in Albania's small business sector, where cultural norms, trust based relationships and social networks play a big role in consumer behavior.

The Albanian small business environment is community based where trust and recommendations are the key to building and keeping a customer base. WOM used to happen through informal conversations and personal interactions, now with the digital platforms like social media and online review sites WOM is being spread and leveraged in a different way. Small businesses in Albania are using these digital tools to reach more and impact more while still relying on the trust and authenticity of traditional WOM.

WOM has been studied in many researches, including those that look at the medium is the message (Berger & Iyengar, 2013). The shift from traditional to electronic WOM has expanded its scope even more, with electronic WOM (eWOM) playing a big role in decision making especially for small businesses in competitive markets (Cheung & Thadani, 2012). Moreover research shows that WOM

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outperforms traditional marketing, has more credibility and builds stronger customer relationships (Trusov, Bucklin, & Pauwels, 2009).

The main objectives of this study are:

1. How WOM marketing affects consumer behavior and purchase decisions in small business sector in Albania?
2. What is the dual role of traditional and digital WOM in building brand trust and loyalty?
3. What are the main challenges for small businesses in Albania in managing WOM, especially negative WOM and authenticity issues?
4. How to integrate WOM with digital tools to maximize impact.

Also, the following research questions have been raised in this study:

1. How WOM marketing affects purchasing decisions in Albania?
2. What are the WOM channels in small business sector in Albania?
3. How traditional and digital WOM complement each other in building customer trust and loyalty?
4. What are the challenges for small businesses in Albania in managing WOM marketing and how to address them?

Albania's cultural and social environment provides a unique context to study WOM marketing. Albanian businesses have been built on community based relationships and trust, which WOM uses effectively. But with the increasing penetration of digital technologies and platforms, the WOM dynamics are changing. Small businesses can now amplify their reach through WOM channels while still leveraging the traditional trust based methods. Integrating digital and traditional WOM is key to maximize its impact and sustainability in a competitive market.

This study will answer the above research questions and bridge the gap between traditional and modern WOM. It will provide insights on how to apply WOM in small business sector in Albania. It will highlight the need to deliver great customer experiences, address negative feedback proactively and use digital tools to amplify WOM. In doing so it will contribute to the overall understanding of how WOM can be used as a strategic tool in today's market.

MATERIALS AND METHODS

This research uses mixed methods to see how word of mouth (WOM) works in Albanian small businesses. Qualitative and quantitative will give us the whole picture of how WOM affects consumer and business.

Sample and Sampling. The study includes small businesses from different sectors in Albania, hospitality, retail and services and their customers. Purposive sampling is used to select 40 small business owners and 150 customers who use WOM actively, either through personal recommendations or digital platforms. This will give us relevant insights on the role of WOM in Albania.

Research Instruments. The research uses two main instruments: structured questionnaires and semi-structured interviews. Questionnaires are used to collect quantitative data on customer experience, WOM channels and its impact on purchasing decisions. Interviews are being done with business owners to get qualitative data on their strategies for using WOM and managing negative WOM.

Data Collection. Data collection was done in three months. Questionnaires were distributed online and in person to customers who have interacted with the selected businesses. Interviews with business owners were done face to face and via video conferencing to cover participants from different regions.

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Data Analysis. Quantitative data from questionnaires were analyzed descriptively to see the relationships between WOM practices and customer behavior. Qualitative data from interviews were coded and thematically analyzed to see the themes and insights on WOM.

RESULTS

Results show several key findings about word-of-mouth (WOM) marketing in Albania's small business sector. The data is based on 150 customer surveys and 40 business owner interviews to get both consumer and business perspectives.

1. Influence on Buying Decisions

78% of respondents said they are very much influenced by WOM recommendations when buying. Friends and family were ranked as the most trusted source of information, followed by online reviews and social media. This shows how much trust based relationships are in the Albanian market.

2. WOM Channels

The research found three main WOM channels: personal recommendations (83%), online reviews (67%) and social media (58%). Traditional WOM is more present in rural and semi-urban areas, while eWOM is more in urban areas. Business owners use Facebook and Instagram to ask for customer testimonials and to engage with potential customers (Figure 1).

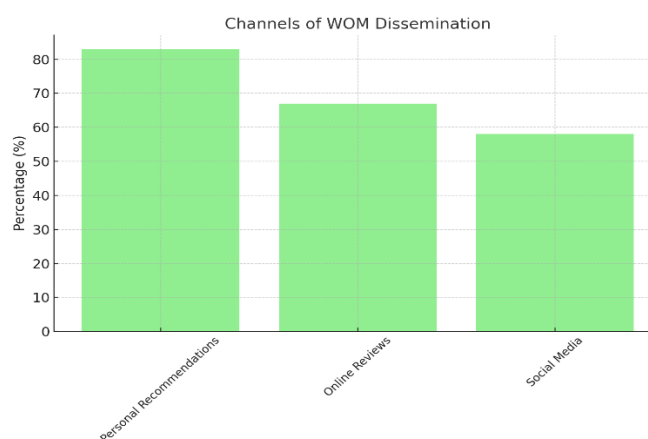


Figure 1. Channels of WOM dissemination

3. Traditional and Digital WOM

Business owners say a combination of traditional and digital WOM works best. For example, small businesses in the hospitality sector get satisfied customers to spread the word while also getting them to leave online reviews. This dual approach builds credibility and reaches more of the younger, tech-savvy crowd.

4. Challenges of WOM

Despite the benefits, WOM has its challenges. Business owners said negative WOM was a big issue, 62% said dissatisfied customers share their experiences more than satisfied ones. And ensuring authenticity in customer interactions was a big challenge, especially when incentivizing positive reviews or testimonials (Figure 2).

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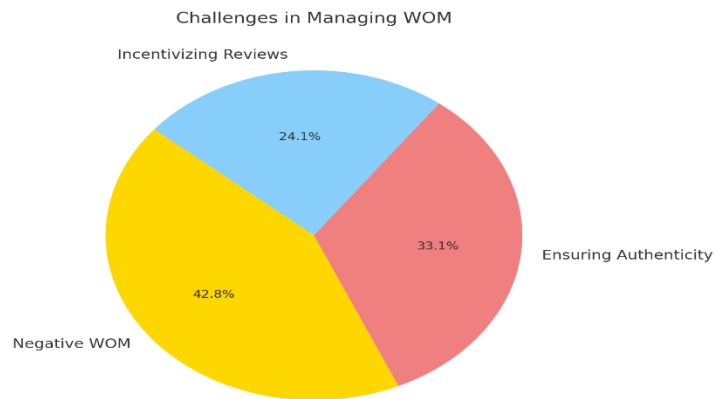


Figure 2. Challenges in managing WOM

5. Business Growth

Quantitative and qualitative data shows WOM drives business growth. 70% of business owners said they got more customers through WOM and 65% said they get repeat business and customer loyalty from positive WOM. That's WOM as a cost effective way to grow sustainably (Figure 3).

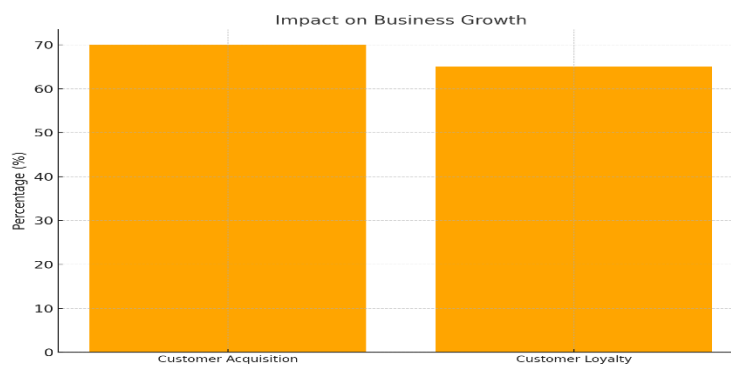


Figure 3. Impact on business growth

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6. Digital Tools

The results show that businesses that use digital tools with WOM get higher engagement and reach. For example businesses that monitor and respond to online reviews get better reputation management and higher customer satisfaction. Social media campaigns that encourage customers to share their experience also works in intensifying WOM. WOM marketing is key for small businesses in Albania. Traditional and digital WOM together will help small businesses to overcome challenges, be competitive and sustainable in the market.

7. Role of Cultural Norms in WOM

The answers from business owners highlighted the role of Albanian culture in WOM. They said that in rural areas informal face to face conversations are still the dominant medium, because people prefer personal interaction. But in urban areas digital platforms like Facebook and Instagram are complementing traditional WOM, creating a hybrid model of communication.

8. Impact of Dissatisfied Customers on WOM

Negative WOM was a big challenge, business owners said that dissatisfied customers are more vocal than satisfied ones. Several participants shared examples where a single negative review had big impact, especially on digital platforms where that feedback is visible to a wider audience. This shows that businesses need to proactively manage customer relationships and solve problems before they become big.

9. WOM Through Digital Tools

Business owners said that social media campaigns that ask customers to share their experiences work well. Many businesses ask satisfied customers to leave reviews on Google or Facebook. Participants also said that sharing customer testimonials on their social media pages helps to build credibility.

Discussion

This study shows the power of word of mouth (WOM) in Albania's small business sector, as it does globally. Trust based relationships and personal recommendations as seen in this study are in line with Berger and Iyengar (2013) who found that personal channels of communication shape consumer decisions. The high influence of WOM in Albania where 78% of consumers rely on recommendations shows the importance of trust and community based interactions (Cheung & Thadani, 2012).

The combination of traditional and digital WOM is key to success. Traditional WOM is dominant in rural areas but urban businesses are using eWOM through Facebook and Instagram. This is in line with Trusov, Bucklin, and Pauwels (2009) who found that eWOM increases reach and engagement. The 83% reliance on personal recommendations and 67% influence of online reviews shows that these channels are complementary in Albania.

Challenges such as negative WOM and authenticity are global trends. Negative WOM spreads fast, 62% of Albanian businesses agree, as Sundaram, Mitra, and Webster (1998) found that dissatisfied customers are more vocal. Addressing this requires proactive reputation management and transparent communication. Encouraging positive reviews without appearing manipulative is crucial, as Chevalier and Mayzlin (2006) said.

Also the study shows that WOM drives business growth, 70% of businesses reported increase in customer acquisition. This is in line with Berger and Iyengar (2013) who said that WOM outperforms traditional advertising in building long term loyalty. The integration of digital tools as seen in this study is a way forward for Albanian small businesses to amplify WOM and stay competitive (Goldsmith & Horowitz, 2006).

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CONCLUSION

This study shows the power of word of mouth (WOM) in Albania's small business sector, as it does globally. Trust based relationships and personal recommendations as seen in this study are in line with Berger and Iyengar (2013) who found that personal channels of communication shape consumer decisions. The high influence of WOM in Albania where 78% of consumers rely on recommendations shows the importance of trust and community based interactions (Cheung & Thadani, 2012).

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WOM in rural and urban areas reflects Albania's cultural and social diversity. While personal interactions are key in rural areas, the hybrid model in urban areas shows how digital platforms are complementing traditional WOM. This dual approach allows businesses to adapt to their customers' demographic and regional preferences. This finding aligns with Berger and Heath (2007), who noted that cultural norms significantly influence how WOM spreads and is perceived.

Negative WOM is a big problem as unhappy customers are more vocal than happy ones. Many participants mentioned the impact of negative reviews on digital platforms, which is in line with Sundaram, Mitra and Webster (1998) who found that negative WOM spreads faster because of its emotional intensity. Reputation management is key to addressing this problem.

Digital platforms like Google and Facebook are now essential for amplifying WOM. Social media campaigns that encourage happy customers to review and share their experiences on the platforms help build credibility and trust. This is in line with Chevalier and Mayzlin (2006) who found that positive online reviews directly impact consumer behavior and business performance.

RECOMMENDATIONS

- Small businesses should use traditional word-of-mouth (WOM) in rural areas and eWOM in urban areas to get the most reach and impact.
- Businesses should have proactive strategies to manage negative feedback, resolve customer complaints before they become harmful WOM especially on digital platforms.
- Make all WOM initiatives authentic and transparent. Incentivize reviews and testimonials wisely to maintain customer trust.
- Ask satisfied customers to share their experiences on Facebook and Instagram and leave reviews and testimonials to boost the business's credibility.
- Invest in good customer service and high value products or services so customers will naturally

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spread positive WOM through their satisfaction.

- Monitor online review platforms to respond to feedback, both positive and negative to strengthen the business's online reputation.

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RUSÇA'NIN TÜRKLERE YABANCI DİL OLARAK ÖĞRETİMİNDE “C” EDATİ İLE İLGİLİ YAŞANAN GÜÇLÜKLER DIFFICULTIES WITH THE PREPOSITION ‘C’ IN TEACHING RUSSIAN AS A FOREIGN LANGUAGE TO TURKS

Esra ŞÖLENTAŞ¹²

ÖZET

Türkler için Rusça öğretimi ve öğreniminde karşılaşılan zorluklar kültürel farklılıklardan kaynaklandığı gibi en temelde Türkçe ve Rusça arasındaki dilin yapısal ayrımlarına dayanmaktadır. Rusça'nın grameri anadili Türkçe olanlar için karmaşık durumlar barındırmaktadır ve iki dildeki ismin halleri ile kullanım yerleri arasındaki uyumsuzlar bu zorlukların başında gelmektedir. Gramerinin ayrılmaz bir parçası olan edatların Rusça'daki ve Türkçe'deki kullanımları birbirinden tamamen farklıdır. Bu çalışmanın amacı, Rusça'nın ana dili Türkçe olanlara yabancı dil olarak öğretiminde “c” (s) edatı ile ilgili yaşanan güçlükleri karşılaştırmalı analiz yöntemiyle ortaya koymaktır. Rus dilinde “c” edatı tamlama durumu ve araçlı durum olmak üzere iki farklı ismin halinde kullanılmaktadır, buna karşın Türkçe'deki yansımaları oldukça çeşitlidir. Rusça öğretiminde “c” edatı konusuna dair yaşanan güçlüklerle ilgili elde edilen bulgulardan bazıları şunlardır: Türkçe'de ve Rusça'da edat kavramlarının birbirinden tamamen farklı olması, Rusça'da “c” edatının iki farklı ismin halinde kullanılması ve çok anlamlı olması, Rusça'daki “c” edatının “-den/-dan” anlamında kullanıldığında, Türkçe'de bazı durumlarda sinonim oluşturan Rusça'daki “из” (-den/-dan), “от” (-den/-dan), “из-за” (yüzünden, sebebiyle, nedeniyle) gibi edatlarla karıştırılması gibi. Rusça'nın ve Türkçe'nin farklı dil ailelerinden gelmesi ve gramer yapılarının birbirinden çok farklı olması bu zorlukları doğuran en temel durumdur.

Anahtar kelimeler: Rusça öğretimi, Rusça'da edatlar, “c” edatı.

ABSTRACT

The difficulties encountered in the teaching and learning of Russian for Turks are stemming not only from cultural differences but also from the structural differences between the Turkish and Russian languages. The grammar of Russian is complicated for native speakers of Turkish, and the incompatibility between the cases of nouns and their usage in the two languages is one of the main difficulties. The use of prepositions, which are an essential part of grammar, is completely different in Russian and Turkish. The aim of this work is to reveal the difficulties encountered with the preposition ‘c’ in teaching Russian as a foreign language to native speakers of Turkish by using the comparative analysis method. In the Russian language, the preposition ‘c’ is used in two different cases, the genitive case and the instrumental case, whereas its reflections in Turkish are quite variable. Some of the relevant findings about the difficulties encountered in Russian language teaching regarding the preposition ‘c’ are as follows: The preposition concepts in Turkish and Russian are completely different from each other, the preposition ‘c’ in Russian is used in the two different cases of nouns and has multiple meanings, when the preposition ‘c’ in Russian is used in Turkish in the sense of ‘-den/-dan’, it is confused with Russian prepositions such as ‘из’ (from), ‘от’ (from), ‘из-за’ (due to), which in some

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cases form synonyms in Turkish. The fact that Russian and Turkish come from different language families and their grammatical structures are radically different from each other is the main reason for these difficulties.

Key words: Teaching Russian, prepositions in Russian, preposition ‘c’.

Giriş

Kültürü oluşturan en önemli unsur olan insan ve insanın düşünsel faaliyetleri nesiller boyu farklı açılardan bilimsel çalışmaların konusu olmuştur. Dilin düşüncede başladığı varsayıldığında, dil düşüncenin büyük bir ürünü olarak karşımıza çıkmaktadır. Dilbilim ve edebiyat açısından ise insanın düşünsel eylemlerinin kullandığı dile ve konuşma faaliyetlerine nasıl yansıdığı en önemli çalışma alanlarından. XXI. yüzyılın başlarında çağdaş filologların çalışmalarında bilimsel dilde kullanıma giren “konuşan bir varlık olarak insan” terimiyle sıklıkla karşılaşmaktadır. Bu terim geniş anlamda “en önemli eylemlerinden biri konuşma olan varlıktır” olarak tanımlanmaktadır, ki buna sadece dinleme, okuma, yazma değil, öğrendiği birinci, ikinci, üçüncü ve daha fazla sayıdaki yabancı dilin yanı sıra, etrafını çevreleyen dünyayı dilsel anlamlar aracılığıyla tanıma gibi eylemler de dahildir (Красных, 2016, s. 16). Dili işlevsel bakış açısı ile inceleyen dilbilimciler “dil” ile “konuşma” arasındaki farkı ayırt etmek gerektiğini düşünerek ağırlıklı olarak konuşma kısmına odaklanmaktadır (Ахманова, 2004, s. 10). Konuşma yetisi, insanı diğer canlılardan farklı kılan bir özellik olarak, çıkardığı sesleri farklı şekillerde bir araya getirerek düşüncelerini anlamlı bir şekilde ifade edebilmesi halidir. Ancak konuşmanın en önemli unsuru olan dilin kendisi ise birçok dilbilimcinin semiyotik açısından inceleme alanı haline gelmiştir. Ünlü Rus dilbilimci Yu. D. Apresyan’a göre: “Dile ne kadar iyi hakim olursak, düşüncüyü o kadar derin anlar ve o kadar çeşitli yollarla ifade edebiliriz” (Апресян, 1967, s. 9). Aynı durum ana dilin dışında öğrenilen diğer diller için de geçerlidir. Ana dilin öğrenimi sürecinde olduğu gibi, yabancı dil öğretiminde de öğrenilen dilin yapısal özelliklerinin, mantalitesinin ve kültürel yapının dili şekillendirmesi etkin bir rol oynamaktadır.

Yabancı dil öğreniminde o dilin yapısal özellikleri ve gramer yapısı beraberinde birçok güçlüğü getirmektedir. Rus dilini yabancı dil olarak öğrenen Türkler için gramer çalışmaları sırasında hangi durumda hangi ismin halini ve hangi edatı kullanmak gerektiği zorlukların başında gelmektedir. Bu noktada öğrenenin zihninde Türkçe’de “ile” ve “-den/-dan” anlamına gelen Rusça’daki “c” edatının kullanımında oldukça karmaşık süreçler ortaya çıkmaktadır. Bunun en önemli sebebi bu edatın Rusça’da tamlama durumu (родительный падеж) ve araçlı hal (творительный падеж) olmak üzere iki farklı ismin halinde kullanımının bulunmasıdır. Nitekim, yabancı bir öğrenci için neden bir durumda araçlı hal kullanılırken başka bir durumda tamlama halinin kullanılması gerektiği genellikle açık bir şekilde anlaşılır değildir (Светлова ve Ибрагимова, 2017, s. 133). Rus dilinin yabancılara öğretiminde kullanılan doğru yaklaşım ve metotlar yardımıyla bu durumun üstesinden gelinebilmektedir. Rusça’nın yabancılara öğretim yöntemleri ise öğrenecek olanın anadilinin hangi dil olduğuna göre farklılık gösterebilmektedir, çünkü her dil kendisine özgü bir mantıksal işleyişe sahiptir. Rus dili gramerinde ismin hallerinin tanımlanması bir dizi ilke yaklaşım temelinde yapılmaktadır: “diğer dilbilgisi kategoriyle birlikte ele alındığı bütünlük ilkesi; belirli bir ifadenin içeriğinin baz alındığı işlevsellik ilkesi; iletişim unsurları üzerine yoğunlaşan iletişimsel-pragmatik yaklaşım; Rusça ve anadil arasındaki benzerlik ve farklılıkların üzerinde durulduğu karşılaştırmalı yaklaşım” gibi (Морозовска, 2018, s. 198-199.). Rusça’nın yabancı dil olarak öğretiminde “analiz ve sentez, soyutlaştırma ve somutlaştırma, tümevarım ve tümdengelim, modelleme ve sınıflandırma” gibi teorik yaklaşımların yanı sıra kullanılan yaratıcı metotlar da öğrenmenin etkisini artırmaktadır (Атаева ve Базаров, 2023, s. 80). Yaratıcı öğretim metotları ise öğrencilerin önceden akıllarına gelmeyen bir durumu hayal etmelerine olanak sağlamaktadır; buna örnek olarak “bir nesnenin özelliğini diğer bir nesne ile değiştirdiğini düşünmek, tüm

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insanların Ay'a taşındığını varsaymak, yer çekiminin on kat arttığını düşünmek" gibi fikirler verilebilmektedir (Адилова, 2021, s. 115). Dil öğretiminde ilk önce teorik yöntemlerin, ardından ise yaratıcı yöntemlerin kullanılması Rusça'nın Türkler için zor öğrenilir bir dil olmasından dolayı öğrenim sürecinin hem renklenmesine hem de etki gücünün artmasına olanak sağlamaktadır.

1. Sözcük türü olarak edatın Rus dili gramerindeki yeri

Rus dilinde edat, nesne ile özne arasındaki ilişkinin belirlenmesinde yardımcı rol üstlenen, isimlerle, zamirlerle ve rakamlarla sözcük öbeği oluşturabilen ve onların cümlede sözdizimsel anlamdaki bağımlılığını ifade eden sözcük türüdür. Rus dili gramerinde edatlar, cümledeki ifade bileşenleri arasındaki anlamsal bağları kurmaya yarayan yapı taşlarıdır ve "edatların anlamsal ve sözdizimsel işlevleri, morfolojik-sentaktik açısından tipolojisi, sözdizimsel yapıların bir unsuru olarak edatların dilsel durumu, gramer açısından edatların konumu" gibi konular aydınlatılmayı beklemektedir (Золотова, 2022, s. 18-19). Bunlar arasında edatlarla ilgili olarak Rusça'yı öğrenenler için ilk karşılaşılan güçlüklerden biri cümledeki ifade unsurları arasında edatların hangi anlamsal bağları oluşturduğuyla ilgilidir. Rus dili gramerinde edatların oluşturduğu anlamsal ilişkilerin çeşitliliği ana dili Türkçe olanları Rusça öğrenme sürecinde zorlayan durumdur.

Rus dilinde edatlar dilin en eski oluşumlarından; önceleri anlamları daha belirgin olsa da günümüz Rusçasında eski anlamsal bağlar kaybolmuştur ve edatta sadece isimle birlikte kullanıldığı zaman ortaya çıkan en küçük anlamsal birimler ortaya çıkmaktadır (Суровцева, 2012, s. 73). Rusça'da dilin iç dinamikleri nedeniyle edatların sınırları sürekli genişlemiştir: Çarlık ve Sovyet döneminde özellikle devlet dairelerinde çalışmanın yaygınlaşmasıyla kamusal hayatın ve devlet yaşamının güçlendiği dönemde edatların gelişimi yeniden can bulmuştur (Раевская, 2014, s. 23). Resmi-iş dilinin kullanımının artması edatların zenginliğinin korunmasının yanı sıra onlara yeni kullanım alanları ve anlamları da doğurmuştur. Resmi-iş dilinde edatların kullanımındaki çeşitlilik zamanla basın diline ve sıradan halkın kullandığı günlük konuşma diline de sirayet etmiştir.

Edatlar analiz edilirken o dilin kendisine özgü doğasının dikkate alınması gerekmektedir, çünkü bağımsız bir sözcük birimi olmayan edatlar, yalnızca gramer kuralları çerçevesinde eşleştiği fiil ya da isimle birlikte anlamsal potansiyelini mikro söylemde açığa çıkarmaktadırlar (Касьянова ve Мартиросьян, 2019, s. 221). Sözcük türü olarak edatlar içinde yer aldığı cümlelerin "çekirdek alanını" oluşturmaktadır (Клименко, 2016, s. 12). Yani kullanıldığı cümleden edat çıkarıldığında cümlelerin çatısı sarsılmakta ve anlamında ciddi bir bozulma meydana gelmektedir. Dolayısıyla en küçük anlam birimi olmasına karşın edat cümlelerin ya da sözcük öbeğinin ayrılmaz parçalarından birini oluşturmaktadır. Cümlede edatın rolü ne kadar büyükse, yani kendi anlamı ne kadar belirginse, eşleştiği kelimenin rolü ve bağlamın etkisi o kadar azdır; diğer taraftan, edatın rolü cümlede ne kadar küçükse, yani müstakil anlamı zayıf bir şekilde ortaya çıkıyorsa, öbek oluşturduğu kelimenin ve bağlamın rolü o kadar büyüktür (Гречухина, 2021, s. 111-112). Nitekim, her ne kadar edatlar bağımsız kullanılabilen bir sözcük türü olmasa da edatın anlamının ifadede belirleyici rol oynadığı ve baskın olduğu durumlarda eşleştiği sözcükler ikincil planda kalmaktadır. Rus dilinde sözcük türü olarak edatlar üç dil düzeyinin kesişim noktasında yer almaktadır: morfolojik açıdan bağımlı sözcüklerdir; kelime oluşumu bakımından dilde anlam ayırt edici özelliğe sahiptir, yani morfemdir; sentaks açısından ise sözdiziminin biçimlendiricisi konumundadır (Рыжкович, 2018, s. 21). İletişimdeki ifadenin aktarımında edat seçimi, konuşanın sosyal statüsünün, hangi dili kullandığına dair tercihinin, dilsel ve kültürel yeterliliğinin, hatta kişisel özelliklerinin bir göstergesi olabilmektedir (Перфильева, 2012, s. 136). Öyle ki, edatlar mikro düzeyde iletişimde iletinin aktarımına hizmet eden bir gramer unsuru olmalarının yanı sıra, makro düzeyde iletişime katılanlarla ve onların üslubuyla ilgili arka planda birçok detayın da göstergesi olabilmektedir.

2. Tamlama durumunda "с" edatıyla ilgili güçlükler

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Yabancı dil öğretimi sürecinin henüz başlarında anlatılan ismin hallerinden biri olarak tamlama durumu anlamsal olarak geniş bir yelpazeye yayılmaktadır. Rus dili gramerinde “c” edatının kullanıldığı ismin hallerinden biri olan tamlama durumu Rus dilbilgisinde bir dizi işleve sahiptir. Tamlama durumunun kullanım yerleri şöyledir: bir şeye sahip olma ya da olmamayı ifade ederken; bir şeyin yokluğundan bahsederken; iki, üç, dört sayılarından sonra kullanılan isimleri tekil çekerken; beş ve beşten sonra gelen sayılarla kullanılan sözcükleri çoğulda çekimlerken; bütünden bir parçayı ifade ederken; мало (az), много (çok), несколько (birkaç) gibi miktar bildiren kelimelerden sonra gelen sözcükleri çekimlerken; herhangi bir nesneyi ya da insanı tanımlarken; zamanı ifade ederken, yer, zaman, amaç, sebep bildirirken. Tamlama durumu Rusça’da tam teşekküllü bir iletişim sağlamaktadır, öğrenenin bilişsel gelişimine bağ kurma anlamında katkıda bulunmaktadır, yabancı öğrencinin konuşmasını şekillendirerek kendi diliyle yakınlık sağlamaktadır ve dilde uzmanlaşmasına fayda sağlamaktadır (Арзамасцева ve Рагулина, 2021). Tamlama durumunun “sahiplik, yokluk, aitlik, yer-yön, bütünden parça, tarih vb.” bildirmesi bakımından çok geniş kullanım alanının olması, tekil ve çoğul olarak yaklaşık on beş farklı çekim gerektirmesi, birçok istisna barındırması sebebiyle yabancı öğrenciler için öğrenmesi en zor ismin hallerindendir (Слабыхо ve diğerleri, 2017, s. 62). Rusça’daki tamlama durumunun ana dili Türkçe olan öğrencilerce öğrenimi sürecindeki zorluklar edatlı kullanımlarla birlikte da karmaşık hale gelebilmektedir.

Tamlama durumunda “c” edatının kullanım yerleri aşağıdaki gibidir:

1. Zaman sınırlarını bildirirken; с утра до вечера (sabahtan akşama kadar), со вторника до четверга (salıdan perşembeye kadar). (Türk öğrenciler tarafından “от” edatıyla karıştırılmaktadır)
2. Bir hareketin başlangıç zamanını ifade ederken; начинать с первого ноября (1 Kasım’dan itibaren başlamak), спать с шести часов (saat 6’dan beri uyumak). (“от” edatıyla karıştırılmaktadır)
3. Hareketin yönünü bildirirken ve “nereden” sorusuna cevap verirken; взять со стола (masadan almak), вернуться с факультета (fakülteden dönmek). (“от, из” edatlarıyla karıştırılmaktadır)
4. Hareketin sebebini bildirirken; заплакать с испуга (korkudan ağlamaya başlamak), покраснеть со стыда (utancından kızarmak). (“из, из-за, за, по, благодаря, вследствие” gibi sebep bildiren diğer edatlarla karıştırılmaktadır).

Tamlama durumunun analizinde ve öğretiminde tipolojik metodun kullanılması ana dil ile yabancı dilin yapılarını karşılaştırarak doğru sonucu bulmaya yardımcı olmaktadır, artzamanlı veriler ise ismin halleri kategorisinin gelişim sürecini belirli bir zaman diliminde göstererek resmin tamamlanmasına katkı sunmaktadır (Буренко, 2011, s. 22). Öğrenimi en zor olan ismin hallerinden biri olarak tamlama durumunun öğrenciye anlatılması esnasında metodolojik olarak ana dil ile paralellik gösteren durumlardan başlayıp kolaydan daha karmaşık olana doğru gidecek şekilde bir yol belirlemek öğrenme sürecini daha etkili kılmaktadır.

3. Araçlı halde “c” edatıyla ilgili güçlükler

Rus dili gramerinde araçlı hal, bir eylemin hangi nesne yardımıyla ya da yöntem aracılığıyla yapıldığını gösteren ismin halidir. “C” edatının kullanıldığı ismin hallerinden diğeri olan araçlı hal de Rus dilbilgisinde tamlama durumu gibi birçok işlev edinmiştir. Rus dili gramerinde araçlı hal, morfolojik-sentaktik kategoriye dahildir, bu ismin halinin semantiğinin ve işlevinin analizi yeterli bağlam çerçevesinde gerçekleşebilmektedir (Казачук, 2016, s. 51). İsmi araçlı halinin kullanım yerleri şöyledir: bir işin hangi aletle ya da enstrümanla yapıldığını gösterirken; bir işin hangi araçla yapıldığını ifade ederken, bir hareketten doğrudan etkilenen nesneyi işaret ederken; eylemin gerçekleştircisini belirtirken; bir olayın ana etkenini ifade ederken; sebep bildirirken; güzergah belirtirken; uyarıcıyı ya da dürtüyü ifade ederken; zaman ve ölçü bildirirken; benzetme yaparken; bir nesne ya da kişinin yönlerinden birini ya da belirli bir bakış açısıyla görülme şeklini ifade ederken. Rusça’nın yapısal

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özelliklerinden doğan bu anlamsal çeşitlilik özellikle Türk öğrenciler tarafından araçlı halin öğrenilmesinde büyük güçlük oluşturmaktadır. Bunun en temel nedeni Türk dili gramerinde “araçlı hal” diye bir ismin halinin bulunmamasıdır. Rusça’daki araçlı halin kullanımının Türkçe’deki yansıması ise bazen fiilimsiler, bazen zarflar, bazen edatlar, kimi zamanda başka dilsel araçlar yardımıyla ifade edilebilmektedir. Bu noktada Rus dili ve Türk dili gramerindeki dilsel mantalitenin birbirinden tamamen farklı işlemesi öğreneni zihinsel anlamda karmaşıklığa götüren en önemli unsurdur.

Yabancı öğrencilere Rus dilini öğretirken araçlı durumun kullanım yerlerini karmaşıklığına göre basitten zora doğru giderek tematik olarak sınıflandırılmış bir şekilde vermek gerekmektedir, bu aşamada öğrencinin Rusça’yı hangi seviyede öğrendiği de belirleyici rol oynamaktadır (Мавлонхонова ve Исломова, 2024, s. 352). Aynı durum “c” edatının anlamsal ve işlevsel rollerinin öğrenciye aktarımı için de geçerlidir. Araçlı halde ise “c” edatının kullanım yerleri aşağıdaki gibidir:

1. Bir hareketin birlikte yapıldığını bildirirken; погулять с друзьями (kız arkadaşlarla gezinmek), разговаривать со студентами (öğrencilerle konuşmak).
2. Bir kişinin/nesnenin nasıl olduğunu betimlerken; мужчина с бородой (sakallı adam), дом с красной крышей (kırmızı çatılı ev).
3. Hareketin başlangıç zamanını ifade ederken; появиться с каждым закатом (her günbatımıyla belirmek), встать с зарёю (şafakla birlikte uyanmak).
4. Kutlama ve tebrik dileklerini iletirken; с Днем рождения (doğum günün kutlu olsun), с Пасхой (Paskalya bayramınız kutlu olsun).
5. Bir hareketin duygusal anlamda nasıl yapıldığını ifade ederken; делать с любовью (aşkla yapmak), слушать с любопытством (merakla dinlemek).

Araçlı halde “c” edatının hangi durumlarda kullanıldığını öğrenmek kadar, hangi durumlarda kullanılmadığını bilmek de Rusça’da gramer kurallarına uyma ve iletiyi doğru ifade etme bakımından oldukça önem arz etmektedir. Ana dili Türkçe olan ve Rusça’yı yabancı dil olarak öğrenen öğrencileri “c” edatı ile ilgili en zorlayan nokta bu durumla ilişkilidir. Nitekim, Rus dili gramerini öğrenme aşamasında olan Türk öğrenciler, içinde “ile” sözcüğünün geçtiği bir ifadeyi ya da cümleyi Rusça’ya aktarırken, anadilin yabancı dili baskılaması sonucunda hataya düşerek “ile” anlamına gelen “c” edatını gerek olmadığı durumlarda kullanmaktadırlar. Nihayetinde farkında olmadan düştükleri bu hata onları Rus dilini öğrenme sürecinde karmaşıklığa sürüklemektedir. Türkçe versiyonunda “ile” kullanıldığı halde Rusçasında “c” edatı gerektirmeyen kullanımlara aşağıdaki ifadeler örnek teşkil etmektedir:

Научить горьким опытом (acı bir tecrübeyle öğrenmek)

Расчесывать гребнем (tarakla taramak)

Опоясанный красной лентой (kırmızı kurdeleyle bağlı)

Смачивать тесто водой (hamuru suyla ıslatmak)

Смотреть другими глазами (başka bir gözle bakmak)

Bir hareketin herhangi bir nesne aracılığıyla/yardımla ya da hangi yöntemle yapıldığını ifade ederken araçlı hal (творительный падеж) “c” edatı gerektirmeden kullanılmaktadır. Araçlı halde tekil olarak kullanılan «навалом (toplu olarak, çok fazla, tonlarca), битком (tıka basa dolu), порядком (son derece, büyük ölçüde)» gibi tekil isimler belirleyici-niceliksel zarfların görevini üstlenebilmektedirler; «местами» (bazı yerlerde, yer yer) gibi çoğul isimler durumsal ve mekânsal zarfların anlamına bürünmektedirler (Шигуров ve Шигурова, 2024, s.113). Bu gibi durumlarda da Rus dili gramerinde zarf bildiren ifadenin ya da sözcük öbeğinin “c” edatı ile eşleşmemesi gerekmektedir. Rusça’daki bu kullanım Türk dili gramerindeki benzer yapılarla örtüşmemektedir, öğrenen tarafından anlamın doğru kavranması ve anadil ile ilişkilendirmesi zaman alabilmektedir. Rusça’da bu gibi yapılar, zarf anlamı

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taşıyan isim türündeki sözcüğün araçlı halde çekime uğramasıyla anlam kazanmaktadır, ancak Türk dili gramerinde bu ifadeler dolaylı tümleç ya da zarf olarak yer almakta ve ismin halinde bir çekime uğramamaktadırlar. Bu anlamda, dolaylı tümleç ya da zarf işlevi gören ifadelerin yapısının iki dilde farklılıklar göstermesi Rusça'yı yabancı dil olarak öğrenen öğrencilere güçlük yaratmaktadır.

Çağdaş Rus dili gramerinde kullanımı kaybolmaya yakın olmasına ve kullanım tercihi çok az olmasına rağmen belirtme halinde de “с” edatı mevcuttur. Bu ismin halinde “с” edatı yaklaşık ölçüyü belirtmek için kullanılmaktadır: с килограмм (bir kilogram kadar); с тонну (bir ton kadar); с километр (bir kilometre kadar). Aşağıdaki cümleler ölçü ve mesafe bildirmesi bakımından с edatının belirtme durumunda kullanılmasına örnek teşkil etmektedir:

От дома до факультета было всего с километра. (Evden fakülteye sadece bir kilometrelik bir mesafe vardı.)

Путешественники шли с километр по лесу и затем вышли на обширное пространство. (Gezginler bir kilometre yürüdüler ve ardından geniş bir alana çıktılar.)

Пройдя с полкилометра, путешественники спустились в долину. (Yarım yarım kilometre kadar daha ilerledikten sonra gezginler vadiye indiler.)

Belirtme halindeki “с” edatı sadece bir anlamsal içeriğe sahip olduğundan bu anlam ana dili Türkçe olan öğrenciler tarafından kolaylıkla kavranabilmektedir. Bu nedenle belirtme halinde Türklere “с” edatının öğretim sürecinde bu noktada bir güçlük oluşmadığı için çalışmamızın içeriğine dahil edilmemiştir.

4. “С” edatı gerektiren fiillerle ilgili yaşanan güçlükler

“С” edatı Rus dilinde belirli fiillerle ya da diğer dil öğeleriyle özel anlamsal ilişkiler kurmaktadır. Söz konusu bu kullanım ağırlıklı olarak kendisinden sonra araçlı hal çekimi gerektiren sözcüklerde karşımıza çıkmaktadır. Türkçe'deki “ile” sözcüğü bu anlamda Rus dilinde kimi zaman “с” kimi zaman ise “под” edatı ile eşleşmektedir. Rusça'da “работать с компьютером”, “спать под одеялом” gibi ifadelerde araçlı durumun kullanılması, öğrenciler için kafa karıştırıcı olabilmektedir. Türkçe karşılığı sırasıyla “Bilgisayarda çalışmak”, “battaniyeyle uyumak” olan bu sözcük öbeğinin Rusça'da “Bilgisayarla çalışmak”, “battaniye altında uyumak” olarak araçlı durum gerektirmektedir. Bunun gibi iki dilde yaşanan ismin hallerindeki uyumsuzluklar öğrenciyi zora düşürmekte ve Rusça öğrenim sürecinde güçlükler yaratmaktadır.

Öğrenci Rusça'yı öğrenirken Türk dili gramerinde “ile” sözcüğünün kullanıldığı her durumda Rusça'da da “с” edatı kullanma eğilimindedir. Ancak bu durum onlara bazı güçlükler yaratmakta ve onları hataya götürmektedir. Türkçe'deki “bir şey ile farklılık göstermek” gibi ifadelerde “ile” sözcüğü kullanılırken, Rusça'da bunun karşılığının “ile” anlamına gelen “с” edatı kullanılmadan ifade edilmesi gerekmektedir. Türkçe'deki “зекâ ve yetenekleriyle farklılık göstermek” ifadesinin karşılığı Rusça'da “отличаться умом и талантами” şeklindedir; ancak bu ifadenin Türkçe karşılığında “ile” sözcüğünün varlığı, öğrenciyi Rusça'da gereksiz durumlarda “с” edatını kullanmaya iterek hataya sürüklemektedir. Öğrencinin doğru bağlamda ve doğru gramer yapılarıyla Rusça'yı etkin bir şekilde kullanması yoğun bir çalışma gerektirebilmekte ve zaman alabilmektedir.

5. Rus dilinde “с” edatının yer aldığı deyimel ifadelerle ilgili güçlükler

Rus dilinde içinde “с” edatının kullanıldığı deyimel ifadeler, ana dili Türkçe olup Rusça öğrenen öğrenciler için zaman zaman kafa karıştırıcı olabilmektedir. Rusça'da bu tür ifadelerin kullanımı, dilin kendisine özgü olan anlam yapılarından ve bağlama dayalı işleyişinden kaynaklanmaktadır. Deyimsel ifadelerde de “с” edatının anlamı içeriğe göre farklılık gösterebilmekte ve bu durum Rusça'yı öğrenenlerin deyimmin tam olarak ne anlama geldiğini tahmin etmekte zorlanmasına neden olabilmektedir. “С” edatı kullanılan deyimler bir başka dile doğrudan çevrildiğinde anlamsız hale gelebilmekte ya da içeriğinde anlam kayması yaşanabilmektedir. Özellikle Türkçe'ye “с” edatının

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yansıması çok çeşitli olduğundan, deyimlerin hedef dile doğru bir şekilde aktarılması kültürel farklılıklarının ve dil mantalitesinin göz önünde bulundurulmasıyla mümkündür. “C” edatının kullanıldığı öğrenim sürecinde güçlük yaşanan deyimssel ifadelerle birkaç örnek aşağıda sıralanmıştır:

Rusça’da deyimssel ifade	Türkçe’ye birebir çevirisi	Türkçe’deki anlamı
Брать с потолка	Tavandan almak	Kafadan atmak, sallamak
Вставать с левой ноги	Sol ayağıyla kalkmak	Sol tarafından kalkmak
Вставать с петухами	Horozlarla kalkmak	Gün aғarırken uyanmak
Вырвать что-либо с корнем	Köküyle koparmak	Kökünü kazımak, kökünden koparmak
Делать что-либо с закрытыми глазами	Kapalı gözlerle yapmak	Üstün körü yapmak, aceleyle yapmak
Жить как кошка с собакой	Kedi ile köpek gibi yaşamak	Kedi köpek gibi olmak
Звезд с неба не хватает	Gökten yıldız toplamıyor	Bulunmaz Hint kumaşı değil
Как с гуся вода	Kazın üzerinden akıp giden su gibi	Vız gelip tırıs gitmek
Камень с души свалился	Kalbimden taş düştü	Kalbim ferahladı, içim rahatladı
Кровь с молоком	Kanlı süt	Kanlı canlı olmak
Сгорать со стыда	Utancıtan yanmak	Utancından yerin dibine girmek
С луны свалился	Aydan düşmüş	Dağdan inme
С плеч долой	Sırtından atmak	Omuzlarından yük kalkmak
Уйти с головой	Başıyla/aklıyla gitmek	Bir işe gömülmek, bir işe dalmak
Хватать звезды с неба	Gökten yıldız yakalamak	Sıradan biri olmamak, olağanüstü biri olmak

Verilen örneklerde görüldüğü üzere, bu tür deyimssel ifadelerde ya da deyim içeren cümlelerde anlamın kelime kelime değil, bütünsel olarak ortaya konulması gerekmektedir. Nitekim, Türkçe’de olduğu gibi Rus dilinde de kelimelerin gerçek anlamlarıyla deyimssel anlamları arasında farklılıklar yer almaktadır. Rusça’da deyimler ve deyimssel ifadeler çoğu zaman yalın bir şekilde ifade edilmemektedir ve bu durum cümlelerin hem yapısal hem de anlamsal açıdan karmaşıklığını artırmaktadır.

Rus dilinde birçok deyim kültürel ve sosyal bir zemine dayanmaktadır, dolayısıyla deyimleri başlı başına dil kuralları çerçevesinde incelemek yeterli olmamaktadır. İçinde “c” edatı geçen deyimler, diğerleri gibi, günlük yaşamla ve sosyal etkileşimle yakından ilgili olduğundan, öğrencilerin dil öğrenim sürecinde güçlükleri aşabilmesi için deyimlerin hangi durumlarda kullanıldığını özümsemesi gerekmektedir. Rusça’yı öğrenen dil öğrencisi için, deyimlerin doğru şekilde ve yerinde kullanımını öğrenmek, dilbilgisi kurallarının ötesinde kültürel yapıyı da kavramakla mümkün olmaktadır.

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6. “c” edatının öğrenimi ile ilgili yaşanan genel güçlükler

Rusça'nın Türklere Yabancı Dil Olarak Öğretiminde “c” edatı ile ilgili yaşanan güçlükler arasında aşağıdaki bulgular elde edilmiştir.

1. Türkçe’de ve Rusça’da edat kavramlarının birbirinden tamamen farklı olması
2. Rusça’da “c” edatının birden çok ismin halinde kullanılması
3. Rusça’da “c” edatının ayrılma durumunda da araçlı halde de birden çok kullanım yerinin olması ve bunların Türkçe’deki yansımalarıyla örtüşmemesi
4. Rusça’daki “c” edatının çok anlamlı olması
5. Rusça’daki “c” edatının yanında kullanılan sözcüğe göre anlamının değişmesi
6. Rusça’daki “c” edatının -den/-dan anlamında kullanıldığı zaman Türkçe’de bazı durumlarda sinonim oluşturan “из”, “от”, “из-за” gibi edatlarla karıştırılması.
7. Türkçe’deki “-den/-dan” eklerini gerektiren durumların Rusça yansımalarında bazen “c” edatının yerine sebep bildiren başka edatların kullanılması
8. Türkçe’de araçlı hal diye bir isim halinin bulunmaması.
9. Rusça’da araçlı halde “c” edatının kullanılmadığı durumlarda da Türkçe’deki yansımalarının “ile” sözcüğüyle olması.
10. Türkçe karşılıkları “bir şeyle ilgilenmek, bir şeyle meşgul olmak” olan Rusça’daki “интересоваться, заниматься, заняться” gibi bazı fillerden sonra gelen nesnenin araçlı halde “c” edatı olmadan kullanılması.

Sonuç

Rusça’da edatların anlamsal derinliği, dilin işleyişinde ve yapılandırılmasında, günlük konuşmadan yazılı metinlere kadar birçok alanda anlam çeşitliliğinin sürmesinde çok önemli bir yer tutmaktadır. Bu durum Rus dilinin ve gramerinin anlamsal açıdan ne kadar zengin ve işlevsel olduğunun bir göstergesidir. Rusça’daki diğer edatlar gibi “c” edatı da fiziksel ya da somut bir ilişkinin ifade edilmesine yardımcı olabildiği gibi, soyut anlamları, duygusal ve kültürel bağlamları da içerebilmektedir. Rus dilinin içinde barındırdığı bu anlamsal çeşitlilik bir taraftan beraberinde zorluklar getirmekte diğer taraftan ise onu yabancı dil olarak öğrenenlerin zihinsel dünyalarını genişletmektedir.

Rusça’da “c” edatının ana dili Türkçe olanlara öğretiminde tamlama durumuyla ilgili, araçlı halle ilgili, fillerle birlikte oluşturduğu sözcük öbekleriyle ve deyimisel ifadelerle ilgili güçlükler oluşmaktadır. Rus dili gramerinde edatları öğrenmek yalnızca gereken ismin halini kullanmakla kalmayıp, edatların cümleye kattığı anlamları bilmeyi ve içinde bulunduğu sözcük öbeğinin hem doğru içerikle hem de yerinde kullanmayı da gerektirmektedir. Dil öğrenim sürecinde, edatların karmaşık yapıda kullanımı ana dili Türkçe olan öğrencilerin zamana olan ihtiyacını ve dili uygulamalı olarak analiz etme çalışmalarına olan gereksinimi artırmaktadır. Bilimsel bir dille tutarlı bir yaklaşım içinde olmak, öğretim çalışmalarını sistematik bir şekilde sürdürmek, verilen teorik bilgileri yapılan pratiklerle güçlendirmek, dil eğitim sürecini genel bir yaklaşım yerine öğrencinin bireysel özelliklerini de dikkate alarak planlamak gibi çabalar Rusça öğretiminde yaşanan güçlüklerin üstesinden gelinmesine katkı sağlayan etkenlerdir.

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THE SHORT STORY *TOGETHER AND APART* BY VIRGINIA WOOLF: AN ANALYSIS

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ABSTRACT

The purpose of this paper is to analyse the short story *Together and Apart* by Virginia Woolf starting from a reader-response approach, as the readers are invited to connect emotionally to the two main characters and as they rely on their background knowledge about Woolf's other works and her belonging to Modernism. Readers can consider this short story an episode of the party going on in *Mrs Dalloway*, a novel which is considered a staple work of Modernism and by Virginia Woolf. The short story starts with the following sentence: "Mrs. Dalloway introduced them, saying you will like him." This makes readers enter a familiar fictional universe, situating the meeting and conversation between Mr. Serle and Miss Anning in this context, time, and place. Readers feel, in this way, that Woolf has created an entire imaginary world for them which mirrors a social circle. This is an element ensuring a sense of reality, and realism, as otherwise the story's plot deviates from the traditional type of plot. The dialogues are contemplative ones and leave room for readers' considering what goes on in the interior worlds of the two characters more than what goes on in their external reality and interaction. The two characters talk about common topics, which can be considered not important at all, yet Woolf creates for readers a similar effect to body language and facial expressions which make up the non-verbal aspects of conversations in everyday, real life. In this way, readers get the impression, indirectly, that the two characters would have liked a more profound connection. They only managed to connect superficially for the time being. Isolation is a specific feature of Modernist fiction, and so is the focus on the inner world and on the characters' psychology.

Keywords: stream of consciousness, conversation, fictional universe, memory.

INTRODUCTION

The short story *Together and Apart* by Virginia Woolf presents us with a contradictory state of affairs right from the title. The title sums up the fact that the two characters who were introduced at a party by Mrs Dalloway, called Mr. Serle and Miss Anning, while literally close to each other and talking, are in fact not connecting emotionally well enough. This is one of the main themes of Modernism, a representative of which Virginia Woolf is. This short story can get the attention of knowledgeable readers of Woolf's famous works, in this case *Mrs Dalloway*, since it is Mrs Dalloway who introduces them. Readers are directly introduced into a familiar social circle and event, that of Mrs Dalloway's party, and they feel that they are part of the witnesses to a conversation at her party. The first sentence sums up all this familiar atmosphere: "Mrs. Dalloway introduced them, saying you will like him" (Woolf, 2013). This continuation with Woolf's well-known novel, or in fact, an episode of it, creates for readers the effect of a three-dimensional world, and that of a realistic atmosphere. It counters the fact that her short story is more focused on psychology than on action. The mood it sets out is a reflective one.

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MATERIALS AND METHODS

The readers' reactions are prominent when analysing this short story, so the best approach is that of reader-response criticism (Mart, 2019).

Reader-response criticism means that readers react emotionally to any text, while, at the same time, they also give interpretations of the respective text based on their background knowledge. The readers' background knowledge can come from their personal life experience in everyday life, as they may recognize certain common experiences and experiences they relate to and have gone through themselves in the literary works they read. They can also rely on their knowledge about the respective author's other works.

The short story relies on the readers' reactions and on the way they connect with the characters, and especially on the readers' reactions when faced with a story which defies traditional or simply expected patterns of storytelling. The device of sympathy for the characters is activated, due to the focus on their inner world, based on their reflections. The traditional way a short story is expected to go on is a dynamic one, with action, yet this short story is more focused on the characters' psychology. The words exchanged are minimal, and the focus is more on the meaning beyond the words themselves, which suggest a simple wish to just connect emotionally, on a deeper level, with the other person. Readers may expect for the two characters, as they are a man and a lady, fall in love with each other and remain together. This goes on according to the fairy-tale pattern, noticed by Vianu (2012): "Boy meets girl, boy courts girl, wins girl, marries girl – in simple or complicated arrangements." In the end, the two characters in Woolf's short story remain, as the title says, *Together and Apart*, in the sense that they have talked, that the conversations hinted more at what was not said, which was the longing to connect, and to say more than what was actually literally said.

Knowledgeable readers can recall the following sentence from Woolf's (2024) novel *The Voyage Out*: "‘I want to write a novel about Silence,’ he said; ‘the things people don't say.’" Silence is clearly featured in this short story, called *Together and Apart*. The conversation going on between the two characters is intertwined with inner reflections. For instance, while the two of them make small talk, Miss Anning thinks about how very few "intimate friends" she has, in the sense that she cannot easily connect with other people. Difficulty in communication is a theme present throughout Woolf's other better known works, e.g. *The Voyage Out*, and *The Night and Day*, where, according to Cooley (1988), "the protagonists must learn to articulate in order to understand themselves and their world. Yet they also come to realize language is unable to express the deepest truths." We can see the latter sentence illustrated by the short story *Together and Apart*, as the conversation seems so superficial compared to the inner thoughts of the characters and to the way in which they feel. We can see how Canterbury becomes a keyword in the conversation, which echoes inner reflections for Miss Anning.

Mr Serle claims that "I suppose Canterbury was nothing but a nice old town to you," and further on Miss Anning confesses to the readers: "Let him think so," to be continued with the idea that "For really, her three months in Canterbury had been amazing. She remembered to the last detail, though it was merely a chance visit, going to see Miss Charlotte Serle, an acquaintance of her aunt's" (Woolf, 2013). A small talk discussion about Canterbury leads the two protagonists to wonder about the other's strong emotional connection with it. Readers see that the two protagonists share a common attachment to Canterbury, which is a moment where they connect beyond the literal words that they say. They share a common pleasant memory or memories related to this place, as we can see from the following:

‘I loved Canterbury,’ she said.

He kindled instantly. It was his gift, his fault, his destiny.

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‘Loved it,’ he repeated. ‘I can see that you did.’

Her tentacles sent back the message that Roderick Serle was nice.

Their eyes met; collided rather, for each felt that behind the eyes the secluded being, who sits in darkness while his shallow agile companion does all the tumbling and beckoning, and keeps the show going, suddenly stood erect; flung off his cloak; confronted the other. It was alarming; it was terrific. (Woolf, 2013)

The entire exchange can be analyzed based on the framework of pragmatics. The context gives readers an impression of how the two characters begin to connect together: “Her tentacles sent back the message that Roderick Serle was nice” (Woolf, 2013), as the two of them begin to agree on Canterbury. Mr Serle appears to eventually understand that Miss Anning also attaches an emotional significance to Canterbury. Eventually, the conclusion Miss Anning draws is that, once Mr Serle agrees with her and that she believes that she loves Canterbury, he is a nice person. After this conversation, they get eye contact, and, with the eye contact, they finally get in touch with each other, they finally connect emotionally with each other. However, their getting in touch with each other is described as a confrontation, or as an experience provoking anxiety.

In other novels by Woolf, such as *Mrs Dalloway* and *To the Lighthouse*, according to Cooley (1988), “verbal communication is necessary to health and happiness, but, again, language fails to express the deepest truths or emotions.” We can see how in the short story *Together and Apart* the same idea is all around, as the two characters would like to connect deeply to each other, yet words fail them. They draw inferences and understand that they could or would like to connect based on body language, but even then the process seems difficult. Words fail the protagonists to truly express themselves in *Jacob’s Room* and *Orlando* as well (Cooley, 1988).

In *The Waves*, all six characters “present varying degrees of verbal abilities, and these abilities reflect their understanding of the surrounding world” (Cooley, 1988). In addition, in *The Waves*, “Bernard, the most verbally accomplished of the six, expresses profound doubts about language’s ability to define and to communicate” (Cooley, 1988). With the novels *The Years* and *Between the Acts*, Woolf’s “doubts about verbal language become most apparent” (Cooley, 1988).

The very beginning of the short story sums up, after the two main characters are introduced by Mrs Dalloway, the way the entire mindset and feelings of the characters relate to a wish to be able to emotionally connect to each other and become very close:

The conversation began some minutes before anything was said, for both Mr. Serle and Miss Anning looked at the sky and in both of their minds the sky went on pouring its meaning though very differently, until the presence of Mr. Serle by her side became so distinct to Miss Anning that she could not see the sky, simply, itself, any more, but the sky shored up by the tall body, dark eyes, grey hair, clasped hands, the stern melancholy (but she had been told ‘falsely melancholy’) face of Roderick Serle, and, knowing how foolish it was, she yet felt impelled to say:

‘What a beautiful night!’ (Woolf, 2013)

The “beautiful night” (Woolf, 2013) becomes a pretext for the two characters to exchange a few words. At the same time, the sky diminishes in importance, as Miss Anning’s focus shifts from the view towards Mr Serle. She becomes aware of his presence, and the sky becomes a means of trying to connect together by sharing impressions over the same experience. What is more, the sky represents the here and now, and it can be brought into conversation to suggest how the two characters can be together in the same reality, which may allow for them sharing the same views.

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However, throughout their interaction, readers notice how the two characters go through doubts, feeling misunderstood, or feeling that they cannot truly and genuinely communicate with each other.

In the end, readers witness how, after their discussions about Canterbury, the two protagonists, as they finally managed to get close now and then and to allude to their common concerns and wishes, are growing apart, having nothing more to say to each other:

He smiled; he accepted it; he crossed his knees the other way about. She did her part; he his. So things came to an end. And over them both came instantly that paralysing blankness of feeling, when nothing bursts from the mind, when its walls appear like slate; when vacancy almost hurts, and the eyes petrified and fixed see the same spot—a pattern, a coal scuttle—with an exactness which is terrifying, since no emotion, no idea, no impression of any kind comes to change it, to modify it, to embellish it, since the fountains of feeling seem sealed and as the mind turns rigid, so does the body; stark, statuesque, so that neither Mr. Serle nor Miss Anning could move or speak [...] (Woolf, 2013)

The ending shows a sense of emptiness, as the two of them, readers imagine, fall silent and no longer have any words to say to each other. Their interaction had been tentative and very much inhibited. As soon as readers believed the two protagonists would finally make it close to each other, they would grow apart again or the conversation would become awkward.

Their silence in the end is interrupted by another guest, Mira Cartwright, who tells Mr Serle the following: “‘I saw you at the Meistersinger, and you cut me. Villain,’ said Miss Cartwright, ‘you don’t deserve that I should ever speak to you again’” (Woolf, 2013). This replica cuts short the interaction between Mr Serle and Miss Anning, or, at least, their silence in the end. The last sentence of the short story, “And they could separate” (Woolf, 2013), cuts short the entire dialogue and meeting between Mr Serle and Miss Anning. In the end, as Mr Serle is called a villain by Miss Cartwright, readers begin to doubt if he is truly likeable, as Mrs Dalloway introduced him to Miss Anning. In the end, what can we know about other characters? Everything is left open-ended and uncertain, for readers to wonder about whether the characters may have been able to interact on a deeper level after all. At the same time, just one encounter is not enough to actually know someone, and it takes time to get to know anyone in depth and even to better connect to them.

Woolf presents us how communication cannot truly draw close two characters, at least not for too long, as Mr Serle and Miss Anning only now and then are able to genuinely interact and connect emotionally. In the end, readers may believe that it may not have been a good idea for them to wish to maintain their relationship. They part as they cannot manage to establish genuine communication. They are both filled by doubts, yet readers have more access to Miss Anning’s impressions. In the end, Miss Cartwright’s remark seems to overturn the entire situation. She makes readers wonder if communication is, after all, possible. Readers may also wonder what Miss Cartwright means, since what she says may refer to an incident she and Mr Serle have had in the past and of which readers and Miss Anning are not at all aware. In this sense, by not knowing the context and situation of communication, readers and Miss Anning cannot understand the references and allusions made by Miss Cartwright. We cannot share the same reality, which makes communication less and less likely to happen at a genuine, authentic level. Words no longer have commonly shared meaning, which leads to communication to fall apart. Readers and Miss Anning do not understand what Miss Cartwright speaks about, and this leads to a dramatic ending where there is uncertainty regarding the meaning of the words.

The ending shocks readers and underlines all the more the impossibility of communication, which leads to the characters to feel disconnected. Miss Cartwright refuses to speak to Mr Serle, echoing the breaking apart of communicating between Miss Anning and Mr Serle, and her disappointment of not feeling understood by him when the first mention Cambridge.

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Woolf is known for her stream of consciousness style (Boci, 2018) which is visible in this short story as well. While time appears static, there is a progression of feelings of inadequacy and uncertainty, until the end when failure of genuine communication is highlighted. This means that there is some tension in the story, in the difficult interaction between the two protagonists, which is in the end concluded by Miss Cartwright.

While readers expect closeness to the characters, as they are introduced in a familiar fictional universe, of Mrs Dalloway's party, they end up confused about the characters and their relationships, and also disappointed. In a traditional and expected way, parties are social events which are expected to bring people together. In the case of this short story, it does the contrary, disconnecting them.

RESULTS

Socializing goes contrary to the wishes and expected ways in this episode at Mrs Dalloway's party. Readers bring this character and her party back from memory, which is created within the fictional universe of Woolf by reference to another work by her. For readers, references and allusions to Mrs Dalloway and her famous parties are understood, and shared, in contrast with the reference of Miss Cartwright regarding her relation to Mr Serle, which does not appear in any other of Woolf's work, and which readers, just like Miss Anning, do not understand. Readers experience together with Miss Anning the awkward moments of inability to feel understood and communicate.

DISCUSSION

While such a situation may be found anywhere in real life, during social events, it becomes significant in Woolf's short story due to the frequency of isolation (Marcek, 2016), loneliness and alienation experienced by the characters in the modern world. With the rise of individualism, this phenomenon is resented until our present times, and is, thus, familiar to anyone. We may feel that we are not resonating with those around us and that we cannot adapt to a certain social circle. While individuals may wish to bethemselves and not to conform to society's pressure, they still feel the need to be accepted and to be part of a social group. In the end, we are social beings and different times do not change this. As much as we like to feel independent, to have freedom of thought and action, and to be ourselves, we still wish to be able to communicate with the others. Readers do not know if the remark by Miss Cartwright is hostile or simply a manner of joking, yet the impression, having read the entire short story, is that it is hostile, and that it makes characters draw apart from each other.

CONCLUSION

While Mr Serle and Miss Anning wish to connect, and feel that they are getting not necessarily to know but to understand and sympathize with each other, this impression is constantly challenged. Miss Anning has moments when she is not understood. Woolf manages to capture very well the unease at a social event, where two characters are placed in the situation to connect, by talking for the first time. Readers can feel the anxiety of Miss Anning, at the conclusions Mr Serle draws about her, such as in the case where Canterbury has no specific, emotional meaning to her, when in fact it does. It may surprise us how the others perceive us, and how they can get the wrong impressions of us. We can also feel that we are not understood once the other tell us that we are in a way in which we are not. However, the solution is not to keep silent, but to try to express how we actually are. We see such an attempt in the conversation between Miss Anning and Mr Serle, as Canterbury becomes a pretext for the to try to connect. Even so, the anxiety is felt and the feeling of difficulty of communication surfaces again and again.

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TAXPAYER ADVOCATE - AN ADDITIONAL GUARANTEE FOR THE PROTECTION OF TAXPAYER RIGHTS

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ABSTRACT

The role of the Taxpayer Advocate is a critical component in ensuring the protection of taxpayers' rights within the tax administration system. This paper examines the origins, development, and role of the Taxpayer Advocate in both international and national contexts, with a particular focus on Albania. Through an interdisciplinary approach that incorporates legal analysis, international comparisons, and practical cases, the paper highlights the importance of this institution in addressing taxpayers' complaints, assisting in the interpretation of tax laws, and recommending systemic improvements. Successful models from countries such as the USA, Canada, Sweden, and the EU offer valuable lessons for the development and strengthening of the Taxpayer Advocate in Albania. The Taxpayer Advocate acts as a mediator between the tax administration and taxpayers, providing assistance, resolving disputes, and ensuring fair and equal treatment for taxpayers.

The core functions of the Taxpayer Advocate include addressing taxpayer complaints, offering guidance on tax regulations, and advocating for systemic improvements in tax administration practices. By providing an independent and impartial perspective, the Taxpayer Advocate helps identify and correct errors, mitigate arbitrary actions, and prevent potential abuses of power by tax authorities. This role is vital in fostering trust in the tax system by ensuring taxpayers have a reliable pathway for resolving complaints and achieving fair solutions. Furthermore, the presence of a Taxpayer Advocate contributes to the overall efficiency and effectiveness of the tax administration by highlighting areas needing reform and promoting best practices. This ensures that the tax system operates transparently and responsibly, benefiting both taxpayers and the administration. The paper underscores key challenges facing this institution, including a lack of independence, limited resources, and low public awareness. It also provides concrete recommendations for improving its functionality, such as enhancing institutional independence, securing adequate resources, and increasing awareness of taxpayers' rights.

In conclusion, the paper argues that a strong Taxpayer Advocate is essential for a fair, transparent, and accountable tax system, strengthening trust and compliance in Albania and beyond.

Keywords: Taxpayer Advocate, taxpayers' rights, rights protection, transparency, tax justice, tax administration.

INTRODUCTION

In a constantly evolving economic and legal environment, protecting taxpayers' rights has gained significant importance globally and nationally. The role of the Taxpayer Advocate represents a critical mechanism for ensuring fairness, transparency, and equity in tax administration. This institution, acting as an intermediary between the tax administration and taxpayers, aims to increase trust in the tax system and promote the respect of the fundamental rights of individuals and businesses.

This paper examines the history, functions, and impact of the Taxpayer Advocate in various international and national contexts, with a particular focus on Albania. By analyzing best international practices and

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the challenges this institution faces, the aim is to provide a deeper understanding of its role in ensuring a fairer and more transparent tax system.

METHODOLOGY

This paper employs an interdisciplinary approach that includes legal analysis, international comparisons, and institutional assessments. Specifically, the methodology is built upon the following pillars:

Legal Analysis: A detailed review of domestic and international legislation regulating the Taxpayer Advocate institution, including Law No. 9920, dated 19.05.2008, and similar practices in countries like the USA, Canada, Sweden, and EU member states.

Literature Review: Academic works and reports by prominent authors such as Karen B. Brown, Leandra Lederman, and Reuven S. Avi-Yonah were analyzed to explore the impact and development of this institution globally.

Comparative Method: A comparative approach was used to analyze various models of the Taxpayer Advocate in different countries and identify best practices applicable to Albania.

Case Analysis: Cases resolved by the European Court of Human Rights (ECHR) were reviewed to interpret provisions of the European Convention on Human Rights (ECHR) in the context of tax procedures and administrative penalties.

Empirical Approach: Data from reports by Albanian and international institutions were analyzed to assess the impact of the Taxpayer Advocate on improving the tax system and enhancing citizens' trust in tax administration.

The methodology aims to provide a comprehensive approach to identifying the key role of the Taxpayer Advocate as a mechanism for ensuring taxpayers' rights and offering concrete recommendations for improving this institution.

HISTORICAL SUMMARY FOR TAXPAYERS' ADVOCATE

The role of the taxpayers' advocate was born in response to the need for protecting the rights of taxpayers and ensuring a fair and transparent tax system. This chapter will examine the origin of this role, its development, and its application in different countries, as well as its impact on tax legislation. The role of the taxpayers' advocate was first established in the United States in 1979, with the creation of the Taxpayer Advocate Service within the Internal Revenue Service (IRS). This institution was created to assist taxpayers who encounter difficulties with the tax administration and to ensure that their rights are respected. According to Nina E. Olson, "The creation of the Taxpayer Advocate Service was a significant step towards ensuring fair and impartial treatment for taxpayers" (Olson, 2007).

Following its establishment, the role of the taxpayers' advocate has been continuously developed and improved to address the various needs and challenges of the American tax system. One of the key moments in the development of the taxpayers' advocate role was the passage of the IRS Reform in 1996, which strengthened the role and independence of this institution. This reform created the position of National Taxpayer Advocate and required this office to report directly to the United States Congress on taxpayer issues and problems (Leandra Lederman, 2011). The National Taxpayer Advocate has played an important role in identifying and addressing taxpayer problems and recommending legislative and administrative changes to improve the functioning of the IRS. According to Karen B. Brown, "The National Taxpayer Advocate has been a powerful voice for the protection of taxpayer rights and the improvement of the American tax system" (Brown, 2018).

After the successful establishment of this role in the United States, many other countries followed suit and created similar institutions to protect the rights of taxpayers. In 2008, Canada established the Office

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of the Taxpayers' Ombudsman to ensure fair and impartial treatment for taxpayers and to address their complaints regarding the services provided by the Canada Revenue Agency (CRA). According to Karen B. Brown, "The creation of the Office of the Taxpayers' Ombudsman in Canada has strengthened the protection of taxpayer rights and improved the accountability of the tax administration" (Brown, 2018). In 1995, Australia created the role of the Taxation Ombudsman, which is part of the Australian Commonwealth Ombudsman. This institution provides an independent avenue for resolving taxpayer complaints and improving the services of the tax administration (Reuven S. Avi-Yonah, 2010).

HISTORICAL SUMMARY OF THE TAXPAYER ADVOCATE IN EUROPE

The role of the taxpayer advocate in Europe has developed in response to the need for protecting taxpayers' rights and ensuring justice and transparency in tax systems. The role of the taxpayer advocate in Europe first emerged in Sweden in the early 1990s. Sweden was one of the first countries to create a dedicated institution for the protection of taxpayers' rights, making it a model for other European countries. In 1992, Sweden established the Tax Ombudsman, an independent institution tasked with monitoring the tax administration and ensuring that taxpayers' rights were upheld. This institution has served as a model for many other European countries and provided an independent mechanism for resolving taxpayer complaints and improving tax administration services (Leandra Lederman, 2011). Following the successful establishment of the taxpayer advocate role in Sweden, many other European countries began adopting similar models to protect taxpayers' rights and improve transparency and accountability in tax administrations. Denmark created the Taxpayer Advocate institution in 1997, following the Swedish model. This institution was established to ensure fair and impartial treatment of taxpayers and to address their complaints regarding tax administration services (Karen B. Brown, 2018). In 2005, the United Kingdom created the role of Taxpayer Advocate, which operates as part of the Public Services Ombudsman Office. This role was created to ensure that the tax administration operates fairly and transparently and to address taxpayer complaints (Reuven S. Avi-Yonah, 2010). In 2008, Germany established the Tax Ombudsman to protect taxpayers' rights and ensure that the tax administration acts in accordance with the law and applicable regulations (Leandra Lederman, 2011).

The role of the taxpayer advocate in Europe has an important history and has played a key role in protecting taxpayers' rights and improving the tax system. Although there are still challenges to be addressed, this institution has significantly contributed to ensuring justice and transparency in tax relations and will continue to be an essential component of the European tax system.

HISTORY AND ROLE OF THE TAXPAYER ADVOCATE IN ALBANIA

The Taxpayer Advocate in Albania is a relatively new institution that was established in response to the need for protecting the rights of taxpayers and ensuring justice and transparency in the country's tax system. The institution of the Taxpayer Advocate in Albania was founded based on Law No. 9920, dated 19.05.2008, "On Tax Procedures in the Republic of Albania." The creation of this institution reflected a modern approach oriented towards protecting the interests of taxpayers, granting it independent functions to oversee and improve tax administration. The law was followed by the Decision of the Council of Ministers No. 648, dated 28.07.2010, which set out the details for the functioning of the Taxpayer Advocate. The institution of the Taxpayer Advocate was established in Albania in 2010, as part of the structure of the General Directorate of Taxes, with the aim of providing a protective mechanism for taxpayers. Initially, its functions were integrated within the Tax Administration; however, this institution remained independent in the decision-making process.

In 2018, based on the suggestions of business groups and the need for greater independence, the Albanian Government transferred this institution under the Ministry of Finance and Economy (MF, 2024). This move was in line with international practices to ensure an independent and transparent

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institution, as highlighted in studies by authors such as Feld and Frey (2007), who argue for the importance of institutional autonomy in increasing taxpayer trust. Albanian researchers have emphasized the role of fiscal and institutional reforms in strengthening the tax system in the country, including the establishment of institutions like the Taxpayer Advocate to guarantee the respect of the rights of individuals and businesses (Angjeli, 2012).

Since its creation, the role of the Taxpayer Advocate in Albania has gone through several phases of development and has impacted the improvement of the country's tax system. The institution of the Taxpayer Advocate is built on the principles of legality, impartiality, confidentiality, and professionalism, becoming a key point in improving relations between taxpayers and the tax administration. The functions of the Taxpayer Advocate include reviewing complaints and requests from taxpayers, providing recommendations for procedural and legislative improvements, as well as defending the rights of taxpayers against abusive or unfair practices. According to Law No. 9920 and Instruction No. 6, dated 25.02.2019, the Taxpayer Advocate has the right to investigate any alleged procedural violation by the tax administration, including: Non-compliance with tax procedures by tax officials, Failure to provide requested information by taxpayers, as permitted by tax legislation, as well as behaviors that harm or denigrate taxpayers.

Law No. 9920 and Instruction No. 6, dated 25.02.2019, not only grant powers to the Taxpayer Advocate but also impose certain legal limitations. The Taxpayer Advocate cannot review requests related to a tax assessment, except when the procedures related to this assessment have been applied incorrectly, as well as cases that are under tax investigation. The clear delineation of competencies between institutions helps to avoid overlaps and strengthen institutional integrity (Civici, 2007). This approach is in line with best international practices, such as those in the USA, where Olson (2008) describes the role of the National Taxpayer Advocate in handling complex complaints without interfering in tax investigations. A key challenge for this institution is maintaining its independence from political influences and ensuring sufficient financial and human resources to fulfill its functions (Civici, 2009).

OMBUDSMAN FOR TAXPAYERS AND THEIR PERSPECTIVES

Although it has a relatively short history, the Ombudsman for Taxpayers has played an important role in improving the Albanian tax system. The institution has handled hundreds of cases and has recommended legal changes to enhance procedures and guarantee the rights of taxpayers (MF, 2024). Compared to international models, such as those mentioned by Olson (2008) for the USA, the Albanian institution needs further development to achieve higher standards. As Stiglitz (2000) argues in his studies on public economics, the creation of mechanisms like the Ombudsman for Taxpayers strengthens transparency and institutional accountability. A key challenge for this institution is maintaining its independence from political influences and ensuring sufficient financial and human resources to fulfill its functions (Civici, 2009). Increasing public awareness of the role of this institution remains another important challenge. As Stiglitz (2000) suggests, educating the public about their tax rights and the role of protective institutions is an essential step toward improving the relationship between taxpayers and the tax administration. The role of the Ombudsman for Taxpayers in Albania has a relatively recent yet significant history, playing a key role in protecting the rights of taxpayers and improving the country's tax system. Although there are still challenges to be addressed, this institution has significantly contributed to ensuring justice and transparency in tax relations and will continue to be an essential component of the Albanian tax system.

STATUTE OF TAXPAYERS' RIGHTS

The Statute of Taxpayers' Rights is a document that summarizes the fundamental rights of individuals and businesses in relation to the tax administration. This statute aims to protect taxpayers from abuses

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and arbitrary actions of tax authorities and to create a fair and transparent framework for the implementation of tax obligations. According to international literature, Feld and Frey (2007) argue that a clear contract between taxpayers and tax authorities, included in such a statute, increases tax compliance and trust in state institutions.

The Statute of Taxpayers' Rights is an important tool for creating a fair, transparent, and efficient tax system. As emphasized by Stiglitz (2000), respecting the rights of taxpayers helps increase public trust in the state and improve fiscal performance. For Albania, strengthening the implementation of this statute would be a positive step towards improving the tax system and harmonizing with international standards.

Law No. 9920, dated 19.05.2008, "On Tax Procedures in the Republic of Albania," provides in Chapter IV, from Article 30 to Article 38, "The Rights of the Taxpayer. The Taxpayer Charter is, in fact, a "declaration" in which the rights, as well as the obligations of taxpayers, are presented. This document is not a legal act in its own right, but through it, the current rights and obligations, well-defined in the legal basis of human rights in general, as well as those of a tax nature in particular, are made public. In this way, its publication positively contributes to creating a better climate of fiscal citizenship in the country (MF, 2024). The Taxpayer Charter contains the following principles and rights:

The right to representation allows taxpayers the right to appoint a representative, with power of attorney, who represents them in dealings with the tax administration (Article 35 of Law no. 9920, 2008). The right to request records in writing or electronically establishes the taxpayer's right to request from the tax administration, either electronically or in writing, copies that are identical to the original for any document that is in the file opened for them (Article 36 of Law no. 9920, 2008). The right to be heard is another right recognized for the taxpayer. Before the adoption of an administrative decision concerning them and their property, the taxpayer has the right to be heard by the tax administration (Article 37 of Law no. 9920, 2008). The right to appeal establishes the right that the taxpayer has to appeal, ensuring an independent administrative review of matters related to them (Article 37 of Law no. 9920, 2008).

The "Bill of Taxpayers' Rights" in EU countries is a vital instrument for creating a fair and transparent system of fiscal administration. As Feld and Frey (2007) emphasize, respecting these rights contributes to higher compliance and a fairer tax system.

In EU countries, the rights of taxpayers are generally and harmoniously reflected through EU directives and national policies. In this regard, the right to equal treatment and non-discrimination stipulates that tax administrations must treat all taxpayers equally, without discrimination based on nationality, residence, or economic status. This is in accordance with Article 21 of the Charter of Fundamental Rights of the European Union (OECD, 2011). The right to information and transparency is reflected in EU directives which require tax administrations to inform taxpayers of their obligations and rights in a clear and accessible manner. OECD (2011) highlights the importance of transparency in reducing conflicts between taxpayers and the tax administration. The right to privacy and protection of personal data is enshrined in the General Data Protection Regulation (GDPR), which requires that the personal data of taxpayers must be carefully protected. The right to appeal and complaints establishes the right that taxpayers have to appeal the decisions of the tax administration and seek review in accordance with national law and EU rules.

Known for a strong and well-regulated system of tax rights, Germany has emphasized the importance of informing and treating taxpayers equally. Feld and Frey (2007) argue that administrations that guarantee taxpayers' rights improve fiscal compliance. In France, the Statute of Taxpayers' Rights contains detailed principles for protecting citizens from arbitrary actions of the tax administration. This

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includes limitations on prolonged investigations and the implementation of preventive measures to avoid abuses (Maus, D. 2018). The Statute of Taxpayers' Rights in Italy (Statuto dei diritti del contribuente) is a fundamental legal act aimed at ensuring a fair, transparent, and balanced relationship between the tax administration and taxpayers. It was formalized by Law No. 212 of July 27, 2000, and contains the basic principles that govern Italian tax law. This statute reflects the Italian state's efforts to build a more taxpayer-friendly administration by increasing transparency and ensuring the protection of fundamental rights.

Differences between national jurisdictions create the need to harmonize tax rights, as well as mitigate differences between member countries regarding the implementation of these rights. Administrations in countries with low economic and technological capacities face difficulties in fully implementing taxpayers' rights. Stiglitz (2000) suggests that developing technological resources and educating tax administrations will help overcome these challenges.

JURISPRUDENCE OF THE EUROPEAN COURT OF HUMAN RIGHTS (ECtHR) FOR THE PROTECTION OF TAXPAYERS' RIGHTS

The European Court of Human Rights has developed a rich jurisprudence for the protection of taxpayers' rights, interpreting the provisions of the European Convention on Human Rights (ECHR) in the context of tax procedures and administrative penalties. The case law of the ECtHR primarily focuses on the protection of the right to a fair and public trial (Article 6), the right to the protection of property (Article 1 of Protocol No. 1), and the prohibition of discriminatory treatment (Article 14). The European Court of Human Rights (ECtHR) has addressed a number of cases related to tax administrative procedures, establishing standards for the rights of individuals in this context. Below are three key decisions of the ECtHR in this field:

CASE "S.A. DANGEVILLE V. FRANCE" (2002)

The case "S.A. Dangeville v. France" (2002) is an important decision of the European Court of Human Rights (ECtHR) that addresses the protection of property rights in the context of value-added tax (VAT).

Facts of the case: The company S.A. Dangeville, which operated in the insurance sector, requested reimbursement of the VAT paid for its services from the French authorities, arguing that, according to the Sixth Directive of the European Community, insurance services should have been exempted from VAT. The French authorities denied the request, leading to a lengthy judicial process in the national courts, which ultimately did not rule in favor of the company.

Legal issue: The company filed a complaint with the ECtHR, claiming that the refusal of the French authorities to reimburse the VAT constituted a violation of Article 1 of Protocol No. 1 of the European Convention on Human Rights, which protects the right to property.

ECtHR ruling: The Court found that there had been a violation of Article 1 of Protocol No. 1. It assessed that the refusal to reimburse the VAT created an interference with the company's property rights, disrupting the fair balance between the demands of the general interest and the protection of individuals' fundamental rights. The Court emphasized that the French authorities had failed to comply with their obligations under European law by not timely transposing the Sixth Directive and by not ensuring effective reimbursement of the VAT paid unjustly.

Significance of the ruling: This ruling underscores the importance of respecting European obligations by member states and ensuring the property rights of individuals and legal entities. It also highlights that states must provide effective mechanisms for the reimbursement of unjustly paid taxes, in accordance with the principles of European law and the European Convention on Human Rights (European Court of Human Rights, "S.A. Dangeville v. France", Application No. 36677/97, Decision of 16 April 2002).

THE CASE "JANOSEVIC v. SWEDEN" (2002)

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The case "Janosevic v. Sweden" was addressed by the European Court of Human Rights (ECHR) and concluded with a decision on July 23, 2002. It dealt with a conflict between an individual, Mr. Janosevic, and the Swedish tax authorities regarding the rules for the enforcement of tax fines during the appeal process.

Key facts of the case: Mr. Janosevic was subject to a tax review by the Swedish authorities, who imposed a significant addition to his tax liabilities and administrative fines due to inaccurate declarations. He appealed this decision, seeking a suspension of the enforcement of the liabilities until the judicial process was completed. However, the Swedish authorities denied his request for suspension and began collecting the liabilities before the appeal process was completed. Mr. Janosevic argued that this practice violated his right to a fair trial and effective access to court, guaranteed by Article 6.1 of the European Convention on Human Rights.

Legal issues raised: Did the collection of tax liabilities during the appeal process constitute a violation of the right to a fair trial and effective access to court (Article 6.1)? Were the measures taken by the tax authorities proportional and justified within the framework of tax justice administration?

ECHR decision: The Court found that there had been a violation of Article 6.1 of the Convention regarding effective access to court. The ECHR noted that the refusal to suspend the enforcement of tax liabilities during the appeal process caused significant financial difficulties for the applicant. This negatively impacted his ability to effectively protect his interests in court. The Court assessed that the measures taken by the Swedish authorities were disproportionate, considering their impact on the applicant and his right to legal protection. The ECHR emphasized that the right to access to court requires individuals to be given the opportunity to appeal administrative decisions without facing excessive or unjustified obstacles.

This decision holds significant importance for European jurisprudence concerning tax administration and taxpayers' rights. In "Janosevic v. Sweden," the ECHR established important standards for the protection of taxpayers' rights in tax administrative procedures. This decision highlights that states must respect the right to a fair trial and ensure that their administrative measures do not unjustly restrict access to justice (European Court of Human Rights, Janosevic v. Sweden, Application no. 34619/97, Judgment of July 23, 2002).

THE CASE "BULVES AD v. BULGARIA" (2009)

The case "Bulves AD v. Bulgaria" was addressed by the European Court of Human Rights (ECHR) and concluded with a decision on January 22, 2009.

Key facts: The Bulgarian company "Bulves AD" was subject to a tax investigation by the Bulgarian authorities. During this process, the tax authorities refused to recognize the company's right to deduct Value Added Tax (VAT) for certain transactions, arguing that the suppliers of "Bulves AD" had not fulfilled their tax obligations. As a result, "Bulves AD" was forced to pay the full amount of VAT without the possibility of deduction.

Complaints filed: "Bulves AD" argued that the refusal to recognize the right to deduct VAT due to violations committed by third parties (suppliers) constituted a violation of its right to property protection under Article 1 of Protocol No. 1 to the European Convention on Human Rights.

ECHR decision: The Court found that there had been an interference with "Bulves AD's" right to respect for its property. It noted that the company had acted in good faith and had fulfilled all its legal obligations regarding the relevant transactions. The Court emphasized that penalizing a taxpayer for violations committed by a third party, over which the taxpayer had no control, was unjustified and constituted a violation of the right to property protection.

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Importance of the decision: This decision is of particular importance for European jurisprudence, as it establishes that tax authorities cannot penalize an honest taxpayer for violations committed by third parties. Furthermore, the decision underscores the importance of protecting property rights and legal certainty for economic entities. (European Court of Human Rights. (2009) *Bulves AD v. Bulgaria*, C-18/09.)

CONCLUSION AND RECOMMENDATIONS

Strengthening the Taxpayer Advocate contributes to fostering citizens' trust in the tax system by ensuring that every taxpayer is treated with fairness and respect. Ensuring complete independence for the Taxpayer Advocate from political influences is essential for its effective functioning and for protecting taxpayers' rights. We recommend the creation of a separate structure, outside the tax administration, that reports directly to the Assembly or an independent body.

Ensuring adequate financial and human resources for this institution will improve its capacity to effectively address the challenges and complaints of taxpayers. We recommend expanding the staff with qualified experts in legal and fiscal fields to enhance its capacity in handling complex cases.

Awareness campaigns and public education about their rights and the role of the Taxpayer Advocate are essential for improving relations between citizens and the tax administration. We recommend increasing public awareness through information campaigns to educate taxpayers about their rights and the services offered by the Taxpayer Advocate. Involvement of the media and social networks to disseminate information about the successes and role of the institution is crucial. Promoting Fiscal Education by implementing modules on tax rights and obligations in educational curricula, as well as providing specialized training for individuals and businesses on tax compliance and the services of the Taxpayer Advocate.

Integrating best international practices into the Albanian system is an important step towards modernizing the tax administration and strengthening the protection of taxpayers' rights. We recommend adopting international practices by adapting successful models from the USA, EU, and other countries, focusing on efficiency and transparency. Collaborating with international organizations to develop training programs and exchange experiences is also advisable.

The importance of developing transparency systems for the Taxpayer Advocate is significant. These systems help create a more open and trustworthy environment where information about tax obligations and procedures is clear and easily accessible. Publishing various reports, such as those on the performance of tax authorities, aids in monitoring their activities and ensures that taxpayers have access to the information necessary to protect their interests. Taxpayer Advocates can use these reports to provide more informed advice and assist their clients in fulfilling tax obligations, as well as in identifying opportunities for appeals in cases of disputes with the tax administration. Transparency also helps reduce corruption and increase public trust in the tax system.

Improving the legal framework that regulates the powers of the Taxpayer Advocate is an important process for ensuring the protection of individuals' and businesses' rights in their relations with the tax administration. In this sense, it is important to clearly define the rights and responsibilities of taxpayers and the tax administration within this institution. The involvement of civil society and interest groups in decision-making processes is not just a tool for democratization, but a necessity for effective and fair governance. Only through open and sincere cooperation can the interests of taxpayers be protected and a fiscal system be created that reflects the values of justice and equality.

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SİKLOİD DIŞ PROFİLİNE SAHİP SİNÜSİODAL DIŞLİNİN SOLID WORKS ARAYÜZÜNDE PARAMETRİK GEOMETRİK TASARIMI

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ÖZET

Mekanik güç aktarımında kullanılan dişli sistemleri, mühendislik uygulamalarının en kritik bileşenlerinden biridir. Ancak literatürdeki yaygın kullanımı olan dişli tasarımlarında sıklıkla görülen titreşim, gürültü, aşınma ve düşük verimlilik gibi problemler, yeni ve yenilikçi dişli profillerinin geliştirilmesini zorunlu kılmıştır. Bu bağlamda, sikloid dış profiline sahip sinüsoidal dişliler, yüksek verimlilik, düşük titreşim ve dengeli yük dağılımı gibi özellikleriyle dikkat çeken alternatif bir çözüm sunmaktadır. Bu çalışma, sikloid dış profiline sahip sinüsoidal dişlilerin SolidWorks yazılımı kullanılarak parametrik bir yaklaşımla geometrik tasarımını gerçekleştirmeyi hedeflemiştir. Tasarım süreci, sikloid eğrilerinin matematiksel temelleri üzerine inşa edilmiştir. Parametrik denklemler oluşturularak bu eğrilerin geometrik yapısı modellenmiştir. Daha sonra, SolidWorks yazılımı üzerinden diş profilleri parametrik modelleme menü araçlarıyla tasarlanmış, bir diş boşluğu modeli oluşturulmuş ve bu boşluk, dairesel çoğaltma komutlarıyla diş sayısına uygun şekilde tekrarlanarak tam bir dişli modeli elde edilmiştir. Modelleme sürecinde kullanılan parametrik yaklaşım, hem farklı uygulama alanlarına uygun özelleştirilebilir tasarımların oluşturulmasını hem de tasarım sürecinin daha hızlı ve verimli bir şekilde gerçekleştirilmesini sağlamıştır.

Bu çalışma sinüsoidal dişlilerin, hassasiyet ve dayanıklılık gerektiren endüstriyel uygulamalar için ideal bir çözüm olma ve ileriye dönük araştırmalar için malzeme bilimi ve üretim yöntemleri açısından önemli bir temel oluşturma potansiyelini ortaya çıkarmaktadır. Bu araştırma, sikloid profilli sinüsoidal dişlilerin potansiyellerini ortaya çıkarma ve bu alanda literatüre temel bir referans kazandırmaktadır.

Anahtar Kelimeler: Sinüsoidal dişli, sikloid dış profili, parametrik tasarım, SolidWorks, dişli tasarımı.

ABSTRACT

Gear systems used in mechanical power transmission are among the most critical components of engineering applications. However, problems such as vibration, noise, wear, and low efficiency, which are commonly observed in conventional gear designs widely utilized in the literature, have necessitated the development of new and innovative gear profiles. In this context, sinusoidal gears with cycloidal tooth profiles emerge as an alternative solution, offering advantages such as high efficiency, low vibration, and balanced load distribution. This study aims to perform the parametric geometric design of sinusoidal gears with cycloidal tooth profiles using SolidWorks software.

The design process is built on the mathematical foundations of cycloidal curves. Parametric equations were created to model the geometric structure of these curves. Subsequently, gear profiles were designed using the parametric modeling tools within SolidWorks, where a single tooth cavity model was generated. This cavity was then replicated using circular pattern commands to match the desired number of teeth, resulting in a complete gear model. The parametric approach employed in the modeling process

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facilitated the creation of customizable designs suitable for various applications and ensured a faster and more efficient design process.

This study highlights the potential of sinusoidal gears to serve as an ideal solution for industrial applications requiring precision and durability. Furthermore, it lays a significant foundation for future research in areas such as material science and production methods. This research contributes to unveiling the potential of sinusoidal gears with cycloidal profiles and provides a fundamental reference for the literature in this field.

Keywords: Sinusoidal Gear, Cycloidal Tooth Profile, Parametric Design, Solidworks, Gear Design.

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EPİSİKLOİD DİŞ PROFİLİNE SAHİP SİNÜSİODAL DİŞLİNİN SOLİD WORKS ARAYÜZÜNDE PARAMETRİK GEOMETRİK TASARIMI

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ÖZET

Dişli sistemleri, modern mühendisliğin vazgeçilmez unsurlarından biridir. Geleneksel standartlaşmış dişli tasarımlarında ortaya çıkan titreşim, gürültü ve aşınma sorunları, daha verimli, dayanıklı ve uzun ömürlü sistemlerin geliştirilmesine yönelik bir ihtiyaç doğurmuştur. Bu durum bu alandaki bilim insanlarını arayış içine itmiştir. Bu motivasyondan hareketle ortaya çıkan bu çalışma, sinüsoidal diş profilleri, düşük titreşim, yüksek verimlilik ve dengeli yük dağılımı gibi üstün performans potansiyelleriyle dikkat çekmektedir.

Bu çalışmada, episikloid diş profiline sahip sinüsoidal dişlilerin SolidWorks yazılımında parametrik olarak tasarımı gerçekleştirilmiştir. Tasarım süreci, episikloid eğrilerin parametrik matematiksel denklemlerinin oluşturulmasıyla başlamış, ardından Solid Works yazılımındaki pop up menüsü yardımıyla parametrik modelleme araçlarıyla bir diş boşluğu gravürü modellenmiştir. Ardından diş boşluğu arayüzdeki dairesel çoğaltma menüsü yardımı ile tasarlan dişlinin diş sayısı kadar çoğaltılarak dişlinin 3D parametrik geometrik katı modeli elde edilmiştir. Episikloid diş profiline sahip sinüsoidal dişlilerin geometrik yapıları, geleneksel standart dişli sistemlerine göre daha düşük titreşim, dengeli yük dağılımı ve yüksek enerji verimliliği sağlama potansiyeli nedeniyle bu çalışma bu tür potansiyellerin bilimsel yöntemlerle ortaya çıkarılacağı gelecekteki çalışmalara rehberlik etmeyi amaçlamaktadır. Bu çalışmada kullanılan, parametrik modelleme yaklaşımı sayesinde farklı uygulamalara uygun tasarımlar kolaylıkla oluşturulabilir. Parametrik modelleme, sinüsoidal dişlileri hassasiyet ve dayanıklılık gerektiren endüstriyel uygulamaları içinde farklı endüstriyel uygulamalara kolayca uyarlanabilen tasarımlar oluşturulabilmenin önünü açmaktadır. Bu çalışma, modern dişli tasarımlarında teorik, pratik katkılar ve önemli bir alternatif sunmakta, gelecekteki araştırmalar için malzeme seçimine bağlı olarak performans araştırması ya da benzeri konulara ışık tutmaktadır.

Anahtar Kelimeler: Sinüsoidal Dişli, Episikloid Diş Profili, Parametrik Tasarım, Solidworks, Dişli Tasarımı

ABSTRACT

Gear systems are indispensable components of modern engineering in mechanical power transmission. Traditional standardized gear designs often encounter issues such as vibration, noise, and wear, driving the need for more efficient, durable, and long-lasting systems. This necessity has motivated researchers to explore alternative approaches. Inspired by this motivation, the present study focuses on sinusoidal gear profiles, which stand out with their potential for superior performance, including low vibration, high efficiency, and balanced load distribution.

In this study, the parametric design of sinusoidal gears with an epicycloidal tooth profile was carried out using SolidWorks software. The design process began with the formulation of parametric mathematical equations for epicycloidal curves. Subsequently, a gear tooth cavity was modeled using the parametric modeling tools available in the SolidWorks pop-up menu. The tooth cavity was then duplicated by

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leveraging the circular pattern tool in the interface, enabling the creation of a 3D parametric solid model of the gear based on the specified number of teeth. The geometric structure of sinusoidal gears with epicycloidal profiles offers significant advantages over traditional standardized gear systems, such as reduced vibration, balanced load distribution, and higher energy efficiency. This study aims to provide scientific insights into these potentials and serve as a guide for future research that can systematically investigate these characteristics. The parametric modeling approach utilized in this work enables the development of flexible designs adaptable to various applications. Moreover, parametric modeling paves the way for the integration of sinusoidal gears into precision and durability-focused industrial applications, demonstrating their versatility in diverse fields. This study offers both theoretical and practical contributions to modern gear design and presents an important alternative for advancing the field. It also provides a foundation for future research topics, such as performance analysis based on material selection and other related areas.

Keywords: Sinusoidal Gear, Epicycloidal Tooth Profile, Parametric Design, SolidWorks, Gear Design

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ANALYSIS OF TIME-DOMAIN HEART RATE VARIABILITY PARAMETERS DEPENDING ON BLOOD PRESSURE LEVELS

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ABSTRACT

Numerous studies have demonstrated that elevated blood pressure (BP) is associated with damage to target organs and increased cardiovascular risk. Autonomic dysfunction in cardiac regulation plays a significant role in the occurrence of fatal complications. While such dysfunctions may not always exhibit clinical symptoms, they can often be detected early via electrocardiographic changes.

Heart rate variability (HRV) reflects the body's ability to adapt to various changes and allows for prognostic assessments in individuals with varying BP levels. This enables the implementation of preventive measures and highlights the importance of conducting studies to collect this data.

Aim: To perform a comparative analysis of time-domain HRV parameters among individuals with varying blood pressure levels.

Materials and Methods:

The study included data from 90 individuals aged 19-59, divided into three groups:

1. Primary group (n=30): Individuals with high normal blood pressure (systolic BP: 130–139 mmHg and/or diastolic BP: 85–89 mmHg).
2. Comparison group (n=30): Individuals with grade I hypertension (systolic BP: 140–159 mmHg and/or diastolic BP: 90–99 mmHg) who had no prior cardiovascular complaints and were not undergoing treatment.
3. Control group (n=30): Individuals with normal BP (systolic BP: 120–129 mmHg and/or diastolic BP: 80–84 mmHg).

Electrocardiograms (ECGs) were recorded for all participants during the morning in a state of relative rest, using 12 standard leads over a 5-minute period. HRV was analyzed based on the guidelines of the European Society of Cardiology and the North American Society of Pacing and Electrophysiology.

Results: The main group (high-normal BP) had SDNN values of 75.8 ± 7.50 ms, RMSSD 46.1 ± 3.02 ms, and pNN50% 38.6 ± 3.21 ms. The comparison group (grade 1 hypertension) showed SDNN values of 58.9 ± 6.67 ms, RMSSD 37.8 ± 3.26 ms, and pNN50% 33.3 ± 5.14 ms. The control group had SDNN values of 50.3 ± 2.75 ms, RMSSD 85.3 ± 13.02 ms, and pNN50% 49.7 ± 6.53 ms.

In the high-normal BP group, compared to the control group, SDNN decreased by 10.0%, RMSSD by 46% ($p < 0.05$), and pNN50 by 22.4%. However, no statistically significant differences in SDNN and pNN50 values were observed between these groups ($p > 0.05$).

In the hypertension group, SDNN values were 30.0% lower, RMSSD 55.7% lower, and pNN50 33.0% lower than in the control group. Significant statistical differences were found for both SDNN and RMSSD values between these groups ($p < 0.05$).

When comparing the main group with the hypertension group, SDNN was 28.7% higher, RMSSD 22.0% higher, and pNN50 16.0% higher in the main group. However, no statistically significant differences were observed for any of these parameters ($p > 0.05$).

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Both high-normal BP and hypertension groups exhibited a decline in SDNN and pNN50, key indicators of cyclic parameters, suggesting reduced parasympathetic modulation intensity. This reflects a shift in autonomic balance towards sympathetic dominance in individuals with hypertension and intermediate BP levels, serving as a predictor of fatal ventricular arrhythmias and mortality risk.

Conclusion: This study demonstrates that HRV analysis, using a simple, non-invasive, and accessible method such as ECG, can help identify individuals with high cardiovascular risk early on, facilitating their monitoring and management.

Keywords: heart rate variability, blood pressure, autonomic dysfunction

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STYLISTIC FUNCTION OF ADJECTIVES IN EXPRESSING HUMAN CHARACTERISTICS IN TURKMEN AND ENGLISH

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ABSTRACT

The article is aimed at analyzing the stylistic function of adjectives and their degrees of comparison, demonstrating how these linguistic elements enhance meaning, evoke imagery, and emphasize the use of adjectives as stylistic devices in describing the human traits. To achieve this purpose the article is structured around the following tasks: to explore the characteristic features of adjectives and their grammatical and stylistic functions; to investigate the different types of adjectives and their uses in stylistic contexts; to identify the stylistic effects of adjectives in enhancing description and characterization.

The importance of the investigation lies in its exploration of how adjectives function as the epithets, metaphors, metonymies, and similes in describing the human characteristics.

Linguists I.R.Galperin, V.A.Kuharenko, B.Weyisov, G.Nepesov, K.Babayev studied the figurative, effective, emotional, nominal meanings, and stylistic functions of parts of speech such as nouns, verbs, adverbs, adjectives, and their grammatical categories. We investigate the stylistic function of adjectives in description of human traits in Turkmen and English.

Adjectives play a vital stylistic role in expressing human characteristics by adding specificity, depth, and nuance to descriptions. They contribute to creating vivid imagery, establishing tone, and conveying both explicit and implicit details about a person's physical appearance, personality, emotions, or social identity.

Adjectives help to depict physical characteristics, personality, and behavior, emotional states, social and cultural identity, contrast.

As for their stylistic function, adjectives: a) create a visual image of the character, enabling readers or listeners to form a mental picture; b) evoke empathy and resonance in readers, drawing them closer to the character's experience; c) frame characters within specific social or cultural contexts, aiding world-building and thematic development.

Adjectives serve as powerful tools in expressing human characteristics in Turkmen and English, enhancing the descriptiveness, emotional depth, and stylistic richness of the text. By carefully selecting adjectives, writers and speakers can draw vivid images of individuals and evoke specific responses from their audience.

Key words: adjective, stylistic function, characteristics, human traits, English, Turkmen,

Adjectives are the third major class of words in Turkmen and English, after nouns and verbs. Adjectives are words expressing properties of objects (e.g. large, blue, simple, clever, economic, progressive,

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productive, etc.) and, hence, qualifying nouns. Adjectives can perform the grammatical and the stylistic functions. They play a vital stylistic role in expressing human characteristics by adding specificity, depth, and nuance to descriptions. They contribute to creating vivid imagery, establishing tone, and conveying both explicit and implicit details about a person's physical appearance, personality, emotions, or social identity. Below is an exploration of their stylistic functions with examples.

As we know the adjectives are classified into qualitative and relative ones. Both types of adjectives have some stylistic properties. Adjectives that characterize objects qualities do not contain any evaluation. But as a metaphor they can have it.

Stylistic devices with emotionally colourful meanings consist of words with figurative and aesthetic, stable phrases. These are the words consisting of poetic lexicon, poetic syntax, and emotional words with figurative meaning.

1. Depicting Physical Characteristics. Adjectives help describe physical traits, making the depiction of a person vivid and detailed in Turkmen and English. These adjectives may focus on aspects like height, complexion, age or other distinct features in both languages.

Examples in Turkmen: *at ýüzli* (oval-faced), *badam dodak* (almond-lipped), *alma ýañak* [1] (apple-cheeked), *galam gaşly* (pencil-browed);

Alma ýañak, badam dodak, galam gaşly söwdüğim, gel görüşeli. (My love with apple-cheeks, almond-lips, pencil-brows, let's meet).

Examples in English: *tall, lanky, blue-eyed: She was a tall, lanky girl with striking blue eyes.*

In these examples the beauty of the girl is described. In both languages, age is also depicted using adjectives.

Examples: Turkmen: *Ýüzleri ýygırt atan, kümüş saçly enelerimiz!*

English: *The wrinkled, frail man leaned on his silver-haired companion.*

In Turkmen the adjectives “*kümüş saçly, ýygırt atan*”, in English “*wrinkled, frail, silver-haired*” are used in their figurative meanings, and they mean old age. Early adulthood is also expressed with the help of the epithet-adjectives in both languages.

Examples: Turkmen: *Gyzyl eňek, gögele – sakgal-murt çykmaryk, jahyl, ýigit, ýetginjek* [1].

Kim siziň ýaly gyzyl eňekleriň fronta gitmegini isleýär.

English: *spring chicken, young blood, as green as grass – young, inexperienced.*

That is very important job, so I can't understand why they hired someone who's as green as grass [4]. (*Olaryň bu wajyp işi nädip şu gögelä (tejribesize) ynanandyklaryna düşünip bilemok.*)

Stylistic Impact: These adjectives create a visual imagery, enabling readers or listeners to form a mental picture of the character.

2. Portraying Personality and Behavior. Adjectives are crucial for outlining human personality and behavioral traits, whether positive, negative, or neutral. They can suggest enduring traits or temporary moods.

• **Positive examples in Turkmen:** *ak ýürekli* (kind-hearted), *eli açyk* (generous), *özüne göwni ýetýän* [1] (optimistic) – such kinds of adjectives are used to portray positive characters of a person. *Onuň ak ýürekli, eli açyk häsiýeti köp dostlaryndan üstün çykdy.* (Her kind-hearted and optimistic nature won her many friends.)

In Magtymguly's verses, adjectives are used metonymically to describe bravery and cowardice.

Ýüz namart ýerini tutmaz bir merdiň,

Mert çeker täsibin ili-ýurduň. (Magtymguly. “Meýdan ýoluksa”) [3]

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A hundred *coward* won't replace a single *brave*,

Valiant will carry burden of people-nation. (If a field comes across) [4]

There are a lot of phraseological units describing human traits in Turkmen and English. We don't translate them word by word; we must find the equivalents of them.

Example: *ak guş ýaly bolmak* [1] (to be as a white bird) –meaning 'innocent as a lamb' [4].

Ähli günäni öz başyndan sowýar-da, akja guş bolup oturyberýär.

• **Negative examples in Turkmen and English:** *Burnuny ýygryp duran, doň ýürek, özüni akja jüýje saýýan* (arrogant, cold, and vindictive): Onuň ulumsylygy, özüni akja jüýje ýaly saýmagy ony biynjalyk etdi [5]. The arrogant and vindictive tone of his voice made her uneasy.

Stylistic Impact: These adjectives provide insight into a character's inner world, enhancing psychological realism and emotional engagement.

3. **Expressing Emotional States.** Adjectives often articulate emotions, helping to reveal a character's feelings or reactions. They can vary in intensity depending on the context.

Example: *gaty şadyýan, göçgünli* (ecstatic), *şatlykly, begenýän* (jubilant (after hearing the news)).

Betbagt (miserable), *hasratdan бүкүlen* (heartbroken), *gamgym, tukat* (despondent):

Onuň betbagt, hasratdan бүкүlen keşbi onuň çeken azaplaryny suratlandyryýardy.

Her miserable and heartbroken expression portrayed her pain.

Stylistic Impact: Emotional adjectives help evoke empathy and resonance in readers, drawing them closer to the character's experience.

4. **Establishing Social and Cultural Identity.** Adjectives can also reflect aspects of a person's social status, cultural background, or professional identity.

Example: *nepis* (sophisticated), *bezemen geýnen* (well-dressed), *medeniýetli* (cultured):

Owadan aýal bezemen geýnewlidi. The sophisticated woman was well-dressed in designer suit.

Ýakymyz, gelşiksiz (unkempt), *terbiýesiz* (rustic), *gödek* (rugged): *Onuň hüžžerip duran saçy, sallam-sajak eşikleri ömrüni öýsüz ötürene meňzeýärdi. His unkempt hair and rugged attire suggested a life spent outdoors.*

Stylistic Impact: The adjectives help frame characters within specific social or cultural contexts, aiding world-building and thematic development.

5. **Creating Contrast and Irony.** Adjectives can serve a stylistic purpose by introducing contrasts or irony, thereby enriching the complexity of the text.

Examples: Radiant yet fragile: Onuň nurana ýylgyrşy onuň gowşak taraplaryny gizledi. Her radiant smile belied her fragile state of mind.

Charming but manipulative: Ol özüni köpçülikde mylakatly alyp barýardy, hakykatda welin, ol diýenini etdirip bilerdi. He was charming in public, but privately, he could be manipulative.

Stylistic Impact: The juxtaposition of conflicting adjectives adds layers of meaning and encourages deeper interpretation.

6. **Supporting Figurative Language.** Adjectives enhance similes, metaphors, and other literary devices used to describe people.

Example: Fiery: Her fiery temper was a storm waiting to erupt.

Velvety: Her velvety voice lulled the audience into a trance.

Stylistic Impact: Such adjectives contribute to the artistic quality of the text, making descriptions more engaging and memorable.

Conclusion. Adjectives serve as powerful tools in expressing human characteristics in Turkmen and English. They enhance the descriptiveness, emotional depth, and stylistic richness. By carefully selecting adjectives, writers and speakers can paint vivid portraits of individuals and evoke specific responses from their audience.

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"ALBANIA AND EU-BETWEEN INTERNAL CHALLENGES AND EUROPIAN DILEMMAS"

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ABSTRACT

Following the fall of the communist dictatorship in the early 1990s, Albania's hopes for achieving the European dream were reignited. In 1991, Albania established diplomatic relations with the European Community and in 2000, Albania was officially recognized by the European Union as a potential candidate country. Meanwhile, progress towards membership has been very slow.

Albania's integration into the European Union, is a process of strategic significance, driving the country's transformation from a transitional economy, to a modern and integrated one. This process brings with it a series of tangible positive effects for the Albanian economy, contributing not only to economic growth but also to its long-term stability. However, this process is a long and complex journey, encountering numerous obstacles, tied both to the country's internal challenges and the external dynamics of the European Union. Albania faces significant economic challenges, that may be exacerbated by the demands of alignment with EU standards.

The process of integration, presents a significant opportunity for Albania, but also brings challenges that require careful measures, to ensure that the benefits outweigh the costs. Sound economic and social policies are essential, to minimize negative effects and ensure a successful integration.

Keywords: economic growth, integration, internal challenges, strategic opportunity.

INTRODUCTION

The European Union has come a long way, evolving from a close cooperation on coal and steel resources, to a deep political and economic union, with efforts to maintain peace and stability in Europe and to be a global actor in political and economic matters.

In the last 65 years, ensuring the quantity and quality of the food that Europeans eat, has been an absolute priority for the European Union. After World War II, Europeans sought a strong social policy to help the most vulnerable, and the Treaty of Rome established the European Social Fund. Today, one-third of the EU's budget is spent on economic and social cohesion. The European Union was founded on coal and steel; today, the energy union ensures secure, sufficient, and environmentally respectful energy. The wise use of resources and greater energy efficiency are crucial in combating climate change, while fostering the creation of new jobs, growth, and investments in Europe.

During its history, new european countries have joined gradually, and Albania is one of the countries that aspires to be its member. Following the fall of the communist dictatorship in the early 1990s, Albania's hopes for achieving the European dream were reignited. In 1991, Albania established diplomatic relations with the European Community. In 1992, Albania sought to join the Council of Europe and applied for integration into Europe's economic structures, aspiring to be a member of the European Union one day. In the early years after the fall of the communism, Albania faced significant challenges, including political instability, an economic crisis, and massive population movements.

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However, after 1997, the country began to engage in deeper reforms and improve its relations with the European Union.

Albania's journey towards European Union membership, has been a long, difficult and complex process, involving significant steps, major challenges and continuous commitments, to meet the EU's standards and requirements. Albania will need to continue implementing deep reforms and meet all the criteria, to ensure successful membership. The European Union has emphasized that it will support Albania in carrying out the necessary reforms, with particular focus on combating corruption, strengthening the rule of law and improving democratic standards.

A BRIEF HISTORY OF THE EUROPIAN UNION

The European Union (EU), has a long and powerful history, that began after World War II and has evolved into a community of states, which aimed at the economic and political integration of Europe. After 1945, on a continent ravaged by war and hunger, European countries needed stability and reconstruction and sought ways to rebuild their future. During this period, the idea of economic and political cooperation began to take shape, as a way to prevent the recurrence of such conflicts.

In 1951, Belgium, France, West Germany, Luxembourg, the Netherlands, and Italy created the European Coal and Steel Community (ECSC), an agreement to jointly manage coal and steel resources, which was crucial for the industry and for helping stabilize Europe after the war.

In 1957, the same six countries, established the European Economic Community (EEC), with the aim of creating a common market and removing trade barriers. This treaty was an important step in deepening cooperation and economic integration in Europe. Thanks to this treaty, new common policies were developed. A single market without borders or barriers was created for goods, people, capital and services, which led to the flourishing of cross-border trade. This made conflicts between neighboring countries unthinkable and brought prosperity and opportunities, to millions of Europeans like never before. The adoption of these four fundamental freedoms, significantly boosted the European economy, leading to the creation of the largest trading bloc in the world. The common agricultural policy was also adopted, during a time when Europe was still deeply familiar with rationing and hunger. It was known that food was the dividing line, between life and death, health and disease.

In 1973, the first expansion took place when Denmark, Ireland, and the United Kingdom joined the European Economic Community, expanding it and including more countries from Western Europe.

The Maastricht Treaty, signed in 1992, established the European Union (EU), as we know it today, creating a deeper union, not only economically but also politically. This treaty introduced the concept of a common currency (the euro) and laid the foundation for a common foreign and security policy. It also established the pillars of the EU, including cooperation in justice and home affairs.

Euro banknotes and coins were introduced for the first time in 12 European countries on January 1, 2002. Some of the member states replaced their national currencies with the European currency. As of 2025, 20 out of the 27 European Union member states use the euro as their official currency. These countries are collectively known as the Eurozone. The goal of the euro was to make life easier by using the same currency for work and business across the Eurozone. The euro's strong international role also aims to protect the European Union's economy and financial system from currency exchange shocks, reduce dependence on other currencies, and ensure lower costs for businesses in EU countries. The euro is now the second most important currency in the world after the US dollar. Looking to the future, the idea of a digital euro is being discussed.

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After the fall of the Berlin Wall and the end of the Cold War, many countries in Central and Eastern Europe sought to join the EU. In 2004, 10 new countries (Poland, Czech Republic, Hungary, Slovakia, Slovenia, Latvia, Lithuania, Estonia, Malta, and Cyprus) joined the EU, increasing its membership to 25 states. This was a significant step toward the full integration of Eastern Europe.

The Lisbon Treaty, signed in 2007, made significant reforms to improve the functioning of the EU, making it more efficient in decision-making and enhancing the role of the European Parliament. This treaty also strengthened the Union's position as a global actor.

In 2016, the United Kingdom held a referendum and decided to leave the EU (Brexit). After a lengthy period of negotiations, the United Kingdom finally left the European Union on January 31, 2020.

Onwards, the EU faced a series of challenges, including the global pandemic, economic crises, and internal political challenges. However, the EU has managed to maintain its unity and has helped member states, cope with the consequences of the health and economic crisis through various mechanisms, including recovery funds.

ALBANIA'S JOURNEY TOWARD THE EUROPIAN UNION

After the fall of the communist regime in 1991, Albania began to engage in the policy of opening up and integrating into international structures, including the European Union. The country's relations with the European Union, based on the national goal of EU integration, are strategic and a priority of it's foreign policy. Albania's primary interest in relation to the EU, is future membership. In 1991, Albania established diplomatic relations with the European Community. In 1992, Albania sought to join the Council of Europe and applied for integration into Europe's economic structures. In 2000, Albania signed the Stabilization and Association Agreement (SAA) with the European Union, an important step that paved the way for deeper relations and reform efforts. The SAA was an agreement that established a framework for the creation of a common market and close cooperation in many areas, such as the economy, trade, human rights, and the rule of law.

In 2003, the Thessaloniki Summit of EU leaders endorsed the Stabilization and Association process, thereby confirming the prospect of EU membership for the countries of the Western Balkans, including Albania. On June 12, 2006, the negotiations on the Stabilization and Association Agreement with Albania were concluded, and it was signed at the General Affairs Council (GAC) in Luxembourg. In 2006, Albania was granted the status of a potential candidate country for EU membership, indicating that the country had made significant progress towards integration.

On April 1, 2009, the SAA entered into force. Also, on April 1, 2009, Albania became a full member of NATO. In the same month, Albania officially applied for EU membership. In November 2009, based on the questionnaire delivered by the European Commission to Albania, regarding the country's preparedness for membership, negotiations began for granting Albania the status of a candidate country. Thus, from January 1, 2011, Albanians enjoyed the right to free movement in the member states of the European Union.

After several years of continuous efforts and reforms, on June 23, 2014, the European Council granted Albania the status of a candidate country for EU membership, a pivotal moment in the integration process. This status was a major achievement, as it indicated that Albania had met a significant part of the conditions required to begin accession negotiations.

After receiving candidate status, Albania began accession negotiations, which included a series of deep reforms and improvements in various areas, including the fight against corruption, strengthening democratic institutions and improving human rights.

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One of the significant achievements was the adoption of a deep reform in the justice system (vetting), aimed at strengthening the independence of the judiciary and combating corruption. The justice reform was one of the key conditions for the opening of accession negotiations.

The Council identified five key priorities (public administration, rule of law, fight against corruption, organized crime, and fundamental rights), that Albania had to meet before the start of membership negotiations.

On November 9, 2016, based on progress in these key priorities, the European Commission for the first time proposed to the Council to begin accession negotiations with Albania, contingent on concrete progress in implementing the justice reform, particularly the "vetting" process of judges and prosecutors.

On April 17, 2018, in its annual Enlargement Package, the European Commission recommended the Council to decide the opening of accession negotiations with Albania, in light of the progress made, the preservation and deepening of reforms by Albania. However, these talks were not immediately opened due to concerns raised by some EU member states, regarding progress in the areas of rule of law and the fight against corruption.

On June 26, 2018, the EU General Affairs Council agreed to respond positively to the progress made by Albania and set the path towards the opening of accession negotiations in June 2019.

Finally, after a long period of pressure and efforts, in March 2020, Albania officially began accession negotiations with the EU, taking a step closer to realizing its dream of integration into the European Union.

The opening of the accession negotiations was a pivotal moment, followed by a lengthy and challenging negotiation process, where Albania must meet a series of conditions and standards set by the European Union.

DISCUSSION

Accession negotiations are at the heart of this process. They involve the candidate country's commitment, to fully align its legislation with the EU acquis, implement it and carry out other legal, political, economic, administrative and other reforms, to meet the membership criteria.

The progress of the accession negotiation process to the European Union includes several key criteria:

Political Criteria: Ensuring institutions that guarantee democracy, the rule of law, human rights and the protection of minorities.

Economic Criteria: Ensuring a functioning market economy, capable of withstanding competition within the EU market.

Administrative and Institutional Capacity: Ensuring the capacity to implement EU legislation (acquis) and meet the obligations arising from membership.

Another important criterion for membership is the EU's ability to absorb new members. The European Commission regularly monitors the fulfillment of these criteria, while the accession process goes through several key stages, until the candidate country is deemed fully capable of joining the Union.

Meeting the membership criteria leads to the comprehensive political, social and economic development of the country. Negotiations take place in intergovernmental conferences, between ministers and ambassadors of the governments of EU member states and those of the candidate country. The candidate country does not negotiate on the EU legislation itself (the acquis and Union standards), but on the modalities of aligning with and effectively implementing it.

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The accession negotiations go through three main stages:

The Analytical Review of Legislation (Screening): This involves a thorough examination of the candidate country's existing laws and regulations, to assess their alignment with EU standards.

Opening and Development of Negotiations for Each Acquis Chapter: In this phase, discussions focus on how the country can align its legislation and practices with the EU acquis, for each specific chapter.

Closing of Negotiations for Each Chapter and Signing of the Accession Treaty: Once all the chapters are successfully negotiated and the country has met the necessary conditions, the final step is the signing of the Accession Treaty.

The development of accession negotiations is an undertaking that requires the full commitment of all state institutions, the involvement of civil society, the business community, academia and continuous information for citizens. Albania's integration into the European Union (EU) is a strategic process, that influences the transformation of the country from a transitional economy, to a modern and integrated one. This process brings with it a range of tangible positive effects for the Albanian economy, helping not only the economic growth but also its long-term stability.

The EU integration process encourages structural reforms, strengthens institutions and enhances governance, all of which contribute to a more stable and competitive economic environment. Through aligning with EU standards, Albania will benefit from improved infrastructure, a more attractive investment climate and increased trade opportunities, ultimately leading to sustained economic development. Some of key positive impacts may be in these areas:

Increase in Foreign Direct Investments: One of the most noticeable effects of integration, is the increase in foreign direct investments (FDI). By aligning national legislation with EU standards, a more favorable and secure environment is created for foreign businesses. The political and economic stability that accompanies the integration process, strengthens investor confidence, leading to the establishment of new businesses and the creation of jobs. These investments also contribute to the transfer of technology and knowledge, aiding in the modernization of key sectors of the Albanian economy.

Expansion of Export Opportunities: Integration into the EU's free market, opens up tremendous opportunities for Albanian exporters. With the removal of customs tariffs and restrictive regulations, Albanian products can compete in European markets on equal terms. This not only increases export revenues but also encourages local businesses to improve the quality of their products and services. The agribusiness and manufacturing sectors, will benefit significantly from access to EU markets, thereby substantially increasing their contribution to the country's GDP.

EU Funds and Infrastructure Development: A key aspect of integration is benefiting from the EU's structural funds and development programs. These financial resources provide opportunities to implement large-scale infrastructure projects, such as improving roads, building modern energy systems, and enhancing capacities in the transport sector. These investments, directly impact economic development by reducing operational costs for businesses and increasing competitiveness.

Modernization of the Public Sector and Increased Efficiency: The integration process is accompanied by deep reforms in the public sector, aimed at strengthening good governance, combating corruption and increasing transparency. This helps create a more favorable environment for businesses and enhances citizens' trust in public institutions. A more efficient public administration, positively impacts economic development and the provision of quality services to citizens.

Growth of Tourism: Tourism is one of the sectors that can benefit the most from integration. Through infrastructure development and the improvement of service standards, Albania can become a major destination for European tourists. EU membership also creates opportunities to promote the country's tourist destinations and increase revenues from this sector. Already Albania has become an attraction

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for tourists all over the world, making tourism the fastest growing branch of the economy and the main promoter of growth.

Development of Human Resources: EU integration stimulates the development of human resources, through educational programs and academic exchanges such as Erasmus+. This not only improves the quality of education and the professional skills of the Albanian workforce, but also creates a new generation of professionals capable of facing the challenges of the global market.

Economic and Financial Stability: EU membership is synonymous with economic and financial stability. The alignment of monetary and fiscal policies with those of the EU, reduces the risk of economic uncertainty, enabling more sustainable development. Macroeconomic stability is a key factor, influencing the long-term growth of the economy and the improvement of citizens' quality of life.

Meanwhile, in Albania, there is a generally positive attitude towards European Union integration, from both the population and businesses. A study undertaken as part of the project "Support for EU Accession Negotiations in the Economic Chapters of European Legislation" (SANECA), funded by the German Government and implemented by GIZ through the Albanian Center for Competitiveness and International Trade (ACIT), sheds light on some of the most critical issues related to business and EU accession.

According to the study: 43% of businesses are uncertain whether they can afford the costs of EU membership, 19% of businesses are convinced they will not be able to bear the costs and only 38% believe they will be able to manage the costs.

Preparation Time for EU Membership: 59% of businesses believe that it will take 4-7 years, while 26% think it will take more than 8 years.

Perception of Long-Term Benefits: 45% of businesses are confident that long-term benefits will outweigh the costs, 38% are uncertain, and 17% believe that the benefits will not exceed the costs.

Timeline for EU Membership: 48% think membership will occur by 2030, 25% by 2040, and 27% believe it will happen later or never.

Key Challenges Identified: Weak institutions (34%), political culture (32%), weak economy (30%), and discrimination (4%).

Sectors Expected to Benefit the Most: Tourism (33%), agriculture (31%), industrial production (28%), and services (8%).

Main Anticipated Benefits: Legal protection (34%), export growth (31%), improved product quality (24%), and reduced production costs (11%).

Main Costs of Membership: Alignment with EU regulations (47%), Competition with European products (28%), Investment in new technologies (16%).

However, Albania's path to EU membership is a long and complex journey, facing numerous obstacles related to both internal challenges and the external dynamics of the EU. This process has encountered delays and many challenges for several key reasons.

Corruption and the Lack of Rule of Law: One of the main obstacles hindering Albania's progress towards integration, is high corruption and the lack of effective rule of law. The independence of the justice system remains a concern, even though there have been advancements in judicial reform. The EU demands guarantees, that Albanian institutions are capable of fighting corruption at all levels and ensuring the proper functioning of the rule of law. Corruption remains a deep-seated problem in Albania, preventing transparency, the development of strong institutions and the implementation of laws. The absence of a robust rule of law, makes it more difficult to meet the EU's reform requirements.

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Organized Crime: Organized crime is another major challenge. Albania has often been criticized for its role as a source or transit country for illegal activities, such as drug trafficking and human trafficking. The fight against organized crime is a key priority for the EU and represents one of the main integration criteria. Organized crime remains a challenge for security and order, hindering the creation of a favorable environment for investment and sustainable development. It also impacts Albania's international image.

Political Polarization and Institutional Stability: Political polarization within the country, has often hindered the adoption of necessary reforms for advancing the integration process. Conflicts between major political parties and the lack of constructive dialogue have delayed progress. The EU has emphasized that institutional stability and political dialogue are essential for a successful integration process. Deep political polarization and inter-party rivalries, have fragmented efforts for reforms and meeting EU requirements, slowing down the integration process.

Public Administration Reform: The efficiency and transparency of the public administration, is another area where Albania needs to make progress. The EU requires a depoliticized, professional public administration, that is capable of implementing EU policies and regulations. The lack of administrative capacity, has often delayed the implementation of necessary reforms. The absence of administrative and policy management capacities, is another obstacle to meeting EU commitments. Public administration reform is essential to ensure efficiency and transparency.

Internal Dynamics of the EU: Beyond the internal challenges of Albania, the dynamics of EU enlargement also play an important role. Some EU member states, have shown skepticism toward further enlargement, focusing more on the internal consolidation of the Union. This often creates delays in the integration process for countries like Albania. Even within the EU, there is ongoing skepticism about further enlargement, particularly after the 2008 financial crisis and the aftermath of the pandemic. Some member states, are concerned about the potential impacts of enlargement on the internal levels of the EU, including issues such as immigration and political and economic balances.

Economic Challenges: The Albanian economy still faces significant challenges, such as the high unemployment rate and the informal economy. These issues affect the country's ability to meet the economic criteria for membership, hindering competitiveness and the sustainability of development. Albania faces major economic challenges, that could be worsened by the demands of aligning with EU standards. Harmonizing with EU standards requires large investments and may increase costs for businesses and consumers. This process demands deep commitment and reforms that are not only legal but also cultural and administrative. To ensure successful integration, Albania must undertake profound reforms, that balance the benefits and challenges of EU membership.

Public Perception and Lack of Information: Another issue related to the integration process, is the lack of public awareness about the benefits and challenges of EU membership. This can reduce public support and create internal political obstacles to the implementation of necessary reforms. The lack of information and transparency about the integration process and the opportunities it offers, can create doubts and uncertainties among citizens and the private sector.

Despite the significant positive effects and the strategic importance of Albania's integration into the European Union, this process may also bring some negative effects for a country like Albania, which could be related to internal changes and adapting to EU standards. Here are some of the challenges that may arise:

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Loss of Sovereignty: EU membership requires the transfer of certain competences, from the national government to EU institutions. This may limit decision-making independence in specific areas, such as trade, monetary policy, and market regulation.

Competition from the Joint Market: Integration into the European Joint Market, may bring increased competition for local businesses. Albanian enterprises, which may not be competitive enough, could face difficulties in surviving in the open market.

Migration of the Workforce: Membership could encourage further emigration of the workforce, especially young people and skilled professionals, to other EU countries. This could lead to a "brain drain" and a shortage of labor force, in key sectors of the Albanian economy. Albania risks becoming even more depopulated compared to other countries in the region. A survey conducted by the Regional Cooperation Council (RCC) on security issues, revealed that Albanians, at a higher rate than the region, had developed plans to leave the country. When asked "I have developed a plan to move," 11% of Albanians responded positively. This was the highest percentage in the region, nearly twice as much as the average in the Balkans.

Increase in Costs to Meet EU Standards: Implementing European regulations and standards, requires significant investments in infrastructure, the environment and other sectors. For example, adapting industries and agriculture, to these standards can be expensive and time-consuming.

Increase in Prices: Adopting EU standards is often accompanied by higher production costs, which may impact prices for consumers. Certain products, especially food items, could become more expensive after membership.

Dependency on EU Funds: Although EU funds are beneficial for the development of infrastructure and the economy, heavy reliance on them could create long-term challenges for financial sustainability and domestic development.

CONCLUSION

Albania has made significant strides on its path toward European Union membership, but there is still much work to be done. After obtaining candidate status in 2014 and opening negotiations in 2020, the country has entered a new phase of this process, which requires further efforts to meet the criteria and ensure EU membership. Meanwhile, this journey presents a great opportunity for improving institutions and developing Albania in the future. The process of Albania's EU integration is complex and filled with challenges, but it remains a strategic and vital goal for the country. To overcome these obstacles, Albania must continue its deep reforms in the rule of law, the fight against corruption and institutional modernization. Only through strong political and societal commitment, can Albania become part of the European family and fully harness its potential. Despite these challenges, EU membership offers significant development opportunities for Albania, as well as prospects for economic and institutional modernization.

Albania's integration into the European Union, is a process with numerous benefits for the Albanian economy and society. Increased investments, expanded exports, modernization of infrastructure and public sectors, human resource development and economic stability, are some of the positive effects this process can bring. In an increasingly competitive global context, EU membership offers Albania, the opportunity to transform its economic potential into a tangible and sustainable reality. However, these opportunities come with some costs, such as the loss of part of its sovereignty, increased competition for local businesses and potential consequences for the workforce, such as the possible emigration of skilled young people.

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The integration process into the European Union represents a great opportunity for Albania, but it also brings challenges that require careful measures to ensure that the benefits outweigh the costs. Good economic and social policies are essential to minimize negative effects and ensure successful integration.

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REEXAMINATION OF THE CAVE OF SEVEN SLEEPERS A UNIQUE CLASSICAL (ROMAN-BYZANTINE) CAVE IN SOUTHERN LEVANT (JORDAN)

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ABSTRACT

The seven sleepers cave is one of the most famous caves in modern history, and it is well known all over the world; many cities claimed that the story took place in a cave on their land. The cave has an interesting story on faith, patience and sacrifice. Most important of all, it is a story that affirms the Creator's ability in the resurrection. Recent archaeological survey, excavations, and documentation at the southeast of Amman the capital of the Hashemite Kingdom of Jordan revealed the presence of new evidence; such as the architecture and artefacts, that proved that this cave has significant importance especially during that period of time ranging from the Early Roman till the Late Byzantine (1st-8th century AD). The interest in this attractive site, however, has increased during the Islamic periods (8th-19th century AD) and continued till now. This cave which is known by locals as Al-Raqeem cave locates within a Byzantium site that consists of a square shape Byzantium building 10×10 m, and has been excavated in the year 1963. The excavation of the cave started by digging the inner parts of the cave. The excavation revealed Roman, Byzantium and Islamic Remains.

Keywords: Archaeology, Architecture, Cave, Classical Age, South Levant.

INTRODUCTION:

The cave is located seven kilometres to the south-east of the capital Amman near the road linking Amman and Zarqa' city, known as the "green belt" not far from the towns of Sahab and Muwaqar. The town where the cave is located is now known as Abu Alanda; this area was known as Al Raqeeem in the past. It was linked with Khirbat Al Raqeeem, located one kilometers east of the cave where gravel caves are discovered to the east of the same location that mainly links a hill where Khirbat Al Raqeeem is located. A shallow valley separates the cave from Al Khirba. The features of the valley changed due to widespread roads, new graveyards, buildings and workshops.

LOCATION:

The cave is in the lower part of the big mountain which extends to the east and west. However, it is centred in the mountain, and it is not easy to recognize since the geological structure there prevents the visibility of those coming from the west because it is low and with no features and whoever stands before the cave's door before the building of the mosque in the southern side can see plains extending towards the south which are now known as "Al Juwaidah plains". (Dajani:1964)

The cave is dug in the rocks and one can see the remaining of the rocks in the nearby parts. Caves are spread around the grave in all directions except for the south. The planting of fruitful trees, particularly olives, almonds, pomegranates, and unfruitful trees like tamarisk, and cypress in addition to the planting

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of wheat and barely. These plains are still producing vegetables since the cave is located in Sayf Al Badya area which divides agricultural areas from desert areas.(Glucosek;1965) .



Figure 1: General view of the cave-facel

ARCHAEOLOGICAL WORKS:

The Department of Antiquities conducted a season of field studies, including surveys and excavations to discover the caves and save archaeological remaining from construction and industrial expansion the area has been witnessed since the beginning of the last century when Al Dajani began his excavations in 1962. Besheh in 1973, Thubyan in the year 1978, and Waheeb in 1992/1993 carried a field study in the area in eastern Amman continued in 1995, to prove from scientific facts and linked with religious events in the region, and to identify the main archaeological remaining which remains in the area.

The outcome of the survey affirmed the importance of the area and discovered scores of important sites which are dated back to the Stone Age and until the late Islamic era which points to the importance of staying in this part of the eastern areas .

During the survey between the years 1995-1997, a detailed field study was conducted on the area of Al Raqem cave and its archaeological and technical remaining. Among the sites the excavations took place in was Khirbat Al Raqem site near the cave and the main goals were:

-The story included a comprehensive assessment of the cave conducted by the author, it included the two mosques, the remains of the cave and the function of all these remains.

1. Saving the Khirbah from demolition because of construction and agricultural activities in the region.
2. Documenting the construction of remaining on the surface by drawing and taking photographs.
3. Carrying out an intensified study of the historic eras in Al Khirba and comparing them with their counterparts in the area of Al Raqem cave to link the historic events with historic sites by defining the track of the youth's trip through the plains in the area towards Amman (Philadelphia) and following the roads and passages used by them.
4. Developing the site to be used for religious tourism goals in eastern Amman. The outcome of the fieldwork was promising since excavations affirmed that historic eras in Al Raqem cave and Khirbat Al Raqem were similar which points to the fact that the site is linked with the cave since there is a relation between those who use the cave and residents of Al Khirbah during the classical and Islamic

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ages. Khirbat Al Raqem is a historic village established in the area for agricultural settling causes linked with breeding animals through utilizing the plains extending around Al Khirba and it was also used for convoys moving from the north and west to the 60 south and east towards the desert castles and the Badya.

(1) The study conducted by the composer included an overall evaluation of all the elements of the cave, i.e. by studying the cave, its rooms and their functions as well as Al Fajwa, he graves inner divisions, writings, inscriptions and wall decorations (Biber:1981) . The study also included archaeological remaining that were established above and around the cave like the Byzantium cell, the upper and lower Umayyad Mosque, caves surrounding the cave as well as the area as a whole and therefore a book on the construction of Al Raqem cave during the Roman, Byzantium and Islamic ages will be issued soon.

The discovery of the cave:

Excavations in the area of Al Raqem cave began in the year 1963 , when the late Rafiq Al Dajani and several Jordanian high-profile figures⁵¹ realized the importance of bringing the discovery out to light for the benefit of believers and supporting religious and historic pieces of evidence, that the cave is on Jordanian land, particularly statements by travellers, 70- For example, plate former general director of antiquities, Dr Awni Dajani and director of Islamic science association Mr Mohammad Tayseer Thibyan and Director of Field M.r Rafiq Al Dajani. (Dajani:1964) see also (Dhibyan: 1978) .

Historians and interpreters in addition to archaeological pieces of evidence and discovering the site and thereby the scientific cycle and importance of the site across the ages would be completed.

Al Raqem cave was known to residents in nearby areas⁷¹. They mentioned it gave it maximum care and used the area surrounding it to bury the dead from here, there was official concern about focusing on the site and facilitating the movement of its visitors and such efforts were successful since excavations directly began in the cave's upper part which was affected by rain, mudslides and the movement of parts from one place to another, particularly limestone and the excavations began to discover parts of the cave. (Figerson:1975)

THE BYZANTINE SITE:

A squared shape Byzantium building 10*10 m was built directly above the cave and the ceiling is centered on several columns and only four of them were discovered. There might be a dome, and scholars said the building is of the Helene style which was used for prayers. 71-Specealy Al Hlneti and Al Shawabkeh tribes are the earlier stalled people in the area, they worked in agricultural activities especially raising animals using water resources and keeping the cave from destruction.

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Figure 2: General View of Byzantine Chapel Remains.

The matter that points to the fact that the Byzantium building comes before the building of mosques is that the southern wall of the Byzantium building had some amendments that included the construction of a mosque's mihrab that extends towards the south after transforming the building into a mosque for prayers. Results showed that the land the building was constructed on is a rocky land that was cut into a mastaba, particularly in the northern parts. There is a hole in the middle of the building and to the east there is a door that when opened shows the ground that is paved with stones and probably this part is linked with the four-square building.

The remaining of canal coming out of the building's northern wall was also discovered and stones were constructed on its northern parts to protect it from land erosion which could lead to its blockade because of the area's inclination. Probably, this discovery found above the cave is among archaeological discoveries that were mentioned in verses from Qur'an that speak about believers who built the cave for prayers and when the youth were discovered after they woke up and one of them went to buy food and as he came back to the cave with the King and a large group of people from (Philadelphia) Amman.

THE UPPER MOSQUE:

The building discovered goes back to the Byzantine period, i.e. the period between the 5th and 6th centuries. Muslims and after the cell were destroyed constructed a mihrab directed towards the south... in the building's southern wall and at the same time kept the walls and other parts of the building. They also changed the eastern part of the building where there is a floored yard. The scholar affirms that a minaret was constructed in this part of the building to serve the mosque and entry to it from the eastern side in this stage. Eventually, this part that is located directly above the cave provided a source of relaxation for worshippers who wanted to hold prayers in this holy place, since the youth entered the cave in the Roman age, and they were holding prayers.

I mention the head of Antiquities Dr. Awni al-Dajani the head of the Human Sciences Society Mr. Mohammad Tayer Thobyan and the head of the cave discovery project Dr. Rafiq Al Dajani⁷³.

⁷³ Particularly Al Huneiti and Al Shawabkeh tribes who are the oldest tribes who lived in the area and worked in planting, breeding animals, utilizing water resources and preserving Al Raqem cave. ⁶⁷ The Byzantium continued to do so until the Islamic era when a mosque was built in the Umayyad period.

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Figure 3: Overview of the Upper Mosque(Former Church)

THE LOWER MOSQUE:

The scholar applied the method of experimental trenches to carry out excavations in front of the cave's door to get comprehensive results on the importance of the part to be discovered. He cleaned the cave's front yard from the remaining stones and then used the method of vertical and horizontal digging. Archaeological discoveries were found by studying archaeological layers and their composition.

It became clear that buildings were constructed in the cave's yard in front of its southern part which points out that there were several eras. 69



Figure 4: The Courtyard in Front of the Cave (Waheeb:2022)

THE FAJWA:

A hole was discovered in the eastern wall of the northern part of the cave. It vertically extends towards the Byzantium cell and the upper mosque which are located directly above the cave. It was mentioned when we spoke about the Byzantium building above the cave and according to the scholars, it is four meters high and measures 60*40 cm. Some historians said the hole was probably used as an exit from the cave. A rocky cover was used to close the hole from the inside. It has several small holes to facilitate the movement of air inside the cave...

The scholar began cleaning the inner yard of the cave which was plenty of dust and rocks that were used for the burial of the dead in old and modern ages. The cave is divided the inside with a rocky bow built with decorated stones. The scholar said it goes back to the Roman age. The entry to the cave was by three wide steps cut into the rock and one would enter the square yard which has on its two sides, a room split with rocks and has tunnel. Each side has four graves, 74 three of them are coffins built in the rocks

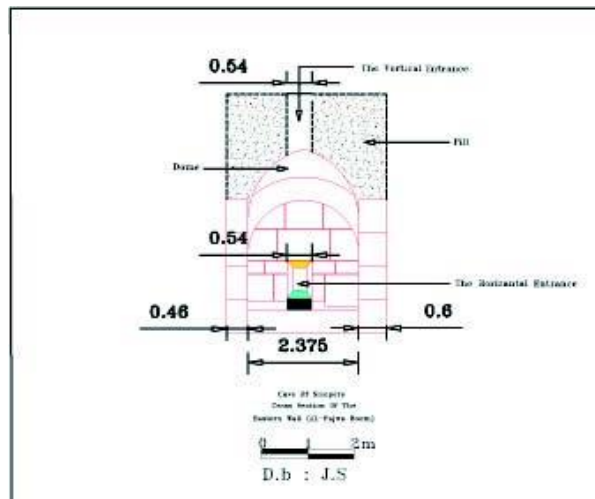
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and the fourth grave is located between them and since it is not built in the rocks its front part was built from trimmed stones (recently one can see three graves on each side).

On the western side of the yard, there is a room similar to the eastern one regarding the graves and the sculpturing inside the eastern room is not precise when compared to that in the western room is accurate and organized despite the fact that the plaster that followed changed the inner decorations.

Inside the coffins, eight human skulls were found. Roman, Byzantium, and Islamic coins were also detected which means that the cave was used in different ages. The eastern sides of the coffins were decorated with an octagonal star with Greek and Kuffi handwriting inside and around them; the second coffin was decorated with circles and curves. As for the Western coffins, they were decorated with wreaths of flowers and plants and in each wreath, there was a rose in the middle.(Patricha:1990,Parr:1957)

The scholar points out that the vault in the middle of the cave that divides the northern and southern rooms goes back to the Roman age and it is decorated with dates and eggs, the type of decoration used in the Roman time, i.e. the first and second centuries. This type of decoration was found in Roman buildings in Philadelphia (Amman).



The scholar said that these decorations date back to the time when the cave's companions lived, the Roman age. Side view showing the facade of the cave as we the newly built Mosque 76

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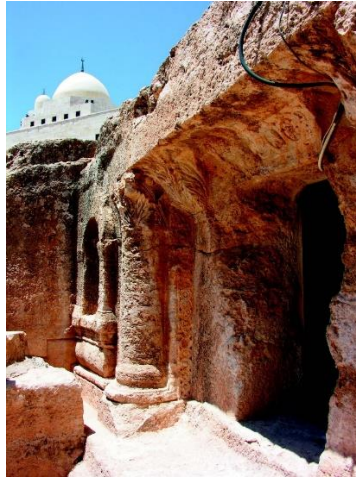


Figure 6: The Main Entrance of the Cave & the Modern Development (Waheeb:2023)

ARCHITECTURE:

In addition to what was mentioned above, Al Raqem cave had different extra architectural and technical things, especially those related to the painting that was used as a means of decoration, by using symbols and religious indications, in addition to drawings and writings of several languages that almost covered sculptured decorations. Among the drawings, there was that of a dog and it was found in the western room. Surrounding the dog were writings and symbols written in the Greek inscription and they were painted in dark red. This leads to the fact that the dog that accompanied the youth to the cave in addition to the dog's jaw that was found in the cave.

As for the cave's front door, the sculptors cut out two Corinthian columns on the door. Each column had thorns made of leaves and were carved with high proficiency, especially in using Akantos leaves and palm trees. As for the doorstep of the upper gate, it was decorated with five circles and some of them carried the cross. The gate's frame was also decorated with circles in different shapes and types which shows how precisely the cave's door was decorated. Two curves were also found in the entrance that might be of use also.

Al Raqem cave still has those decorations and buildings under the plaster layer and some of them disappeared because of additions since each side tried to have its taste in this holy place, taking into consideration that such work comes in the framework of worshipping

Conclusion

Apparently the cave was used in different ages and reached the high peak during the Byzantine Period from fourth to seventh century AD; the architectural remains inside and outside the cave represent a unique architecture as well as the different recovery artifacts, also the article discusses the touristic development plan of the site and the surrounding zone. In addition to what was mentioned above, the cave had different extra architectural and art features (Janson:1971), especially those related to the painting that was used as a means of decoration, using symbols and religious indications, in addition to some painted and engraved inscriptions of several old languages that almost covered the plaster layers. Among the paintings, there was one for a dog and it was found in the western room. Surrounding the dogs were inscriptions and symbols written in the Greek script and they were painted in dark - red. This

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may provide strong evidence on the fact that the youths in the cave were accompanied by a dog, and this can also be supported with the dog's jaw that was found in the cave.

The cave was not a natural cave but hewn out of the rock by human hands as man-made one, later during the Byzantine period it was enlarged. A small shaft in the eastern wall was of the semi-domed room built but not cut into the ceiling _ almost like a chimney _ linked the cave to the area above and outside.

It is logically to assume that the cave was dug during Roman & Byzantine Age, but before Islamic periods. At one point, after reexamination of the old excavations debris we had found several colored mosaic fragments mixed with quantities of pottery sherds that seemed to be of Byzantine Age date, in close areas such as the tow Quweismeh Byzantine churches and settlement situated 1 km to the western area of the cave. This research revealed the original shape of the cave structure and the presence of new data gained through continuous field investigations of the site and the surrounding area.

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CRIMINOLOGICAL ASPECTS OF CORRUPTION CRIMINAL ACTS

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ABSTRACT

Every society in the world faces corruption and its negative consequences in every aspect. Of course, some countries have this phenomenon more widespread compared to other countries, but it still remains a phenomenon that must be fought by everyone with all their forces. Corruption criminal acts pose a complex challenge due to their multifaceted nature, deeply rooted causes, and far-reaching consequences. Analyzing these acts from a criminological perspective allows for a deeper understanding of their occurrence, persistence, and impact, as well as the strategies necessary for their prevention and mitigation. The criminological analysis of corruption reveals its deeply rooted and multifaceted nature, making it a challenging crime to address.

What is positive in this aspect is that analyzing this process in all its dimensions makes it possible to understand the roots of the problem as a whole. The deeper we go into this comprehensive phenomenon, the more effective would be the forms of intervention, reduction and elimination of corruption.

However, understanding its causes and dynamics through criminological theories provides a foundation for developing targeted interventions. By strengthening institutions, enforcing laws, promoting transparency, and fostering international cooperation, societies can effectively combat corruption and mitigate its detrimental effects. This requires a unified effort at all levels—individual, institutional, and global—to create a more just and equitable world.

The study of corruption from a criminological perspective is important, considering that criminology makes a very important contribution to criminal law and future public policy, by revealing the factors that cause corrupt criminal behavior, which is the basis for criminal policy, political policy in the process of preventing and fighting this phenomenon.

This article explores the criminological dimensions of corruption, examining its nature, causes, and societal impact while addressing strategies for combating it. Understanding corruption, its nature, which in fact is becoming more and more dynamic, but also its practical aspect, helps in giving the necessary recommendations to improve the situation of society as a whole. This study contributes to supporting the development of other quantitative and qualitative studies and addressing the findings of the study, institutions and drafters of legal and public policies.

Key words: corruption, criminal acts, societal impact.

1. Introduction

Corruption in the world is one of the most dangerous social factors. It negatively affects the formation of modern democracies, complicates the process of guaranteeing the rights and freedoms of a person and a citizen, and does not allow any state of law to form such a level of State policy regarding the provision of all benefits to its own citizens, which will allow them not only to possess, but also to realize all rights and freedoms.

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At the same time, it should be noted that under modern conditions, a significant share of legal relations and the possible successful provision of human and civil rights and liberties in a certain sector of socio-legal relations can be realized only through criminological measures and means.¹⁵

As a discipline, criminology has a history of debating the usefulness and limitations of crime data and the problematic nature of recording crime and thus its measurement. Coleman and Moynihan (1996) explain how crime is recorded and also why crime statistics substantially under-record crime. Criminology of Corruption Regardless of the criminal justice system—adversarial or prosecutorial—similar issues arise, such as no confidence in the police, lack of trust in the police, no insurance, committing a crime whilst victimized, or items stolen of little personal value.

There is criminology literature on the problem(s) of recording ‘hidden crimes. Corruption, whilst different in that it is predominantly, but not always, a non-violent crime, is similar in that it is ‘hidden’ and therefore difficult to assess the amount of it that occurs and also the number of victims of such acts.

In this context, criminologists place corruption within the scope of types of crime that occur in organizational contexts. Therefore, it makes sense to explore whether the theories that have been developed to understand these forms of crime also apply to the etiology of corruption. In the context of corporate crime, the company can be an agent that offers bribes in order to achieve corporate goals, for example to get a project, or to obtain government permits. On the passive side, it would be a member of a private organization or public service accepting bribes to benefit themselves, in exchange for services that may not be in the interests of the organization.

Theories about the causes of organized and white-collar crime are often elaborated in general theories of crime. These theories focus on three categories of explanatory variables: motivation, opportunity, and the operationality of social control. According to Coleman¹⁶ Motives are a set of symbolic constructions of some kind of appropriate and desirable goals and activities. Opportunities entail potential courses of action, made possible by a particular setting of social conditions, which have been symbolically adopted by the actor.¹⁷ The operationalization of control is the opposite of opportunity: the enforcement of informal and formal controls, which serve as deterrents to crime. While motivation is a subjective construction of psychological desires, and opportunity and control are rooted in objective social conditions, the variables are inextricably intertwined in a given setting. Motivation is shaped by specific structural opportunities. Opportunity requires symbolic constructions that make psychological behavioral choices available to the perpetrator, while lack of control contributes to the opportunity to commit crime.

This suggests that explanatory variables can be found at several aggregate levels: the level of individual actors and their social interactions, the level of structural organization and organizational culture, and the level of political economy institutions and business regulation.¹⁸

I. Meaning and fundamental characteristics of corruption

Research on the meaning and concept of corruption has attracted enough scholars, jurists, criminologists and sociologists, foreign and domestic, in order to have a real reflection and a certain adequate concept or formulation. According to the etymological meaning of the word, corruption comes from the Latin

¹⁵ Odnolko, I., Niebytov, A., Pohoretskyi, M., Denysenko, G., & Serbyna, N. (2023). Criminological dimension of counteracting corruption crime in Ukraine.

¹⁶ Coleman, J. W. Toward an Integrated Theory of White-Collar Crime, 1987. *American Journal of Sociology* 93(2), p. 409

¹⁷ Shover, N., & Bryant, KM, 1993. Theoretical Explanations of Corporate Crime, in: Blankenship, MB *Understanding Corporate Criminality*. New York: Garland Publishing, p. 144.

¹⁸ Kramer, R.C. & Michalowski, R.J., 2006. *State corporate crime. Worngdoing at the intersection of business and government*. New Brunswick: Rutgers University Press.

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verb “corruptus” (to be broken); while literally it means a broken object. Some others put the emphasis on cooperation and divide the Latin word into two parts: rumpere, which means breakage, and co, which means more than one person, for example, breakage through collaboration.

The definitions for the term “corruption” are numerous. In most cases, the definition of the term is connected to the country where it is used. However, more broadly, “corruption” means the misuse of the position, authority “office” for personal benefits. The “office” is a position of trust where the person concerned has the authority to act on behalf of an institution, whether private, public, etc. “Corruption” means putting an illegal price to a service or “use” of the power of the office to promote dishonest purposes. “Corruption” includes acts when something is ignored not to be done for specific purposes and acts when a commission is received for the act in question.

The concept of corruption varies across countries due to differences in cultural, legal, and economic contexts. However, the fundamental essence of corruption—misuse of power for personal or organizational gain—remains universal.

1. United States:

In the U.S., corruption is largely associated with white-collar crimes, political scandals, and corporate misconduct. The Foreign Corrupt Practices Act (FCPA) defines corruption primarily in the context of bribery involving foreign officials and commercial entities.

2. India:

Corruption in India often manifests as bribery for public services, nepotism, and favoritism. The Prevention of Corruption Act (1988) criminalizes bribery, abuse of power, and misappropriation of public funds, focusing on public sector accountability.

3. China:

In China, corruption is closely tied to state-owned enterprises and government officials. The country defines corruption through acts of bribery, embezzlement, and abuse of power. The anti-corruption campaign led by the Communist Party includes the death penalty for severe corruption cases.

4. Nordic Countries (e.g., Denmark, Sweden):

These countries have some of the lowest corruption rates globally. Corruption is generally seen as a breach of transparency and fairness in public and private institutions. Strict anti-corruption measures are embedded in their legal frameworks, focusing on ensuring government accountability and transparency.

5. African Nations (e.g., Nigeria, South Africa):

Corruption in many African countries is linked to political instability, poor governance, and resource mismanagement. Definitions emphasize the misuse of public funds, patronage, and kleptocracy. For example, in Nigeria, the Economic and Financial Crimes Commission (EFCC) addresses corruption in various sectors.

The examples of corrupt behaviour would include: (a) bribery, (b) extortion, (c) fraud, (d) embezzlement, (e) nepotism, (f) cronyism, (g) appropriation of public assets and property for private use, and (h) influence peddling. In this list of corrupt behaviour, activities such as fraud and

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embezzlement can be undertaken by an official alone and without involvement of a second party. While others such as bribery, extortion and influence peddling involve two parties – the giver and taker in a corrupt deal. The two-party type of corruption can arise under a variety of circumstances. Often mentioned are concerned with the following:

- (i) Government contracts: bribes can influence who gets the contract, the terms of the contract, as well as terms of subcontracts when the project is implemented.
- (ii) Government benefits: bribes can influence the allocation of monetary benefits such as credit subsidies and favoured prices and exchange rates where price controls and multiple exchange rates exist. Bribes can also be important in obtaining licenses and permits to engage in lucrative economic activities such as importing certain goods in high demand and in short supply. Moreover, bribes can be employed to acquire in-kind benefits such as access to privileged schools, subsidized medical care, subsidized housing and real estate, and attractive ownership stakes in enterprises that are being privatized.
- (iii) Government revenue: bribes can be used to reduce the amount of taxes, fees, dues, custom duties, and electricity and other public utility charges collected from business firms and private individuals.
- (iv) Time savings and regulatory avoidance: bribes can speed up the granting of permission, licenses and permits to carry out activities that are perfectly legal. This is the so-called “grease money” to turn the wheels of bureaucracy more smoothly, speedily and hopefully in the right direction. It is also not difficult to think of a really awful situation where rules and regulations, and the way they are applied, are so complex and burdensome that the only way left to get things done is to pay money to avoid them.
- (v) Influencing outcomes of legal and regulatory processes: bribes can be used to provide incentives to regulatory authorities to refrain from taking action, and to look the other way, when private parties engage in activities that are in violation of existing laws, rules and regulations such as those relating to controlling pollution, preventing health hazards, or promoting public safety as in the case of building codes and traffic regulations. Similarly, bribes can be given to favour one party over another in court cases or in other legal and regulatory proceedings¹⁹

II. Basic determinants of corrupt behaviour

During the last decades, corruption became one of the most serious and the most dangerous social phenomena and perception thereof reaches global dimensions. Corrupt behaviour consists in accepting a bribe, giving a bribe or any other behaviour with respect of entities, who have been entrusted with authority in public or private sectors with obligations directly related to their positions and aimed at winning privileges for which there is no legal entitlement.

There are at least two parties involved in corruption offences, creating elements of mutual liability and benefit. Examination, detection, documentation and investigation of corruption offences are specific, different from other types of criminal activities. The difference is, in particular, in the manner of committing the criminal offences, concealment and forms thereof. Unlike other criminal offences, where the injured party is interested in detection of the offence, corruption offences are committed with consent of and benefit for both parties involved.

This specific relationship, in which none of the involved parties are regarded as injured, or the victim of the criminal offence obstructs criminal proceedings led by law enforcement authorities to prevent them from learning about commitment of the criminal offence. A corruption offence exists in a form of specific agreement, which is beneficial for both parties involved. In terms of criminal law, none of the involved parties is injured by the corruption and, therefore, none of the parties involved is interested in

¹⁹ Kiltgaard, Robert, 1998. “International cooperation cooperation against corruption”, IMF/World Bank, Finance and Development, 35(1): 3

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detection of the corrupt behaviour. Infiltration between parties of a corruption relationship is very difficult and, as a rule, it is revealed only if one of the parties becomes dissatisfied with the criminal activities.

Considering comprehensive approach to corruption, the victim is not personified, instead, the whole society is injured. Despite the fact that the theme of corruption is widely discussed, specific expressions of corruption are difficult to prove. Most of corrupt transactions are carried out in secrecy and information which could contribute to revealing corrupt practices are very limited. The disguise and, at the same time, consensual nature of corruption offences, in general, make the process of detection and investigation of those criminal offences even more difficult.

II.I Specific features of corruption offences

Methods of committing corruption offences and concealing methods directly related thereto are specific, different from other types of criminal activities. Corruption offences are committed by knowledgeable persons with decision-making, regulatory or other control authority in specific areas of social activity. Offences are committed in form of a corruption agreement, where each of the participants is interested in a consistent and long-term concealment of the agreement. Various legends of formal nature are used to conceal the true nature of the purpose of the supplies/services provided under those agreements.

Specific methods of committing corruption offences and related methods of concealment reflect the existing high level of latency of corruption offences. Latency of corruption is the reason preventing detection of such criminal offences directly during preparation or committing thereof and not allowing focusing on specific terms and circumstances necessary for identification and detection thereof. All these facts significantly determine and complicate the process of detection of corruption offences, characterized by the necessity of using more offensive methods and specific instruments and measures, different from instruments and measures used for the purpose of detection and proving of other types of criminal offences.

The above-mentioned phenomenon is also closely related to defining the scope of spreading or development phases of various corruption forms in the society. Random and unorganized corruption agreements between mutually unknown entities can, in certain development phase, ripen from a marginal social phenomenon to an economic and political problem. Through development, microsocial factors of corruption become organized, i.e., keep changing and extend their relationship structure. Corruption penetrates the macrosocial level, becoming a complex system of relations of various nature in both national and international aspects. An effort to control the relations and to eliminate their widely spread forms requires a consistent application of legitimate concepts of the criminal law by law enforcement authorities, whose key objective is to guarantee detection and investigation of corruption offences.

Elimination of corruption offences is also determined by subjective factors, such as legal awareness of individuals who are members of the society, their ethical principles, integrity, interest in public issues and willingness to participate in reporting of corruption offences. It is in particular the process of detection and investigation of corruption offences where whistle blowers play an important role. A special treatment of whistle blowers in corruption offences reflects their irreplaceable role in providing substantial information about corruption offences which would otherwise remain concealed, and the offenders would remain unpunished.

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II.II Aspects of Corruption: its roots and consequences

There are many reasons to believe that in a relatively turbulent world, created by radical changes of the post Cold War period, many new opportunities and incentives have been created to cause corruption. Even though, criminal behavior is often associated with individuals, the corrupt behavior is a problem of systems and institutions rather than a problem of individuals. The roots of corruption can be traced through the four categories related to each other. Firstly, there may be situations of monopoly or oligopoly, where a company controls the market. Some public works can be assigned to private subjects and because there are only a small number of subjects that can carry out these services, it creates an environment that favors corruption.

Secondly, individuals or organizations having so much discretionary power, it develops motives and incentives for corruption acts. Anywhere where there is little or no control and balance mechanisms, people will tend to be abusive of their power. Such types of corrupt experiences are met in authoritarian countries, where power is concentrated in the hands of a few people. Another example would be found if there were referred to people with extremely specific skills and knowledge.²⁰

Thirdly, lack of transparency leads to the lack of control of those having the power. The lack of transparency is typical for dictatorial regimes. The same thing happens even if projects require special skills to understand, in which case, most of the people would not understand them and therefore, there would be a lack of transparency.

III: Factors That Promote Corruption: A Comprehensive Analysis

Understanding the factors that promote corruption is essential for designing effective prevention strategies.²¹ These factors can be categorized into individual, organizational, systemic, and socio-economic dimensions.

a. Individual Factors

Corruption often begins with personal motivations and characteristics. The following traits are commonly associated with individuals who engage in corrupt practices:

- **Greed and Opportunism:** Some individuals prioritize personal enrichment and exploit positions of power for financial or material gain.
- **Moral Justification:** Many justify their actions by rationalizing that corruption is a norm or a necessity for survival.
- **Low Risk Perception:** Corruption flourishes when individuals believe that the likelihood of being caught or punished is minimal.
- **Financial Pressure:** Personal economic difficulties, such as debts or a high cost of living, can drive people to corrupt practices to make ends meet.

²⁰ Fink, Hady and Karen Hussmann (2013). «Addressing corruption through sector approaches: exploring lessons from the Moroccan anti-corruption strategy for the health sector», U4 practice insight 2013:2

²¹ Galtung, F. (2005). Measuring the immeasurable, boundaries and functions of macrocorruption indices. In F. Galtung & C. Samford (Eds.), Measuring Corruption. London: Ashgate (forthcoming).

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b. Organizational Factors

Organizations play a critical role in fostering or deterring corruption. Certain organizational weaknesses encourage unethical behavior:

- **Lack of Oversight and Accountability:** Poor supervision and weak internal controls create opportunities for corrupt activities.
- **Inadequate Salaries:** Low wages in the public sector can push employees to supplement their income through bribes or fraud.
- **Weak Leadership:** Leaders who engage in or tolerate corruption set a negative example, fostering a culture of unethical behavior.
- **Unclear Policies and Procedures:** Ambiguity in roles and decision-making processes increases the likelihood of exploitation and manipulation.

c. Systemic Factors

At the societal level, structural weaknesses in governance and institutions create fertile ground for corruption:

- **Weak Legal Frameworks:** Outdated or poorly enforced laws fail to deter corrupt practices.
- **Inefficient Judiciary:** A slow or corrupt judicial system reduces the likelihood of accountability for offenders.
- **Monopolistic Power:** Centralized control over resources or decision-making increases opportunities for abuse.
- **Political Influence:** Politicization of public institutions and favoritism enable corruption at the highest levels.

d. Socio-Economic Factors

Socio-economic conditions also contribute significantly to corruption:

- **Poverty and Inequality:** High levels of poverty and income disparity create incentives for corruption, as individuals may feel they have no alternative to improve their circumstances.
- **Economic Instability:** Recessions, inflation, or financial crises often increase the temptation for corruption as people struggle to secure resources.
- **Resource Dependence:** In resource-rich countries, mismanagement of natural resources often leads to embezzlement and bribery.
- **Shadow Economies:** Informal or unregulated economic activities encourage practices like tax evasion and bribery.²²

e. Cultural and Social Norms

Cultural attitudes and social structures significantly influence corruption levels:

²² World Bank, 1998. World Development Report 1998 (New York, Oxford University Press); table 1, pp. 190-191.

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- **Cultural Acceptance:** In some societies, corruption is normalized or seen as an unavoidable aspect of life.
- **Nepotism and Favoritism:** Societies that prioritize loyalty to family or friends over merit promote corrupt practices.
- **Lack of Civic Engagement:** A disengaged or uninformed public is less likely to hold leaders accountable.

f. Technological and Global Factors

Technological advancements and globalization also impact corruption:

- **Low Transparency:** The absence of digital tools to monitor transactions and decision-making processes enables secrecy.
- **Global Illicit Flows:** Tax havens and unregulated financial systems facilitate corruption and money laundering on a global scale.
- **Foreign Aid Mismanagement:** Weak oversight of international aid often leads to misappropriation of funds in vulnerable countries.

CONCLUSION

The article delves into the essence of combating corruption crime through the lens of criminology, emphasizing its potential to ensure the highest standards in safeguarding human and citizen rights and freedoms within the State. It establishes that corruption crime globally is a profoundly destructive force that necessitates robust countermeasures and prevention strategies. Corruption seeks to infiltrate all aspects of social life, rendering democratic and legal mechanisms—which are fundamental to ensuring a high standard and quality of life—ineffective. Addressing this challenge is highlighted as a key priority of the State apparatus, which, as the primary socio-legal regulator, bears the responsibility of maintaining law and order and protecting the rights and freedoms of individuals.

To enhance the fight against corruption, actionable recommendations are proposed based on successful practices observed in leading democracies. These include:

1. **Strengthening Legal Frameworks and Enforcement Mechanisms:** Implementing stringent anti-corruption laws supported by independent, well-resourced, and transparent enforcement bodies ensures that individuals and entities involved in corruption face accountability. Countries such as Singapore and Denmark have demonstrated the effectiveness of empowering independent anti-corruption agencies to investigate and prosecute without political interference.
2. **Institutional Reform and Capacity Building:** Strengthening institutions such as the judiciary, law enforcement, and public administration minimizes opportunities for corruption. For instance, the establishment of merit-based recruitment and performance monitoring systems, as observed in New Zealand, reduces the potential for favoritism and bribery.
3. **Enhancing Transparency and Open Governance:** Promoting transparency through access to information laws, open contracting, and participatory budgeting can deter corrupt practices. Estonia, for example, has pioneered the use of digital government platforms to ensure public access to information and reduce opportunities for corruption in public services.
4. **Cultural and Ethical Change:** Developing an anti-corruption culture through public education campaigns and fostering ethical leadership is critical. Societies can take inspiration from Finland, where

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integrity and public trust are ingrained in governance through regular training for public officials and civic education.

5. **International Cooperation and Knowledge Sharing:** Corruption is often transnational, requiring collaboration among nations. Sharing best practices, as facilitated by global frameworks like the United Nations Convention Against Corruption (UNCAC) and utilizing peer reviews can enhance collective efforts to combat corruption.

6. **Leveraging Technology and Innovation:** Utilizing technology, such as blockchain for secure transactions or artificial intelligence for detecting anomalies in financial data, can significantly aid in minimizing corruption. Countries like South Korea and Rwanda have successfully employed technology to increase efficiency and accountability in public procurement.

The perspective of further research lies in a comparative analysis of these mechanisms across top-performing democracies to derive context-specific recommendations. By fostering transparency, strengthening institutions, promoting ethical leadership, and leveraging innovative solutions, societies can effectively combat corruption, reducing its prevalence and building a foundation for sustainable development.

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THE IMPACT OF SOCIAL MEDIA USAGE: A PERSPECTIVE FROM THE UNIVERSITY STUDENTS

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ABSTRACT

This paper explores social media usage's impact on university students, focusing on benefits and its effect on mental, emotional, and social dynamics. For that purpose, a questionnaire was administered to 2,715 students from different faculties and academic levels of the University of Tirana, Albania's largest institution of higher education. The results reveal that social media platforms like Instagram, TikTok, Snapchat, and Pinterest have the highest student usage, with significant daily time spent on these platforms. Some benefits students acknowledge to social media are staying informed and maintaining connections. They also accept its potential negative impact, including feelings of depression and isolation.

Overall, the paper's findings emphasize the complex role of social media. On the one hand, it offers numerous opportunities for efficient connectivity, but on the other hand, addiction and its effects on mental health require continued attention, awareness, legislative and institutional regulation.

Keywords: Social Media, Mental Health, University Students, Cyberbullying, Social Dynamics

INTRODUCTION

Social media is a broad term that encompasses a wide range of online platforms and tools that allow users to connect and share content with each other. The history of social media is long and complex, but it can be traced back to the early days of the internet. In the early 2000s, social media began to take off. (Lawson.Ch, 2021, p. 27). In 2003, LinkedIn took a decidedly more serious, sober approach to the social networking phenomenon. MySpace launched in 2003. (Saqib.Sh, 2022). In 2004, Facebook quickly became one of the most popular social media platforms in the world. In 2005, YouTube was launched, and it revolutionized the way people watch and share videos. In 2006, Twitter was launched and became the go-to platform for sharing short updates and news. Social media has had a profound impact on our society. It has changed the way we communicate, the way we consume news, and the way we interact with the world around us. (Lawson.Ch, 2021, p. 27).

Despite its positive effects, social media also has several negative impacts on society.

While platforms such as Facebook, Instagram, and YouTube embedded in ubiquitous smartphones allow consumers to reach friends and access content at incredible ease, evidence from ongoing mental health studies suggests that social media content may be both addictive and, especially for young people, harmful. Platforms use dynamic algorithms designed to personalize content to keep users online, learning from previous user choices to better hone the content and timing of that presentation. (Hsie.A; Morton.F; Rosenquist.J.N; Weinstein.S, 2020) .

Albania does not have a specific law that regulates social media. Anyway, some of the laws that are referred to address problems generated by social media are:

The Criminal Code of the Republic of Albania (Law No. 7895/1995);

The Law on Electronic Communications (No. 9918/2008)

The Law on Protection of Personal Data (No. 9887/2008)

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The Law on Audio and Audiovisual Media Services in the Republic of Albania (No.97/2013)

In recent years, Albania has witnessed an alarming number of fatal incidents of violence and suicides, which had an initial start from bullying on social media platforms. These cases have raised concern about putting specific laws for online platforms in place to protect individuals from digital harm.

One of the earliest and most tragic cases occurred on May 7, 2019, when a 16-year-old girl took her life after enduring intense bullying through mobile messages. Despite being a bright student, she could not cope with the pressures imposed by a peer via social media.

In February 2016, a 21-year-old man from Laçi was killed following a dispute that began firstly on Facebook.

In March 2024, a similar tragedy occurred in Fier, where a 19-year-old was murdered as a result of a "like" on a social media post.

On January 2, 2024, a 41-year-old mother of four in Durrës who was continuously bullied online committed suicide. Her mature age reconfirmed the fact that nobody is immune to the consequences that online bullying can have on mental health. Another case that resurfaced the need for specific laws against online privacy violation and exploitation was the case of a 27-year-old woman in Kamëz whose intimate photos were shared in TikTok, leading her to the extreme act of taking her own life.

In another tragic incident, a 14-year-old boy died after a violent fight between teenagers near a school in Tirana, believed to have been triggered by online interactions.

A month after the tragedy, Albania's prime minister announced the intention to block access to TikTok. TikTok said it is seeking urgent clarifications from the Albanian government about the proposed ban because it had found no evidence the person who allegedly stabbed the 14-year-old boy, or the victim himself, had TikTok accounts. The killing sparked a debate in Albania among parents, psychologists, and educational institutions about the impact of social networks on young people. (Mackintosh. Th, 2024) The case again brought to society's attention the need for more reflection on how to educate the youth and reduce the harmful influences of social media.

Albania's government decision comes after several countries, including Australia, which went further in November 2024, banning social media outright for all youngsters under 16. France, Germany, and Belgium introduced restrictions on children's access to social media. (Blackburn. G, 2024)

The methodology used for this study is based on qualitative and quantitative data. It starts with a literature review, and a questionnaire was also delivered to 2715 students at the University of Tirana.

The University of Tirana is the largest public university in the country. It comprises six faculties and two institutes, has 174 programs in all three study cycles, full-time internal academic staff, 779 lecturers, and about 23551 students. (UT, 2024).

The questionnaire was delivered to the following faculties: the Faculty of Social Sciences, the Faculty of Law, the Faculty of History and Philology, the Institute of European Studies, the Faculty of Economy, the Faculty of Law, and the Faculty of Foreign Languages.

The students who participated in the questionnaire were from the Bachelor and Master levels of studies.

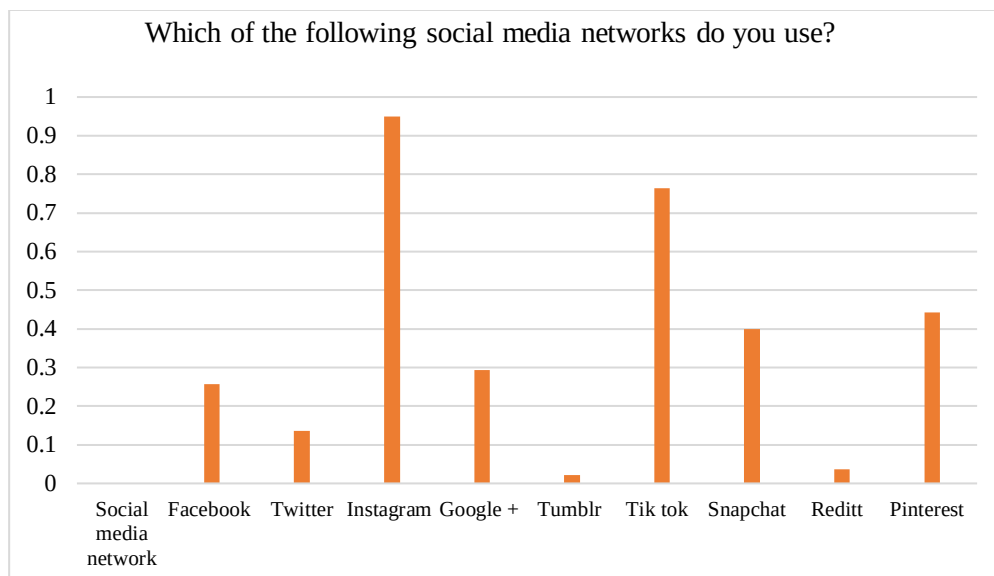
The questionnaire explores various aspects of social media usage, including the main benefits, the time spent daily, and the impact on behavior, emotional, and social factors.

The age group of the students most represented in this questionnaire is 18-25 years.

The questionnaire results revealed that the most widely used platforms by the University of Tirana students are Instagram (95%), TikTok (76.4%), Pinterest (44.3%), and Snapchat (40%). Other platforms, such as Facebook (25.7%), X/Twitter, and Google+ (29.3%), were less frequently used. Platforms like Tumblr (2.1%) and Reddit (3.6%) had minimal usage.

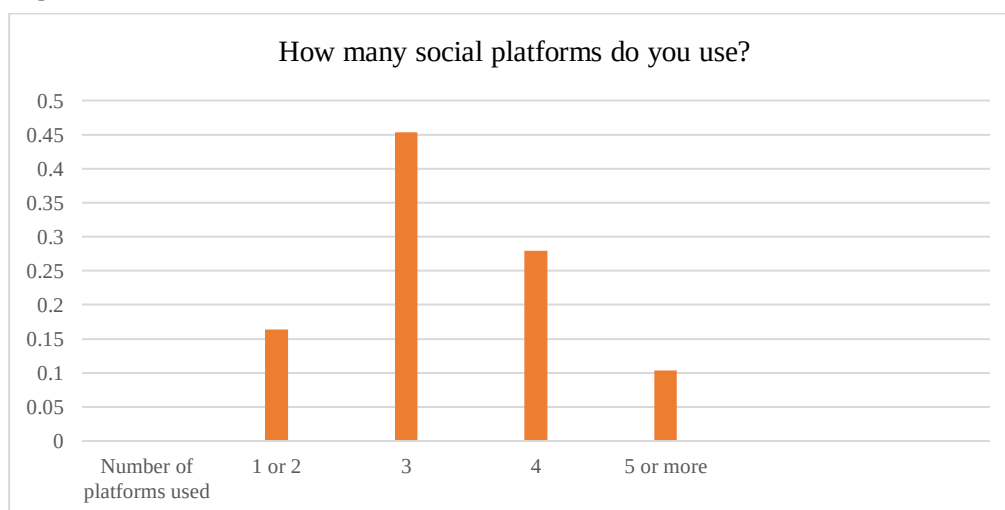
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Figure 1.



The students reported high engagement across multiple platforms; **45.3%** used three platforms, while **27.9%** used four. Only **16.4%** reported using a single platform or two, while **10.4%** used five or more, reflecting the multi-platform nature of social media.

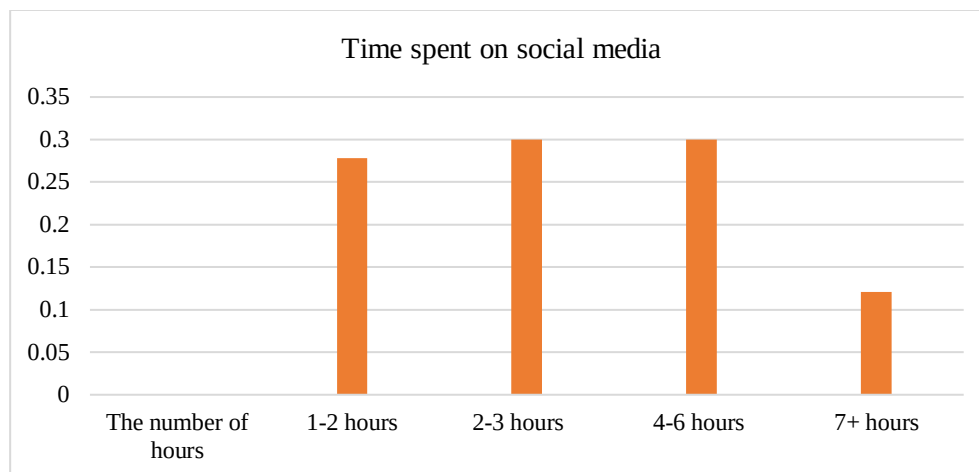
Figure 2



30% of the students reported spending 2-3 hours on social media platforms, 30% spent 4-6 hours on these platforms, and **12.1%** reported using social media for more than **7 hours** daily. Despite this, **73.6%** responded that spending this much time on social media is **unhealthy**. The responses between time spent online and perceptions of its health implications suggest that while social media usage is widely used, most students who participated in this questionnaire acknowledge the need for moderation.

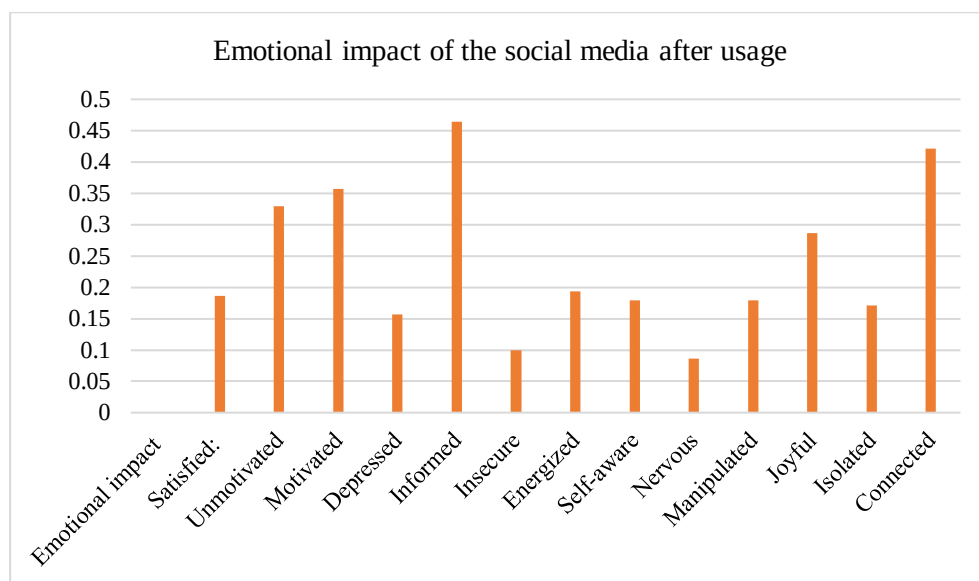
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Figure 3.



Regarding the emotional impact of social media, various feelings were reported following usage. The most common emotions included feeling informed (46.4%) and connected (42.1%). However (32.9%) answered they were unmotivated, and (15.7%) were depressed.

Figure 4.



When asked about the impact of social media on their relationships, 27.1% of respondents indicated that social media had affected their relationships with loved ones, (29.3%) reported that social media had somehow impacted their relationships, while 43.6% said it had no impact.

When asked about the impact social media has on mental health (42.9%) of respondents agreed that social media negatively impacts mental health, with 25% strongly agreeing and (5%) strongly disagreeing, while 24.3% remained unsure. This suggests that the majority of respondents perceive that social has a strong effect on their mental health, consistent with existing literature that links social media use to increased anxiety, depression, and other mental health issues among young adults.

The survey found that 20.7% of respondents had experienced online bullying, with the platforms of Instagram (58.4%) and TikTok (40.6%). Additionally, 23.5% of respondents reported being harassed online through different platforms.

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CONCLUSIONS

The data collected from the questionnaire shows both positive and negative effects of social media on students. Usually, it is used for personal networking, as a source of information, and to connect with others in the fastest and easiest way. Almost half of the students state that social media helps them be informed. Despite these very positive effects, the extensive use of the content also has consequences, especially on emotions, behavior, and the perception of reality. Almost one-third of the students feel unmotivated after accessing social media platforms. The respondents appear to be aware of the potential harms of excessive social media use, but despite these concerns, social media remains an essential tool for many.

The results of the questionnaire illustrate a high level of engagement with social media. Almost half of the students who participated in the questionnaire are on at least three social media platforms. Also, 60% of the students spend from two to three and four to six hours per day on different platforms, which shows their high exposure.

We found that more than half of the students answered that social media has affected or somehow affected their relationships with their loved ones, which shows its social impact on youth.

The respondents revealed that social media may also lead to negative online experiences like cyberbullying and harassment. 20.7% of respondents had experienced online bullying, especially through Instagram and TikTok. A considerable percentage, 23.5% of the students, have also experienced online harassment on social media platforms.

Social media companies commonly design their platforms in a way that renders them addictive. Some governments have declared internet addiction a significant public health concern, and the World Health Organization has characterized excessive internet use as a growing problem. While the benefits of social media are not negligible, we argue that social media addiction raises unique ethical concerns. (Bhargava VR, 2020)

The questionnaire results, including also the statistics of tragic cases originating from social media usage, emphasize the fact that there is an urgent need for concrete laws regulating social media in Albania, cyberbullying, and online harassment. Together with that, as the result of its addictive nature and harmful effects on mental health and social impact, it necessitates more significant institutional capacities, open discussions, and raising awareness among students to ensure user safety and well-being.

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SYNTHESIS OF SILVER NANOPARTICLES FROM *PICHIA KUDRIAVZEVII* JD2 POSTBIOTIC

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ABSTRACT

Nanotechnology can be defined as the science and technology field related to the engineering, production, and use of nanomaterials. While nanoparticles can be synthesized from many metals, silver nanoparticles are among the most preferred due to their versatile structures. Silver nanoparticles (AgNPs) are particles composed of simple silver with a diameter of 1-100 nm, possessing a high specific surface area, surface activity, surface energy, and catalytic performance. AgNPs can be synthesized in various ways, including physical, chemical, and biological methods. Biological green synthesis of AgNPs is more advantageous, environmentally friendly, and sustainable compared to chemical and physical methods due to its low cost, low energy consumption, time saving, mild reaction conditions, and the production of stable nanoparticles with various forms, sizes, high resolution, and stabilization. In this study, AgNPs were synthesized from the postbiotic of *Pichia kudriavzevii* JD2 yeast. The biosynthetic conditions of AgNPs were evaluated by optimizing four main factors: reaction time (6, 24, and 48 hours), AgNO₃ solution concentration (1, 2, 3, 4, and 5 mM), volume ratio of postbiotic to AgNO₃ solution (1:1), and reaction temperature (30 and 37°C). The optimal conditions for AgNPsJD2 synthesis were determined as 1:1 AgNO₃:postbiotic (v/v), 3 mM AgNO₃ concentration, 6 hours reaction time, and 37°C temperature. The absorbance value of the AgNPsJD2 solution was measured using UV-vis spectrophotometry, and an optical density (OD) peak was observed at 450 nm. The surface morphology of AgNPsJD2 was determined to be spherical with a size of 50-100 nm by scanning electron microscopy (SEM) analysis. Since AgNPs with small sizes have stronger biological activities compared to those with large sizes, sucrose (3%, w/v) was used to reduce the particle size, and AgNPs with an average size of 20 nm, monodispersed, and high stabilization were obtained.

Keywords: Silver nanoparticles, *Pichia kudriavzevii*, green synthesis.

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CHATGPT'NİN MODA TASARIMLARINA ETKİSİ: ETİK AÇIDAN BİR DEĞERLENDİRME

THE IMPACT OF CHATGPT ON FASHION DESIGN: AN ETHICAL EVALUATION

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ÖZET

Son yıllarda yapay zeka, moda tasarımı süreçlerinde etkin bir rol oynamaya başlamıştır. OpenAI tarafından geliştirilen ChatGPT gibi dil modelleri, tasarımcılara ilham verme, fikir geliştirme ve yaratıcılık süreçlerini hızlandırma açısından önemli bir kaynak oluşturmıştır. Ancak, bu teknolojinin moda tasarımıyla olan etkileri etik açıdan tartışılmaya değerdir. ChatGPT'nin yaratıcılık süreçlerine katkısı, tasarımcıların özgün fikirler geliştirmesine yardımcı olmasıyla öne çıkmaktadır. Bununla birlikte, yapay zeka destekli tasarımların telif hakkı ihlalleri ve orijinallik sorunları gibi etik problemlere yol açabileceği de göz ardı edilemez.

ChatGPT, tasarımcılara yaratıcılık desteği sunarak sektörde demokratikleşme sağlarken, iş kaybı ve endüstriyel dönüşümlere de neden olabilecek bir teknoloji olarak karşımıza çıkmaktadır. Yapay zekanın kültürel hassasiyetlere yeterince duyarlı olmaması, tasarımlarda yanlış anlamalara ve kültürel özelliklerin ticari amaca uygun olmayan şekilde kullanılmasına yol açabilmektedir.

Bu bildiri, ChatGPT gibi yapay zeka teknolojilerinin moda tasarımıyla katkılarını, yaratıcılık, telif hakkı, iş ahlakı ve sektörel dönüşümler çerçevesinde değerlendirerek ele almaktadır. Teorik tartışmalar ışığında, yapay zekanın moda sektörü üzerindeki etkileri çok yönlü bir bakışa sunulmuş ve sektörün geleceğine yönelik önerilerde bulunulmuştur. Etik açıdan yapay zekanın, hem yaratıcılığın hem de insan emeğinin değerini koruyacak şekilde kullanılması kritik bir öneme sahiptir. Gelecekteki araştırmalar, yapay zekanın yaratıcı endüstrilerdeki rolünü daha derinlemesine inceleyerek bu alandaki etik tartışmaların çerçevesini genişletebilir.

Anahtar Kelimeler: Moda, tasarım, chat-gpt, yapay zeka teknolojisi

ABSTRACT

In recent years, artificial intelligence (AI) has begun to play an active role in fashion design processes. Language models like ChatGPT, developed by OpenAI, serve as a significant resource for designers by providing inspiration, fostering idea development, and accelerating creative processes. However, the ethical implications of this technology's impact on fashion design are worth discussing. ChatGPT stands out for its contributions to creative processes, helping designers develop original ideas. Nevertheless, the potential for AI-assisted designs to raise issues such as copyright infringement and originality cannot be overlooked.

While ChatGPT democratizes the industry by offering creative support to designers, it also emerges as a technology that could lead to job losses and industrial transformations. AI's lack of sufficient sensitivity to cultural nuances may result in misunderstandings in designs and the inappropriate use of cultural elements for commercial purposes.

This proceeding, evaluates the contributions of AI technologies like ChatGPT to fashion design within the framework of creativity, copyright, work ethics, and sectoral transformations. Theoretical discussions, the multifaceted effects of AI on the fashion industry are presented, and recommendations are made for the sector's future. From an ethical perspective, it is critical to use AI in a way that preserves

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the value of both creativity and human labor. Future research can further explore the role of AI in creative industries and broaden the scope of ethical discussions in this field.

Keywords: *Fashion, design, ChatGPT, artificial intelligence technology*

Giriş

Moda endüstrisi, tarih boyunca yaratıcılığın ve yeniliğin merkezinde yer almıştır. Ancak yapay zeka teknolojilerinin gelişimi, bu sektörün dönüşümüne yeni bir boyut kazandırmıştır. ChatGPT gibi dil modelleri, tasarım süreçlerinde hem olumlu hem de olumsuz etkiler yaratma potansiyeline sahiptir. Bu teknolojiler, yaratıcı fikirlerin ortaya çıkarılmasını kolaylaştırırken, aynı zamanda etik sorunlara yol açabilecek kullanım alanları da sunmaktadır. Yapay zekanın yaratıcı endüstrilerdeki artan rolü, sadece teknik bir mesele değil, aynı zamanda sosyal, kültürel ve ekonomik bir dönüşümün habercisidir. Bu çalışma, yapay zekanın moda tasarımlarına olan etkilerini etik boyutlarıyla ele almayı amaçlamaktadır. Teknolojik büyüme ve global etkileşimin hızı ile birlikte ülkelerde, toplumda ve ekonomide önemli değişiklikler olmuştur. Yapay zeka alanı, son yıllarda Open AI'nın Chatgpt'si gibi yenilikçi teknolojilerin geliştirilmesi ile önemli ilerlemeler kaydetmiştir. Son teknoloji bir dil modelidir ve eğitim alanında büyük bir değişiklik yaratma potansiyeline sahiptir. Chatgpt'nin eğitim ortamlarında uygulanması yaygınlaştıkça, sorumluluk ve etik ilkelerin riski de artmaktadır.

Chat-GPT Nedir?

OpenAI tarafından geliştirilen ve diyalog konusunda uzmanlaşmış bir prototip yapay zekâ sohbet robotudur.

İnsan konuşmasını taklit etmekten çok daha fazlasını yapabilen bir sohbet robotudur. Müzik, şiir, video oyunları, peri masalları, bilgisayar programları ve öğrenci kompozisyonları yazabilirsiniz. Sınavlara girebilir, şarkı sözü yazabilir, Linux sistemlerini taklit edebilir, oyun oynayabilir, sohbet odalarını simüle edebilir, ATM simüle edebilir ve daha fazlasını yapabilirsiniz. Eğitim bilgileri programlama dilleri ile internet hakkında bilgiler içerir. Chatgpt, karşı gerçek istekleri kabul ederek ve sakıncalı olabilecek çıktıları filtreleyerek yanıltıcı ve zararlı yanıtları azaltmayı amaçlar. Önceki yönlendirmeleri hatırlar ve bireysel bir terapist olarak kullanılabilir (Url-1)

ChatGPT'nin Özellikleri

1. Doğal Konuşma İşleme: Doğal yanıtlar sağlamaya ve kullanıcıların yazdıklarının biçimini ve tarzını anlamaya odaklanır.
2. Uyarlanabilirlik: Talep ve yanıtlarını ihtiyaçlarına ve konuşmanın ilerleyişine göre özelleştirebilir.
3. Tutarlılık: Konuşmanın içeriğine uyumlu ve tutarlı cevaplar üreterek daha etkileşimli bir sohbet sağlar.
4. İnsan Benzeri Yanıtlar: Temel özelliklerinden biri, doğal yanıtlar oluşturmada GPT dil modelini kullanarak, kişilerle iletişim kurmasını kolaylaştırmasıdır.
5. Özelleştirme: Farklı kullanıcılar ve kuruluşlara karşılık verebilecek şekilde sohbet düzenlemesi yapılabilir (Url-2)

Etik Açısından ChatGPT

Chatgpt ile oluşturulan akademik makaleler ve Dil modellerini yazar olarak kabul eden akademik makaleler vardır, ancak dil modelleri, kullanılarak oluşturulan içeriklerle ilgili net bir ortak fikre varılamamıştır. Bilimsel yayın kuruluşlarından Science, Chatgpt'yi yazar olarak kabul etmediğini ve dil modelleri kullanılarak oluşturulan içerikleri yada yapay zekâ ile yapılan yazı, şekil, resim gibi herhangi

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bir şeyi kabul ettiğini, intihal olarak gördüğünü belirtmiştir. Bu yönergelerin ihlali halinde, tıpkı mevcut araştırmaların intihali olduğu gibi bilimsel suiistimal olarak göreceğini bildirmiştir. Yapay zeka ile oluşturulan meşru veri setleri bu kararın dışında tutulmuştur. Bu konu eğitim ve akademik çevrelerde bir süre daha tartışılmaya devam edecek denilebilir. (Golgiyaz, S. (2023).

Son yıllarda yapay zeka, moda tasarımı süreçlerinde etkin bir rol oynamaya başlamıştır. OpenAI tarafından geliştirilen ChatGPT gibi dil modelleri, tasarımcılara ilham verme, fikir geliştirme ve yaratıcılık süreçlerini hızlandırma açısından önemli bir kaynak oluşturmıştır. Ancak, bu teknolojinin moda tasarımına olan etkileri etik açıdan tartışılmaya değerdir. ChatGPT'nin yaratıcılık süreçlerine katkısı, tasarımcıların özgün fikirler geliştirmesine yardımcı olmasıyla öne çıkmaktadır. Bununla birlikte, yapay zeka destekli tasarımların telif hakkı ihlalleri ve orijinallik sorunları gibi etik problemlere yol açabileceği de göz ardı edilemez.

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Bu bildiri, ChatGPT gibi yapay zeka teknolojilerinin moda tasarımına katkılarını, yaratıcılık, telif hakkı, iş ahlakı ve sektörel dönüşümler çerçevesinde değerlendirerek ele almaktadır. Teorik tartışmalar ışığında, yapay zekanın moda sektörü üzerindeki etkileri çok yönlü bir bakışa sunulmuş ve sektörün geleceğine yönelik önerilerde bulunulmuştur. Etik açıdan yapay zekanın, hem yaratıcılığın hem de insan emeğinin değerini koruyacak şekilde kullanılması kritik bir öneme sahiptir. Gelecekteki araştırmalar, yapay zekanın yaratıcı endüstrilerdeki rolünü daha derinlemesine inceleyerek bu alandaki etik tartışmaların çerçevesini genişletebilir.

ChatGPT ve Moda Tasarımlarına Katkıları

1. **Yaratıcılık ve Fikir Geliştirme:** ChatGPT, tasarımcılara benzersiz fikirler sunarak yaratıcılık süreçlerini hızlandırabilir. Tasarımcılar, belirli bir tema ya da renk paleti ile ilgili öneriler alarak koleksiyonlarını zenginleştirebilir. Örneğin, belirli bir kültüre ait geleneksel motiflerin modern yorumları konusunda ChatGPT' den fikir alınabilir. Bu durum hem yaratıcılığı artırır hem de tasarımcıların yeni ilham kaynakları bulmasına olanak tanır. Örneğin, ünlü bir moda markası, ChatGPT'yi kullanarak sürdürülebilirlik temasına dayalı bir koleksiyon hazırlamış ve bu koleksiyon, tüketiciler tarafından büyük beğeni toplamıştır. Ayrıca, renk kombinasyonları ve desen önerileri gibi spesifik yönlendirmelerle tasarım süreçleri hızlandırılabilir.

2. **Verimlilik Artışı:** Yapay zek., moda tasarımlarının konsept aşamasından nihai ürünün ortaya çıkarılmasına kadar olan süreçte zamandan tasarruf sağlayabilir. Özellikle tekrarlayan ve zaman alan tasarım işlerinde ChatGPT'nin sunduğu çözümler, tasarımcıların enerjilerini daha yaratıcı projelere odaklamalarına imkân tanır. Örneğin, bir tasarım stüdyosu, ChatGPT'yi rutin grafik tasarım işlerinde kullanarak ekip üyelerinin daha yenilikçi projelere odaklanmasını sağlamıştır.

3. **Erişim ve Demokrasi:** ChatGPT, deneyimli tasarımcılardan amatör tasarımcılara kadar geniş bir kitleye yaratıcılık desteği sunarak sektöre erişim eşitliğini artırabilir. Yüksek maliyetli yaratıcılık yazılımlarının aksine, dil modelleri daha uygun maliyetli bir alternatif sunar. Örneğin, moda ile ilgili ancak profesyonel eğitimi olmayan bir birey, ChatGPT'nin desteğiyle özgün bir koleksiyon tasarlayıp kendi markasını oluşturabilir.

Chat- GPT ile Oluşabilecek Etik Sorunlar ve Riskler

1. **Telif Hakları ve Orijinallik:** ChatGPT ve benzeri yapay zeka modelleri, genellikle geniş veri setleri üzerinde eğitilir. Bu veri setleri, birçok kez mevcut sanat eserlerini ve tasarımları içerir. Yapay zekanın önerdiği tasarımların orijinal olup olmadığı veya mevcut tasarımların türevleri mi olduğu

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sorusu, etik açıdan önemli bir tartışma konusudur. Örneğin, bir tasarımcı, ChatGPT'nin önerdiği bir tasarımın, başka bir markanın bilinen bir koleksiyonuyla benzerlik taşıdığını fark edebilir. Bu durum, hukuki sorunlara ve itibar kaybına yol açabilir. Telif hakkı ihlallerinin önüne geçmek için yapay zeka sistemlerinin şeffaflığı artırılmalı ve kullanılan veri kaynakları net bir şekilde belirtilmelidir.

2. **Kültürel Hassasiyetler:** Yapay zeka modelleri, kültürel bağlamları ve hassasiyetleri tam olarak anlamakta zorlanabilir. Bu durum, kültürel sembollerin yanlış bir şekilde yorumlanması ya da ticari amaçlarla uygun olmayan şekilde kullanılması gibi etik sorunlara yol açabilir. Örneğin, bir kültüre ait kutsal bir sembolün tasarımda estetik bir motif olarak kullanılması, o topluluk tarafından rahatsız edici bulunabilir. Moda tasarımcıları, yapay zekanın önerilerini değerlendirmeden önce kültürel bağlamlara dikkat etmeli ve gerekli durumlarda uzmanlardan görüş almalıdır.

3. **İş Gücü ve Endüstriyel Dönüşüm:** Yapay zekanın tasarım süreçlerine entegrasyonu, sektörde iş kayıplarına neden olabilir. Özellikle giriş seviyesi tasarımcılar, yapay zeka destekli süreçlerin artan kullanımı nedeniyle iş güvencesizliği ile karşı karşıya kalabilir. Örneğin, bir moda evi, başlangıç seviyesindeki tasarımcıları yerine yapay zeka araçlarını kullanmayı tercih ettiğinde, bu durum sektörde istihdam olanaklarının azalmasına yol açabilir. Bunun yanı sıra, yapay zekanın kullanımının tasarımcılar üzerindeki yaratıcı baskıyı artırabileceği de göz önünde bulundurulmalıdır. İş gücü kaybını önlemek için yapay zeka, tasarım süreçlerinde destekleyici bir araç olarak konumlandırılmalı, insan emeğinin yerini alacak bir çözüm olarak görülmemelidir.

Yapay Zekanın Moda Tasarımcılarına Katkıları

1. **Kişiselleştirilmiş Moda Deneyimi:** Yapay zeka, kullanıcıların geçmiş satın alma verilerini, arama geçmişlerini ve sosyal medya etkileşimlerini analiz ederek kişiye özel moda önerileri sunabilir. Moda tasarımcılarının bu verilerle desteklenen yapay zeka sistemlerini kullanması, kullanıcıların beğenilerine daha yakın tasarımlar ve ürünler önermelerini sağlar. Örneğin, bir müşteri daha önce belirli renkleri veya kesimleri tercih etmişse, Yapay zeka bu tercihleri analiz ederek benzer stilleri önerir. Bu durum, kullanıcı memnuniyetini artırabilir ve moda endüstrisinde daha hedeflenmiş satış stratejilerinin geliştirilmesine yardımcı olabilir.

2. **Veri Analizi ve Trend Tahmini:** Moda tasarımcıları, genellikle geçmiş moda verilerini ve pazar eğilimlerini analiz eder. Yapay zeka, büyük veri analizi yaparak bu süreci hızlandırabilir ve daha doğru tahminler sunabilir. Algoritmalar, sosyal medya paylaşımlarındaki etkileşimleri, online alışveriş verilerini ve defile kayıtlarını tarayarak gelecekteki trendleri tahmin edebilir. Bu tahminler, tasarımcıların koleksiyonlarını şekillendirirken ve markaların pazarlama stratejilerini oluştururken rehberlik edebilir.

3. **Yaratıcılık ve Tasarım Sürecinin Desteklenmesi:** Yapay zeka, yalnızca mevcut verileri analiz etmekle kalmaz, aynı zamanda tasarım süreçlerine katkı sağlayabilir. Moda tasarımcıları, algoritmalar yardımıyla yeni desenler, renk kombinasyonları veya kesimler keşfedebilirler. Bu, tasarımcıların yaratıcı süreçlerinde ilham kaynağı olabilecek bir araç sağlar. Yapay zeka, hem estetik hem de fonksiyonel açıdan kullanıcıların ihtiyaçlarını karşılayan tasarımlar yaratmalarına yardımcı olabilir.

4. **Daha Etkili Stok Yönetimi:** Moda tasarımcılarının, ürün talep tahminlerini doğru bir şekilde yapabilmesi önemlidir. Yapay zeka, stok yönetimini optimize etmek için kullanıcılardan gelen geri bildirimleri ve satış verilerini analiz edebilir. Bu, markaların üretim süreçlerini daha verimli hale getirmelerine, fazla üretimden kaçınmalarına ve modanın döngüsünü hızlandırmalarına yardımcı olur.

Moda Tasarımcılarının Yapay Zeka ile Yaşayabileceği Etik Sorunlar

1. **Veri Gizliliği ve Güvenliği:** Yapay zekanın moda tasarımcılarında kullanılması, büyük miktarda kişisel verinin toplanmasına yol açmaktadır. Kullanıcıların alışveriş alışkanlıkları, arama geçmişleri ve sosyal medya etkileşimleri gibi veriler, yapay zeka sistemlerinde işlenir. Bu verilerin

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kötüye kullanımı, kişisel gizliliğin ihlali riski taşır. Kullanıcıların onayı alınmadan bu verilerin toplanması ve işlenmesi, etik bir sorun teşkil edebilir. Ayrıca, verilerin sızdırılması veya hacker saldırıları sonucunda kullanıcıların özel bilgileri açığa çıkabilir.

2. **Yapay Zeka ve İnsan Hakları:** Yapay zekanın moda endüstrisine entegrasyonu, bazı iş gücü kayıplarına neden olabilir. Örneğin, bazı moda tasarımcıları, Yapay zeka destekli sistemlerin kullanılmasıyla işsiz kalabilir. İnsanların yerini alan bu teknoloji, iş gücündeki adaletsizlikleri artırabilir. Aynı zamanda, bazı insanlar yapay zekanın karar verme süreçlerine tamamen güvenmeyi reddedebilir ve insan faktörünün eksikliği, toplumda güven sorunlarına yol açabilir.

3. **Algoritmaların Önyargıları:** Yapay zekanın karar verme süreçleri, programlayan kişilerinin bilinçli veya bilinçsiz önyargılarından etkilenebilir. Moda tasarımcılarının kişiselleştirilmiş öneri sistemlerinde kullanılan algoritmalar, toplumsal önyargıları yansıtabilir ve bu, belirli demografik grupların dışlanmasına neden olabilir. Örneğin, bir algoritma yalnızca belirli beden tiplerine veya etnik kökenlere uygun tasarımlar önerebilir, bu da çeşitliliği sınırlayan bir etki yaratabilir. Yapay zekanın önerdiği stiller, toplumun belirli kesimlerinin kültürel normlarına dayalı olabilir ve bu, modanın kapsayıcı bir alan olmaktan çıkmasına neden olabilir.

4. **Yapay Zeka ve Yaratıcılık:** Moda dünyası, estetik ve yaratıcı bir süreçtir. Yapay zekanın tasarımlar üzerinde etkili olması, bazı eleştirmenler tarafından insan yaratıcılığını tehdit eden bir gelişme olarak görülebilir. Yaratıcı süreçlerin algoritmalarla desteklenmesi, özgünlüğün ve bireyselliğin kaybolmasına yol açabilir. Ayrıca, yapay zekanın ürettiği tasarımlar, insanların geleneksel tasarım anlayışlarıyla uyumsuz olabilir, bu da sanatsal değerlerin düşmesine yol açabilir.

5. **Tüketici Manipülasyonu:** Yapay zeka, tüketici davranışlarını tahmin etmek ve yönlendirmek için kullanılabilir. Moda tasarımcılarının yapay zeka araçlarını kullanarak tüketicileri manipüle etmesi, etik bir sorun teşkil edebilir. Tüketicilerin yalnızca algoritmalar tarafından belirlenen tercihleri takip etmeleri, onların özgür iradelerini zayıflatabilir. Bu durum, ticarileşmiş moda dünyasında daha fazla tüketim ve sürdürülemez üretim modellerine yol açabilir.

Sonuç

ChatGPT gibi yapay zeka teknolojileri, moda tasarımı süreçlerinde hem fırsatlar hem de zorluklar sunmaktadır. Yaratıcılık ve verimlilik alanlarında sağlanan faydalar, etik sorunların çözülmesi koşuluyla sürdürülebilir hale getirilebilir. Telif hakları, kültürel hassasiyetler ve iş gücü kaybı gibi konularda net politikalar ve düzenlemeler geliştirilmelidir.

Etik açıdan, yapay zekanın moda tasarımında destekleyici bir araç olarak kullanılması ve insan yaratıcılığını tamamlayıcı bir rol oynaması teşvik edilmelidir. Gelecekteki araştırmalar, yapay zekanın yaratıcı endüstrilerdeki rolünü derinlemesine inceleyerek, teknolojinin daha sorumlu ve kapsayıcı bir şekilde kullanılmasını sağlayacak çerçeveler geliştirebilir.

Yapay zekanın moda tasarımcılarının işlevine olan katkıları, sektörü dönüştürme potansiyeline sahip olsa da, bu gelişmelerin etik sorunları beraberinde getirdiği de aşikardır. Kişisel verilerin güvenliği, algoritmalarındaki önyargılar, iş gücü kayıpları ve tüketici manipülasyonu gibi konular, Yapay zekanın moda dünyasında sorumlu bir şekilde kullanılmasının önemini ortaya koymaktadır. Moda endüstrisinin hem teknolojinin sunduğu fırsatları hem de etik sorumluluklarını dengeleyerek geleceği şekillendirmesi gerekmektedir.

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THE STAGE AS A CLASSROOM: INTEGRATING DRAMA TECHNIQUES TO ENHANCE HOLISTIC EDUCATION

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ABSTRACT

Drama, by its nature, transcends traditional pedagogy, providing a powerful medium to cultivate critical thinking, emotional empathy, and collaborative skills essential for modern education. This article examines the transformative potential of drama in learning environments, emphasizing its capacity to enhance creative expression and personal development. The discussion explores how theatrical practices encourage students to engage deeply with content, analyze diverse perspectives, solve problems creatively, and develop emotional intelligence by stepping into roles and navigating complex narratives. It highlights the multidimensional role of drama in bridging academic disciplines and promoting socio-emotional growth, making it an invaluable tool for holistic education. Through case studies and theoretical analysis, this article demonstrates how drama can be effectively integrated across diverse educational contexts, from primary to tertiary levels and in informal settings, engaging varied learning styles and addressing inclusivity. It positions drama as a bridge between academic learning and real-world competencies, advocating its recognition as a cornerstone of education. Ultimately, this paper invites educators and researchers to reimagine the classroom as a dynamic stage where students can explore, create, and thrive, equipping them with the skills needed to navigate an interconnected and complex world.

Keyword: drama, stage, classroom, education

INTRODUCTION

In an increasingly interconnected and complex world, education must evolve to equip students with not only academic knowledge but also social, emotional, and creative competencies. One promising pedagogical approach that addresses these diverse needs is the integration of drama techniques into educational processes. Drama, with its intrinsic capacity to engage students both intellectually and emotionally, offers a holistic approach to education that fosters critical thinking, emotional empathy, and collaborative problem-solving (Boal, 2000; Neelands, 2009). As educators and researchers reimagine the classroom as a dynamic stage, drama becomes an invaluable tool for bridging the gap between academic learning and real-world competencies.

OBJECTIVE

The objective of this article is to examine the integration of drama techniques in educational settings and to explore their impact on holistic education. Specifically, it aims to analyze how drama fosters cognitive, emotional, and social development in students by encouraging active engagement, critical thinking, and creative problem-solving. By investigating both theoretical frameworks and practical case studies, the article seeks to demonstrate the efficacy of drama as a transformative educational tool that bridges academic learning and real-world competencies, promoting a more inclusive and holistic approach to education.

METHODOLOGY

The study employed a mixed-methods approach to investigate the efficacy of drama techniques in enhancing holistic education. Quantitative and qualitative data were collected to evaluate the impact of

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dramatization on students' cognitive and emotional engagement, learning outcomes, and socio-emotional development.

Participants: Two 5th-grade classrooms from the same school were selected to ensure consistency in demographic and educational factors. Each class consisted of 25 students, aged 10–11 years, with comparable academic performance levels based on prior assessments.

Procedure:

- **Dramatization Group:** This group participated in an interactive dramatization of the water cycle. Roles such as "water droplet," "sun," "cloud," and "river" were assigned, and students acted out processes like evaporation, condensation, precipitation, and collection. Discussions during and after the activity reinforced learning points.
- **Traditional Group:** This group received conventional instruction, including a lecture supported by diagrams and charts, followed by a reading assignment from the science textbook.

ASSESSMENT

Both groups completed the same evaluation, consisting of open-ended questions, group discussion summaries, and a practical task involving the creation of a visual representation of the water cycle. This approach assessed students' understanding, retention, and ability to apply concepts creatively.

THEORETICAL FRAMEWORK

Drama as an educational tool is rooted in several pedagogical theories, most notably constructivism and experiential learning. Constructivist theories suggest that learners construct knowledge through active engagement with their environment (Vygotsky, 1978). Drama, as a performative act, immerses students in complex social and emotional contexts, enabling them to construct understanding through experiential and embodied learning. Theoretical frameworks developed by Dewey (1938) and Freire (1970) emphasize experiential learning and critical pedagogy, aligning with drama's capacity to encourage students to question, reflect, and engage deeply with content.

Moreover, drama fosters socio-emotional learning (SEL), which has gained increasing recognition in contemporary educational discourse. SEL involves the development of self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020). By stepping into different roles and navigating complex narratives, students develop empathy, emotional intelligence, and the ability to collaborate effectively in group settings (García & Weiss, 2020).

DRAMA IN EDUCATION: A MULTIDIMENSIONAL TOOL

Drama in education is not merely a means of artistic expression; it is a pedagogical strategy that can enhance learning across academic disciplines. It encourages students to engage with content in a manner that fosters creativity and critical thinking. For instance, role-playing in historical or literary contexts allows students to analyze diverse perspectives and deepen their understanding of complex material (Wagner, 1998). The performative nature of drama also promotes active learning, which research shows is more effective than passive forms of instruction (Freeman et al., 2014).

Drama techniques such as improvisation, storytelling, and role-playing have been shown to enhance cognitive and emotional engagement. These techniques encourage students to think on their feet, make decisions in real time, and develop both verbal and non-verbal communication skills (Kao & O'Neill, 1998). This is particularly valuable in fostering emotional intelligence, as students learn to navigate the emotions of characters and situations, which in turn cultivates empathy and social awareness (Goleman, 1995).

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RESULTS

The findings demonstrate that dramatization can significantly enhance students' understanding of scientific concepts. By actively involving students in the learning process, dramatization promotes engagement and facilitates the retention of complex information.

- **Performance:** The dramatization group performed notably better in the practical task, where they created visual representations of the water cycle, demonstrating a deeper understanding of the processes involved.
- **Detailed Explanations:** Open-ended questions revealed that students in the dramatization group could explain the water cycle in more detail and from multiple perspectives, such as the journey of a water droplet.
- **Engagement:** Observational data highlighted higher levels of enthusiasm and participation in the dramatization group compared to the traditional group.

These results align with the constructivist theory of learning, where students build knowledge through active engagement with content and peers (Vygotsky, 1978). In contrast, traditional methods, while effective in delivering factual information, may not fully engage students' cognitive and emotional faculties, limiting their ability to internalize and apply complex concepts.

CONCLUSION

As education continues to evolve to meet the demands of a rapidly changing world, it is essential to explore innovative pedagogical approaches that address the holistic development of students. Drama, with its ability to engage students intellectually, emotionally, and socially, offers a unique and powerful means of enhancing education across all levels. By integrating drama techniques into the classroom, educators can cultivate critical thinking, emotional intelligence, and collaborative problem-solving skills, preparing students for success in both academic and real-world contexts. This article has demonstrated the transformative potential of drama in education through theoretical analysis and practical case studies. It advocates for the recognition of drama as a cornerstone of holistic education and invites educators to reimagine the classroom as a dynamic stage where students can explore, create, and thrive.

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SYNTHESIS AND CHARACTERIZATION OF NOVEL TiO₂ NANOMATERIALS WITH HIERARCHICAL POROSITY BY SOL-GEL ROUTE, USING SODIUM ALGINATE AS SURFACTANT

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ABSTRACT

This study examines the impact of sol-gel synthesis of titanium oxide (TiO₂), with and without sodium alginate, to produce a material with hierarchical porosity. Sodium alginate, a natural and abundant biopolymer extracted in the laboratory, was used as a surfactant to create porous structures and modulate particle morphology. The aim was to compare the physico-chemical properties of titanium oxide obtained in the presence of the biopolymer, designated TiO₂-BP, with those of titanium oxide synthesized by the conventional sol-gel method without the biopolymer, designated TiO₂-C. The samples obtained were then characterized using several appropriate techniques, such as nitrogen adsorption analysis, zeta potential measurement, X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FT-IR), Raman spectroscopy UV-Visible spectroscopy and inductively coupled plasma optical emission spectrometry (ICP-OES). In addition, the acid-base behavior of the synthesized samples was evaluated through the isopropanol decomposition reaction.

Keywords: TiO₂, TiO₂-BP, Nanoparticles, biopolymer models, surfactant, mesoporous materials.

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THE MECHANISMS USED BY PARENTS TO MANAGE CHILDREN'S CONFLICTS AT DIFFERENT STAGES OF DEVELOPMENT

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ABSTRACT

The recent events happened in Albania, where students are losing their lives near schools, emphasize their importance not only to prevent violence but also to create a safe environment and support for children and students.

The propose of the study is of the mechanisms they use in the management of conflicts in their various different phases.

In order to achieve the goals, questionnaires were carried out with psychologists who have children in pre-university education aged 6-15 and school psychologists who have knowledge in pre-university education. The various methods in this article are quantitative and they combine primary and secondary data. The different techniques were surveys, conversations and questionnaires with love, and school psychologists. The hypothesis of the study is that parents in Albania continue to manage their children's conflicts themselves and do not turn to psychologists for treatment.

The results of the questionnaires on the second session related to conflict management mechanisms, the majority of parents, 80% of them answered that they deal with conflict cases expressed by their children by talking with their child. They explain the consequences of his/her behavior through concrete examples (45% of them). More than half of the parents, 58%, answered that they do not use the help of a psychologist in relation to resolving a conflict. Psychologists give the same answer regarding the cases that are presented to them for treatment. Certainly most parents agree that it is important for their children to learn healthy ways of managing conflicts. Regarding the session on conflict management factors, the majority of parents agree that the family environment influences the resolution of conflicts. Parental stress, another factor that affects the way children's conflicts are resolved, has a distribution in the answers ranking from little (35%), has a big impact (30%), has a medium impact 22% and the share of remaining has no effect.

In the session related to the impact of conflict management, the majority of parents answered that they have not tried the help of psychologists. The help that can be offered to parents to manage conflicts with children, they list in order of importance training and resources for conflict management, support from school and community, advice and support from psychologists.

Keywords: parent, child, psychologist, pre-university education

INTRODUCTION

Regarding the parent-child relationship, various studies have been conducted focusing on the role of parents in managing children's emotions and the ways in which they assist in the development of emotional regulation skills, including the techniques used for managing children's conflicts (Lunkenheimer E., Shields et al., 2007). Other studies have focused on helping to manage conflicts, examining developmental stages and the impact of parental interventions (Granic, I., & Patterson, G. R., 2006). Additionally, studies have analyzed parenting styles in relation to children's self-regulation skills and conflict management, emphasizing the importance of emotional support and behavioral control from parents (Karreman, A., de Haan, et al., 2006). Furthermore, concerning parents'

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management of emotions and children's ability to regulate emotions and resolve conflicts with peers, studies have been conducted on the development of children's social skills (Fabes, R. A., & Eisenberg, N., 1997; Saarni, C., 1999; Kochanska, G., & Aksan, N., 2006). These studies have focused on the mechanisms used by parents to manage children's conflicts during different stages of development.

What is happening in Albania? In the media, we are hearing that adolescent children are facing conflicts with each other, conflicts that sometimes end in the loss of life. Events like suicide, cyberbullying, school conflicts, or unfortunate loss of life are increasing day by day. From where should we start without waiting until we are faced with the facts and start asking who is responsible? We should begin with informal education, we should begin with the family. The way children are educated in the family undoubtedly plays a very important role, among other things, in managing conflicts between children. All other systems revolve around the child (Bronfenbrenner, U., 1990). Precisely, this article aims to identify the mechanisms that parents use to manage their children's conflicts.

MATERIALS AND METHODS

The method used for this study is quantitative. A questionnaire was addressed to parents and contains a total of 4 sections with 13 questions. The number of participants is 286 parents. Google Forms was used.

Section 1: General Information – It contains three questions related to the age of the children, the number of family members, and how often children share with their parents the conflicts they may have experienced.

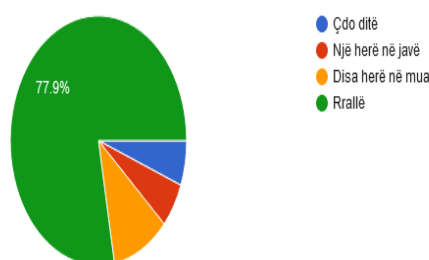
Section 2: Conflict Management Mechanisms – It contains questions about how parents handle conflicts, how they explain the consequences of their children's behavior after a conflict, whether they seek help from a psychologist in case of conflicts, and how important parents think it is for their children to know how to manage conflicts.

Section 3: Factors Influencing Conflict Management – This section contains questions about the influence of the environment on conflict management, the impact of parental stress on managing their children's conflicts, and how parents approach the treatment of their children's behavior when they show aggressive tendencies.

Section 4: The Impact of Conflict Management – This section includes questions about the role of psychologists in helping children improve conflict management within the family, and suggestions on how to better assist parents in managing conflicts with their children..

RESULTS

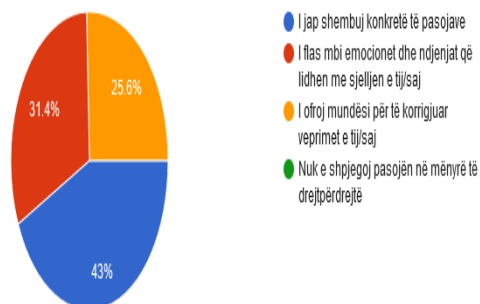
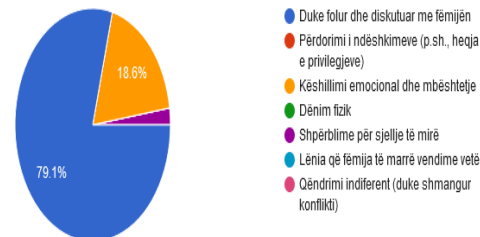
The majority of parents who participated in the study have children aged 12-15 years (41.9%). The number of family members consisting of 3-4 people represents the highest percentage of participants (47.7%).



Regarding the question of how often their children have shared with them that they had conflicts, 77.9% of parents responded that their children rarely express conflicts to them. Only 5.8% responded that their children express conflicts with them every day.

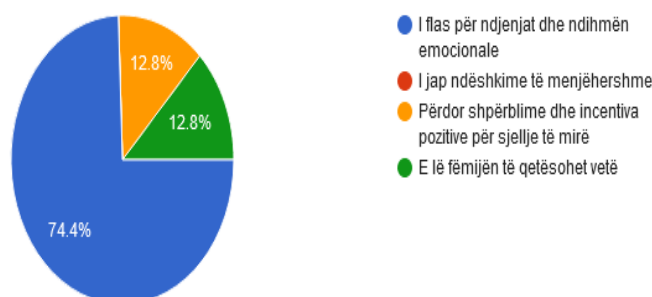
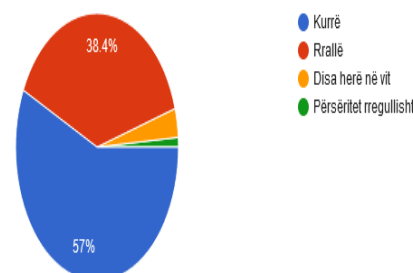
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The majority of parents responded that when their children express conflict situations, they address them by talking and discussing with the children (79.1%). The other percentages are emotional counseling and support (18.6%) and rewards for good behavior (2.3%)..



The consequences of their behavior after a conflict are explained by giving concrete examples (43%), talking about the emotions and feelings related to their behaviors (31.4%), and offering opportunities to correct their actions (25.6%)

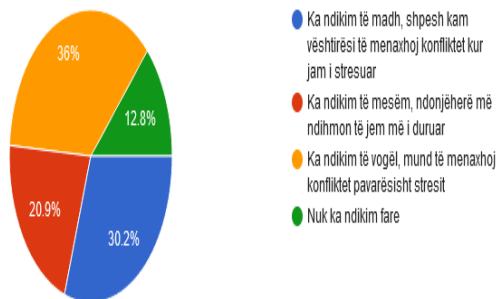
Unfortunately, 57% of parents do not seek the help of a psychologist or specialist to manage their children's conflicts. Only 3.5% of parents regularly seek help from a specialist, such as a psychologist."



Parent stress affects the management of children's conflicts to a small extent in 36% of cases, to a large extent in 30.6%, to a moderate extent in 20.9%, and has no impact in 12.8%.

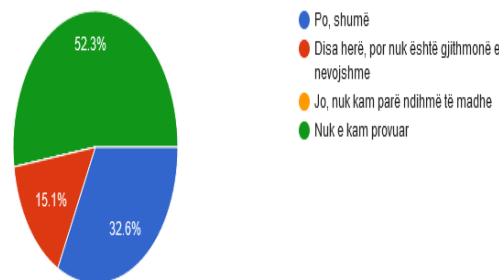
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"Parents' approach to dealing with children's behaviors when they display aggression: they talk about feelings and emotions (74.4%), use rewards and incentives for good behavior (12.8%), and allow the child to calm down on their own."



The methods parents use to manage conflicts have a direct impact on the emotional and social development of children. The majority of parents, 57%, responded that they have a very strong impact."

The majority of parents responded that they have not tried the help of psychologists in improving the management of children's conflicts (52.2%), yes (32.6%), and 15.1% have tried sometimes, but it is not always very necessary.



DISCUSSION

A small percentage of children express themselves with their parents in cases of conflict. The way parents handle conflict situations is by discussing with them, offering emotional advice, and providing support. The same conclusion is found in the study by Kuczynski and Parkin, who argue that parents who offer emotional support and encourage children to express their thoughts and feelings can help children develop conflict resolution skills (Kuczynski, L., & Parkin, C. M., 2007). They explain the consequences of their behavior after a conflict by providing concrete examples, talking about the emotions and feelings related to their actions, and offering opportunities to correct their behavior. It is noted that more than half of parents have never sought the help of psychologists to manage their children's conflict situations. The same is confirmed by school psychologists, who emphasize the fact that in conflict situations, it is they who approach the parents for cooperation, not the parents who approach them. However, a study conducted in 2019, *Child Development Perspectives*, observes that children exposed to continuous conflicts may develop emotional and behavioral problems if they do not receive professional support. In terms of how parental stress impacts the management of children's conflicts, there is almost an equal split between parents who responded that it has a small impact and those who said it has a large impact. A study by Dumas, conducted in 2017, analyzed the impact of parental stress and observed that parents who experience high levels of stress have more difficulty managing conflicts and may be more likely to react negatively to their children (Dumas, J. E., & Nissley-

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Tsiopinis, J. (2017). Parents' approaches to handling children's behaviors when they exhibit aggression were ranked as follows: talking about feelings and emotions, using rewards and incentives for good behavior, and letting the child calm down.

CONCLUSION

In order for parents to better manage the conflicts their children may have, they should:

- Participate in parenting training for conflict management
- Receive advice and support from psychologists
- Get more support from schools and the community

ACKNOWLEDGEMENT

Gratitude to all participants in this study, including parents and school psychologists.

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EVALUATING GRID-POINT SELECTION PROCESS FOR ACCURATE STANDARDIZED PRECIPITATION INDEX (SPI) CALCULATION

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ABSTRACT

The accuracy of gridded precipitation datasets, which can be satellite and reanalysis data, is crucial for hydrological and meteorological applications. These datasets are used to estimate drought indices such as the Standardized Precipitation Index (SPI), especially for data scarcity regions. This study investigates the impact of different grid-point selection methods on the accuracy of SPI calculations by comparing gridded precipitation data with station-based observations. Three scenarios for grid-point selection were examined: (1) the nearest grid point to the station, (2) the average of the nearest four grid points, and (3) the average of the nearest six grid points. Precipitation data were extracted for each scenario and used to calculate SPI values using the ERA5-LAND data source for Kocaeli province. These values were then compared to the SPI calculated directly from station observations to evaluate the performance and suitability of each method. Statistical metrics were used to quantify the differences, including correlation coefficient (CC), root mean square error (RMSE), and bias. The results provide insights into the optimal grid-point selection strategy for gridded precipitation datasets to enhance the reliability of SPI calculations, offering practical recommendations for their use in drought monitoring and water resource management.

Keywords: Drought assessment, ERA5-LAND, Reanalysis, SPI, Precipitation, Kocaeli.

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EVALUATING THE EFFECTIVENESS OF THE INNOVATIVE DROUGHT CLASSIFICATION MATRIX (IDCM) IN DROUGHT STUDIES

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ABSTRACT

Drought, as a natural phenomenon, has destructive effects on the environment, water resources, and the ecosystem. After a detailed evaluation of the existing literature, the drought characteristics, such as duration and intensity, are typically evaluated for the whole period considering the average value or through point-based assessment. This research aims to improve drought and precipitation deficit evaluation and monitoring by introducing a more holistic concept and framework that evaluates droughts based on a specific period, called SP. SP is calculated as any specific and desired time period across all stations, enabling a comprehensive and more accurate evaluation of drought characteristics and effects over this period. Konya Karapınar station is selected as a case study for this research, using the Standardized Precipitation Index (SPI) and SPI theory for drought definition and characteristics. The results showed that considering the SP concept enables a more detailed and comprehensive analysis of drought events. Also, SP considered the wet months within its calculation, providing a reflection of the actual event. In terms of drought intensity and duration, there were significant differences between the classical duration and intensity. Based on the key findings of this research, there is a huge need for more in-depth analysis considering the SP concept.

Keywords: Drought, Drought duration, Drought intensity, Water resources management.

1. Introduction: Natural catastrophes like droughts have become increasingly frequent, with higher records reported in recent years (Dabanli et al., 2021; Tiwari et al., 2022). Climate change and drought significantly drive global natural disasters (Oyounalsoud et al., 2023; IPCC, 2023). Droughts typically involve significant reductions in rainfall, which is crucial for sustaining the hydrological cycle (Danandeh Mehr and Vaheddoost, 2020; Şen, 2020). Rainfall serves as a critical indicator for evaluating the impacts of climate change, especially drought (Şen, 2020; Gumus et al., 2023). The decrease in rainfall due to drought limits water availability, influencing both supply and demand. It also adversely affects various sectors, including the economy, agriculture, and industry (Nouri, 2023; Sadhwani and Eldho, 2024). Furthermore, droughts are considered some of the most destructive natural disasters (Hussain et al., 2023; Kesgin et al., 2024), causing extensive damage globally and locally (Tsakiris et al., 2016; Khorrami et al., 2023).

Droughts can be classified into several types based on their characteristics and impacts. Meteorological drought refers to a period of significantly below-average precipitation, reducing water availability (Mishra and Singh, 2010). Agricultural drought occurs when soil moisture is insufficient to meet the needs of crops, resulting in reduced agricultural productivity. Hydrological drought is characterized by prolonged periods of low water levels in rivers, lakes, and reservoirs, affecting water supply and quality (Sadhwani and Eldho, 2024). Socioeconomic drought emerges when the water demand exceeds supply due to the prolonged impacts of other types of droughts (Wilhite, 2000).

Various drought indices have been developed to quantify and analyze drought conditions in the field of drought monitoring. Examples of these indices are the Standardized Precipitation Index (SPI) (McKee

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et al., 1993), the Standardized Precipitation Evapotranspiration Index (SPEI) (Vicente-Serrano et al., 2010), and the Reconnaissance Drought Index (RDI) (Tsakiris et al., 2007). Among these indices, the SPI is one of the most universally recognized and applied indices. According to the World Meteorological Organization (WMO, 2012), the SPI's popularity stems largely from its reliance on precipitation data, simplifying its application compared to other multi-variable indices. This simplicity allows for straightforward implementation across different regions and climates (Bruno et al., 2024).

Recent research have underscored the shortcomings of conventional drought assessment techniques, which frequently do not incorporate drought features for the longest drought duration over the station, potentially resulting in an inadequate comprehension of drought dynamics. This research proposes innovative methodologies, including the specific period (SP) idea, to solve these limits by offering a more comprehensive assessment of drought conditions. This method will provide a more thorough and precise evaluation of drought features by including all stations over this period and incorporating both dry and wet intervals.

2. Methods:

2.1. Study area: The Konya Basin (KB) will be used as an application area for this project. The KB, located in central Türkiye, is characterized by a semi-arid climate with hot, dry summers and cold, wet winters (Figure 1).

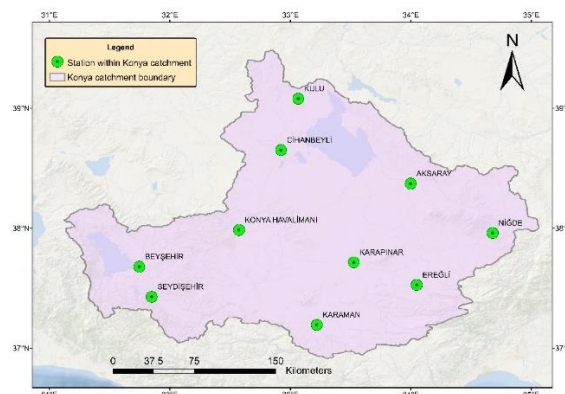


Figure 7. Location of Konya Basin and meteorological stations.

2.2. Standardized Precipitation Index (SPI): Based on monthly precipitation data sets, the Standardized Precipitation Index (SPI) is used to calculate drought indices across various timescales, such as 1-month, 3-month, 6-month, and 12-month intervals. The choice of these timescales is vital in identifying different types of droughts. The methodology involves fitting the original monthly precipitation data to an appropriate probability density function (PDF). The selection of an appropriate PDF is determined through goodness-of-fit tests, such as the Chi-Square and Kolmogorov-Smirnov tests, applied to the original datasets. Cumulative distribution functions are then used to calculate probabilities from the monthly precipitation data. These probabilities are subsequently transformed into a standardized index value with a mean of zero and a standard deviation of one through a probabilistic standardization process.

2.3. Classical drought characteristics and Specific Period concept: The main characteristic used in this study is drought duration (D), and based on the SPI theory, D is defined as the total number of months when the drought index is less than -1 and until it returns to a positive value. The second characteristic is the summation of the drought index over the drought duration (sum). Additionally, dividing the (sum) by the drought duration gives the drought intensity.

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The desired period is selected for the newly proposed Specific Period concept, and the drought characteristics are evaluated over this period instead of D. SP contains all dry and wet months with their severity. Using SP, the severity and intensity can be calculated as follows:

$$\text{Standardized Precipitation Severity (SPS)} = \sum_{i=1}^{SP} SPI_i \quad \text{Eq. 1}$$

$$\text{Standardized Precipitation Intensity (SPIn)} = \frac{SPS}{SP} \quad \text{Eq. 2}$$

3. Results:

The results of the classical drought characteristics are given in Table 1 below, which shows the characteristics of drought in terms of duration (D), severity (S), and intensity (I), providing an in-depth understanding of drought patterns over the years. The table indicates that drought periods vary from one to seven months, reflecting a wide variation in drought persistence. The longest drought period recorded was between April 2020 and October 2020 (D = 7 months), indicating significant pressures on natural and water resources. These long periods require special attention from decision-makers to develop strategies for adaptation and reducing the impact of drought on vital sectors. In terms of severity, the table reflects different periods of drought with varying degrees of severity. For example, the most severe drought period was between April 2020 and October 2020 (S = -5.82), significantly impacting ecosystems and agriculture. These large negative values reflect a severe rainfall deficiency compared to normal rates. The period between December 2006 and February 2007 was also characterized by high intensity (S = -4.37), indicating that some years experienced significant drought impacts, requiring in-depth study of the climatic factors that contributed to those cases. Intensity (I), which represents severity divided by duration, gives a clearer picture of the impact of drought over a unit of time. For example, the period between November 2015 and December 2015 had a high intensity (I = -1.98) despite its duration being only two months. This indicates a severe impact in the short term. In contrast, the longest drought period, 2020 (D = 7 months) had a relatively low intensity (I = -0.83), indicating a less severe but long-lasting impact. The maximum intensity was in May 2021, with -3.55 intensity.

Table 1. Results of classical drought characteristics over Konya karapinar station.

Start_date	End_date	D	S	I	start_date	end_date	D	S	I
2001-01-01	2001-04-01	3	-4.05	-1.35	2012-04-01	2012-08-01	4	-3.87	-0.97
2002-03-01	2002-04-01	1	-1.79	-1.79	2012-09-01	2012-10-01	1	-1.31	-1.31
2003-01-01	2003-02-01	1	-1.72	-1.72	2013-08-01	2014-01-01	5	-4.26	-0.85
2004-03-01	2004-04-01	1	-2.33	-2.33	2014-04-01	2014-06-01	2	-3.53	-1.76
2004-06-01	2004-07-01	1	-1.21	-1.21	2015-07-01	2015-08-01	1	-1.03	-1.03
2004-10-01	2004-11-01	1	-2.04	-2.04	2015-11-01	2016-01-01	2	-3.96	-1.98
2004-12-01	2005-01-01	1	-1.11	-1.11	2016-02-01	2016-03-01	1	-1.44	-1.44
2005-03-01	2005-06-01	3	-1.69	-0.56	2016-04-01	2016-05-01	1	-1.59	-1.59
2006-06-01	2006-07-01	1	-2.28	-2.28	2016-07-01	2016-08-01	1	-1.03	-1.03
2006-08-01	2006-09-01	1	-1.02	-1.02	2016-10-01	2016-12-01	2	-2.97	-1.49
2006-12-01	2007-02-01	2	-4.37	-2.18	2017-01-01	2017-03-01	2	-3.64	-1.82
2008-02-01	2008-03-01	1	-1.11	-1.11	2017-07-01	2017-08-01	1	-1.03	-1.03
2008-06-01	2008-07-01	1	-1.17	-1.17	2017-09-01	2017-10-01	1	-1.83	-1.83

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2009-06-01	2009-07-01	1	-1.14	-1.14	2018-08-01	2018-09-01	1	-1.1	-1.1
2010-03-01	2010-04-01	1	-1.81	-1.81	2020-04-01	2020-11-01	7	-5.82	-0.83
2010-07-01	2010-10-01	3	-3.53	-1.18	2021-02-01	2021-03-01	1	-1.81	-1.81
2010-11-01	2010-12-01	1	-1.05	-1.05	2021-05-01	2021-06-01	1	-3.55	-3.55
2011-07-01	2011-09-01	2	-2.13	-1.06	2021-10-01	2021-12-01	2	-2.87	-1.43
2011-11-01	2012-01-01	2	-3.91	-1.96	2022-04-01	2022-05-01	1	-2.66	-2.66

Table 2 presents the results of a specific-period drought analysis, focusing on the indices SP (Specific Period), SPS (Specific Period Severity), and SPIn (Specific Period Intensity). These metrics evaluate drought characteristics over increasing time windows. The Specific Period (SP) increases incrementally from 3 to 30 months, capturing cumulative drought characteristics over longer periods.

Specific Period Severity (SPS) values become more negative with increasing SP, indicating that prolonged drought periods lead to more severe droughts. For example, SPS decreases from -3.39 (SP = 3) to -11.61 (SP = 30). SPIn, which represents the average drought intensity per unit of time, shows a less pronounced negative trend than SPS. It varies from -1.13 (SP = 3) to -0.39 (SP = 30), indicating that monthly drought intensity decreases as the duration increases.

Table 2. Results of novel drought characteristics over Konya karapinar station.

Start_date	End_date	SP	SPS	SPIn
2022-10-01	2022-12-01	3	-3.39	-1.13
2022-07-01	2022-12-01	6	-5.35	-0.89
2022-04-01	2022-12-01	9	-6.15	-0.68
2022-01-01	2022-12-01	12	-1.96	-0.16
2021-10-01	2022-12-01	15	-3.13	-0.21
2021-07-01	2022-12-01	18	-3.92	-0.22
2021-04-01	2022-12-01	21	-7.57	-0.36
2021-01-01	2022-12-01	24	-8.45	-0.35
2020-10-01	2022-12-01	27	-9.18	-0.34
2020-07-01	2022-12-01	30	-11.61	-0.39

Discussion and Conclusion: The temporal characteristics of drought, such as its duration and intensity, directly impact the agricultural sector. Long periods of drought with high intensity affect crop productivity, while high intensity affects soil quality and water resources. In addition, these characteristics are essential for managing hydrological resources, as they allow experts to identify periods of water shortage and analyze their impact on water basins. Based on these results, many recommendations can be made: Establish early warning systems based on the analysis of novel duration and intensity to predict future drought periods and develop sustainable irrigation strategies based on intensity to reduce the impact of drought on crops. In summary, the results presented in this study clearly reflect the great variability in drought characteristics over time, reinforcing the importance of conducting a comprehensive analysis of these characteristics. Providing accurate drought maps showing duration, severity, and intensity can be an effective tool to assist different sectors, including agriculture and water

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resources. The study of these characteristics also highlights the need to develop effective policies to adapt to climate change and reduce the impact of drought on natural and human systems.

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EMERGING POWERS IN THE WESTERN BALKANS: CHALLENGES AND EXPECTATIONS THROUGH A NEOREALIST LENS

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ABSTRACT

This study investigates the influence of emerging powers—specifically China, Russia, and Turkey—in the Western Balkans, focusing on the challenges and expectations arising from their increasing presence in the region. Adopting a neorealist perspective, the research explores how the strategic competition among these actors and traditional Western powers (e.g., the EU and the US) shapes the political, economic, and security dynamics of the Western Balkans. It examines key mechanisms through which emerging powers exert influence, including economic investments, political alliances, and cultural diplomacy, juxtaposed with the strategic interests of the region's states in maintaining sovereignty and balancing external pressures. The analysis highlights the vulnerabilities of Western Balkan states in the context of their transitional democracies and fragile economies, making them attractive arenas for geopolitical rivalry. The study concludes by discussing the potential trajectories of power dynamics in the region, underscoring the implications for regional stability and integration into the Euro-Atlantic structures. This work contributes to understanding the interplay between emerging and traditional powers in contested regions within a realist framework.

Keywords: emerging powers, Western Balkans, Neorealism, geopolitical competition, regional stability

1. Introduction

The Western Balkans, located at the crossroads of Europe and Asia, holds immense strategic importance due to its geographical position as a bridge between continents and its proximity to key trade routes and energy corridors. This region serves as a vital link connecting the European Union to the Middle East, Central Asia, and the Mediterranean. Its abundance of natural resources, such as hydropower and mineral reserves, coupled with its emerging markets, makes it a focal point for global competition.

As a result, the region has become a battleground for influence among traditional Western powers and emerging actors such as China, Turkey, and Russia, each seeking to secure their strategic and economic interests. Adopting a neorealist framework, this paper examines how these powers compete for influence in the region, focusing on strategic sectors such as energy, infrastructure, transportation, finance, and cultural diplomacy (Mearsheimer, 2001). The paper also explores hybrid warfare tactics and the implications of growing debt dependency. The analysis highlights the vulnerabilities of Western Balkan states and the geopolitical ramifications of this rivalry, emphasizing the region's role as a critical arena for global power competition.

The Western Balkans, comprising Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia, is a region of significant geopolitical interest. Its strategic location connects Europe with the Middle East and Central Asia, making it a focal point for emerging powers.

A neorealist lens offers an apt framework to analyze this dynamic, emphasizing the role of power competition and state interests in shaping international relations. The Western Balkans' fragile economies, transitional democracies, and aspirations for Euro-Atlantic integration provide fertile ground for external actors to assert influence.

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2. The role of the Western Powers: US, EU and NATO

The fall of the Berlin Wall in 1989 marked a turning point in global geopolitics, symbolizing the end of the Cold War and the division of Europe. However, for the Western Balkans, this period did not bring immediate peace and stability. Instead, the 1990s were marked by violent conflicts, especially in Bosnia and Herzegovina and Kosovo, which demanded significant intervention from Western powers. The involvement of these powers played a decisive role in shaping the political, economic, and social dynamics of the region in the decades that followed (Mearsheimer, 2001).

The dissolution of Yugoslavia in the early 1990s unleashed ethnic and nationalist tensions that had been suppressed during the Communist era. Longstanding historical grievances between ethnic groups, combined with weak state structures, created fertile ground for violence. The most devastating conflicts occurred in Bosnia and Herzegovina (1992–1995) and later in Kosovo (1998–1999), where ethnic cleansing, genocide, and mass displacement shocked the international community.

Western powers, including the United States, the European Union (EU), and NATO, initially struggled to respond to the rapidly unfolding crises. Their intervention, however, became more pronounced as the conflicts escalated, leading to a significant reshaping of the region's political landscape.

Western Involvement in the Bosnia Conflict

The war in Bosnia and Herzegovina (1992–1995) was the bloodiest chapter in the post-Yugoslav conflicts, with over 100,000 deaths and widespread atrocities, including the genocide in Srebrenica. Western powers initially adopted a cautious approach, hoping for a diplomatic resolution. However, as the conflict intensified, it became evident that stronger action was required.

NATO's involvement marked a turning point. In 1995, NATO launched Operation Deliberate Force, a series of airstrikes targeting Bosnian Serb forces responsible for ongoing atrocities. These military actions, coupled with diplomatic efforts led by the United States, culminated in the Dayton Agreement, which ended the war in December 1995. The Dayton Agreement established Bosnia and Herzegovina as a single state with two autonomous entities—the Federation of Bosnia and Herzegovina and Republika Srpska—under a weak central government. Western powers, particularly the EU and NATO, have since played a central role in maintaining peace and stability through the deployment of international peacekeeping forces and extensive political oversight.

The Kosovo Crisis and NATO's Role

The late 1990s saw the eruption of another violent conflict, this time in Kosovo. Ethnic Albanians, who constituted the majority population, sought independence from Serbia, leading to a brutal crackdown by Serbian forces under the leadership of Slobodan Milošević. The international community condemned the widespread human rights abuses and ethnic cleansing of Albanians but initially hesitated to intervene.

By 1999, NATO launched a 78-day bombing campaign against Serbian forces, marking the first time the alliance intervened militarily without UN Security Council approval. The campaign ultimately forced Serbian troops to withdraw from Kosovo, which was placed under United Nations administration. In 2008, Kosovo declared independence, a move supported by many Western countries, though it remains a point of contention internationally.

Western involvement in Kosovo underscored the shift toward a more interventionist approach in addressing humanitarian crises and conflicts. While it achieved its immediate goals of ending violence and stabilizing the region, it also sparked debates about the legality and long-term consequences of such interventions.

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Post-Conflict Stabilization and the European Perspective

In the aftermath of the conflicts, Western powers focused on stabilizing and rebuilding the Western Balkans. The EU, in particular, adopted a long-term approach, emphasizing integration as a means of fostering peace and prosperity in the region. The promise of EU membership became a key incentive for reforms, with Western Balkan countries required to meet strict criteria related to democracy, human rights, and the rule of law.

NATO also expanded its influence in the region, with several Western Balkan countries joining the alliance. Slovenia, Croatia, Montenegro, and North Macedonia have become NATO members, while Bosnia and Herzegovina and Kosovo maintain strong partnerships with the alliance. This integration into Western structures has been a significant factor in reducing the likelihood of renewed conflict (NATO, 2020).

Despite the significant role of Western powers in bringing peace to the region, their involvement has not been without criticism. The Dayton Agreement, for instance, has been criticized for entrenching ethnic divisions in Bosnia, making effective governance challenging. Similarly, the NATO intervention in Kosovo remains controversial, with some arguing it violated international law.

Economic and political reforms promoted by Western powers have often been slow to take root, and the region continues to face challenges such as corruption, weak institutions, and ethnic tensions. Additionally, the EU's inconsistent approach to enlargement has fueled skepticism in the Western Balkans about the sincerity of Western commitments.

2.1. The Role of European Integration as a Driving Force for Development in the Western Balkans

European integration has long been a guiding light for the Western Balkans, offering a framework for political stability, economic growth, and societal transformation. After decades of conflict and instability in the 1990s, the promise of joining the European Union (EU) has become a crucial incentive for reforms, modernization, and reconciliation in the region. As a force for development, the EU has played an irreplaceable role in fostering peace, improving governance, and promoting economic opportunity.

Peace and Political Stability

One of the EU's most significant contributions to the Western Balkans has been its ability to encourage peace and stability in a historically volatile region. The prospect of EU membership has motivated countries like Serbia, Bosnia and Herzegovina, Kosovo, North Macedonia, and others to engage in dialogue, resolve bilateral disputes, and commit to peaceful coexistence. The normalization of relations between Serbia and Kosovo, although challenging, has been driven in large part by the EU-facilitated dialogue. Similarly, the EU accession process has incentivized political elites to prioritize stability over divisive nationalism, which has historically fueled conflict (European Commission, 2018)

Strengthening Governance and Rule of Law

The EU's conditionality mechanism—linking progress on membership to reforms in governance—has been a powerful tool for institutional development. Candidate countries are required to meet strict criteria outlined in the Copenhagen Principles, including respect for democracy, rule of law, and human rights. This has led to significant legal and administrative reforms aimed at strengthening transparency, reducing corruption, and improving public administration. For instance, judicial reforms in Albania and Serbia have been key aspects of their EU accession agendas, aiming to align their systems with European standards.

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While challenges remain, particularly in tackling entrenched corruption and political interference, the EU's role as a monitor and advisor has helped create a framework for long-term governance improvement.

Economic Development and Regional Cooperation

The EU has been a major driver of economic transformation in the Western Balkans. Through instruments like the Instrument for Pre-Accession Assistance (IPA), the EU has invested billions of euros in infrastructure, education, and sustainable development projects across the region. These funds have helped modernize transportation networks, improve energy efficiency, and foster entrepreneurship.

The EU has also promoted regional economic cooperation through initiatives like the Berlin Process and the Common Regional Market, encouraging countries in the region to collaborate on trade, innovation, and infrastructure. Such efforts not only prepare the Western Balkans for eventual integration into the EU's single market but also boost local economies by removing trade barriers and improving connectivity (EEAS, 2020).

The European Union is the largest trade partner (73% of external trade) with an approximately amount of 10 billion euros of investment during the transition period.

Moreover initiatives like the Berlin Process aim to strengthen regional ties to Europe.

Social and Cultural Transformation

European integration has also influenced societal change in the Western Balkans by promoting values such as tolerance, diversity, and gender equality. EU-funded educational and cultural programs have fostered exchanges between the region and EU member states, helping young people develop a European identity and broader perspectives. Programs like Erasmus+ have enabled thousands of students and professionals from the Western Balkans to study and work abroad, bringing new ideas and skills back to their home countries.

Challenges and the Way Forward

Despite these positive impacts, the path to EU membership has not been without challenges. Political stagnation, ethnic divisions, and slow reform implementation continue to hinder progress in many countries. Additionally, growing skepticism within the EU about further enlargement has dampened enthusiasm in the region. However, the renewed EU focus on enlargement, highlighted by the 2023 Tirana Summit, signals a commitment to accelerating the integration process.

For the Western Balkans, EU membership represents not just an end goal but a roadmap for lasting transformation. By fostering peace, strengthening institutions, and promoting prosperity, European integration continues to serve as a leading force for development in the region. Achieving this vision, however, will require sustained efforts from both the EU and the Western Balkan countries to overcome remaining obstacles and build a shared future of stability and progress.

2.2. The United States in the Western Balkans

The Western Balkans has been a region of significant geopolitical, historical, and cultural importance for the United States, especially after the Cold War and the post-conflict period. The U.S. has had a major influence on the political, economic, and military developments in this region, playing a key role in stabilizing and integrating the countries of the Balkans into Western structures such as NATO and the European Union

U.S. diplomacy in the Balkans has been expressed through bilateral relations, official visits, and international engagements, as well as through its representation in international organizations. U.S. policy has supported the spread of democratic values, freedom of expression, the rule of law, and human

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rights in the Balkans. U.S. diplomatic involvement has been particularly important during periods of tension, such as during the Kosovo War (1998-1999) and its aftermath.

U.S. engagement has helped create a stable political environment in the Balkans. Despite internal challenges, American influence has contributed to the stabilization of democratic institutions and promoted the development of free civil societies and media, with continued efforts to combat corruption (Department of State, 2018)

2.3. The Legacy of Western Influence

The involvement of Western powers in the Western Balkans has left a profound legacy. Their interventions helped end some of the most brutal conflicts in post-Cold War Europe and laid the groundwork for the region's integration into Euro-Atlantic structures. However, the path to lasting peace and stability remains fraught with challenges.

Today, the Western Balkans remains a geopolitical crossroads, where Western powers compete for influence with other actors, such as Russia and China. The continued engagement of the West is essential to ensuring that the region moves closer to democratic consolidation and economic development, fulfilling the promise of a peaceful and united Europe envisioned after the Cold War.

Timeline of the most important moments of the Western influence in the WB

Year	Event
1994	Albania entered NATO-s Partnership for Peace
1999	NATO intervention in the Kosovo War. Crucial: Bombing campaign against Beograd
1999	EU Stabilization and Association Process institutionalized in the Western Balkans
2003	Thessaloniki Declaration: Roadmap for the EU accession of the WB countries
2005	Creation of the Energy Community Treaty of Southeast Europe
2006	Montenegro seceded from Serbia & Montenegro, declaring full independence
2008	Kosovo declares independence. US one the first countries that recognize its sovereignty
2009	Albania officially join NATO
2013	Serbia signs its Stabilization and Association Agreement with the EU
2012	TAP pipeline agreement (Greece, Albania, Italy)
2019	Macedonia changes its name, becoming officially "North Macedonia"
2020	Macedonia join NATO
2020	Activation of the TAP pipeline, enhancing energy diversification
2024	Kosovo visa free with the EU
2024	Albania officially opened EU negotiations
Ongoing	China, Turkey, and Russia expand investments in strategic sectors across the region

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3. The Presence of Emerging Powers in the Western Balkans: Russia, China, and Turkey

The Western Balkans, a strategically significant region at the crossroads of Europe and Asia, has historically attracted the interest of global powers. While the European Union (EU) and the United States remain influential actors, emerging powers such as Russia, China, and Turkey have expanded their presence in the region over the past two decades. These powers have leveraged political, economic, and cultural tools to strengthen their influence, raising both opportunities and concerns for the region's future.

Russia: A Political and Strategic Actor

Russia's involvement in the Western Balkans is deeply rooted in historical, cultural, and religious ties, particularly with Serbia and the Serb populations in Bosnia and Herzegovina and Montenegro. Moscow has positioned itself as a defender of Slavic and Orthodox Christian solidarity, portraying itself as a counterbalance to Western influence.

Politically, Russia has sought to undermine the EU and NATO's expansion in the region. It strongly opposes Kosovo's independence and supports Serbia's territorial claims, using this issue to bolster its ties with Belgrade. Russia has also been accused of meddling in internal affairs, including alleged interference in Montenegro's 2016 elections and support for Republika Srpska's separatist ambitions in Bosnia.

Economically, Russia's influence is tied to its energy sector dominance. Through companies like Gazprom, Russia has secured control over key energy infrastructure in Serbia and other countries, making the region dependent on Russian gas supplies. However, its economic footprint is limited compared to the EU, which remains the region's largest trading partner.

China: Economic Expansion Through the Belt and Road Initiative

China's presence in the Western Balkans has grown significantly under its Belt and Road Initiative (BRI). The region represents a key link in China's infrastructure ambitions, particularly as a gateway to Europe.

China has invested heavily in infrastructure, energy, and telecommunications. Projects like the Bar-Boljare highway in Montenegro and coal power plants in Bosnia and Serbia showcase China's role as a major lender and contractor. However, these investments have raised concerns about debt dependency, as countries like Montenegro struggle to repay Chinese loans.

In addition to infrastructure, Chinese companies like Huawei have made inroads in the region's digital sector, raising questions about data security and alignment with EU standards. While China avoids political entanglements, its economic activities often sidestep environmental and governance standards, challenging the EU's influence in promoting sustainable development.

Turkey: A Cultural and Religious Bridge

Turkey's influence in the Western Balkans is shaped by historical ties to the Ottoman Empire and shared Islamic heritage with countries like Bosnia and Herzegovina, Kosovo, and Albania. Under President Recep Tayyip Erdoğan, Turkey has pursued a policy of cultural and economic engagement, branding itself as a bridge between the region and the Islamic world.

Culturally, Turkey has invested in restoring Ottoman-era mosques and heritage sites, fostering connections with Muslim communities. Organizations like the Turkish Cooperation and Coordination Agency (TIKA) and the Yunus Emre Institute promote Turkish culture, language, and education throughout the region.

Economically, Turkey has increased its trade and investments, particularly in sectors like construction, tourism, and manufacturing. Turkish companies have established a strong presence in Albania, Kosovo,

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and North Macedonia, creating jobs and boosting local economies. Ankara also uses soft power, such as scholarships and media influence, to strengthen ties with the region's younger generations (Carnegie, 2019).

Implications for the Western Balkans

The growing presence of Russia, China, and Turkey in the Western Balkans offers both opportunities and challenges. On the one hand, their investments and partnerships provide alternatives to EU assistance, addressing infrastructure gaps and fostering economic growth. On the other hand, these emerging powers often undermine EU norms and values, such as transparency, environmental sustainability, and good governance.

Moreover, their competing interests could exacerbate existing divisions within the region. Russia's geopolitical ambitions risk destabilizing fragile political landscapes, while China's debt-driven projects raise long-term economic concerns. Meanwhile, Turkey's influence, though primarily cultural, has the potential to deepen religious and ethnic divides.

As the Western Balkans navigate their path toward EU integration, the presence of emerging powers like Russia, China, and Turkey highlights the region's geopolitical significance. While their engagement offers opportunities for development and diversification, it also underscores the need for balanced partnerships that prioritize stability, sovereignty, and alignment with European values. For the Western Balkans, managing these relationships will be crucial to achieving long-term peace and prosperity.

Country	Key Sector Focus	Major Projects/Investments
China	Infrastructure, Energy	Belgrade-Budapest railway, Montenegro highway
Turkey	Banking, Construction	28% of banking assets in Albania, investments in Kosovo and Bosnia
Russia	Energy, Tourism	Russian gas pipeline in Serbia, tourism investments in Montenegro

4. Western Balkans: a battlefield between the West and the East: How Russia, China, Turkey try to expand influence through investments in strategic sectors across the region

The Energy Sector

Russian Dominance and Strategic Interests

Russia has long viewed energy as a cornerstone of its influence in the Western Balkans. For example, Russia's state-controlled Gazprom has secured long-term gas supply agreements with Serbia, ensuring the country's reliance on Russian energy. Additionally, projects like the TurkStream pipeline not only strengthen Russia's foothold in the region but also bypass Ukraine, furthering its geopolitical goals.

During negotiations with the EU over sanctions, Russia has used the threat of gas supply cuts as a bargaining chip, demonstrating how energy serves as a tool for both economic and political leverage. Through state-controlled companies like Gazprom, Russia supplies natural gas to Serbia, Bosnia, and North Macedonia, using energy dependency as leverage in political and economic negotiations. Projects such as the TurkStream pipeline further entrench Russia's role in the region. The reliance on Russian energy exposes these countries to significant geopolitical risks, particularly in light of the EU's efforts to diversify energy sources (Warsaw Institute, 2018)

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China and Renewable Energy Initiatives

China's involvement in the energy sector focuses on renewable energy and infrastructure development. Projects like the Kostolac power plant expansion in Serbia showcase China's strategic use of concessional loans to gain influence. (European Parliament, 2023)

Additionally, Chinese investments in hydro and solar energy projects align with the region's push for sustainable development but raise concerns about debt dependency.

The Role of the EU and the TAP Project

The EU remains the primary driver of energy diversification in the Western Balkans. The Trans Adriatic Pipeline (TAP), which transports natural gas from Azerbaijan to Europe via Albania, underscores the EU's commitment to reducing the region's reliance on Russian gas. The EU's Energy Community Treaty also fosters regional cooperation and regulatory alignment with European standards. (European Parliament, 2023)

- ✓ **Bosnia: Limited energy diversification, reliant on Russian gas.**
- ✓ **Albania: Hydro-focused energy system with potential for renewable expansion.**
- ✓ **Serbia: Dependency on Russian gas via Srbijagas.**
- ✓ **TAP and IAP: Key EU-backed diversification projects.**

Infrastructure and Transportation

China's Belt and Road Initiative

China's Belt and Road Initiative (BRI) has significantly impacted infrastructure development in the Western Balkans. Flagship projects such as the \$3.6 billion Belgrade-Budapest railway and the Bar-Boljare highway in Montenegro demonstrate China's extensive engagement. As of 2023, Chinese investments in the region's transport and infrastructure sectors exceed \$5 billion, with projects spanning rail, road, and port developments. (Warsaw Institute, 2023)

However, these ventures often come with high-interest loans, contributing to growing concerns about debt sustainability and long-term dependency on Beijing. Flagship projects like the Belgrade-Budapest railway and highways in Montenegro exemplify China's focus on creating transport corridors that connect Europe with Asia. These projects, however, often come with high-interest loans, leading to debt crises, as seen in Montenegro's highway project. (Carnegie Europe, 2019)

Turkey's Regional Investments

Turkey has prioritized infrastructure investments to strengthen its cultural and economic ties with the region. In Albania, Turkey has financed major construction projects, including hospitals and airports. These investments not only enhance Turkey's soft power but also serve its long-term strategic interests.

EU's Counterbalance Efforts

The EU's Berlin Process aims to counter external influence by funding infrastructure projects that promote regional connectivity. However, EU investments often lack the scale and speed of Chinese initiatives, making it challenging to compete effectively.

Financial Influence and Debt Dependency

China's Debt Diplomacy

China's financial strategy in the Western Balkans revolves around providing concessional loans for large-scale infrastructure projects. While these loans facilitate rapid development, they often lead to unsustainable debt levels, limiting the recipient countries' financial sovereignty. Montenegro's \$1 billion highway project serves as a cautionary tale of debt dependency. (European Parliament, 2022)

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Turkey's Banking Presence

Turkey has established a strong presence in the region's financial sector, particularly in Albania and Kosovo. Turkish-owned banks, such as BKT in Albania, control significant market shares, enhancing Turkey's economic influence.

Russia's Limited Financial Role

Russia's financial influence is comparatively limited but strategically targeted. Investments in energy and tourism sectors in Montenegro and Bosnia bolster Russia's economic footprint while aligning with its broader geopolitical objectives (Department of State, 2020)

- **China:**

Share of FDI: 3% of total investments in the region.

Key Projects: Belgrade-Budapest railway, North Macedonian highways.

- **Turkey:**

Investments: 604 million Euros in Albania (2023).

Sectors: 28% of banking assets in Albania.

- **Russia:**

Largest investor in Montenegro (10% of GDP in 2023).

Focus: Energy and tourism.

Cultural Diplomacy and Hybrid Warfare

Turkey's Soft Power

Turkey leverages its shared cultural and religious heritage with the Balkans to strengthen ties, which translates into tangible outcomes such as increased bilateral trade, expanded investment in critical sectors like infrastructure and finance, and stronger political alliances with countries like Albania and Kosovo.

These connections also allow Turkey to influence regional policies, particularly in areas aligned with its strategic interests. Initiatives by organizations like TIKA and Diyanet focus on restoring Ottoman-era monuments, funding educational institutions, and promoting Islamic culture. These efforts deepen Turkey's influence, particularly in Muslim-majority areas.

Russia's Information Warfare

Russia employs hybrid warfare tactics, including disinformation campaigns and cyberattacks, to undermine Western influence. Pro-Russian media outlets in Serbia and Bosnia propagate narratives that align with Moscow's geopolitical goals, fostering divisions within the region (Warsaw Institute, 2018)

China's Confucius Institutes

China's cultural diplomacy is centered around educational and cultural exchange programs. Confucius Institutes in Serbia and other countries promote Chinese language and culture, complementing Beijing's economic initiatives (EEAS, 2020)

5. A neorealist perspective on the Western Balkans. The dominium of the US through technical support, financial AID and NATO

Neorealism, a prominent theory in international relations, emphasizes that the behavior of states is shaped primarily by the structure of the international system, particularly its anarchic nature. According to neorealism, states act out of necessity to ensure their survival and maximize their security within this anarchic system. This often leads them to pursue power, form alliances, and engage in balancing behaviors against perceived threats.

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The Western Balkans, with its complex geopolitics, historical tensions, and strategic importance, is a region that fits well within a neorealist framework. The role of great powers, especially the United States, in shaping the region's political and economic trajectory illustrates how external powers exert influence through both direct and indirect mechanisms, including foreign aid.

Neorealism, developed by Kenneth Waltz in his seminal work “Theory of International Politics” (1979), argues that the international system's structure—namely, its anarchic nature—forces states to prioritize survival. In this view, states are rational actors, motivated by security concerns and a desire to maintain their autonomy in a system where no central authority exists to enforce order. Great powers, such as the U.S. and Russia, behave strategically to maximize their influence and ensure that no rival power dominates a given region.

John Mearsheimer, another key figure in neorealism, argues that states, particularly great powers, seek regional hegemony to guarantee their security. For the Western Balkans, this theory underscores the external competition for influence between global powers such as the U.S., Russia, and the European Union.

The Western Balkans has long been a region where the U.S. and other external powers, particularly Russia and the EU, compete for influence. The region's strategic location between Europe and Asia, its historical and ethnic divisions, and its desire for stability and economic development make it a crucial focal point in global power dynamics.

A key feature of the neorealist approach is that states are heavily influenced by the strategic actions of great powers. In the case of the Western Balkans, the U.S. has consistently sought to extend its influence in the region, often as part of broader geopolitical considerations, including the containment of Russian power and the expansion of Western institutions like NATO and the EU.

The U.S. has been a major contributor to the region's post-conflict reconstruction, primarily through financial aid and diplomatic efforts aimed at integrating the Balkans into Euro-Atlantic structures. At the same time, Russia has attempted to maintain its influence in countries like Serbia by leveraging historical, cultural, and religious ties.

U.S. foreign assistance to the Western Balkans is a key element of its strategic policy in the region. Since the end of the Yugoslav Wars in the 1990s, the U.S. has provided substantial financial support aimed at promoting political stability, economic development, democratic governance, and the integration of the Balkans into NATO and the European Union. According to the U.S. Agency for International Development (USAID), the U.S. has allocated over \$1.5 billion in assistance to the Western Balkans in recent years.

In particular, the U.S. has focused on building institutional capacity in countries like Bosnia and Herzegovina, Kosovo, and Albania, providing financial support for democratic reforms, rule of law, anti-corruption initiatives, and civil society development.

Additionally, the U.S. has provided funding for infrastructure projects and private sector development aimed at fostering economic growth. Financial support also includes security assistance, aimed at strengthening the region's defense capabilities and promoting NATO integration.

For example, the U.S. has provided military aid to countries like Montenegro and North Macedonia to support their accession to NATO. This assistance is part of a broader U.S. strategy to secure the region against potential destabilizing factors, including Russia's influence and internal ethnic or political tensions. (Department of State, 2020)

From a neorealist perspective, U.S. financial support is not merely a form of charity but a strategic tool aimed at countering the influence of rival powers, particularly Russia. Russia, which maintains close

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ties with Serbia, has opposed NATO expansion and has been vocal in its support of Serbia's stance on Kosovo, while attempting to prevent the region from fully integrating into Western institutions.

The U.S. response to this has been to provide not only diplomatic and military support to states like Kosovo but also substantial financial aid, further entrenching the region's ties to NATO and the EU. U.S. assistance in this context can be viewed as an effort to solidify the region as part of the Western sphere of influence, reducing the ability of Russia or other external actors to exert power over it.

Security Dilemmas and U.S.

The concept of the "security dilemma," which is central to neorealism, can be seen in the way regional powers in the Balkans react to U.S. aid and NATO expansion. For example, Serbia perceives NATO's enlargement and the U.S.'s financial support for Kosovo as threats to its territorial integrity and national security. Similarly, countries like Bosnia and Herzegovina and Montenegro, although aspiring to integrate into NATO and the EU, must balance their relations with Russia, which views NATO's expansion as a direct challenge to its influence in the region.

As states in the region engage in these balancing acts, U.S. aid serves as both a means of securing its own interests in the region and a tool to mitigate the security dilemmas faced by these states. The U.S. uses aid to help stabilize these countries, reduce tensions, and encourage cooperation, even as it navigates the competing interests of Russia and the EU.

The Western Balkans is a region where the principles of neorealism are evident: great powers (the U.S., Russia, and the EU) vie for influence, regional states act out of security concerns, and the distribution of power shapes the political landscape. U.S. financial support plays a crucial role in this dynamic. Through direct aid and security assistance, the U.S. seeks to ensure that the region aligns with Western interests, promoting stability, democracy, and integration into Euro-Atlantic structures. While Russia seeks to counterbalance these efforts, the ongoing competition for influence in the region highlights the enduring relevance of neorealist theory in understanding the geopolitics of the Western Balkans.

Hybrid Warfare: A Neorealist Tool

Hybrid warfare represents a critical dimension of the competition in the Western Balkans. Russia employs disinformation campaigns through media outlets in Serbia and Bosnia to foster anti-Western sentiments and strengthen pro-Russian narratives. Cyberattacks targeting government institutions have also been reported, further destabilizing the region.

China uses economic coercion, tying countries like Montenegro to high debt levels through strategic infrastructure projects, subtly influencing their policy decisions. Meanwhile, Turkey utilizes cultural diplomacy as a hybrid tactic, emphasizing religious and historical ties to assert influence while simultaneously funding strategically significant projects like mosques and schools (NATO, 2019).

These examples illustrate how hybrid warfare combines military and non-military tools to achieve strategic goals, reflecting the neorealist emphasis on power competition. Emerging powers use non-military means to achieve strategic objectives, including:

- Disinformation campaigns to shape public opinion.
- Cyberattacks targeting government institutions.
- Economic coercion through debt and investment dependencies.
- These tactics reflect the neorealist emphasis on power dynamics and strategic competition.

The competition among emerging powers exacerbates existing vulnerabilities in the Western Balkans. Key challenges include:

- **Debt Crises:** Unsustainable loans from China and others threaten economic stability.
- **Political Polarization:** Competing influences hinder regional cohesion.

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- **Energy Security:** Reliance on Russian gas remains a significant risk.

Despite these challenges, the region's integration into Euro-Atlantic structures offers a pathway to stability. The EU's focus on regulatory alignment and sustainable investments provides a counterbalance to external pressures.

6. Conclusion

Emerging powers like Russia, China, and Turkey have increasingly shaped the geopolitical landscape of the Western Balkans in recent years. Each power brings a unique set of strategies, ranging from economic investments to political alliances and cultural influence. Russia seeks to maintain its historical ties and counter Western influence, particularly by supporting Serbia and opposing Kosovo's independence. China, through its Belt and Road Initiative, has focused on infrastructure development, increasing its economic footprint despite concerns over debt dependency and governance standards. Meanwhile, Turkey leverages its Ottoman heritage and cultural diplomacy to strengthen ties with the region's Muslim-majority countries, while also investing in key economic sectors.

These powers provide the region with alternatives to EU and NATO involvement, creating new economic opportunities. However, their presence also presents challenges, as they sometimes undermine EU standards on governance, environmental protection, and democracy. Furthermore, their competing interests have the potential to heighten regional tensions.

In contrast to these emerging powers, the United States and the European Union continue to play pivotal roles in the Western Balkans, offering substantial investments, technical assistance, and security guarantees. The EU remains the region's primary economic partner, providing financial aid, access to the single market, and the prospect of eventual membership. Its support for democratic reforms, the rule of law, and human rights stands in sharp contrast to the often opportunistic strategies of Russia, China, and Turkey.

The U.S. also plays a critical role through its support for NATO, which has been vital for regional stability. NATO's presence in the Balkans, particularly after the Kosovo conflict, has acted as a guarantor of peace and security, deterring potential conflicts and fostering regional cooperation. The assistance and military presence of NATO, combined with its role in promoting democratic institutions, serve as counterweights to the influence of emerging powers, ensuring that the region's long-term development aligns with European and Western values.

From a neo-realist perspective, this geopolitical tug-of-war in the Western Balkans can be understood in terms of power, security, and the struggle for regional influence. Neo-realism argues that states act in their national interest, primarily seeking security and power, especially in a system where no central authority exists. In this context, the Western Balkans is a region of strategic importance due to its proximity to both the EU and Russia, as well as its role in the broader geopolitical dynamics of Europe.

For Russia, China, and Turkey, their involvement in the Balkans can be seen as part of a broader strategy to challenge Western dominance and maintain or expand their influence. Russia, in particular, views the Balkans as a vital area to prevent NATO's further expansion and to secure its position as a regional power. China uses economic investments to create dependencies, thus gaining leverage over Balkan states, while Turkey seeks to reinforce its influence over the region's Muslim-majority countries as part of its broader regional ambitions.

Meanwhile, the EU and NATO's engagement is driven by their desire to maintain stability in Europe, prevent the spread of instability from the Balkans, and integrate these countries into their security and

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economic frameworks. NATO's military presence and the EU's diplomatic and economic support are essential tools for ensuring that the region does not fall under the influence of rival powers.

Ultimately, the Western Balkans' future will be shaped by the balance of these competing powers. The neo-realist approach emphasizes the notion of a multi-polar world where regional powers assert their influence, but also where great powers like the U.S. and EU continue to hold significant sway. This creates a complex interplay where emerging powers challenge Western hegemony, but are also constrained by the existing influence of NATO and the EU. The region's stability will depend on how these forces manage their interests and navigate the competitive pursuit of power in the Balkans.

The Western Balkans exemplify the neorealist concept of strategic competition among great powers. Emerging actors like China, Turkey, and Russia leverage economic, cultural, and hybrid tools to expand their influence, challenging the traditional dominance of Western powers. While these interactions offer development opportunities, they also pose risks to regional stability and sovereignty. Balancing these influences through strategic policy choices and deeper integration into Euro-Atlantic frameworks will be crucial for the region's future.

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A FAMILY-BASED APPROACH IN THE CARE ECONOMY

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ABSTRACT

While family carers supply the bulk of caring in most countries, including North Macedonia, a family-based approach is lacking in the design and delivery of services, where every member of the family is empowered to make their choices and to access sufficient resources, time arrangements and services to live in dignified conditions and fully participate in society; but also where no family should be excluded because of their composition, economic resources or the disability status of one of their members. The aim of this paper is to explore the potential for incorporation of a family-based approach in the design and delivery of care services within the care economy. The specific objectives of this paper are: to conduct a comprehensive review of existing national legal and policy framework and international guidelines on family-based approaches and to assess the current landscape of care services, the effectiveness of and challenges in implementation of existing care service models and the level of family involvement in these practices. A qualitative methodology was employed, based on literature review and secondary data analysis, semi-structured interviews with key government stakeholders and focus group discussions with formal and informal caregivers and care recipients. A total of n=45 individuals participated in the study. The results showed that there are efforts to incorporate a family-based approach in the care economy, especially through the adoption of new social protection law. The current benefits and services in North Macedonia follow an integrated life-cycle approach, however they are limited in number, forms, geographical distribution and quality. Affordability for the services is hampered by the low economic status of the families. Yet, in some cases co-payment was a solution for some families.

Keywords: family-based approach, care economy, disability, older persons, social protection

INTRODUCTION

The family-based approach means both that every member of the family is empowered to make their choices and to access sufficient resources, time arrangements and services to live in dignified conditions and fully participate in society; but it also means that no family should be excluded because of their composition, economic resources or the disability status of one of their member (COFACE, 2022). Family-based approaches can be key in maximising the impact of resources and identifying opportunities to support carers, and to ease the very real risks to health and wellbeing that caring can bring (Government of the United Kingdom, 2015). Families and carers are an integral part of the design, delivery and evaluation of services and support, implying that the system of care services should be designed by putting in the centre not only the care recipient needs but also family members' needs, and especially the carers' needs. This principle should be diffused in policy development and all the processes of service design, from prevention to delivery.

As no single approach is likely appropriate for all circumstances, achieving a family-based approach should attend to several strategies, including:

(1) Identification and assessment of family caregivers through their own interactions with the care system (e.g., annual exams, employment offices),

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- (2) Identification, assessment, and support of family caregivers who accompany care recipients to medical visits or to visits in the social services (e.g., hospital admission/discharge, medical commissions for persons with disability, Centers of Social Work or others), and
- (3) Systematic attention to care recipient preferences for engagement of families.

Context of North Macedonia

Population ageing in the Republic of North Macedonia is becoming a serious challenge, in parallel with lower birth rates and changing family structures. During the period 2008-2018, the share of the younger population (0-14) steadily fell (from 18.1% in 2008 to 16.4% in 2018) and the share of the old age group (65+) increased from 11.5% in 2008 to 14.1% in 2018. Projections indicate that the latter will reach 18.2% in 2030 and 25.4% in 2050, which is significantly alarming for current and future demographic (and other) policies. The share of the population aged 75 or over was 5.2% in 2018 (with predicted levels of 7.2% in 2030 and 11.5 % in 2050); and the old-age ratio increased from 16.3 in 2008 to 20.2 in 2019 (compared with the EU-28 average of 30.8%), with a projected level of 27.4 in 2030 and almost 42 in 2050 (Gjorgjev, 2021).

Regarding persons with disability the recent Situational Analysis of the Rights of Persons with Disability (2021) points out the lack of disability-specific and disability-disaggregated data, combined with a lack commitment to mainstream disability in existing data collection methodologies (UNRPD, 2021). However, in 2018, the Employment Agency registered 1,328 unemployed PWD, 440 of whom were women (European Bank for Reconstruction and Development, 2018). Also, in 2020 it resulted that 6,593 adult beneficiaries, 0.32 per cent of the total population (benefiting 3,798 children) were on special allowance for children and youth from 0 to 26 years old, and 11,051, 0.58 per cent of the population benefited from disability supplement (Barca, 2020).

Family structures and population structure have been changing rapidly, while the young population continues to emigrate abroad, and the elderly population remains in the country (WHO Regional Office for Europe, 2021). Care for people that need it (elderly, disabled, children) is predominantly managed by families instead of professional care providers or institutions, often attributed to inadequate public funding and cultural norms favouring familial care. Long-term care system is characterized by a strong reliance on informal care, supported by cash benefits for persons with disabilities and their families and a care part-time work allowance, organized and financed by the central government. Benefits in kind, which fall under the combined responsibility of the central and local governments, remain a more marginal aspect of the system as the result of limited infrastructure, particularly in rural areas (InCare, 2022).

Meanwhile, funding for home care services for eligible individuals (elderly, disable, people with chronic conditions etc.) has increased with a focus on community-based services and supporting independent living. While these efforts have helped to improve services, challenges remain, including low public spending and a shortage of qualified care providers.

To address the challenge of women low participation in the labour market and further social inclusion and the need for care provision for people that need it, an innovative programme was implemented by UNDP and its partners, Ministry of Labour and Social Policy (MLSP) and Employment Service Agency (ESA) - the Community Works Programme (CWP) - that challenged social exclusion on two fronts at once. This program was designed to tackle social exclusion by offering unemployed people the opportunity to gain valuable working skills while providing social services to those who are most at risk of social exclusion. Between 2012 and 2019, a total of 2,559 unemployed people was engaged in the Community Works Programme, out of which 2,203 participated for the first time. Since 2013, there has been a trend of more engaged unemployed people. The municipalities that have been involved in the

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CWP have implemented social services projects focused on several target groups: persons and children with disabilities, preschool children, the elderly and infirm, socially disadvantaged families, etc. In the same period, the CWP covered a total of 53,250 beneficiaries of services. . (Bornarova and Bogoevska, 2020).

Aim and objectives

This paper aims to explore the potential incorporation of a family-based approach in the design and delivery of care services within the care economy.

The specific objectives of this paper are:

- To conduct a comprehensive review of existing national legal and policy framework and international guidelines on family-based approaches.
- To assess the current landscape of care services, the effectiveness of existing care service models and the level of family involvement in these practices.

MATERIALS AND METHODS

Research design: A mixed methods approach was used for the preparation of this study, having the qualitative component as its main axis. This approach ensured data *triangulation* and gave more insight on country specific challenges and opportunities for the provision of family-based approaches and further family involvement in care provision.

Research steps: The specific steps for the development of this study were:

1. Literature review - a thorough examination of the current body of research about care provision in North Macedonia was conducted, focused in particular in elderly care, childcare, care for persons with disabilities and home-based care, considering the role of unpaid care and family contribution to caregiving and also the legal and policy framework.
2. Secondary data collection of statistical indicators in relation to service provision by the public sector and informal/family care provision was carried out based on the existing reports and data.
3. Primary data collection with interviews and focus group discussions (FGDs) with different stakeholders. The main participants in primary data collection were: central and local government representatives in Skopje, Gostivar and Veles, service providers-part of the Community Works Programme and beyond, care recipients and caregivers and UNDP staff.

Research tools: The research tools that were used in this process for the primary data collection were semi-structured interview with central and local government representatives, policy experts and academics, semi-structured interview with UNDP staff, FGD with service providers and FGD with carers, other family members and care recipients

Sample: The sampling frame for policy analysis were key stakeholders in North Macedonia at central and local level, service providers, caregivers and care recipients, policy experts and academics. A total of $n=45$ persons participated in this study.

Data collection, transcription and analysis: During data collection through interviews and FGDs notes were taken and when allowed they were recorded. These interviews and FGDs were transcribed and processed for data analysis. Confidentiality of the interviews was strictly preserved. The qualitative data were coded and organized around the main themes of primary data collection. Sub-codes were further developed, merged and rearranged based on the variations and new insights emerging during narrations.

Ethical considerations: Ethical standards and procedures were ensured during the research design phase, data collection and analysis. The fundamental standards that were applied in practice were:

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- subjects were not placed at undue risk;
- the participation was voluntary, and subjects were provided and agreed to informed consent prior to their participation; and
- confidentiality or anonymity of the subjects was ensured.

RESULTS

Legal framework and its implementation

The main legislative acts underpinning the delivery of cash and in-kind benefits and services include: the Social Protection Law, the Child Protection Law, the Law on Social Insurance of the Elderly, Law on Pension and Disability Insurance the Law on Employment and Insurance in Case of Unemployment, and the Family Law (Barca, 2020). These legal documents regulate different aspects throughout phases of lifecycle and are currently very well-consolidated. In this analysis reference will be made only to the most relevant measures.

Based on the legislative review and the primary data collection, there are limited mechanisms in place that consider the needs of the family, which are really underused. For example, the Centers for Social Work indeed are supposed to conduct an assessment of the needs of beneficiaries and their families, however in practice this is not implemented on a regular basis. Currently, their practice is limited only in conducting an assessment of the needs of the care recipient and in allocating the hours for home-care provision. According to the participants, the family needs are not assessed thoroughly, and sometimes they may even ‘copy-paste’ the same issues in their forms from one family to the other. Limited consideration of the family needs is evident in the work of the coordinators of the municipalities for the Community Works Program or the ones from NGOs that run programs related to care provision. Considering the law doesn’t encompass a full assessment of the needs of the family caregivers, the professionals and agencies working in the field are not prone to do it on their own, with the exception of some very experienced NGOs that employ a more holistic approach. Hence, even though the care recipient is at the center of the needs assessment to a certain degree, his/her family is not neither in the legal requirements, let alone in practice.

Another system where the family-based approach is not currently incorporated is the healthcare system, either primary health care or tertiary care (hospitals). The international practices suggest to include at least an assessment of the family caregiver’s needs when the care recipient is using the health care system, e.g.

- In tertiary health care, before a discharge from the hospital, when knowing that the patient is going to need assistance for ADLs or IADLs, the hospital can and should do a needs-assessment for the patient AND his/her caregiver.
- In primary health care, where often patients with reduced functionality are accompanied by their family members there should be a mechanism to assess the needs of the patients/care recipients AND their family caregivers

Moreover, for persons with disabilities when they go through the assessment of their functionality from the expert’s commissions, a full needs assessment for the person with disability and his/her family member should be carried out. At the moment, in North Macedonia even the needs of the person with disability are not assessed thoroughly, they mainly have medical basis. The new assessment method, based on International Classification of Functioning, Disability and Health (ICF) that has started its implementation in the country is promising, though it is not widely used. It is important to incorporate a full assessment of the family caregiver during this process as well.

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Thus, the social protection sector (Centers for Social Work, Social Sectors at the Municipality) and the health sector (primary and tertiary health care and commissions for the assessment of persons with disability) are entry points for the identification of family caregivers and for the assessment of their needs or the whole family needs and for this reason, they should include these processes and tools in their protocols.

Current landscape of benefits and care services

The current legal and policy framework in North Macedonia is very well developed. It employs a lifecycle approach, without any apparent gap throughout the life of a person, in terms of the cash benefits (s)he receives. For persons with disabilities, children or elderly there are different allowances, starting from birth to the end of life. Overall, the cash benefit programmes offered within the social assistance system comprehensively map against key lifecycle and other risks, as well as broader vulnerabilities (disability, caregiving, etc.), with no obvious gaps emerging.

The Social Protection Law introduced a wide range of new community-based social services that were previously inexistent (respite care, kinship care, personal assistance, half-way houses, etc.) and at the same time it extended and strengthened several existing services (social prevention, rehabilitation and integration, counselling). The social services, as presented in the law are found below: information and referral services, professional assistance and support services, counselling services, home services, community services, services for care outside of the family

From policy to practice – effectiveness of and challenges in the implementation of family-based approach in design and delivery of care services

Notwithstanding the extensive and well-developed legal and policy framework for the provision of care services in North Macedonia with the participation of families, there are still several challenges to face when it comes to its implementation. These were evidenced mainly from the interviews and FGDs conducted for this study. The challenges are related to the mechanisms in place that encompass a family-based approach and the sufficiency of resources and services to ensure a life with dignity for the care recipients and their families. Sufficiency of resources and services in this paper will be deciphered in terms of availability and accessibility of services, affordability and quality.

Availability and accessibility of care services

Cash benefits over care services. The participants mentioned in several occasions that the different governments favoured cash benefits over services, because it gave them a political advantage, especially in pre-electoral periods. However, this tendency has put added pressure to the government budget, which was/is already limited; and it has restricted potential investments on the number, typology and geographical distribution of care services.

For example, the disability allowance is given to all the persons with disabilities, without any prior needs-assessment process, except for the one given by the medical commission for the assessment of persons with disability. A new method for disability assessment is being piloted and will be soon implemented in the whole country. But even in this case, the needs of the family caregivers are neither identified/assessed nor is there a comprehensive plan to meet them. Inevitably, these limited processes lead to a lack of tailored services for the care recipients and their families.

Limited availability of services. Limited availability or lack thereof of services in some areas of the country has been highlighted, particularly in rural areas, but also in municipalities with fewer financial and human resources. According to the representatives of local government, they do conduct a social mapping of the vulnerable groups in urban areas, however situation in rural areas it not clear for them. Hence, the real needs of the rural population are not identified or assessed, while the provided services

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in those areas are really scarce. Services like physiotherapy, speech therapy or even personal or home-care assistance or others are largely lacking in rural areas or in poor municipalities.

The municipalities with fewer resources seem to be in a vicious circle: in order for them to receive funding from the central government and to develop care services (or other social services) they need to develop a local social plan, with specific costed activities. However, considering these municipalities are usually understaffed they are unable to draft a quality social plan, and hence they remain stagnated, without much development in service provision.

Another example of limited provision of services in both urban and rural areas is the personal assistance for persons with reduced functional capacity offered through the Community Works Programme or the 7.2 Active Labour Market Measure 'Training and employment of individuals for the provision of community care services'. These programs have been widely welcomed from care recipients and their families. The Centers of Social Work are responsible to conduct an assessment of the needs of the care recipient and allocate an amount of hours for personal assistance based on their needs, but no more than 80 hours per month (Social Protection Law) or 20 hours per week. Yet, in practice the number of allocated hours for care recipients is low, ranging from 1 ½ hour per day to a maximum of 4 hours, but the latter is really rare because the person should not have any family caregiver to care for him/her. That being said, the real needs of the care recipient and his/her family members remain unmet, because these time arrangements are not sufficient for the family caregiver to continue participating in the labour market, in education or in other life aspects.

Accessibility to the existent care services is hampered by lack of information, as was mentioned is several times from the participant family caregivers and care recipients. Typically, the local NGOs are engaged in informing their service users about the different services, however their scope is limited compared to the one of the Centers of Social Work (CSW). It seems that the CSW have currently different and multiple roles and duties, while being already understaffed. This leaves little space for them to be proactive, and inform the citizens in their territory about the new services. Representatives of the CSW confirmed their workload is heavy and that they wouldn't have available time to inform citizens in the community. E.g. in some occasions family caregivers mentioned that they were informed about the Community Works Programme via a local NGO, while the programme might have been running for more than a year. In addition, for rural areas the transportation cost is a major challenge to access/benefit from care services. Community-based services are scarce in villages or remote areas, while the service providers find it more difficult to provide services in these areas for the same reasons.

Non-governmental sector and care services. NGOs operating in the care services field, while being very interested in getting a license to provide different social services, they encounter difficulties in the process. According to the participants the licensing procedure per se is not difficult, the criteria are clear and the process is smooth. Nevertheless, as it is, the system requires that the same service provider has to get separate license for every service that it will provide. In order to be licensed to provide both personal assistance in home and respite care it had to get through two different licensing procedures: one for personal assistance and another one for respite care. Even though the procedure is not difficult, it is still an added bureaucracy for the NGOs. A second barrier for NGOs is related to the limited funding they receive for the care services. The price per hour of service is standard and regulated by the Ministry each year and in many cases it is not enough to provide these services with quality, neither to give incentives to the human resources that will be engaged in care provision, as discussed in the respective section below. To add to that, there aren't any foreseen administration costs or employee costs whatsoever, so the NGO's coordinator of these services (mainly for personal assistants) should find other means to get a salary. This situation leaves almost no room for a sustainable family-based approach on behalf of the NGO sector.

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Limited motivation to use salary supplements or other measures. Regarding the use of salary supplement for family members of persons with disabilities there are barriers to implement it in practice. They have the right to work reduced hours and receive 50 per cent of previous years' salary and up to 50 per cent of country's average salary. Still, in practice this is not always feasible. Employers, particularly in the private sector, are not open to use such measures, because they believe they drop the business performance. Even though the wage of the employee-parent of a child with a disability is subsidized by the state, the employee is still not working the full shift. This issue is more prominent in rural areas, where the majority of businesses are small and the absence of one employee can indeed affect the workflow and daily activities.

Affordability

Social services like personal assistance, home-care, community-based services are given free of charge to all the eligible citizens. For personal assistance the total allocated number of hours per month is 80 hours, but in practice the care recipients get to have less than 4 hours per day. To gain access to these services a person with disability should go through a medical commission, where they receive the recommendation for the necessary hours for personal assistance. This recommendation is executed from the Center of Social Work. However, the latter can change the total number of allocated hours, based on the total number of users and available personal assistants. In practice, this means that they can have even less hours than indicated by the medical commission.

The price for the services is standard and is regulated by the government, adjusted each year as per the inflation rate. When the services are provided through NGOs, based on a contract with the municipality, they have to refer to the same price per hour. As elaborated earlier the price per hour is low for NGOs and it doesn't include any coordination/administration costs, which makes it less appealing for them to enter this market, unless they have other running projects and they can cover their salaries through them, which is again demotivating. Additionally, due to the low referral price for service and the low salaries of the involved personal assistants²³ the quality of the services can be affected.

When it comes to co-payment for the same services the situation in different cities varies. In wealthier municipalities, there is a greater possibility for the services of personal assistance, home-help and home-care, palliative care, respite care and other services to be paid fully or co-paid by the care recipients and their family members. In that way, both care recipients and their families can continue living with dignity and independently to the extent possible.

However, in poorer municipalities the situation is different. In municipalities like Veles or Kesila Voda, the number of people in vulnerable situation is higher and their purchasing power is lower. The representatives brought up an example of a time when the Community Works Programme was interrupted and the same personal assistants offered their services privately with a fee, but the majority of the users didn't hire them. In municipalities with high migration rates and high remittances the possibility to pay fully or co-pay for these services is higher. Yet, there aren't any situational assessments or studies that would explore in deep the percentage of care recipients that could pay and the percentage of co-payment.

Another typical phenomenon that hampers the use of co-payment methods is the expectation to get services free of charge, which is amply evident among the users of social assistance and social protection schemes. One example mentioned by a local government representative was that of users having a good enough income or pension and still using services like "Kitchen for people", that provided free meals.

²³ Depending on the program through which they are employed personal assistants can have either a minimal wage with social and health insurance, or a compensation less than the minimal wage, but without losing their right to Guaranteed Minimum Assistance.

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Thus, it can be assumed that there are three categories of users: the ones with low purchasing/contributing capacity, the ones with middle income that can probably co-pay for the services to a certain degree that needs to be defined based on a needs assessment, and the ones with high purchasing capacity of the family or extended family (e.g. with children living abroad and caring for elder parents) that can pay the full price for the services. To understand the real needs and possibilities of the families, an assessment should be conducted prior to any service provision, by the municipality or the CSW.

Quality of services

The quality of the services is ensured through different means, beginning with the existence and monitoring of quality standards for service provision. As it results currently in the Rulebooks for respite care and for other social services there are structural standards that the service providers should fulfil to be licensed, but there aren't any process quality standards, related to the qualifications of the staff, to the communication and interaction between them and the care recipients or their family members, the effectiveness of the services, the different ways the services should be provided or other important process indicators. Representatives from the Employment Service pointed out that even as it is now, they don't have sufficient budget nor human resources to conduct inspections, as the law requires.

Nonetheless, from the current data collection it results that the care recipients and their families were satisfied with the quality of the services provided from the personal assistants in their homes.

CONCLUSION

Although the legal framework in North Macedonia is well-developed, there are limited mechanisms in place that consider the needs of the family, which are underused. Centers for Social Work are supposed to conduct assessments of beneficiaries and their families, but their practice is limited. The healthcare system, either primary or tertiary, also lacks a family-based approach. International practices suggest including a needs assessment for both the patient and their caregiver when the care recipient is using the healthcare system. The needs of persons with disabilities are not assessed thoroughly, mainly based on medical basis. The social protection sector and health sector should include these processes and tools in their protocols to better identify and assess family caregivers and their needs.

The government frequently emphasizes cash benefits above care services, resulting in budget constraints and less investment in care services. This has caused a lack of personalized assistance for care clients and their families. Another concern is a lack of service availability, especially in rural areas and disadvantaged communities. Local government officials do social mapping of disadvantaged groups in cities, while the situation in rural areas is unclear. Physiotherapy, speech therapy, and personal or home-care help are all severely underserved in rural areas and disadvantaged municipalities.

Municipalities with limited resources frequently fail to develop quality social plans, resulting in stagnant service provision. Donor-funded projects provide personal support to people with limited functional capacity, however the hours allotted are frequently insufficient to meet the actual needs of care users and their families.

Access to care services is hampered by a lack of information, with local NGOs being the main information-sharing mechanism about services whereas Centers of Social Work (CSW) having many functions and obligations and being understaffed. In rural places, transportation costs make it difficult to get care services.

NGOs in the care services industry have difficulties in getting licences to deliver social services. The licensing process is simple, but it requires individual licenses for each service given, making it

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bureaucratic. Another hurdle is a lack of finance for care services, as the usual hourly pay is insufficient to offer quality care and incentivize human resources.

Family members of people with disabilities receive limited salary supplements, as companies are unwilling to apply these measures due to worries about business performance. The law allows people with limited functional competence to be put in foster homes and receive monetary compensation for their services. The Law on Social Protection allows people with limited competence to leave assets to the state for life care, however this has yet to be implemented in the country.

For qualified citizens, social services such as community-based programs, home care, and personal help are offered at no cost. However, owing to the Center of Social Work's recommendation, care recipients can get fewer than four hours of home-care each day. The cost of these services is regulated by the government and is changed yearly in accordance with inflation rates. Based on their contracts with municipalities, NGOs are less willing to enter the market because of their low referral price and absence of coordination/administration costs.

Cities differ in how co-payments for services are made; wealthier localities provide more options for care recipients and their families to pay. However, the number of vulnerable people and their purchasing power are larger in poorer communities. Studies or situational assessments that examine the proportion of care recipients who are able to pay and the proportion who make co-payments are lacking.

Future studies that explore the potential of integration and mainstreaming of family-based approach in design and delivery of services, along with the implementation of innovative models for financing need to be carried out.

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A FRAMEWORK FOR THE DEVELOPMENT OF A COMPREHENSIVE AND INTEGRATED FAMILY STRENGTHENING AND SUPPORT PROGRAMME IN UZBEKISTAN

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ABSTRACT

Child protection in Uzbekistan is mostly response and control oriented, and the system works in a silo approach. On the other hand, the government has taken several steps in improving the system, including developing a regulatory framework, establishing a national agency, recruiting social workers and training them with the support of international organisations, etc, thus, creating the right context for developing a new model of services, which aims to fill the existing gaps. In this context, this paper aims to present the design of framework for the development of a comprehensive and integrated family strengthening and support program in Uzbekistan, to respond to the needs of all families, with a special focus on most vulnerable subgroups, is the next step in this regard. This paper presents the development of this framework in Uzbekistan and its components. The methodology is based on primary data, through workshops with key informants on the field, and on secondary data, through desk review of relevant legal and policy frameworks, studies, and reports. In conclusion, the components of the framework included guiding principles, areas and levels of intervention, actors and collaboration, beneficiaries, standards of quality, family case management procedures, monitoring and evaluation, and also took in consideration the enabling factors. The National Agency for Social Protection has already endorsed the framework, with the aim of formalizing the document, through a legal decision in this regard.

Keywords: child protection, family strengthening, prevention, social work.

INTRODUCTION

The child protection and care system in Uzbekistan faces various challenges in meeting its aims. Services with regard to child protection and care are scattered, mostly response oriented, versus a focus in prevention and early intervention. A silo approach is in place, instead of multidisciplinary and multisectoral work, crucial to the success of interventions. Also, focus is more on control strategies, than using a child-centred, family-centred approach. The most recent UN Committee on the Rights of the Child Concluding Observations from 2022 gave a series of recommendations with regard to family environment and alternative care:

- Increase the social assistance benefits, and develop and scale up parenting programmes;
- Strengthen efforts to prevent child abandonment and family separation and to facilitate family reunification (social services & community-based services)
- Promote parenting roles of men and equal sharing of parental responsibilities between mothers and fathers
- Speed up the adoption of the Deinstitutionalization Strategy and its Action Plan
- Increase the number and strengthen the capacity of professionals working with families and children, in particular social workers, (UN Committee on the Rights of the Child, 2022).

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On the other hand, the Government of Uzbekistan is committed to establishing a more effective child protection and care system. Important steps in this regard are the further development of a regulatory framework and the establishment of the National Agency for Social Protection (NASP) with the mandate of providing social welfare services for children and families and to coordinating child protection services (UNICEF, 2024b).

NASP is recruiting more than 5000 social work para-professionals district-based “Inson” Centres for Social Services, including with functions related to child protection, and at the community-level, including through mobile outreach teams, aiming in a first phase to model the delivery of social welfare services in 28 districts, two per region (though the main focus is on social services already regulated by law, rather response/crisis- oriented). UNICEF is supporting the NASP in equipping the new workforce with basic skills and knowledge in social work, social welfare for children and families, and child protection and care, in supporting the finalization of a Law on Social Work, and the development of a Strategy for planning, developing, and supporting the social service workforce.²⁴

All these developments, including the upcoming revision of the existing Law on Social Services in 2024, create an important momentum, an opportunity to introduce and model new integrated social (welfare) services, including those focusing more on family strengthening, prevention and early identification, which would fill the above-mentioned gaps.

Within the EU-funded Action “Phase II of the EU-UN Support to the States in Central Asia for their Citizens Returned from Conflict Zones” (October 2023 to March 2025), UNICEF and the NASP have committed to developing and rolling out in target locations a family strengthening and support service (FSSS), which should initially benefit in particular children and their caregivers repatriated from conflict zones, but finally benefit all vulnerable families, since the approach taken is relatively universal.²⁵

In this context, the preparation of a conceptual framework is a first step in this regard. The framework will guide the implementation of a comprehensive, integrated, rights-based, adequately resourced and quality FSSS. It will provide a theoretical approach that is human rights based and participatory; lineate the areas of intervention; establish the necessary organizational structure; describe the actors and collaborative partnerships essential for the service (governmental, non-governmental, inter-departmental and inter-sectoral); identify beneficiaries with a focus on vulnerable target groups; present service standards and procedures; monitoring and evaluation processes; and last but not least, will describe enabling factors for integrated FSSS.

METHODS

The methodology on the preparation of the conceptual framework used a participatory approach and was based on:

- primary data, through interviews and workshops with key informants on the field (mahalla – community - social workers, Inson social workers, supervisors and psychologists, NASP representatives, UNICEF representatives, NGOs working on family strengthening)
- secondary data, through desk review of relevant legal and policy frameworks, studies, and reports, related to social services and child protection services in particular, intersectoral cooperation, and the development of the social work workforce, and best practices in the area of family strengthening interventions and support.

²⁴ Interview with UNICEF representatives, January 2024.

²⁵ Ibid.

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RESULTS

As a result, the components of the framework included guiding principles, dimensions of the model and areas and levels of intervention, actors and collaboration, beneficiaries, standards of quality, family case management procedures, monitoring and evaluation. They also took in consideration the enabling factors and identified future enabling factors needed to be in place, for the new approach to be implemented.

a. Guiding principles

Family strengthening is a multidimensional concept that includes several interventions usually from different actors. According to Terre des hommes Albania (2018), family strengthening includes both “early interventions” and “family support services”. Studies support that the presence of five protective factors (parental resilience, social connections, practical support in times of need, knowledge of parenting and child development, and social and emotional competence of children) reduces the likelihood for child abuse and neglect and promotes family strength and an optimal family environment for child rearing (Center for the Study of Social Policy, 2018). Family Strengthening includes both prevention and treatment, thus it can be used in preventing child abuse, through strengthening parental capacities, and it also can be included in child protection plans to reduce the impact of abuse and the likelihood of its reoccurrence. It can be used as an approach to prevent institutionalization by supporting families to prevent abandonment and relinquishment of children at risk of separation, and as an approach to support deinstitutionalization through promoting sustainable reintegration of children into their family from an alternative care setting (Save the Children, 2019).

The family strengthening approach will be based on the principles of the best interest of the child, do no harm, of building on the strengths of the family and child, child-centered, family-centered, family and child participation and decision-making, and that children and their families are part of different but connected *ecosystems* (children, families, communities, society), each integral to a healthy and safe environment where a child can reach their potential (Maestral International, 2023).

The family strengthening approach will be based also on the social work strengths approach. Using this perspective highlights what is going right and what is working in families (the clients’ resources, capabilities, support systems, and motivations to meet challenges and overcome adversity) and balancing it with their presenting concern, but it does not assess strengths at the exclusion of paying attention to social problems, individual disease, family dysfunction, risks, etc., so it is a balance of assessing both problems and strengths (Trevithick, 2012). This balance is presented in the two-dimensional strengths-needs matrix for assessment, of Saleebey (1997). This approach does not agree with a deficit perspective ‘the supposition that clients become clients because they have deficits, problems, pathologies and diseases: that they are, in some critical way, flawed and weak’ (Saleebey, 1992).

b. Dimensions of the model

Based on best practices and adapting to the needs of the local context and the level of development of social services and other services related to them, the model will focus besides the practical assistance for families, on parental emotional health and community support, positive parenting and life skills for youth, and with regard to levels of interventions, the focus of the model will be on secondary prevention, therefore targeting those families who are at risk of separation (SOS Family Strengthening Unit, 2012; Terre des hommes Albania, 2021; Terre des hommes Albania, 2018; UNICEF EAPRO, n.d.). The areas of interventions will be multiple, including social services, psychological ones, legal services, employment services, youth services, police services, etc., therefore requiring a multisectoral approach, as presented below.

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c. Actors and collaboration

The model sets the services at community level, proposing a shift from Inson to mahalla level, with the aiming of getting services closer to where families live, and therefore can more easily benefit of them. The mahalla social worker will be the main family case manager, who will coordinate and follow the work of a multisectoral family conference, which includes the Inson social worker and its supervisor, and representatives of various social services, education, health, NGOs, bodies of internal affairs and any other specialist which has knowledge about the situation of the family or that can contribute in designing and or implementing the family care plan, and last but not least, all family members.

d. Beneficiaries

FSSS is conceptualized to be a service that supports all families in need of it, with the aim of counteracting the silo approach currently used. Therefore, its beneficiaries will be all families with children in need of enhancing their resilience and developing their knowledge and skills, in order to offer a safe and caring environment to their children. Even so, given the limited local resources, most likely for several years, the focus need to be put on most vulnerable families. Still, over-categorizing could exclude families in need of these service, therefore a more inclusive way to define the priority beneficiaries is that based on risk factors. Priority beneficiaries will be the families more at risk for family-child separation.

e. Standards of Quality

The standards of quality for FSSS are based on best practices in these field and include five sections, each with its group of relevant standards: family centeredness, family strengthening, embracing diversity, community building and evaluation (California Network of Family Strengthening Networks, 2014).

f. Family case management procedures

As presented, the family strengthening approach includes a variety of interventions, from various actors, and it cannot be implemented by one worker or structure in isolation. Multidisciplinary, interdepartmental and multisectoral work is crucial to its success. Therefore, even if the focus is on the family case manager (mahalla social worker), since he is the one that ensures coordination of efforts, services and partners, it requires the engagement and commitment of all parties for successful outcomes for the family. The detailed work of each phase needs to refer also to other recent supporting documents in this regard, such as those on case management practice standards and quality standards (UNICEF 2024a; UNICEF, 2024c).

g. Monitoring and evaluation

The design, implementation and improvement of FSSS requires a sound mechanism for monitoring and evaluation, using families' feedback in the process. The monitoring and evaluation of FSSS will occur at district and community level, through the Inson social worker, at regional level, through Regional Division of NASP, and at national level, through NASP.

DISCUSSION AND CONCLUSIONS

The proposed framework for the development of a comprehensive and integrated family strengthening and support program in Uzbekistan is based on best practices in the field, on the local context of Uzbekistan, also with regard to the level of development of social services, other services related to them in supporting and strengthening families, public and non-public, and on the existing capacities of social workers. Several current enabling factors include the creation of the National Agency for Social Protection, unifying social protection, the recruiting a new social workforce at district and community

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level, the finalization of Law on Social Work, with the support of UNICEF, the Revision of the Law on Social Services, NASP providing in-service and re-training to the social work workforce, the Establishment of a Uzbekistan and Columbia Centre of Excellence for research and practice in social work for social protection, child protection and mental health in May 2024, and most of all the fact that UNICEF and the NASP have committed to developing and rolling out in target locations a family strengthening and support service.²⁶

So far, The National Agency for Social Protection has already endorsed the framework. The next planned step is the formalization of the document, as part of the amendments of the law on social services, or through another type of legal decision. Future important enabling factors for FSSS to be developed include:

- Making integration of social services for families a priority of the government and NASP, thus developing multidisciplinary and multiagency work, vs a silo approach;
- Creating the necessary legal and procedural framework that gives NASP the necessary power and competences to make accountable other interagency actors (social services, schools, health, police, etc.)
- Creating the necessary legal and procedural framework for outsourcing of family social services for NGOs with expertise in relevant areas.
- Providing adequate human and financial resources for the development of FSSS.

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²⁶ Round table with NASP and UNICEF representatives, March 2024.

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SEMANTIC PECULIARITIES OF PHRASEOLOGICAL UNITS DENOTING TIME IN ENGLISH AND TURKMEN LANGUAGES

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ABSTRACT

The purpose of this article is to find out similar and different features in expression the notion “time” in English and Turkmen languages. It is generally known, that the vocabulary of a language is a complicated system. The vocabulary contains different units (words and word groups) which are interconnected and interdependent. Lexical paradigmatics is a systematic analyzes of the interconnected units of the vocabulary of a language. It includes the hierarchal structure of vocabulary sub-systems whose components are united by at least one type of relations common to all of them and are opposed by the same type of relations, e.g.: synonymic and antonymic sets, word-families, semantic fields, thematic groups ...etc.

In order to solve the tasks aimed at improving foreign language teaching it is important to compare languages by parts of vocabulary, as for example, the time-denoting phraseological units in English and Turkmen languages. According to linguist A.W. Coonin: “Phraseology is the treasure of language. Phraseological units are stable word combinations used in full or incomplete figurative meaning, and phraseological units reflect the history of the people, the uniqueness of its culture and life.

Key words: lexical paradigmatic relations, phraseological unit, time-denoting unit, semantic fields, temporality.

The systematic character of the vocabulary can be seen first and foremost in the grouping and classification of words, in their semantic classification – lexica-semantic paradigms. Each word enters a certain lexica-semantic paradigm. The more complicated the semantic structure of a word, the more complicated are its paradigmatic connections. Polysemantic words have many connections. Their lexica-semantic variants may have different synonyms and antonyms.

The semantic structure of a word is determined by all kinds of relations as synonymic, antonymic, hyponymic relations; word-building, semantic fields, etc.

Semantic fields by which we understand closely knit sectors of the vocabulary, each of them are characterized by a common concept, e.g.: *colors* (white, black, green, blue, grey, yellow, etc.); *kinship terms* (father, mother, brother, sister, cousin, aunt, uncle, mother-in-law, etc.). They are not synonymous ones, but joined together by some common semantic component (common denominator of meaning).

We decided to compare the time-denoting phraseological units in English and Turkmen languages as a semantic field denoting “time”. According to professor A.W. Coonin: “Phraseology is the treasure of language. Phraseological units are stable word combinations used in full or incomplete figurative meaning, and phraseological units reflect the history of the people, the uniqueness of its culture and life.[4. 9]

Time is one of the main categories of human life and is considered the object of scientific analysis of various sciences. A clear example of this is philosophy, linguistics, linguistic culture, etc..

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In English "temporality" is time features. Temporality is the temporal essence of events created by the dynamics of a certain movement, the relationship of moments of time, in contrast to the temporal properties determined by the relationship of a certain event to historical, astronomical, biological, physical and other temporal coordinates.

Phraseological units are stable word combinations that have integrated meaning. Phraseological units are used to enrich speech, make it more clear and interesting. Every language, including English and Turkmen, are very rich in stable word combinations and phraseological units that express time. When "time" is studied through phraseological units, its semantic features can be fully revealed. Phraseological units are an ethnocultural picture of the language of every nation and contain a huge layer of connotative meaning. Phraseological units with the meaning of time stand out in a special group among them. Phraseological units of time are those that do not indicate exact time, but indicate the approximate frequency of occurrence of events, such as "always", "sometimes", "never", "rarely", "for a long time", "on time", "often", "at the same time"., "early", "late", "fast", "in the future", "in the past", "later" are different. The peculiarity of the phraseological units with the meaning of time lies in its uncertainty: they do not denote any particular period of time, time has a generalized character in them.

Phraseological units denoting time are often found in English and Turkmen languages. Phraseological units with the meaning of "very fast" in English include *double quick*, *in a flash* (*a wink*, *a trice*), *in a heartbeat*, *in a split second*, *in no time* (*at all*), *in two shakes of a lamb's tail* like (*a flash* *op* (*grease*) *lightning*, *like a bat out of hell*, *like a dose of salts*, *before you know where you are*, *like one o'clock*, *like a greased pig*, *in the twinkling of an eye*, *before you can say Jack Robinson*, *in one fell swoop*, *before you know where you are*. For example: *In a flash* a sniper came, who could have been gun happy soul anywhere. (Seeing in the dark. ed. Break well, Ian and Hammond, Paul). But so many things happened, *in a split second*, there was nothing she could do. (Today. London: News Group Newspapers). Don't say a word because they can kill you in a heartbeat. (The Daily Mirror. London: Mirror Group Newspapers). [4, 532]. "Toads are valuable animals" answers Jane. "They eat the snails like one o'clock" (M. Braddon "Dean Men's Shoes", ch XX). [4, 777]. Phraseological units "*in a flash*", "*in a split second*", "*in a heartbeat*", "*like one o'clock*" that are given in examples show that the events happened very fast.

We may compare them with time phraseological units in Turkmen *Gyp basmak*, *ok atylan ýaly*, *sen men ýok*, *ýyldyrym çaltlygynda*, *göz açyp-ýumasy salym*, *tüweleý turuzmak*, *ýel bolup uçmak*, *ot - elek bolmak*, *ýelk ýasamak*, *waz ýasamak*, *ýalançy ýaryşdyran ýaly*, *gelen yzyňy ýel çalmanka*, *ýaýdan sypan ýaly*, *häh diýseň mäh*, *haý diýmän*, *guş bolup uçmak*, *aldyrany bar ýaly*. For example: Atlylar *göz açyp-ýumasy salymda* daýyrdaşyp ýola düşdüler (B.Seýtäkow). Obadan çykmasa, soň erbet bolar. Edil şu wagt Salaý Jerçiniň dükanyna *aldyrany bar ýaly* bolup, bir ýasawul geldi (B. Seýtäkow). Bir oglan *ok atylan ýaly* atlyp tama girdi (A. Durdyýew). [3,124].

We have also studied phraseological units with the meaning "never" in English. These phraseological units are: *when hell freezes over*, *when pigs fly*, *never in one's life*, *not (never) in a lifetime*, *not (never) in a million years*, *not for all the money in the world*, *not for a moment*, *not for all the tea in China*, *not for anything (in the world (on earth))*, *not for love or money*, *when two Sundays come together* and so on. For example: "I've a right to think", said Alice sharply... "Just about as much right", said the Duchess, "*as pigs have to fly*". (Alice's Adventures in Wonderland. Levis Carol, 1865). *Not for a moment*, had she thought that she would ever be given a lift in the Mercedes again. (West of Bohemia. Steele, Jessica. Richmond, Surrey: Mills & Boon, 1993). In examples like "*as pigs have to fly*", "*not for a moment*", the impossible action was shown through the phraseological units. Comparing with the phraseological expressions in Turkmen language: *Eşegiň guýrugy ýere ýetende*, *Daşa gurt*

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düşende, Kesek güllände, Gyzył gar ýaganda, Pyşdyl agaja çykanda we may say that they have characteristic features of hyperboles in stylistics. Hyperbole can be defined as a deliberate overstatement or exaggeration of a feature essential to the object or phenomenon. For example: *Seniň içýakgyç ertekiň meniň ýüregimi bulaýar. Meniň soragyma sen haçan jogap berjek?—Eşegiň guýrugy ýere ýetende* (B. Kerbabaýew). *Siz biziň deňimize ýetjek bolsaňyz eşegiň guýrugy ýere ýetse gerek* (B. Gulow).

Opposite to time phraseological units with the meaning "never" in English we have studied phraseological units with the meaning "always". To the semantic group of phraseological units with the meaning "always" we can say generalized case phraseological units with the meaning "all the time". We have attributed the following phraseological units in English: *all along, at all times (hours), endlessly, in all times, round the clock, world without end, for term of life, till the cows come home, all the while, to the end of time, in all one's born days, the whole time*. For example: You have been very nice *all along*, Mr. Cowperwood, and I appreciate it (Th. Dreiser, "The Financier", ch. XI). "The manager *at all times* believed that the stolen cheques were genuine." (The Weekly Law Reports 1992 Volume 3. u.p.). "A new sense of harmony is unlikely to be developed if bored parents have to wait *endlessly* in long queues to see teachers." (Marketing your primary school. Sullivan, Mike. Harlow: Longman Group UK Ltd, 1991, pp. 1–104. 1748 s-units, 34583 words). "You never saw such a rusty Prince *in all your born days* as he was. Like old iron! (Ch. Dickens David Copperfield ch XXII). We have analyzed some of those phraseological units in Turkmen language, and they include: *gije-gündiz, gysyn-ýazyn, haçan seretseň, ömür baky (boýy), eneden dogulaly bäri, gündiz-küýi, gije-düýşi, özümi bilip*. For example: «...*Gündiz-küýi, gije-düýşi* diýen ýaly, hatda bir kürüm gurdanyň gymmat tohumlara baka dyzaýany onuň öten aňsam düýşüne-de girdi (A. Gowşudow).

Ömür baky azat ömür sürmäge,

Turar bütün dünýä adamzat nesli! (D. Haldurdy).

Make hay while the sun shines, strike while the iron is hot, in the very nick of time, business first, pleasure after, the morning to the mountains, the evening to the fountains, time and tide wait for no man, take the tide at the flood are related to the phraseological units and proverbs with the meaning "on time". For example: Some of the small towns...had never seen a circus, so that Haxby did good business and Dan Daxby pul up his prices, determined *to make hay while the sun shone* (K. Prichard, "Haxby's Circus", ch 1) [4, 125].

In Turkmen we may compare these proverbs with *Tamdyra gyzanda ýap, gepi gerdişinde aýt* [1, 463]; *Çöregi tamdyra gyzanda ýap* [2, 31]; *Tomus depesi gaýnamadygyn, gys gazany gaýnamaz* [1, 547]; *Ýeri güýz sür, güýz sürmeseň ýüz sür; Biwagt gelen myhman oturmana jaý tapmaz* [1, 91]; *Bişen miwe şahasynda durmaz* [1, 517]; *Kasas kyýamata galmaz* [1, 431]; *Bulut gökde gyslamaz* [1, 345]; *Wagtly iş öz wagtyna çeker; Wagty ganymat bil, ötse dolanmaz; Wagtyndan ön açylan gül tiz solar* [1, 223]. For example: "*Tomus depäň gaýnamasa, gys gazanyň gaýnamaz*" diýen ýaly, gyzan gününň astynda, meýdan işde janly hereket joşýardy (A. Gowşudow).

Amatly olja ýok Guşgudan başga,

Tamdyra gyzanda ýapylysyn çörek (A. Atajanow).

In conclusion we may add that investigating semantic peculiarities of the phraseological units with the meaning "very fast", "never", "always", "on time" in English and Turkmen was challenging and interesting. Phraseological units studied in each language have similar meanings, but the components of those phraseological units are different and are used in various situations.

Thus, the phraseological units of the English and Turkmen languages represent a certain temporal part of reality and analyze their characteristic features is one of the urgent problems of today.

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TEACHING VERBS IN ENGLISH CLASSES

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ABSTRACT

English class should engage students inside the classroom using different activities. There are various forms of verbs in English language. To teach each type of verb, the teacher can use different tasks and activities.

Also, one fun activity can be done to teach all the types of verbs. There are different methods used in teaching grammar.

Keywords: English class, verbs, methods of teaching, learning grammar, tasks, activities.

English is the main universal language used in Turkmenistan. It is generally accepted English language has many grammatical features. The skeleton of the English language is its grammar. Without strong framework, one cannot construct a house. Likewise, without learning grammar, one cannot learn the English language completely. Learning is a process where the learners should engage themselves with interest and involvement. English is not a subject rather it is a language. The learners should develop interest towards the language. The grammar of English language helps the learners to understand the language. The purpose of learning grammar should be taught to the learners by the teachers in a way that the learners develop interest towards grammar. Grammar provides the systematic and linguistic approach to learn the language. It also makes the learning process uncomplicated.

Language is a tool of communication that is used to inform or ask other humans' certain things, to express feelings, emotions, ideas or share knowledge or experiences. Definitely, language has a great importance since it serves for linguistic communication, which is a basic need for society. In addition, learning a new foreign language gives the individual an excellent opportunity in today's reality. Having knowledge of English multiplies your chances of getting a good job not only in your country, but also even abroad in international companies. English has become the language of many fields of today's world, such as science, aviation, technology, diplomacy, tourism and many others. Learning English serves for not only work, but also it is crucial as well on socializing and entertainment, since it is also the language of many social medias nowadays.

Language acquisition occurs from the interaction between the child and the surrounding environment. Children use their cognitive and social skills to categorize, organize, and combine everything they learn separately through the stimuli they receive in the family environment. Children produce their first words when they are approximately one year old. Learning a word is a multifactorial process which begins with the association between a phonetic input and a corresponding action or object in the environment. This first association is named fast mapping, and it involves an incomplete representation of the word. The continuous exposition to this word creates a robust association, which occurs in the slow mapping phase. Open-class words

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(adjectives, adverbs, nouns, verbs, interjections) bear more strong references than closed-class words (articles, conjunctions, numerals, prepositions, pronouns) and, therefore, are the first to be acquired during language development. This occurs especially with nouns, which are relatively easy to be learned by children and open the way for the learning of words with less obvious relationships, or with more complex morphological structures. Verbs, in turn, are acquired later due to the initial difficulty children have to detect their conceptual and semantic components, or to understand how they are combined. Verbs function is organizing elements of the syntactic structure and the correct use of other word classes. There are several clues (morphological and syntactic) involving language that may help identify a word as a verb. Morphological clues help to define the part of speech that is unknown to the child (for example, verb termination). Syntactic clues show that a sentence is structured around a verb by predetermined rules.

The major element in English grammar is the verb. Verbs play an important role in English language. Writing and understanding the language becomes simple with a wide knowledge of grammar. There are no sentences without verbs. Verbs are very important to understand the meaning of the sentences. Verbs also helps in identifying the tenses of the sentences. It is very essential to know verbs before start writing in English. To construct a proper sentence in English, verbs act as the stepping stones. The importance of verbs should be taught in the primary level of English classes. The verb class should be carried out with various activities and games, only when the learners can grasp the content of the class. In this technologically developed generation, it is very important for the teachers to make the class

entertained with fun. The work of teachers is now lessening by the technologies. The grammar classes can be carried out through computers and games. There are many online pathways to help both the teachers and the learners [1, p. 24].

Verb is defined as the “action words”. The term verb refers to the action of the doer in a sentence. The verbs have different types. The basic step to learn verbs is to know what are verbs. The teacher should give a wide knowledge about the subject, predicate which is expressed by verbs. The teacher can use black board or colorful cards to explain what are verbs. But to make the learners

understand the concept of verbs, the class can be turned into a play area. In this game, ‘build your actions’, the class has to be separated into groups, according the total strength of the class.

Each team should be provided with different color papers. For example, if team A is given blue color, team B should be given yellow. Each team will be given 10 minutes to build a tower. The learners should write as many verbs they can within the given period of time. They should write in a way that the words should look like a tower. The greater number of words written by a team will be awarded a token of appreciation. All the words should be the verbs. Here the learners will learn the difference between nouns and verbs. The teacher can explain the game with the use of verbs. The learners will automatically come to know that the game they played is described through the verb “play”. Here are some examples of “action verbs”:

Transacts – to carry on business; to negotiate;

Transcribes – to transfer data from one form of record to another or from one method of preparation to another, without changing the nature of data;

Translates – to turn into one's own or another language;

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Transmits – to transfer or send from one person or place to another; to send out a signal either by radio waves or over a wire;

Turns – to make, rotate or revolve; to cause to move around so as to affect a desired end (as locking, opening, shutting); to reverse the sides or surfaces of;

Types – to write using a typewriter; to arrange by categories;

Uncovers – to expose to view by removing a covering; to reveal;

Updates – to bring current;

Utilizes – to make use of;

Verifies – to confirm or establish authenticity; to substantiate;

Weighs – to ascertain the heaviness of; to consider carefully;

Writes – to set down letters, words, sentences or figures on paper or other suitable material; to author; to draft.

Just as nouns, the first of the eight parts of speech, play a key role in a sentence, so do verbs. In this lesson, we'll look at verbs – action or being words – and the way that they can be changed according to tense. We'll also look at verbal and common verb errors. There are two types of verbs: action verbs and being verbs. Action verbs tell what something is, was, or will be doing.

Examples: *Jennifer ate pizza sticks for dinner. Please don't ring the bell so loudly; it hurts my ears. After the cathedral, the tour group will visit the museum.*

Being verbs (also called state-of-being verbs and linking verbs) indicate that something exists in a form or state. The subjects in being verb sentences aren't doing anything. A being verb tells us what something is, was, or will be [2, p. 13]. Examples: *That dog is covered in fleas. The new prime minister will be good for the country. Where was the missing manuscript?*

Note: Some verbs can act as either a being verb or an action verb. To determine the difference, ask if the subject is performing the action of the verb.

Examples: *This salad tastes strange. The sommelier tastes the wine.*

In the first example, the salad is not performing the tasting; “*tasting strange*” is the state of being of the salad. In the second example, the sommelier is performing the action of tasting on the wine, making it an action verb. Example: *The rugby team looked exhausted after the match. The curator looked at the statue for a long time before leaving.*

In the first example, the state of being of the team is “*exhausted*”; they are not performing an action. In the second example, the curator is doing the action of looking. Example: *There are forests of reeds there, And amazing beauties wearing gold and silver, Well-fed sheep, racing horses and cows, These are the animals that make up the herds of Gorgen* [4, p. 78].

To make the future generation to learn the English language, activity-based teaching is necessary. The importance of English language is now widely known, but the system of teaching lacks in providing the quality education. In such case, we should have different activities and games filled classroom that helps the students to learn the language with interest and involvement. In some schools the smart class system helps in learning through visual effects.

Some schools also engaged themselves in providing fun filled classroom. The future of teaching system will be changed by replacing the traditional method of teaching by activity-based learning.

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REFLECTION OF WESTERN AND EASTERN MENTALITY THROUGH IMAGES IN PHRASEOLOGICAL UNITS

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ABSTRACT

Typological analysis of language units in the direction from meaning to form shows that the same concept or idea finds different expressions in different languages. The article is devoted to a comparative investigation of idioms of two genetically and typologically different languages, such as English and Turkmen. Comparison of individual sections of the dictionary is a promising line of research in modern linguistics. Filling this gap to a certain extent, comparative studies of these languages in the phraseological-semantic layer focused on the physical state of a person. Each language has its own typical features, which can be truly universal features common to all or most human languages, or individual features characteristic only of a given language. Thus, in each language, in addition to general features, it is possible to identify individual (specific, original) features that are characteristic only of one specific language.

It is well known that the purpose of any typological description comparing two or more languages is to establish the similarities and differences between them. The imagery of phraseological units is considered as the basis of connotation. The emotional coloring of phraseological unit as a sign is a derived phenomenon. It mainly depends on the figurative content of phraseological units. Most phraseological units in origin are frozen folk metaphors, comparisons, metonymies, parts of proverbs and sayings. The basis of figurative representations are facts from life and existence, natural phenomena, man's psychology, his behavior, the reality surrounding him in all its manifestations. It gives us the right to speak about the reflection of the nation's mentality through images of phraseological units.

Phraseological layer focused on the physical state of a person is divided into several macro groups as, *healthy/ill, sleepy/awaken, replete/ hungry, drunken/sober* and etc. There are some micro groups, concerning to the notion *healthy*. We can divide phraseological units to the minor groups, according to the connotative components of their meaning. For example, according three levels of being healthy as *to be indisposed – healthy - be in a fine health* we form three groups. The dominant word is *health* or the denotative component of phraseological meaning is *health* and other connotative components of the meaning help to differentiate the levels of the health: low, medium, high degree and other differences which concern to factors dealt with social life, living standards of a person, nature ...etc.

The basic imagery of phraseological unit with a living internal form, which has a synchronous connection with the prototype, does not need an etymological certificate, as this is necessary for a phraseological unit with an erased internal form, which has lost connection with its prototype.

The phrase "*a clean bill of health*" - the absence of any diseases established as a result of a medical examination (this is the word: a clean quarantine or sanitary certificate) goes back to units that came from the maritime sphere. Indicators in the gloss of dictionaries help to create an associative connection and restore the image. Example: *As you know every new prisoner is submitted to a medical examination by the prison doctor. The purpose of the examination is to detect the presence of communicable diseases*

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which may infect other inmates. Anna Albertini has been given a clean bill of health (M. West, Daughter of Silence).

Mainly phraseological units of the semantic field *physical state of a person* use comparative structure which gives the effect of simile. Simile is a figure of speech based on similarity of objects belonging to different semantic groups: Ex: *Stars began flashing like a photo booth*. The intensification of one feature of the concept is realized in a stylistic device called simile. Simile must not be confused with comparison because it represents two diverse processes.

Comparison serves to establish the degree of sameness or difference of two objects belonging to one class of things. Ex: *This book seems to be as interesting as the previous novel I have read*. In this example words 'book' and 'previous novel' belong to the same class of objects - so this is not simile, it is ordinary comparison.

A simile is used to characterize one object by comparing it with another object belonging to different class of things. Simile excludes all the properties of the two objects except one, which is common to them. A feature, quality, action, impression or attitude may be compared. The formal markers found in the structure of simile are: *like; as...as; as though; as if; such as; seem*. Ex: *"His mind was restless, but it worked perversely and thoughts jerked through his brain like the misfiring of a defective carburetor" (Maugham)*.

Many similes in the English language reveal the analogy between the various qualities, states or actions of a quality, etc., Ex: *treacherous as a snake, sly as fox, busy as a bee, industrious as an ant, blind as a bat, faithful as a dog, to work as a horse, to led like a sheep, to fly like a bird, to swim like a duck, stubborn as a mule, hungry as a bear, thirsty as a camel, to act like a puppy, playful as a kitten, vain (prod) as a peacock, slow as a tortoise and many others of the same type*. Above mentioned similes became trite ones, the second component of which is used as an adverbial intensifier. Its logical meaning is only vaguely perceived.

From the point of view of the content trite similes can be classified into the following groups:

1. Simile describing the appearance of a person: *fat as a pig, fare as a lily*.
2. Simile describing features of the character: *industrious as an ant, faithful as dog*
3. Simile describing the actions: *busy as a bee, fleet as a deer, slow as a tortoise; "full as a tick", feed one's face, put on the feed bad*.
4. Simile describing the inner state: *feel like a fish out of water, blush as a sin, blush like rose*.

Genuine simile is a comparison between seemingly incomparable things: *He felt lonely as a telephone ringing in an empty room*.

The stylistic function of simile may be different:

1. To produce a humorous effect by its unexpectedness: *hairless as a boiled onion*.
2. Imaginative characterization of a phenomenon.

Stylistic functions of simile: a) evokes fresh images; b) original, fresh simile reveals the author's attitude. We can come across in our everyday speech traditional simile: *as thin as a rake; as fresh as a daisy; as drunk as a lord*.

The verb is a first component of the verbal phraseological units with a comparative structure. The action is characterized through a comparative group, which is introduced by the conjunctions "like" such as: *to feel like a boiled rag, look like a ghost, look like a death's head on a mopstick, feel like nothing on the earth, built like a castle, drink like a fish, eat like a horse, eat like a bird, sleep like a log, etc.*

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Here's an example: *Solitude, and air so pure that it goes to your head like with wine and you feel like a million dollars* (W.S. Maugham, *The razor's edge*, p.71).

The comparative group in the above-mentioned phraseological units consists not only of one noun, but of a group of words through specific images and representations, which characterize the action expressed by the verb in the core component.

In the group of phraseological units with the common meaning "stout, fat" there is a large number of phraseological units that contain negative evaluative connotation. Example: *(as) fat as butter, run to fat, a Norfolk dumping, (as) round as a ball, Billy Bunter, broad in the beam, (as) round as barrel, ...etc.* Thus, the considered phraseological units each in its own way carries a negative connotation, therefore, it is impossible to put them in one row. Each of them, for example, *(as) fat as butter* means well-fed, plump, fat; or *Norfolk dumping* - fat man; *Billy Bunter* – a fat young teenager, *(as) fat as a barrel* – fat in a humorous in a joking way.

Example: *If that boy doesn't eat less, he'll be Norfolk dumping, before he is much older*

There are several verbal phraseological units with a comparative structure concerning the notion "skinny" in the Turkmen language. They are built by the following models as (Noun+ ýaly +Verb) as: *çöp ýaly bolmak* (be as a stick), *tut ýaly bolmak* (be as a mulberry tree), *hepbik ýaly bolmak* (be as wooden trap).

Example: *Gaýgy-gam, soňky ýolugan keseli onyň etinden ötüp, süňkine ýetdi. Soňky wagtlarda ol çöp ýaly bolup galdy.* (translation done by the author) *Strong feelings and her last illness completely brought her to exhaustion. Lately, she has turned into a sliver.*

The anthropometric marks are used to create an emotive-evaluative scale which shows increasing or decreasing in the property. The evaluation scale as a semiotic mark is used as a basis for comparison, characteristic of a certain meaning in community.

Images that do not have any specific "mark" give rise to connotative features in the process of figurative nomination, at the moment of comparison of the concept and the image. For example, the image of a cow in itself does not have negative evaluative characteristics, however, in the phraseological unit "*Sygyr ýaly symyşlamak*" (eat a lot greedily) the image takes on a slightly negative connotation. I think it is unnatural to hear such comparison because this image is not common for European reader.

As a result of the analysis we conclude that:

1. Phraseological units denoting the physical state of a person in both languages differ in the degree of manifestation of the characteristic: low, medium, high degree.
2. The unique meaning of phraseological units is due to a wide range of associations, great information content, connotation, determined by national-cultural semantics.
3. The phraseological image is deeply specific and socially conditioned.
4. The difference in semantic organization is manifested in the differential connotational aspect of the meaning that the phraseological unit of each individual language has, for example, the state of being *healthy* can be characterized using differential semes.
5. The peculiarity of English phraseological units is also revealed in the transmission of national and cultural specifics, the geographical location of the countries of the languages being studied. These features are reflected in additional semes, such as: "sea sickness to drown" indicates the sea surrounding England. Since England is considered a maritime power and a stronghold of sports, these extralinguistic factors are reflected with the help of additional families. Therefore, there are a lot of sports terms that mean one or another physical state of a person in the studied phraseological units.
6. General semantics is one of the manifestations of the internal unity of the phraseological units under consideration. The comparison shows that in the composition of phraseological units focused on

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the physical state of a person in the analyzed languages, the same phraseological-semantic groups are noted.

7. The specificity of the compared phraseological units lies in different approaches to the designation of the general semantic idea, in the different composition of specific phraseological units within the phraseological-semantic group.

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CHILDREN'S MORAL UPBRINGING THROUGH FAIRY TALES

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Romano - Germanic languages

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Turkmenabat city, Turkmenistan

ABSTRACT

Turkmen fairy tales play a significant role in children's upbringing. The national fairy tales are based on the history and lifestyle of a nation. Teaching culture and ethic norms of behavior of a person in society serves as an essential tool for education and moral development. The aim of the given article is to explore the influence of Turkmen fairy tales on young people and to find out the contribution to the moral, emotional and cultural development of children. Author stresses that these stories serve as tools for teaching life lessons and fostering critical thinking. This article has practical value, so it may be used as a resource material in teaching English to students of pedagogical institutes.

Keywords: fairy tales, upbringing, moral and ethical norms, children, essential tool

A fairy tale is one of the most popular and beloved genres in literature. It crosses all linguistic boundaries. Borders from one nation to another and remains alive for thousands of years. National Fairy tales develop children's imagination. Many years of teacher's experience show us that studying fairy tales captivates children and increases motivation for learning English. Everyone understands a fairy tale. One of the advantages of a fairy tale is the power of impression and emotional impact on children. Fairy tales often have clear messages about right and wrong, good and evil. These straightforward messages make it easy for children to grasp positive values and morals. Through engaging and memorable stories, children absorb lessons on hope, kindness, honesty, courage and the importance of making good choices. Turkmen national fairy tales help children to appreciate customs and value systems.

Over the centuries, Turkmen people have developed clear principles of family education and traditions of folk. Turkmen culture is rich in folklore, especially folk tales. They were passed down from generation to generation. The concept of "family" implied the idea of community, clan, where everyone is connected by caring for each other. For example, the Turkmen folk tale "Akpamyk". The main character of the tale "Akpamyk" is a noble Turkmen girl, in order to achieve her desired goal, sets off on a journey to find her brothers. The story of the search for seven brothers, about whom nothing has been heard for many years, who left home to hunt and never returned. The action of the folk tale unfolds against the backdrop of native nature. The student sees an open field, mountains, trees, and animals. Nature seems to sympathize with the positive heroine: her cat goes with her on a journey to find her brothers. Pictures of nature help to enhance the emotional impact of the tale. The tale grew up love for nature and homeland. Deep moral ideas and dreams are reflected in the tale Akpamyk. The tale shows work as the basis of life. Young Akpamyk, serving this goal takes on responsibility of her parents. Having experiences of many difficult events, the Turkmen girl never weakens her determination to achieve her goal. She achieved her goal with dedication and determination. The upbringing of children among the Turkmen is mainly carried out by example. Children are brought up, taking an example from faire-tale heroes, also, traditions that have been passed down from generation to generation for centuries.

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In the lesson, students play roles and try to become like Akpamyk. Care, protection and support of families are very important. A rich source from which a child can easily get this knowledge is a fairy tale. Fairy tales of each country carry the foundations of morality, culture and traditions of this people. In the Turkmen folk tale, three types should be distinguished: animal tales, magic tales and everyday tales. It is useful for a timid and shy child to read the fairy tale “Gorkak Batyr” to a pitiful, selfish “Bovendzhik”, a standard of courage and loyalty “Akpamyk”. Children listening and reading tales emotionally worry about the main character and when good defeats evil, they are very happy. In a Turkmen family and society, elders are always honored. They are given a special honor. Therefore, Turkmen say: “The best education is respect for elders.” Hardworking Akpamyk is a resourceful and courageous girl. With the help of fairy tales, you can metaphorically educate a child, help overcome the negative aspects of his developing personality. Thanks to them, we have an opportunity to see the line between good and evil, experience compassion, respect and forgive. The main focus should be on developing students’ personal attitudes to what they read. Successful achievement of this goal is possible firstly, with systematic reading, and secondly, with methodically organized reading. Features of Turkmen fairy tales are a huge number of dialogues and direct speech. The language of fairy tales is mostly simple. Fairy tales teach children useful skills. I offer three tasks based on fairy tales for primary school students with an average level of knowledge. They will be able to expand their vocabulary, work with grammatical structures and improve their speaking. Contents:

1. Learning new words from fairy tales to increase vocabulary;
 2. Learning grammar from fairy tales to speak correctly;
 3. Comparing different versions of fairy tales and retelling them to improve speech.
1. **Learn new words** from fairy tales at the English lessons. Choosing several fairytales we do tasks, such as: find main characters of the fairy tale and analyze words in their speech. National Turkmen fairy tales: Akpamyk, Japbaks, Yartygulak help us to make the lesson very interesting. Choose the text from the fairy tales and find some nouns, verbs, adjectives, and numerals. Compose their own fairy tale using these words. Teacher rewards pupil who compose not only one fairy tale.
 2. **Learning grammar** is essential part of improving speech of children. Working on grammar begins with revising grammar material and reviewing a separate grammar topic. For example: take the chapter “How Japbaks divided the road” from the fairy tale “Japbaks”. Here you can review the grammar of Past Simple, Present and Past Continuous tenses for practice. If children work in a group, divide them into pairs. Let them ask each other questions, changing the roles of the characters. For example:
 - “Well, Japbaks, why are you measuring the road?” One of the Japbaks answered, “There is a sack of wheat in our house. We should take it to the mill to have it grinded...” [8, p.4].Children answer the question by choosing correct words.
 - What did they have? – They had *an ox/cat/cow*. [8, p.9]
 - What was the vessel full of? – The vessel was full of *water/vine/milk*. [8, p.11]Children learn to count. For example:
 - They marked every 80 steps. [8, p.5].
 - Then eldest brother, who was carrying the bag, made 20 steps. [8, p.8].
 - ...fourth brother, he made 40 steps... [8, p.4].
 3. **Compare different versions** of fairy tales and retell them. At school fairy tales play an important role in teaching vocabulary. The characters of fairy tales are fun because they have different characters. The tale of Japbaks is about the funny adventures of cheerful, never despondent brothers. Who are the Japbaks? In every Turkmen village you can hear dozens of funny stories about four brothers. Japbaks act as defenders of the poor, unfairly offended people. They always win, no matter who their enemy is

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a powerful Bay, a greedy and cunning mullah, an unscrupulous merchant or a fierce robber. The tale about Japbaks naughty but fair brothers.

Dramatizing the main characters, for example: the images of the main characters. Each child wants to be the main character of this tale. Dress like Japbak, talk like Japbak and joke like Japbak. We select episodes from several cartoons based on the same fairy tale, then ask them to act and to speak about their impressions. They answer such questions as: How do these versions differ from each other? Did they have a happy ending? To develop children's speech they synchronize fairy tale shown at the interactive board.

The children enjoy playing scenes from fairy tales. Teacher tells the story and the children learn the plot. After 10 minutes remembering the important details, they begin telling the fairy tale, continuing one after another. For example, the teacher begins from the first phrase of fairy tale "Common Harvest": *Once upon a time, there lived a calf, a goat, and a chigger...* and one of the children continues: *They were going to grow the crop...* and so on, they continue telling in a circle until the fairy tale is over. A fairy tale promotes the development of a child's speech and imagination, reveals creative abilities and has a high educational potential.

Another interactive method is "interview". We choose one leader from the class. The leader approaches each child and interviews, asking questions about the characters from the fairy tales. For example: *What fairy tales do you like? How do fairy tales often begin? Who is your favorite character from the fairy tale "Akpamyk"?* Fairy tales play a great role in teaching English with the help of games. Play is the basis for children to learn about the world. Play is a natural form of a child's work, an inherent form of activity, preparation for future life. A child always plays, he is a playing creature, but his play has great meaning, it exactly corresponds to his age and interests and includes such elements that lead to the development of the necessary skills and abilities. For high-quality mastering of the materials in English, didactic games are necessary, they will help to introduce an element of competitions into the lesson and will serve as a necessary resource for visual assimilation of new materials. The main task of a modern school is the effectiveness of learning. The teacher's focus on the process of introducing new pedagogical technologies, such as the use of "Stop reading". Here the teacher reads a certain passage from an unfamiliar fairy tale. For example: "Three shepherds". *Once upon a time there lived a rich man. He had three shepherds, and they looked after the rich man's sheep. The rich man treated his shepherds very bad. Every day they were given only bread. One day there one of the sheep delivered a triplet. The shepherds gathered together and suggested, "Let's eat one of these lambs" ...* and stops reading. The teacher suggests continuing the tale. Children begin to compose their own tale. The content and methods of presentation should not limit, no comments should be made on the construction of the plot, and no interruption of the tale or turn on an audiobook. The child perceives the tale as a game, in the development not only creative powers, but also language skills and abilities. They are conventionally called: phonetic, lexical and grammatical. This is one of the effective methods of teaching English. So, the role of Turkmen fairy tales in upbringing children is multifaceted. From developing imagination to developing correct speech, it is an integral element in education. A fairy tale is able to enchant and attract the attention of its readers and listeners. Turkmen fairy tales also foster love for native nature, justice, mutual assistance, kindness and friendliness. All of us want to see all these qualities in our children. Vivid artistic images and examples in Turkmen fairy tales are a valuable tool of education. Where justice and goodness always go hand in hand. Good always wins, evil will be punished and everyone will live happily ever after.

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TRACES LEFT IN FINANCIAL HISTORY BY THE DUTCH DISEASE AND THE VENEZUELAN RESOURCE CURSE

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ABSTRACT

The term Dutch Disease, which was the headline of an article published in the November 26, 1977 issue of The Economist, attracted the world's attention, and this expression has taken its place in the history of finance. This term is used to express the negative effects of rapid growth and growth models on economic indicators due to resource abundance and to express the chaotic situation of a series of structural problems and this painful process caused by rapid welfare increase. Dutch disease is essentially the iconic description of the economic disease and resource curse used to explain the country's economic crisis. The resource curse can be based on energy such as oil and natural gas, or depending on the geographical characteristics of the country, agricultural products grown in coffee, cocoa or service-oriented sectors such as health, education, logistics and construction also have the potential to catch Dutch disease. The flow of hot foreign exchange to countries with resource abundance accelerates, the share of production in the rapidly growing Gross Domestic Product (GDP) decreases in the short term, and agricultural and industrial products become unable to compete in foreign markets due to the rapidly appreciating currency. In this case, production decreases, and industrial and agricultural producers have to turn to this new resource to protect their profits and become importers of the latest economic situation after the disease. The increase in unemployment in sectors where investment decreases causes poverty to increase at the base. While the rich get richer, the poor get poorer and in a possible crisis, the country tries to keep the only sector it relies on afloat. If this resource is the energy sector such as oil and natural gas, where the price changes yearly, the country's economy faces a deep-rooted economic instability problem. Venezuela is another example of a country that grows depending on resources and disrupts the balance of domestic demand based on imports. Located in the north of South America and also described as "a country of gold on a sea of oil", Venezuela attracts the attention of the international political and economic public opinion with the political and economic instabilities it experiences. The underlying cause of slumps, deflation, recession, or depression is the decrease in GDP, which occurs due to the imbalances experienced in countries like Venezuela. However, for this study; In contrast to the crisis that results in a decrease in welfare, the crisis resulting from rapid growth and rapid enrichment is resolved.

Keywords: Financial History, Dutch Disease, Venezuela, Resource Curse.

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INTRODUCTION

The primary cause behind the emergence of economic crises such as inflation²⁷, stagnation²⁸, slumpflation²⁹, deflation³⁰, recession³¹, or depression³² is economic imbalances. The result of this decline in prosperity and hopeless economic conditions is a decrease in Gross Domestic Product (GDP). Economic imbalances undermine the sense of trust in markets, and these negative expectations lead to more severe economic effects that are harder to overcome, placing countries in the midst of a crisis. However, this study examines a different type of financial crisis that arises not from a decline in prosperity but from rapid economic growth and sudden wealth accumulation. Additionally, contrary to earlier beliefs that natural resource wealth creates economic value, the phenomenon of the resource curse is a widely discussed concept that links resource abundance to subpar economic performance.

As shown in the original page included in the Appendix of the study, the term "Dutch Disease" first appeared in The Economist magazine on November 26, 1977. In financial and economic literature, this term is fundamentally defined as the negative impact of rapid growth and sudden increases in prosperity on economic indicators. Countries experience this economic prosperity illness when their capital markets expand beyond their current economic capacity too quickly, leading to an excessive appreciation of their currency. Over time, nations afflicted by this condition have had to implement a series of structural reforms to mitigate the adverse effects of this artificial growth. "Dutch Disease" became a widely recognized economic term referencing the economic situation experienced by the Netherlands in the 1960s.

Latin America has historically been a significant region shaped by natural resource booms and busts. In this context, Venezuela serves as a prime example of a petrostate, building its economy on oil and adopting it as its primary export since the 1920s. Despite possessing the world's largest proven oil reserves, the decline in oil prices triggered a severe economic crisis in Venezuela. Poorly managed economic policies have further exacerbated the nation's existing problems.

In this regard, Venezuela presents a striking case study on the link between oil revenue-based economic models and political instability, offering valuable lessons for resource-rich countries. This study discusses the similarities and differences between the Dutch Disease and the Venezuelan resource curse, highlighting key aspects of both phenomena.

LITERATURE REVIEW

When examining the literature, the studies can be divided into two sections. The first section evaluates research related to Dutch Disease, while the second section focuses on studies concerning the Venezuelan resource curse.

Some studies confirm the existence of Dutch Disease, highlighting its causes and the periods in which it has been influential, showing variability in scope and impact. In contrast, other studies point to a different structural problem known as the Resource Curse. Table 1 presents a selection of various studies conducted within the literature.

²⁷ It is a general increase in the prices of goods and services in an economy.

²⁸ It refers to the growth of Gross National Product (GNP) at a rate slower than the average.

²⁹ It is a crisis situation that occurs when a country experiences both high inflation and economic contraction simultaneously. This is considered the most destructive of economic crises.

³⁰ It is the opposite of inflation, where prices in the market continuously decline over a certain period.

³¹ It is the contraction phase of a business cycle that emerges when there is a general decline in economic activities.

³² It is a severe and prolonged economic crisis. Depression is generally defined as an extreme recession lasting three or more years or resulting in a decline in GDP of at least 10%.

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Table 1. Examples of Studies on Dutch Disease

Author(s)	Research Topic	Discussion and Conclusion
Corden and Neary (1982)	Rapidly emerging sectors in small economies.	The effects of having a growing industry in the economy on the country's other industries have been identified.
Bruno ve Sachs (1982)	A model of Dutch disease.	The first empirical study on Dutch Disease has been conducted.
Torvik (2001)	Dutch disease model	In such a model, it is shown that natural resource revenues and foreign exchange inflows can lead to a long-term depreciation (devaluation) of the real exchange rate. This effect arises from permanent changes in the production levels and productivity between tradable (market-traded) and non-tradable (non-market-traded) sectors.
Larsen (2005)	The economic performance of Norway has been examined.	The Dutch Disease does not apply to Norway. It has been observed that Norway has continued to grow steadily compared to its Scandinavian neighbors, Sweden and Denmark. The country's stable performance has been attributed to well-functioning political and economic institutions.
Kutan and Wyzan (2005)	Is Kazakhstan vulnerable to Dutch Disease?	Research has been conducted on the Kazakhstani economy. Using an extended version of the Balassa-Samuelson model, evidence has been found indicating that fluctuations in oil prices affect the real exchange rate. It has been determined that Kazakhstan's economy could indeed be vulnerable to Dutch Disease in the medium and long term.
Olussi and Olagunju (2005)	The presence of Dutch Disease in the Nigerian economy has been investigated.	In an analysis using a Vector Autoregression (VAR) model, the existence of Dutch Disease in Nigeria, albeit with a delay, has been identified in the long run. The study observed symptoms of Dutch Disease, such as appreciation of the real exchange rate due to rising oil prices, a decline in the manufacturing sector, rapid growth in the service sector, and an increase in overall wages.
Oomes and Kalçeva (2007)	Using data from 1995 to 2005, the existence of Dutch Disease in the Russian economy has been examined.	The study observed symptoms of Dutch Disease, such as the appreciation of the real exchange rate due to rising oil prices, a decline in the manufacturing sector, rapid growth in the service sector, and an increase in general wages.

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Lartey (2008)	The effects of Dutch Disease in the Argentine and Philippine economies have been examined, considering the role of monetary policy.	In a study on the Argentine and Philippine economies, the welfare outcomes revealed that an optimal rule consistent with the nominal exchange rate flexibility of a generalized Taylor rule outperformed both a fixed nominal exchange rate regime and a policy rule that mimics flexible prices.
Oyesanmi (2011)	An analysis of the existence of Dutch Disease in Nigeria has been conducted.	The study, evaluating the period from 1970 to 2009, investigated the long-term equilibrium between crude oil exports and agricultural production. The findings indicate the presence of Dutch Disease in Nigeria.
Gurbanov (2011)	To investigate the effects of Dutch Disease on the Azerbaijani economy, the oil and natural gas sectors have been evaluated.	Despite increased production in the oil sector, employment rose across all tradable and non-tradable sectors. In Azerbaijan, Dutch Disease was not observed due to the slower growth of the industrial sector compared to others and the enclave (closed) nature of the oil sector.
Şanlısoy and Yıldız (2023)	An asymmetric examination of the validity of Dutch Disease in the Indonesian economy has been performed.	Dutch Disease was detected in Indonesia.
Yu, S., Liang, Y., Zhu, Z., Olaniyi, O. N., and Khan, N. (2024)	The evaluation of Dutch Disease from the perspective of the energy sector has been explored.	A relationship between natural resources, the energy sector, and renewable energy consumption was identified. The study emphasized that the Chinese government should prioritize sustainable forest management practices, including afforestation, reforestation, and conservation measures.
Carney, M. (2024)	The study of Dutch Disease in the context of Canada has also been conducted.	Within the framework of Dutch Disease, measures to devalue the Canadian dollar are necessary. This logic involves reducing oil production, finding alternative solutions to resource wealth, preventing high and volatile inflation, avoiding large fiscal deficits, and requiring a contraction in the financial sector.

In Table 2, examples of studies examining the Venezuelan economy and the resource curse are presented.

Table 2. Studies on the Venezuelan Resource Curse

Author(s)	Research Topic	Discussion and Conclusion
Nicholson and Kulkarni (2009)	Examination of the negative effects caused by Dutch Disease in the Venezuelan economy, a founding member of the Organization of	This study, which uses official monetary theory to explain the changes in the economy following resource booms, determines whether government policies can maintain a country's economic stability. The research also presents significant findings regarding how the Venezuelan government managed the resource booms.

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	Petroleum Exporting Countries (OPEC).	The study reveals that developing countries cannot often manage the high foreign exchange inflows that result from resource booms, a common diagnosis.
Yardımcıoğlu and Gülmez (2013)	Using data from 10 OPEC countries, including Venezuela, from 1970 to 2011, the long-term relationship between oil prices and economic growth and the presence of Dutch Disease in these countries has been analyzed.	Pedroni, Kao, and Johansen Fisher cointegration tests, along with Canning and Pedroni panel causality analysis, were used in this study. The findings indicate a reciprocal and significant relationship between oil prices and economic growth in the long term. Moreover, the study reveals that Dutch Disease applies to the OPEC countries analyzed.
Rodriguez and Bakken (2017)	The natural resources of Venezuela and Norway have been examined in the context of Dutch Disease.	While Norway managed to avoid Dutch Disease, Venezuela was severely affected.
Efeoğlu and Pehlivan (2018)	The presence of Dutch Disease in Venezuela, Nigeria, Russia, and Saudi Arabia has been investigated.	The study found that Dutch Disease applies to the countries in question.
Alkan (2019)	An analysis of the developments in Venezuela from the perspective of Dutch Disease.	Dutch Disease applies to Venezuela. Additionally, the study found that Venezuela's economy has become more dependent on oil and has undergone deindustrialization.
Mustafayev (2024)	An evaluation of the importance of oil in the Venezuelan economy and its relation to Dutch Disease.	Venezuela exhibits typical characteristics of an economy affected by Dutch Disease.

THEORETICAL FRAMEWORK

In this section, the resource curse, Dutch Disease, and the resource curse in the Venezuelan economy are discussed.

Dutch Disease

The fundamental reasons for the differences between countries in terms of natural resource wealth or poverty are the unequal distribution of natural resources across the globe and the variations in the diversity and reserve quantities of these resources between countries. A country can increase its economic power by discovering and processing its tradable natural resources, and it can take significant steps towards development with the revenue generated from these resources (Bature, 2013: 8). However, the wealth of natural resources can also have some negative economic effects. In particular, the increase in exports based on the natural resource sector can lead to the real appreciation of the domestic currency, which may reduce the share of other sectors' exports in GDP. This situation may lead to an imbalanced distribution of resources, which harms the manufacturing industry and can result in an economic issue known as "Dutch Disease."

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Dutch Disease is a phenomenon defined by the simultaneous existence of sectors benefiting from the tradeable goods sector and sectors showing contraction in the economy (Corden & Neary, 1982: 825). The discovery of natural resources or increases in resource prices leads to an unexpected surge in export revenues, creating a sudden increase in gains in the resource sector and changing the distribution of production factors between different sectors (Gelb, 1988: 22).

The event that led to the Dutch Disease occurred in July 1959, a time of happiness for the Dutch people and two major oil companies operating in the country. In this period, Europe's largest and the world's tenth-largest natural gas reserve was discovered in the Groningen region. Economists and the Dutch anticipated that, as an industrialized and resource-rich country, the Netherlands would become a significant power in the global economy.

However, by the 1970s, the country's economy did not show the expected level of growth. The discovery of natural gas reserves led to a trade surplus for the Netherlands, which caused the Gulden³³ to appreciate excessively. The appreciation of the currency led to Dutch-made products becoming more expensive in international markets, causing companies in non-resource sectors to lose their competitive edge.

Holland's experience has been defined as "Dutch Disease" in economic literature. Later, the term was used to describe any economic development that led to sudden fluctuations in foreign exchange inflows, such as increases in oil and natural gas prices, foreign aid, or direct foreign investments (Ebrahim-Zadeh, 2003: 2). The term "Dutch Disease" was first introduced in an iconic article published in "The Economist" on November 26, 1977, to explain the negative effects of rising income from natural resources on economies in countries like the Netherlands with similar histories. The original article is found in Appendix. The term "Dutch Disease" was first used in this article and has since appeared in studies analyzing resource-rich countries, continuing to be referenced in economic literature with this iconic definition.

The scientific foundations and symptoms of Dutch Disease were thoroughly discussed in the 1982 paper titled "Booming Sector and De-industrialization in a Small Economy" by W. Max Corden and J. Peter Neary. This study formed the theoretical framework for the disease and is regarded as the fundamental model of Dutch Disease in economic literature. The model has guided subsequent research on the topic, making significant contributions to the development of academic literature in this field.

Corden and Neary's work is considered the classic model of Dutch Disease, and with the presentation of this model, research areas expanded, and the theoretical framework began to take shape. The primary goal of the 1982 foundational model is to examine the pressures created by sudden growth in the natural resource sector on the manufacturing sector and the de-industrialization process resulting from these pressures. This model sheds light on the long-term negative effects of a resource boom on various sectors by analyzing the imbalances in the economic structure.

In Corden and Neary's real model, monetary effects are ignored, prices are determined relatively, and national income and expenditures are assumed to be in balance. In this model, full equilibrium is achieved in goods and factor markets, with the assumption that real wages are fully flexible and that full employment conditions always hold. The economy only has two production factors: labor and capital. While the possibility of growth that leads to impoverishment is not considered, the model focuses on changes in the earnings of different factors when national welfare increases due to the boom effect.

The model assumes a small, open economy that cannot affect world prices; it posits the existence of two tradable goods and one non-tradable good. The sectors producing tradable goods are divided into energy

³³ The currency used by the Netherlands from the 17th century until the adoption of the Euro in 2002 was the Guilder. It was represented by the symbols f or fl.

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and manufacturing, and the trade of these goods occurs at world prices determined by international markets. The price of the non-tradable goods sector, defined as the services sector, is determined by the supply and demand conditions in the domestic market (Corden & Neary, 1982: 825-826).

Venezuela Resource Curse

Venezuela, located in the northern part of South America, is often referred to as a "golden country on a sea of oil." Before becoming a major oil exporter, the country was characterized by an agriculture-based economy reliant on coffee exports. In the early 20th century, Venezuela began exploiting its large oil reserves, quickly transforming from a poor agricultural society into an urbanized and industrialized nation. The first commercial oil drilling in Venezuela occurred in 1917, and the widespread use of this natural resource greatly accelerated the country's economic transformation (Kulkarni and Nicholson, 2010: 61-62). While Venezuela's greatest strength lies in its rich oil reserves, its biggest weakness is its excessive dependence on fluctuations in oil prices. As such, Venezuela serves as a classic example of the economic risks faced by oil-dependent states. The country's experiences offer important lessons for other resource-rich nations regarding the imbalances between natural resource wealth and development. The Venezuelan economy underwent a sudden and high-growth period in the mid-1970s due to the significant increase in oil prices. During this period, Carlos Andrés Pérez's first presidential term (1974-1979) coincided with price hikes by the Organization of Petroleum Exporting Countries (OPEC). Pérez argued that Venezuela's oil wealth represented the last and greatest opportunity to transform the country into a developed nation. While new key industries and ambitious infrastructure projects were initiated during his administration, by the end of his term, Venezuela had fallen into a deep debt crisis and had become economically more vulnerable (Hellinger, 2000: 106-107). Table 3 shows Venezuela's main export goods between 1913 and 1940.

Table 1. The Main Export Goods of Venezuela Between 1913 and 1940

Years	Coffee and Cocoa		Oil	
	Value	%	Value	%
1913	109,1	71,4	-	-
1921	84,7	63,4	11,8	8,8
1929	158,0	20,3	593,6	76,2
1936	51,1	6,7	684,2	89,0
1940	27,2	3,2	809,0	94,0

Source: Garavini, 2019: 19

Between 1920 and 1935, the share of petroleum in Venezuela's exports rose from 1.9% to 91.2%. This situation had a dramatic effect on the country's economy, known in the literature as the "Dutch Disease." The most serious consequence of the Dutch Disease was the near-zero agricultural production in Venezuela and the country's lag in industrialization compared to other Latin American countries (Mustafayev, 2024: 24). Since a large portion of Venezuela's government revenues depended on oil exports, fluctuations in oil prices directly and rapidly impacted the country's economy. During the 1990s, the decline in oil prices significantly reduced the share of the resource sector in GDP. However, in the early 2000s, as oil prices rose again, Venezuela experienced an unprecedented oil boom between

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2003 and 2008. However, the global economic crisis that began in 2008 once again exposed Venezuela's oil industry to price fluctuations. By 2014, the sharp and sudden drop in international oil prices led to a deep recession and severe economic downturn in the country.

In Venezuela, the inflation rate was 35.50% in August 2024 and dropped to 25.75% in September. The average inflation rate in Venezuela from 1973 to 2024 was 3560.00%, reaching its all-time high of 344509.50% in February 2019, while the record low was 3.22% in February 1973 (Banco Central De Venezuela, 2024).

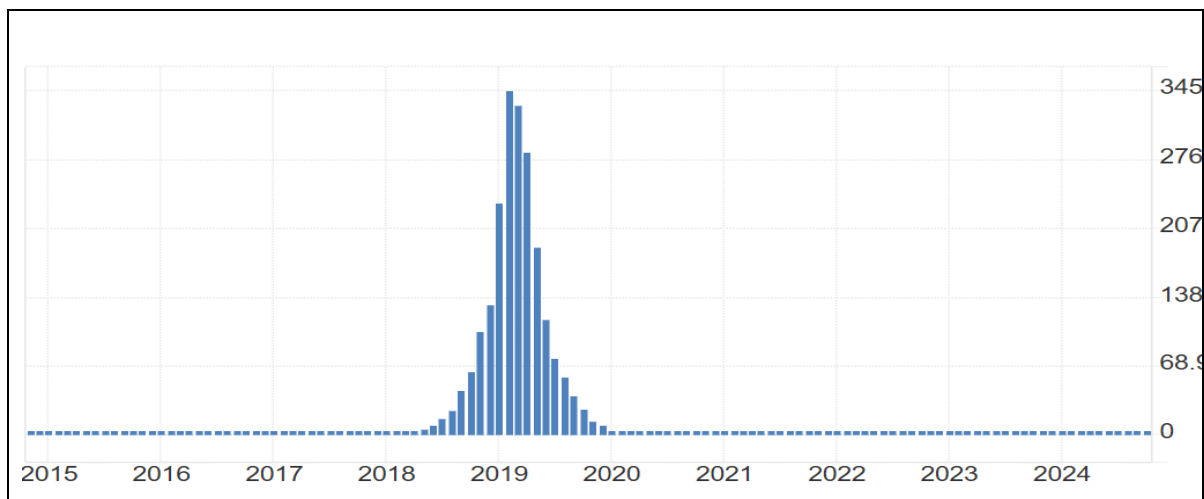


Figure 1. Venezuela Inflation (2015-2024)

Source: Bcv, 2025

Venezuela's exports increased from 8.257 billion USD in the fourth quarter of 2018 to 8.627 billion USD in the first quarter of 2019. From 1992 to 2019, Venezuela's exports averaged 11.127 billion USD, reaching an all-time high of 31.468 billion USD in the third quarter of 2008 and a record low of 2.995 billion USD in the first quarter of 1992 (Banco Central De Venezuela, 2024).

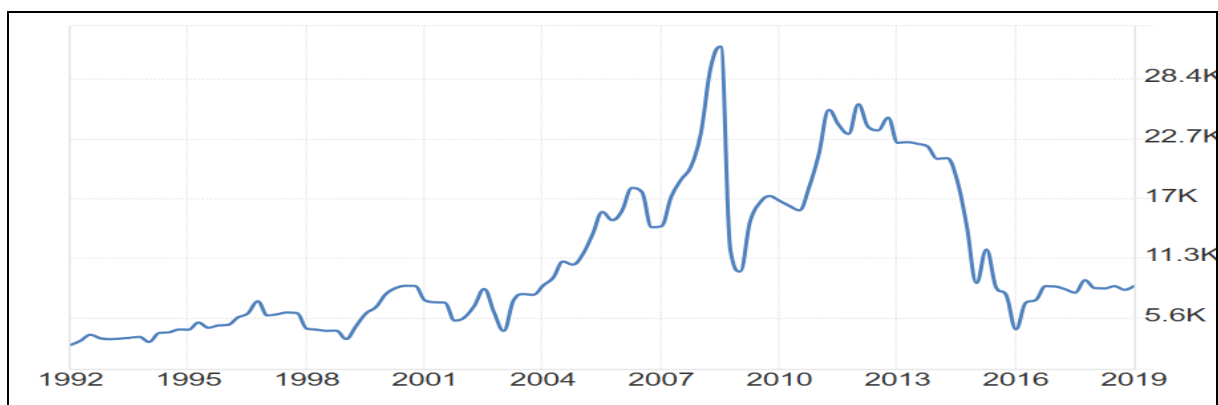


Figure 2. Venezuela Exports (1992-2019)

Source: Tradingeconomics, 2025

Venezuela is an example of an oil state that is excessively dependent on fossil fuel revenues. While the country earns a significant portion of its income from oil exports, this has hindered the development of other sectors and limited economic diversification. The situation, referred to by economists as "Dutch

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Disease," occurs when excessive exports of natural resources cause imbalances in local economies, which may prevent the growth of other sectors, increase inflation, and devalue the local currency.

In recent years, Venezuela has continued to face political and economic challenges. Under the leadership of Nicolas Maduro, the country has struggled with high inflation, unemployment, and low living standards. Additionally, corruption and power centralization in the government have deepened the crises.

However, the easing of U.S. sanctions on Venezuela, along with the restructuring and reforms in the oil sector, offers hope for the country. The relaxation of sanctions is expected to bring foreign investments back into the country, and oil production is expected to rise again. Nevertheless, the success of this process depends on how effectively economic and political reforms are implemented.

DISCUSSION

Establishing strong democratic institutions before the discovery of a country's resources is a highly effective strategy to overcome the phenomenon known as the "resource curse." Norway serves as a successful example in this regard. After discovering vast oil reserves in the North Sea in the 1960s, the country was able to use its resources efficiently for economic development, thanks to its strong democratic institutions. Norway's robust democratic structures ensured that energy companies and the government acted responsibly, helping manage oil revenues effectively. In this context, the oil sector was allowed to grow in a controlled manner, contributing to only 20% of the country's GDP. Additionally, a strong press and an independent judiciary were essential for ensuring transparency and accountability in the management of natural resources like oil. Democratic institutions play a critical role in ensuring that the government uses these resources for the benefit of the public.

On the other hand, for a country without solid state infrastructure before the discovery of oil or other resources, overcoming the "resource curse" can be much more challenging. Experts like Jeffrey Sachs suggest corrective measures for developing countries to use resource revenues more efficiently. These measures include making sustainable investments with oil revenues, focusing on infrastructure projects, and directing spending towards long-term growth goals such as education. Transparency is also a critical factor in enhancing the effectiveness of these strategies.

Many oil-rich countries have established sovereign wealth funds (SWFs) to manage the revenues from these resources. For example, Norway and Saudi Arabia have created such funds, aiming to increase economic diversification by investing internationally. As of 2023, SWFs manage over \$11 trillion in assets, and this figure is expected to rise to \$13 trillion by the end of 2025.

However, the accelerating transition from fossil fuels to renewable energy sources will force oil states to diversify their economies. Countries like Venezuela must reshape their energy sectors in line with global climate commitments, such as the Paris Agreement. Given Venezuela's political instability, climate change, and its capacity to respond to changes in fossil fuel demand, this transition will require significant investments and reforms. This indicates that the process of economic diversification will be a challenging one.

CONCLUSION

The Dutch Disease and the resource curse experienced by Venezuela offer important lessons and implications for countries rich in natural resources. These implications can be summarized as follows:

Economic diversification; an economy based on natural resources is not sustainable in the long term. Resource revenues can be temporary and are open to price fluctuations. Ensuring economic diversification is critical for the development of other sectors.

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Strong institutions and transparency; Venezuela's experience shows that an economy governed by weak institutions and corruption increases the risk of the resource curse. Strong democratic institutions, an independent judiciary and transparency are necessary for the fair and efficient management of resource revenues.

Macroeconomic policies; well-designed fiscal and monetary policies are needed to manage foreign exchange inflows caused by natural resource revenues, prevent real exchange rate imbalances and prevent resources from causing economic imbalances.

Investment in education and human resources; revenues obtained from natural resources such as oil should be directed to education and infrastructure investments that will increase the long-term welfare of the society.

Studies that can be carried out after this study include; Establishing and developing sovereign wealth funds; There may be studies on creating funds to direct a portion of oil revenues to long-term projects that will increase economic diversity. In addition, projects can be designed to transition to sustainable energy, i.e. investing in renewable energy sources, to reduce dependence on fossil fuels and to prepare the economy for the future energy transformation. Another study that can be conducted in the future could be studies on how countries like Venezuela can benefit from international experience and expertise partnerships in order to play a more effective role in energy markets in the context of international cooperation. Finally, studies can be conducted to determine restructuring and reforms, i.e. comprehensive economic and institutional reforms to use oil revenues more fairly and efficiently.

The Dutch Disease and the resource curse clearly show that natural resources can hinder economic development. Venezuela's situation highlights the costs of strategic errors and mismanagement in resource management, offering important lessons for future natural resource management strategies. Drawing on these lessons, efforts should be made toward economic diversification, transparent governance, and sustainable development goals. By doing so, natural resources can serve development rather than economic instability. Resolving this instability requires creating competitive markets, encouraging domestic production, and ensuring equitable distribution of wealth from the top down.

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APPENDIX

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Business Brief

The Dutch disease

That enviable reputation which the Dutch economy enjoyed for many years has been losing its shine. Every European country has suffered from the post-Opec recession, but Holland has been particularly badly hit.

Industrial production has not risen at all since 1974. Gross corporate investment has fallen nearly 15%. The share of profits in national income, which averaged 16.8% between 1965 and 1970, fell to only 3.5% during the next five years. Unemployment now stands at 5.1% of the workforce compared with 1.1% in 1970. Within that total, the proportion qualifying for long-term benefits has risen from 20% in 1965 to more than 60%. Employment in manufacturing industry has fallen 16% since 1970.

Yet externally, Holland appears strong. The guilder has been one of the hardest currencies in the world, having risen in trade-weighted terms by 16.4%

since December, 1971. The current account, which showed an annual deficit of \$130m between 1967-71, remained strongly in surplus right through the shock of higher oil prices—averaging nearly \$2 billion a year between 1972-76.

This contrast—between external health and internal ailments—is the symptom of “the Dutch disease”. Since it is widely believed to derive from Holland’s gas reserves, its spectre is beginning to haunt Britain—especially after sterling’s recent strength. The fear is that the North Sea windfall will be abused: that it may serve only to mask the malignancy of the better known British disease, and that, in the words of Lord Kahn, “when the flow of North Sea oil and gas begins to diminish, about the turn of the century, our island will become desolate”.

Any disease which threatens that kind of apocalypse deserves

close attention. The Dutch version has three component causes, only one of them external.

Strong guilder

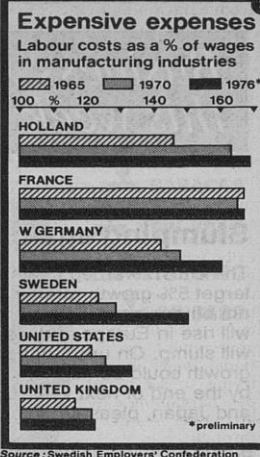
(1) Too strong a currency. Large quantities of gas were first discovered in 1959, in the balmy days of cheap oil and the expectation of abundant, safe nuclear energy within 20 years. Understandably, therefore, the Dutch authorities planned to exploit the gas as quickly as possible. This meant encouraging the domestic use of gas through low prices; by 1975, gas accounted for 58% of Dutch energy consumption. In addition, massive long-term export contracts were drawn up—with prices linked to the oil price, but only after a lag.

The current account benefited accordingly. The gas contribution cannot be precisely measured; but the simple arithmetic shows that, last year, gas export revenues were \$2 billion, while the saving on energy that would otherwise have had to be imported was \$3.5 billion. These benefits will continue to grow. Half the total production is still being exported (of which 45% goes to West Germany, 22% to Belgium, the rest to France and Italy). Nearly 40% of Holland’s proven reserves of 1,700 billion cubic metres are committed to existing export contracts over the next 15 years. But no new contracts will be made, and it is now government policy to restrict the domestic use of gas, so spinning the reserves out until the end of the century.

The strength of the current account has been partly offset by capital outflows. All outward exchange controls have been removed; official foreign borrowers are now being encouraged to come to the Amsterdam market; and certain minor controls on inflows (eg, Dutch companies investing in Holland must raise their money at home) have been introduced. On top of that, the authorities have relieved some external demand for the guilder directly, by increasing official reserves: they rose from \$3.2 billion in 1970 to \$8.0 billion in September of this year.

But the main plank of official policy has been to keep Dutch interest rates low by international standards. That, combined with depressed profitability at home, has encouraged a considerable growth in overseas investment. Largely unnoticed, Holland has now become the biggest foreign investor in the United States: at the end of 1976, it held

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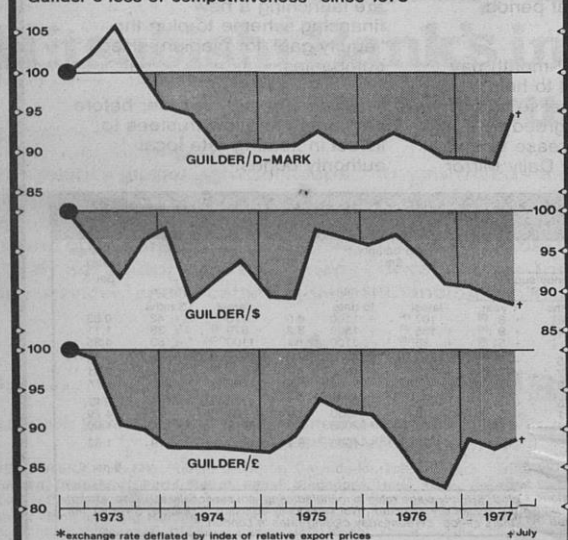


\$6.2 billion of assets, overtaking both Canada and Britain. Meanwhile foreigners invested less in Holland last year than at any time in the past ten years. Between 1967-71, Holland was on balance a recipient of foreign investment; during the next five years, it became a net overseas investor, to the tune of \$1.6 billion. So far this has provoked little reaction from Dutch unions—partly because their economically literate leaders know that, to the extent that capital outflows help prevent the guilder rising too high, Dutch industry is not priced out of its large export markets. But if unemployment carries on rising, opposition to the “export of jobs” may grow.

All this has mitigated, but not prevented, the rise in the guilder. However, it is not a strong exchange rate per se which gives rise to the Dutch disease: rather, the divergence between the internal and external values of the currency. Many Dutch policymakers welcome an appreciating guilder, which cuts the rise in import prices and so helps to dampen inflation. So long as domestic costs (predominantly wages) fully adjust to the higher external value, there is indeed a virtuous circle of lower inflation and a higher exchange rate. But unit wage costs have risen faster than import prices (in guilder terms). So real incomes are higher, profit margins lower than they would have been without a rise in the exchange rate. The guilder is now significantly less competitive (see chart 1), than it was five years ago, because gas, buoying up the current account, has prevented the exchange rate

The limits of its strength

Guilder's loss of competitiveness* since 1973



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from conforming to the country's underlying inflationary position. So Dutch consumers are roughly 10% better off than they would have been, but companies have been able to compete only by paring their profit margins.

High costs

(2) **Other industrial costs.** With unit wage costs growing more rapidly than those elsewhere, government policy should logically have sought to close that gap, either by encouraging productivity improvements or by providing some relief to industry's overall labour costs. The government has sponsored national wage agreements; but in trying to set a fair climate for pay bargaining, it has sharply increased industrial costs, through:

- **Minimum-wage legislation.** This seems to have added to the upward pressure on all wages, despite the government's wish to narrow pre-tax differentials.

- **Social security payments.** From the early 1970s, social security benefits were raised considerably: as a proportion of national income, from 16.5% (1970) to over 23% last year. Roughly 40% of this comes from employers' contributions, and slightly less from employees. The government has now recognised the effects this rise has had on industry's costs; it is increasing its own contribution, which has the same effect as a wage subsidy.

- **Environmental and employment standards.** Pollution controls, health and safety regulations, and the licensing requirements for new industrial development have been tightened considerably. Redundancies are difficult to implement, and expensive (three months' earnings). While such effects cannot be quantified, many multinational companies now think standards to be more rigorous in Holland than elsewhere in Europe. Largely as a result of these government measures, the non-wage element on labour costs is, by international standards, very high (see chart 2).

Spent, not invested

(3) **Use of gas revenues.** Through taxing profits, its ownership of DSM and its stake in Gas Unie, the government receives about 80% of revenue from gas. Last year this accounted for 11½% of total treasury receipts. The government has never formally earmarked these for specific purposes, so the use to which the gas



Another pint of that gas, please

has been put can only be judged by looking at overall fiscal policy. This might have been expected to show a general bias towards investment, as a prudent way of redeploying a wasting capital asset.

Far from it. Government spending has grown very rapidly, and now takes a larger share of gdp than in any other west European country. The great bulk of this increase has gone on transfer payments (pensions, unemployment benefit, etc.) while public investment has actually been taking a smaller slice of the national income (chart 3).

Investment in alternative energy supplies—one obvious way of perpetuating the benefits of gas—has been stymied by indecision over nuclear power. Holland has two nuclear stations (500MW in all); it also has a vocal eco-lobby, and raising the nuclear issue now would add to the political strains of a country divided by coalition infighting. It is unlikely that any new nuclear capacity will be built before 1990. Instead, measures to encourage energy conservation are now being taken: new subsidies to industry for energy-saving investment, and next year a national insulation programme.

Gas revenues have not on their own been enough to finance the increase in government spending. Like other countries, Holland has over the past few years run a large budget deficit. But, chiefly for

reasons of monetary control, this has a de facto ceiling (5% of gdp). As well as borrowing, the government has steadily raised taxes, both direct and indirect. As a proportion of national income, they grew by 2.7% a year (1970-73), and by 1.8% a year (1974-77). This has boosted wage inflation, since unions were quick to adopt post-tax bargaining targets. Last year the government took steps to limit the growth in its spending to 1% a year, and this "rule" now sets the medium-term budgetary framework.

Over the next five years, the rate at which gas output and revenue has been growing will slow down; in 25 years' time, it will be more or less exhausted and the Dutch will again have to live on their wits. This re-entry phase is crucial. It will not be painless, but gradual adjustment will be easier than waking up one morning in the twenty-first century with a monumental hangover.

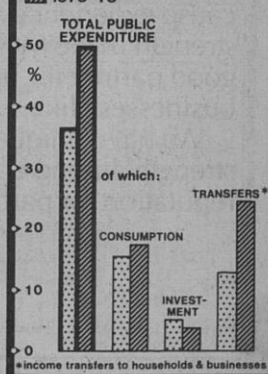
Re-entry will be assisted by the build up of overseas investment, which will provide a permanent source of foreign income to replace export revenues from gas. More important, gas reserves will fall gradually, so the exchange rate will fall gently into line with internal costs, not come down with a bump. As it falls, industry will have the chance to revive. And imports of gas (from Norway now, and liquefied natural gas from Algeria in 1984) will

work in the same direction. But unless the trend in government spending is reversed, taxation will have to rise as gas revenues decline.

Will Britain catch the Dutch disease? Perhaps, but only if it chooses to. Possessing large energy reserves is a necessary, but not sufficient, condition for succumbing to the disease. Holland at least can claim to have begun its spree at a time of energy optimism, and before the disease was really diagnosed. Britain, with the Dutch as an example, will have no such excuse.

Spending spree

Public expenditure as a % of gdp, average—1962-64, 1973-75



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BREWING, MORE THAN BEER PRODUCTION. USE OF BREWER'S SPENT GRAINS TO PRODUCE SUSTAINABLE FUNCTIONAL FOODS

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ABSTRACT

BSGs have attracted the attention of food technologists due to their nutraceutical content and their suitability for drying, milling, and use in bakery products. Milled BSG can be easily added to doughs for the production of cereal derivatives such as bread, extrudates, biscuits, snacks, crackers, and pasta. We investigated the use of BSG coming from the brewing of Belgian-style white beers as a functional ingredient in the production of bread and biscuits with a view to the sustainable use of natural resources, the reduction of waste, and the reuse of by-products. BSGs were first characterised to evaluate their nutraceutical content as a function of both the ingredients used in brewing (three mixtures of malted barley and unmalted durum wheat (DW), soft wheat (SW) or emmer wheat (EW) and the geographical origin (two cereal growing areas, namely Daunia and Salento, in northern and southern Puglia, respectively). Two levels of substitution of manitoba flour with brewers' grains in bread and biscuit formulations were applied to assess their impact on overall quality and functional properties. In the case of functional breads, the Principal Component Analysis (PCA) homogeneously grouped: BSGs by type and origin; and the breads into three groups, namely Control, EW and SW and DW. EW breads had the highest nutraceutical concentrations but the lowest overall quality. SW and DW breads were the best choices, with medium phenolic and fibre content and quality comparable to the control bread. PCA clearly separated the control and fortified biscuits. Biscuits made with SW and DW spent grains were indistinguishable from each other. In terms of nutritional and sensory characteristics, the SW and DW fortified biscuits were the most palatable. The sensory score was slightly higher for the Salento grains, although the physico-chemical differences were not due to the geographical origin.

Keywords: brewer's spent grain; functional foods; sustainable food production; wheat; nutraceutical, components; sensory quality

INTRODUCTION

The principles of circular economy and sustainable development are increasingly recognized as essential strategies to address climate change, decrease reliance on fossil fuels and natural resources, and achieve full resource recovery with zero waste. In this context, up-cycling food processing by-products and side streams has gained significant attention as a method to reduce food waste and aid in the shift towards more sustainable food systems (European Commission, 2018). The food and beverage sector is increasingly focusing on sustainability by reusing by-products that have nutritional and nutraceutical benefits in food processing to create healthier products. BSGs account for approximately 85% of the solid by-products in the brewing industry, with a production rate of 14 to 20 kg per 100 litres of finished beer (Gupta et al., 2010). The global annual production of spent grains is estimated to be around 39 million tonnes, of which 3.4 million tonnes are produced in the European Union. In Italy, the annual production is estimated to be around 188 thousand tonnes. Currently, the main use of BSG is in the livestock sector (30%), while the majority (70%) must be disposed of by breweries at a cost of € 75-100 per tonne in the EU. This disposal leads to an environmental impact, releasing 513 kg of CO₂ equivalent greenhouse gases per tonne of spent grains sent to landfill (Eliopoulos et al., 2022). BSGs are nutritionally valuable, thus suitable for the recovery of nutraceutical compounds and for their re-use in formulations of protein- and fibre-rich foods. BSGs can be dried to extend their shelf life, milled and sieved for use in food product formulation. A study by Nyhan et al. (2023) compared the composition

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of BSG with that of unmalted barley and various cereal and legume sources and showed that the brewing process improves the nutritional value compared to unprocessed raw materials. However, the composition of BSG can vary significantly due to factors such as barley variety, harvest time, malting and mashing processes, and the use of additives. Despite variations in chemical composition between breweries, BSG are generally considered to be a lignocellulosic material rich in protein and fibre. On average, BSGs contain: hemicellulose (~20%), cellulose (15.2-28.7%), lignin (3.35-21%), proteins (18.5-24.7%), lipids (8.4%), starch (5.3%) and ash (3.7%) (Zeko-Pivač et al., 2022). The BSG protein content is about twice that of unprocessed barley or wheat and almost 70% more than that of oats. Compared to commonly consumed cereals and legumes, BSG can be considered as an equivalent or superior source of protein. It also has a relatively high fat content (7-10%) and is a good source of minerals such as magnesium, calcium, and phosphorus. From a nutritional point of view, BSG is particularly valuable for its phenolic compounds (mainly protocatechuic, caffeic, p-coumaric and ferulic acids, and catechins) and its soluble and insoluble fibre components such as β -glucans and arabinoxylans. BSG is commonly used in bakery products such as bread, bread sticks, muffins, biscuits and pizza dough. The addition of agro-food by-products such as BSG can significantly improve the nutritional quality of cereal-based foods in terms of phenolic compounds, vitamins, and fibre. However, this addition can have a negative impact on the technological and sensory properties of the foods (Waters et al., 2012; Yitayew et al., 2022). Research suggests that while BSG can improve the nutritional profile of foods, there is a practical limit to the quantity that can be added without compromising food quality. In bread, this limit is around 10% BSG, beyond which the bread crumb has a low specific volume and is less acceptable to consumers (Ginindza et al., 2022). In biscuits, the maximum acceptable level of substitution ranges from 6% to 20%, depending on factors such as additional ingredients or the specific characteristics of the BSG, which vary according to its origin and processing (Ajanaku et al. 2011; Uchegbu 2016).

Our study investigated the use of BSGs from the brewing of Belgian-style white beers as a functional ingredient in the production of bread and biscuits, with the aim of promoting sustainable resource use, waste reduction and by-product reuse. The study used a higher percentage of BSG flour substitution than other similar studies. The bread and biscuit samples were made by replacing Manitoba wheat flour with two different percentages of BSG flour derived from the brewing of malted barley mixed with three different unmalted wheat species (durum, soft and emmer). The starting raw materials were obtained from two different geographical areas of Apulia region (Daunia in the north and Salento in the south). The obtained products were analysed using physical, chemical, imaging and sensory tests to evaluate the impact of these replacements on the overall quality and functional characteristics of the products.

MATERIALS AND METHODS

Production of BSG flour

Barley malt cv. Fortuna was supplied by Agroalimentare Sud (Melfi, Potenza, Italy). The unmalted common wheat (*Triticum aestivum*) cv. Risciola, durum wheat (*Triticum durum*) cv. Dauno III, and emmer (*Triticum dicoccum*) were obtained from plants born from seeds selected by CREA-CI Research Centre for Cereal and Industrial Crops (Foggia, Italy) and cultivated under the same conditions in two areas of Puglia region, namely Daunia and Salento as described in Baiano et al. (2023). BSGs were recovered as by-products of the mashing step, during the brewing operations concerning the production of six types of craft Belgian white beers starting from cereal mixtures made of 65% barley malt and 35% of one of the unmalted cereals (soft wheat, durum wheat, or emmer) cultivated in Daunia or in Salento, two areas located in the northern and southern parts of Puglia, respectively. Six types of BSG - namely SWDa, SWSa, DWDa, DWSa, EWDa, EWSa – were dried, ground, and stored as described by Baiano et al. (2023).

Formulations and production of the functional bread and biscuits

Bread

Thirteen types of bread were produced using the following ingredients: BSG, Manitoba soft wheat flour type 0 (COOP, Casalecchio di Reno, Italy), water, extra virgin olive oil (Pazienza, Foggia, Italy), gluten

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(Elgranero, Madrid, Spain), sodium chloride (Compagni Europea Sali, Margherita di Savoia, Italy) and dehydrated *Saccharomyces cerevisiae* yeast (Cameo, Desenzano del Garda, Italy). The formulations (Table 1) included a control made of 100% Manitoba flour and twelve samples in which the Manitoba flour was replaced by 20% or 25% of each of the six BSG flours. When 20% of the Manitoba flour was replaced, 3% gluten (based on total flour weight) was added and when 25% was replaced, 4% gluten was added. The same amount of water was used in all formulations. Three technological replicates were carried out and breads were baked in a mould 20 cm long and 11 cm wide. The whole process was carried out in a bread-making machine (Zero-Glu Pro, Imetec, Azzano S. Paolo, Italy) and included: kneading (22 min), raising (1st: 40 min, 2nd: 73 min, 3rd: 50 min), stirring (1st and 2nd: 5 s), and baking (47 min).

Biscuits

The ingredients included: six BSG flours; Manitoba wheat flour type 0 (COOP, Casalecchio di Reno, Italy); brown sugar (Friessinger Mühle, Bad Wimpfen, Germany); extra virgin olive oil (Pazienza, Foggia, Italy); fresh whole eggs (Le Naturelle, Santa Maria In Fabriago, Italy); baking powder and vanillin (Pane degliAngeli-Cameo, Desenzano del Garda, Italy); organic lemon zest (from a local market); and cinnamon (Drogheria and Alimentari S. p.A., Scarperia e San Piero, Italy). Thirteen types of biscuits (Table 2) were produced: a control made of 100% Manitoba type 0 soft wheat flour (CS) and twelve functional biscuits obtained by replacing the Manitoba flour with 30% or 40% of each of the six BSG flours. The biscuits were made by adding all ingredients to a Thermomix TM6 (Vorwerk, Wuppertal, Germany) and kneading for 20 s at speed 4.5. The dough was wrapped in cling film, cooled for 30 min, laminated to a thickness of 6 ± 1 mm, cut with regular shaped cutters and baked at 180°C for 20 min.

Table 1: Ingredients used in bread formulations

Ingredients (g) used in bread formulations							
BreadSamples	BSG Flour ¹	Gluten ²	ManitobaF lour	Water	EVOO	NaCl	DehydratedSaccharomyc escerevisiaeYeast
CS	-	-	500	350	40	12	7
SWDa-20	100 (20%)	15 (3%)	385	350	40	12	7
SWDa-25	125 (25%)	20 (4%)	355	350	40	12	7
SWSa-20	100 (20%)	15 (3%)	385	350	40	12	7
SWSa-25	125 (25%)	20 (4%)	355	350	40	12	7
DWDa-20	100 (20%)	15 (3%)	385	350	40	12	7
DWDa-25	125 (25%)	20 (4%)	355	350	40	12	7
DWSa-20	100 (20%)	15 (3%)	385	350	40	12	7
DWSa-25	125 (25%)	20 (4%)	355	350	40	12	7
EWDa-20	100 (20%)	15 (3%)	385	350	40	12	7
EWDa-25	125 (25%)	20 (4%)	355	350	40	12	7
EWsa-20	100 (20%)	15 (3%)	385	350	40	12	7
EWsa-25	125 (25%)	20 (4%)	355	350	40	12	7

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Table 2: Ingredients used in biscuit formulations

Ingredients used in biscuit formulations (g/100g formulation)									
Biscuits samples	BSG flour ¹	Manitoba flour	Brown sugar	EVOO	Whole eggs	Baking powder	Lemon zest	Vanillin	Cinnamom
CS	0 (0%)	58	13.9	10.6	15.0	1.8	0.5	0.1	0.1
SWDa-30	17.4 (30%)	40.6	13.9	10.6	15.0	1.8	0.5	0.1	0.1
SWDa-40	23.2 (40%)	34.8	13.9	10.6	15.0	1.8	0.5	0.1	0.1
SWSa-30	17.4 (30%)	40.6	13.9	10.6	15.0	1.8	0.5	0.1	0.1
SWSa-40	17.4 (30%)	34.8	13.9	10.6	15.0	1.8	0.5	0.1	0.1
DWDa-30	23.2 (40%)	40.6	13.9	10.6	15.0	1.8	0.5	0.1	0.1
DWDa-40	17.4 (30%)	34.8	13.9	10.6	15.0	1.8	0.5	0.1	0.1
DWSa-30	23.2 (40%)	40.6	13.9	10.6	15.0	1.8	0.5	0.1	0.1
DWSa-40	17.4 (30%)	34.8	13.9	10.6	15.0	1.8	0.5	0.1	0.1
EWDa-30	23.2 (40%)	40.6	13.9	10.6	15.0	1.8	0.5	0.1	0.1
EWDa-40	17.4 (30%)	34.8	13.9	10.6	15.0	1.8	0.5	0.1	0.1
EWSa-30	23.2 (40%)	40.6	13.9	10.6	15.0	1.8	0.5	0.1	0.1
EWSa-40	17.4 (30%)	34.8	13.9	10.6	15.0	1.8	0.5	0.1	0.1

¹ The percentage of replacement of Manitoba flour with BSG is reported in brackets. ² The percentage of gluten reported in brackets is referred to the total amount of flours (Manitoba + BSG)

Analysis of BSGs, functional breads and biscuits

Moisture and ash contents were determined according to the AACC Methods 44-15.02 and 08-01.01, respectively, and expressed as %. The phenolic component was extracted from previously ground samples according to Gandolpho et al., (2021), analysed using the Folin–Ciocalteu reagent, and expressed as mg of gallic acid/g of dry weight. The concentrations of each compound were determined by a HPLC-DAD system (Agilent 1100 Liquid Chromatograph, Santa Clara, CA, USA) equipped with a 100 × 4.6 mm × 3 µm RP-C18 Gemini column (Phenomenex, Aschaffenburg, Germany), according to Aliakbarian et al., (2011). The identification of phenolics was made by comparing their retention times and spectra with those of 18 standard compounds. Their quantification (µg/g dw) was obtained by comparing their peak areas with those of standard curves at two wavelengths: 280 and 320 nm. The antioxidant activity values of the extracts were measured using 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging assay (Brand-Williams et al., 1995) and the results were expressed as both mg of Trolox (6-hydroxy- 2,5,7,8-tetramethylchroman-2-carboxylic acid)/g of dry weight and % remaining DPPH. Soluble and insoluble dietary fibres were determined according to AACC Methods 32-05.01 and 32-21.01 using the K-TDFR-200A Megazyme kits (Neogen Europe Ltd., Ayr, Scotland) and expressed as %. The bread and biscuit chromatic characteristics, determined as described by Baiano et al. (2023), were expressed according to the coordinates of the colour space defined by the International Commission on Illumination: L*, lightness/brightness from black to white on a scale of zero to 100; a*, from negative (green) to positive values (red) and b*, from negative (blue) to positive values (yellow), both without specific numeric scale limits. The following structural characteristics were determined for bread samples: slice height; crumb specific volume (cm³/g); number of pore/cm²; average pore size

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(mm²); porosity %, i.e., the surface of the slice occupied by pores; pore circularity, calculated as $4\pi \cdot \text{area} / \text{perimeter}^2$ (it ranges between 1.0 and 0.0, with a value of 1.0 indicating a perfect circle and value near to 0.0 indicating increasingly elongated shapes). A panel of 12 trained judges (6 females and 6 males) between 25 and 65 years of age, experienced in the sensory evaluation of baked foods, carried out a Quantitative Descriptive Analysis (QDA) as described by Baiano et al. (2023). The panellists were also asked to evaluate the overall quality of each sample. The panellists rated the intensity of each parameter on a 0–9 scale. The Principal Component Analysis (PCA) was applied to verify the possibility of distinguishing the various types of BSGs, breads and biscuits from each other and with respect to the control samples according to physical, chemical, and sensory data. PCA were carried out using the statistical package Statistica for Windows V. 7.0. (Statsoft, Tulsa, OK, USA).

RESULTS

Principal component analysis was used to assess the potential to discriminate each set of samples (BSGs, breads, and biscuits) based on their physical, chemical, and sensory characteristics. The eigenvalues represent the variances of the linear combinations defined by the corresponding eigenvector (Jolliffe and Cadima 2016). They measure the amount of variance captured by each eigenvector. The Figure 1a shows a biplot of factors 1 and 2, which together accounted for 67.63% of the total variance. When the BSG samples were projected onto the factorial plane, they were divided into four groups. The EW samples differed from the others by their negative loading on Factor 1, which accounted for 43.19% of the explained variance. Furthermore, the EW samples were homogeneously divided into two groups based on geographical origin: Daunia and Salento. These groups were characterised by negative and positive loadings, respectively, on Factor 2, which explained 24.44% of the total variance. The negative loadings of this factor were associated with high levels of ash and most phenolic compounds, while the positive loadings were associated with high levels of insoluble fiber, p-coumaric acid, and epigallocatechin gallate (Figure 1b). SWDa and SWSa spent grains were homogeneously grouped in the upper right quadrant (Figure 1a), characterised by high antioxidant activity values and low phenolic concentrations (Figure 1b). DWDa and DWSa spent grains were homogeneously grouped in the lower right quadrant (Figure 1a), associated with low to medium values for all variables (Figure 1b). Principal component analysis highlighted the relationships between the characteristics of the bread samples. Figure 2a shows the factorial plane projection of the bread samples, while figure 2b shows the corresponding analytical data. Factors 1 and 2 together explained 44.21% of the total variance, grouping the thirteen sample types into three distinct sets as indicated by their positions on the factorial plane. The control breads are located in the lower left quadrant and are associated with high values for crumb development, specific volume, minimum and maximum height, cohesiveness and p-coumaric acid concentration. All EW breads are distributed in the lower right quadrant and are characterised by high concentrations of insoluble dietary fibre (IDF), total phenolic content (TPC), gallic acid, vanillic acid, sinapic acid, epigallocatechin gallate, as well as high values for crispiness, porosity, fibrousness and wheat smell. The SW and DW bread groups, which partially overlap and are concentrated in the top two quadrants, are associated with high levels of overall odour intensity, toasty smell, pore size, crust thickness, overall quality, high concentrations of caffeic acid, darker crumb colour and intermediate total flavonoid content (TFC). Figure 3 shows the biplot for the control and fortified biscuits (a) and the related experimental data on the factorial plane (b). The first two principal components explain 52.5% of the total variance. A clear separation between the control and all fortified biscuits, characterized by positive and negative values of Factor 1, respectively, is shown in Figure 3a. Control biscuits were associated with high levels of chlorogenic acid and kaempferol, and high astringency (Figures 3a and 3b). Factor 2 allowed the four types of EW biscuits to be homogeneously grouped based on varying levels of 4-hydroxybenzoic acid, catechin, and epigallocatechin (Figures 3a and 3b). Biscuits enriched with SW and DW spent grains formed a single large undifferentiated group, located in the quadrant characterized by the highest overall quality scores (even higher than those of the control biscuits). The high intensity of the freshly baked flavor, combined with the low hardness and fibrousness of the SW and DW biscuits, likely contributed to these high overall quality scores.

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Table 2: Eigenvalues of correlation matrix

Eigenvalues			
Factor	BSGs	Bread	Biscuit
1	9.070586	13.08854	16.02961
2	5.131417	8.13118	6.03485
3	3.198121	5.31410	3.75074
4	1.339238	4.37295	2.78113
5	0.911273	3.58828	2.58546
6	0.553413	2.90863	2.11915
7	0.434063	2.34419	1.85293
8	0.241965	2.04607	1.36338
9	0.076236	1.50935	1.01075
10	0.019254	1.31635	0.89527
11	0.012655	1.05488	0.76427
13	0.007854	0.61162	0.69224
14	0.003147	0.44071	0.56578
15	0.000434	0.33557	0.39479
16	0.000269	0.28856	0.28310
17	0.000075	0.18219	0.21840
18	-	0.13523	0.14886
19	-	0.11019	0.11502
20	-	0.08675	0.09830
21	-	0.05255	0.08199
22	-	0.04735	0.06469
23	-	0.02674	0.04915
24	-	0.00541	0.03223
25	-	0.00264	0.02278
26	-	-	0.01394
27	-	-	0.00885
28	-	-	0.00727
29	-	-	0.00526
30	-	-	0.00387
31	-	-	0.00217
32	-	-	0.00153
33	-	-	0.00106
34	-	-	0.00051
34	-	-	0.00025
36	-	-	0.00021
37	-	-	0.00013
38	-	-	0.00006
39	-	-	0.00000

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Figure 1: Projections of (a) BSG samples and (b) the related experimental data on the factorial plane.

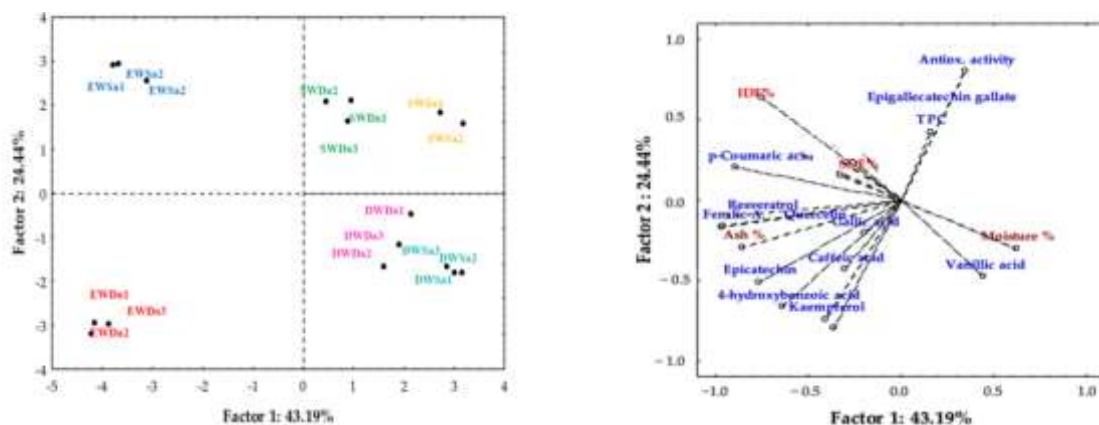


Figure 2: Projections of (a) control and functional breads and (b) the related experimental data on the factorial plane.

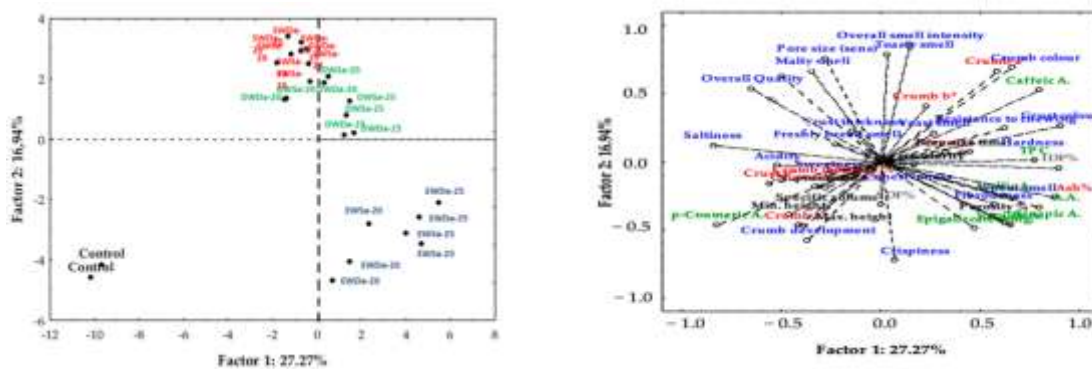
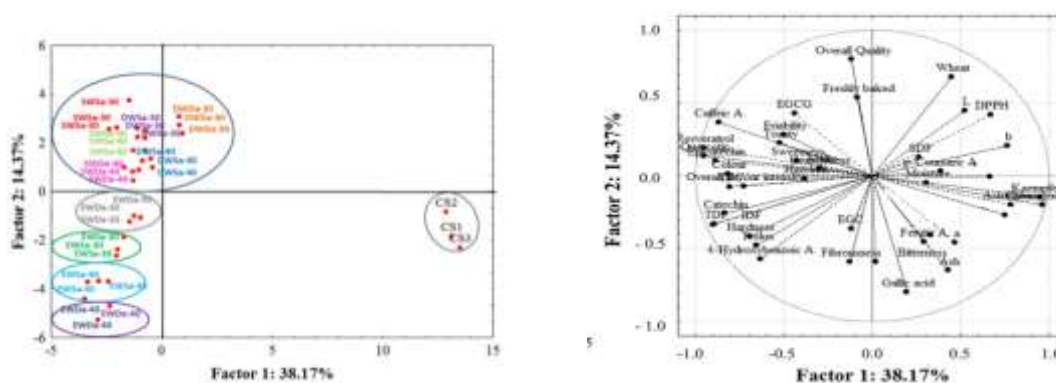


Figure 3: Projections of (a) control and functional biscuits and (b) the related experimental data on the factorial plane.



DISCUSSION

Principal component analysis (PCA) allowed the grouping of BSG samples according to their type and area of origin, in relation to their physical and sensory characteristics, as well as their content of antioxidants, dietary fibre and phenolics. All phenolic compounds, except epicatechin gallate and

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vanillic acid, played a significant role in discriminating EW from the other BSG samples (SW and DW). Differences related to geographical origin were observed only in the EW samples in relation to the high scores for antioxidant activity, TPC, soluble and insoluble fibres, p-coumaric acid and epicatechin gallate, which allowed to distinguish the Salento spent grains from those of the Daunia region. For the SW and DW samples, PCA grouped the BSG, separating them into soft (SW) and durum (DW), independently of their geographical origin.

Principal Component Analysis (PCA) effectively grouped the bread sample based on their type and origin into three distinct sets. The first set, comprising control breads, was characterized by high scores for crumb development, specific volume, minimum and maximum height, and cohesiveness. The second set, corresponding to EW breads, exhibited elevated scores for insoluble dietary fiber (IDF), total phenolic content (TPC), crispiness, porosity, fibrousness, and wheat aroma. The third set included SW and DW breads, which were distinguished by high scores for overall smell intensity, toasty aroma, pore size, crust thickness, overall quality, darker crumb color, and intermediate TPC levels. Based on these findings, EW breads contained the highest concentrations of nutraceuticals, although they exhibited the lowest overall quality. In contrast, SW and DW breads presented a balanced profile, with intermediate phenolic and fiber contents and overall quality comparable to that of the control bread.

Principal component analysis clearly distinguished between control and all fortified cookies. Biscuits fortified with BSG showed higher scores for soluble and insoluble fibre, phenolic compounds, antioxidant activity and better sensory characteristics compared to control biscuits. Biscuits enriched with EW are separated from the others, regardless of their geographical origin, and show higher scores for 4-hydroxybenzoic acid, catechin, epigallocatechin, antioxidant content, total dietary fibre and hardness. Biscuits enriched with SW and DW spent grains cluster together as a single indistinguishable group in the plane corresponding to the highest scores for overall quality scores. These high quality scores are probably due to the intense fresh baked flavour and reduced hardness and fibrousness of the SW and DW biscuits.

CONCLUSION

Principal Component Analysis has homogeneously grouped the BSGs according to their type and origin, based on their chemical composition and in particular their phenolic profiles. The partial replacement of wheat flour with BSG resulted in significant discrimination in phenolic content, and insoluble and soluble dietary fibres of the enriched breads with respect to the control, thus confirming the nutraceutical and functional nature of BSGs and BSG-enriched breads, respectively. The thirteen bread samples are grouped on the bases of physical and sensory properties and discriminate from the control bread, EW breads, and the SW and DW breads. Based on these results, EW breads had the highest concentrations of nutraceuticals but the lowest overall quality. SW and DW breads were the best choices (intermediate phenolic and fibre content and overall quality comparable to the control bread). The bread samples didn't show any discrimination according to the geographical origin of the starting cereal malt. Principal component analysis made it possible to separate the control group from the fortified biscuit group. Among the latter, biscuits made with SW and DW spent grains were indistinguishable due to their similar quality characteristics. Biscuits with EW spent grains could be distinguished from others on the basis of their chemical composition, while biscuits with DW or SW spent grains received the highest overall quality scores.

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CHEMICAL PROFILE OF *SALVIA OFFICINALIS* PLANTS FROM WILD POPULATION OF LESKOVIK AREA

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ABSTRACT

Albania, as part of the Balkan Peninsula and the Mediterranean, is a country rich in more than 3000 species of plants, of which more than 300 are classified as aromatic and medicinal plants. They are found almost throughout the country, from coastal areas to altitudes above 2000 m. Wild population of *Salvia officinalis* are widespread almost in all Albanian territory, which is one of the main exporter countries in Europe for this plant. It has a long history of medicinal and culinary use, and as an ornamental garden plant. Sage herb parts have many notable plant-derived chemical compounds, essential oils, minerals, vitamins that are known to have disease preventing, and health promoting properties. In this study were analyzed essential oil of *Salvia officinalis* samples from Leskovik area, located in South-East of Albania. *Salvia* herbs were collected in the end of the June, for a ten years period (2015-2024). The air dried plant samples were subjected to European Pharmacopoeia apparatus (Clevenger type) for 4 hours to obtain *Salvia officinalis* essential oil. The chemical composition of the essential oils was analyzed using GC/FID technique. VF-1ms capillary column (30 m x 0.33 mm x 0.25 μ m) were used for separation of compounds. Alpha- and beta-Thujone were identified as main constituents and all analyzed essential oils of *Salvia officinalis* samples from Albania. Their total concentrations ranged between 29 and 32 % related this mainly with amount of precipitation, sun-hours, air temperatures, changes in soil composition (erosion), human activity, etc. There are no significant changes in the chemical profile of sage plants for the study period. Climate changes and human activity have a direct impact on the physiological processes of plants as well as at their chemical profile, therefore such multi-year studies are of great value to observe these changes.

Keywords: *Salvia officinalis*, Essential oils, α - and β -Thujone, GC/FID

INTRODUCTION

Albania is located on the Balkan Peninsula and is part of the Mediterranean area. As part of this area and due to its favorable geographical position, our country stands out for its rich vegetation, with about 3250 different types of plants. This development of the flora is favored by the great diversity of plain, hilly, and mountainous relief forms, as well as by the climate with marked changes. Of this diverse vegetation, about 350 species are aromatic and medicinal plants, which constitute a good and important natural economic resource, still not fully exploited (Asllani, 2012). The medicinal plants of our country are distinguished by their active ingredients and essential oils. These plants are known and mentioned since ancient times. They are widely used in traditional medicine and culinary (Kate et al, 2014). Albania is one of the main exporter countries in Europe for sage plants and its essential oil. The activity of gathering aromatic-medicinal plants constitutes one of the main incomes for the livelihood of poor families in rural areas. This is the main activity that generates income for the livelihood of these families. Many farmers request that their lands with low fertility be planted with medicinal, essential oil and tanniferous plants. This would be a very good solution especially in abandoned agricultural areas and impossible to be treated by agricultural machinery and irrigation water. *Salvia officinalis* is a member of the family Lamiaceae and is native to the Mediterranean region, though it has naturalized in many places throughout the world. *Salvia officinalis* is widespread in all Albanian territory. S.

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officinalis plant has been used since ancient times for snakebites, increasing women's fertility, and more. The plant had a high reputation throughout the middle ages, with many sayings referring to its healing properties and value. It was sometimes called *S. salvatrix* (sage the savior). Sage is recommended as a diuretic, hemostatic, emmenagogue, and tonic. Sage herb parts have many notable plant-derived chemical compounds, essential oils, minerals, vitamins that are known to have disease preventing, and health promoting properties. The prime biologically active component of common sage appears to be its essential oil, which chiefly contain ketones; α -Thujone, and β -Thujone. In addition, sage leaf ect. Altogether, these compounds known to have counter-irritant, anti-inflammatory, anti-allergic, anti-fungal and anti-septic properties. Sage leaves are a good source of antioxidant vitamin, vitamin-C which are at adequate levels in the body help maintain integrity of blood vessels, skin, organs, and bones. It has wide use in Albania, mainly as tea or as a food ingredient. It is often used to fight colds, sore throats, chest pains, problems with the menstrual cycle, etc. The area of Leskovik is known for the growth and collection of many medicinal plants such as *Salvia officinalis*, *Sideritis raeseri*, *Oregano vulgaris*, *Hypericum perforatum*, *Melisa officinalis*, etc. the suitable climate favors the growth of these plants, which are also known for their quality. This favors the residents of this area because they provide income to meet their needs.

MATERIALS AND METHODS

Sampling of *Salvia officinalis* samples from South-East Albania

Essential oil of wild populations of *Salvia officinalis* samples from Leskovik area (South-East Albania) were analyzed in this study. *Salvia* herbs were sampled in the end of the June, for a ten years period (2015-2024). Sage samples were collected each year in 4 stations of Melesini Mountain. Sage sampling stations were from Melesin Mountain at 4 different altitudes from 1000 – 1500 m altitude. The areal parts of the sage plants were air dried in a dark room to preserve their morphological characteristics.

Isolation of *Salvia officinalis* essential oil

Dried plant material (50 g of *Salvia Officinalis*) was subjected to hydrodistillation for 4 hours, using a modified Clevenger-type apparatus to produce essential oil. 2 ml Toluene was added to the balloon for isolation of *Salvia officinalis* essential oils. The oil was dried by anhydrous sodium-sulphate (Na_2SO_4) and kept sealed in dark glass vial at +8°C until use.

Apparatus and chromatography

Gas chromatographic analyses of *Salvia officinalis* essential oil were realized with a Varian 450 GC instrument equipped with a flame ionization detector and split/splitless injector. The temperature of injector was 280°C. 1 μl of *Salvia officinalis* essential oil diluted in Toluene was injected in split mode (1:50). A temperature for FID was held at 300°C. Nitrogen was used as carrier (1 ml/min) and make-up gas (25 ml/min). Hydrogen and air were flame detector gases with 30 ml/min and 300 ml/min, respectively. VF-1ms capillary column (30 m x 0.33 mm x 0.25 μm) was used to isolate compounds of *Salvia officinalis* essential oil. The oven temperature was programmed as follows: 40°C (held for 2 minutes) to 150°C (with 4°C/min), after that to 280°C with 10°C/min and held for 7 minutes. The identification of the compounds was based on comparison of their Kovats indices (KI), their retention times (RT) and literature (Adams, 1995; David et al., 2010, Kong et al., 1999). A mixture of n-alkanes from n-octane (C8) to eicosanes (C20) was used for calculation of KI.

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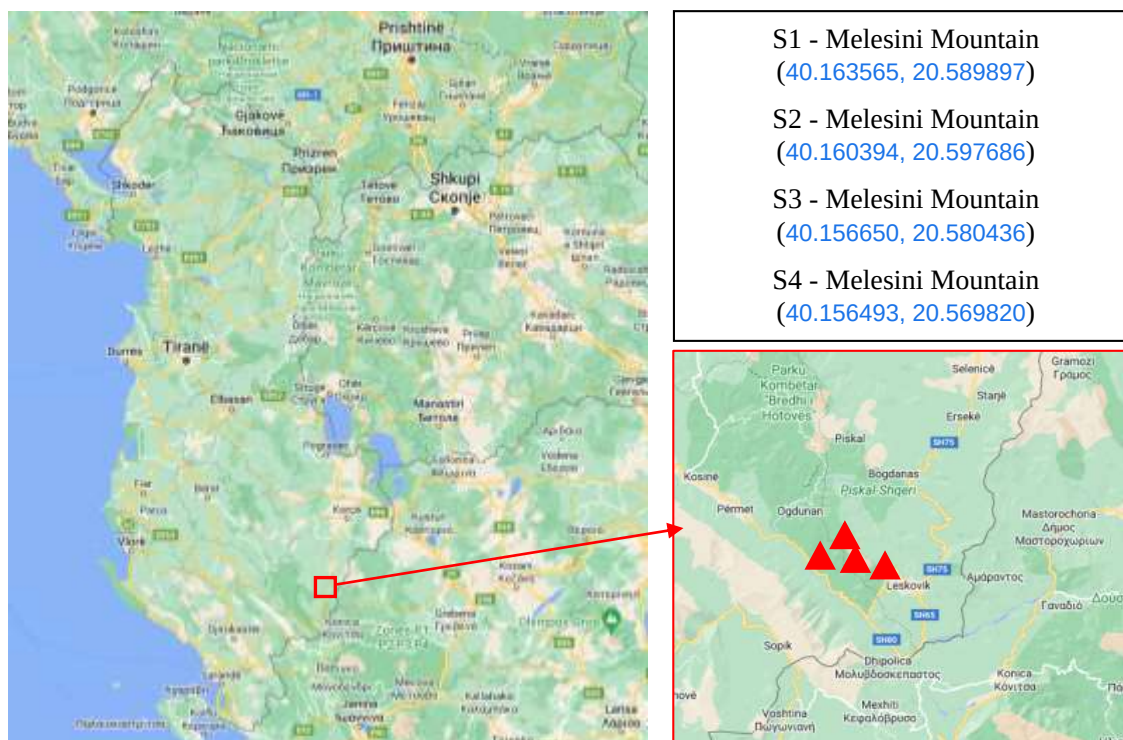


Figure 1. Sampling station of *Salvia officinalis* from Leskovik, South-East Albania

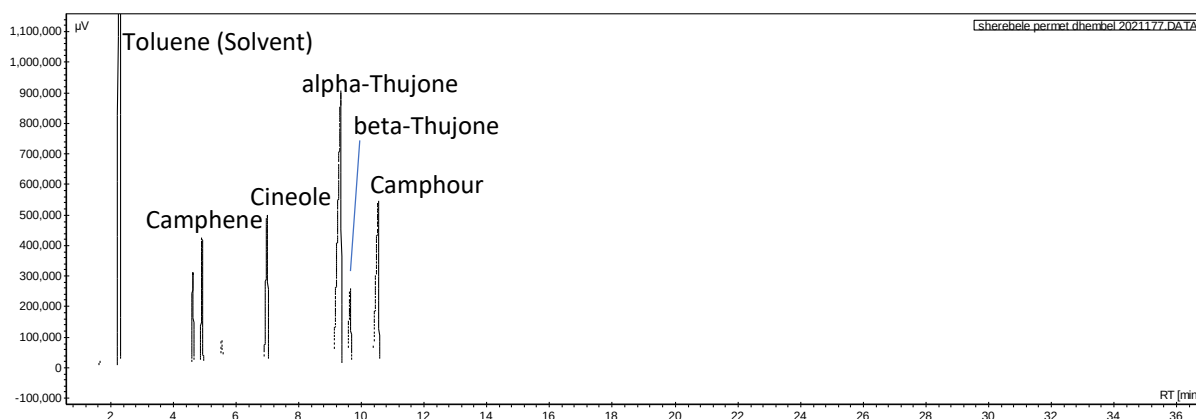


Figure 2. Chromatogram of *Salvia officinalis* for June 2021

RESULTS AND DISCUSSION

In this study, samples of *Salvia officinalis* were taken from the area of Leskovik, for a period of ten years (2015-2024). These samples were taken at the same stations (Mount Melesin) known for the growth and collection of sage. Essential oil of *Salvia officinalis* samples from South-East Albania were analyzed using GC/FID technique. Table 1 gives the average percentages of the components analyzed for sage for this study period. The data were averaged for each year to note changes over time in the sage plant from this area. In the chromatograms analyzed from these samples, 100-120 compounds were identified. In this study, the 20 main compounds that make up from 91.8% for the year 2018 to 97.7% for the year 2021 were obtained. The data shown percentages for the total of identify peaks except for the peak of Toluene that was the solvent used for dilution of essential oil . The peaks lower than 0.05% were not present in this study. Some of the main compounds identified for all sage samples were: alpha-Thujone, beta-Thujone, Camphor, Cineole, Camphene, Cariophyllene, Humulene (Figure 3). The main components of sage essential oil are monoterpenes. The total monoterpenes in the analyzed

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samples were from 81.1% for 2018 to 90.2% for 2016. The main groups of terpenes (Figure 4) that were found in the sage of the Leskovik area were: oxygenated monoterpenes (62.5 – 76.2%) > bicyclic monoterpenes (8.9 – 15.1%) > sesquiterpenes (6.2 – 10.8%) > monocyclic monoterpenes (0.9 – 10.0%) > aliphatic monoterpenes (0.8 – 1.7%) > aromatic monoterpenes (0.04 – 0.6%). It is noticed that there is a difference regarding the total and the main groups of terpenes. This should be mainly related to external atmospheric factors such as humidity, amount of rainfall, amount of sunny hours, soil composition, etc. However, their same profile is related to the same origin of the plant. Alpha and beta-Thujones are the main components of the sage plant (Figure 5). Their total was from 27.2% (2020) to 45.2% (2021). It should be said that in general the sage of the Leskovik area has a lower percentage of Thujones compared to other areas (Pepa, et al, 2017, Nuro et al, 2017). Cineole it was another compound found in higher percentage compared to others (Figure 6). Its percentage was in the range between 6.5% (2021) to 15.2% (2016). Its presence is important for the taste of sage tea and the essential oil of these plants, which are in great demand in our country. Figure 7 shows the percentages for Camphor that was the second compound found in sage essential oil. Its percentage was between 16.4% (2018) to 25.0% (2020). Also, the presence of Camphor is important for the use of sage tea and its essential oil. The main compounds found in essential oil of sage samples belong to oxygenated monoterpenes (alpha+beta-Thujones, Camphor, Cineole, Borneol, Bornyl acetate, Linalool, Terpinen-4-ol and alpha-Terpineol) which make up the main group of terpenes. Their lowest level was in 2023 with 62.5%, while the maximum was in 2021 with 76.3%. In general, it can be said that there is a maintenance of the level of these compounds regardless of climatic changes from year to year (humidity, hours of sunshine, air temperatures, etc.). This should be mainly related to the genotype of the plant that grows in these areas. Another important group of compounds found in sage were bicyclic monoterpenes (alpha+beta-Pinene, Camphene and cis-Sabinene hydrate) for which the maximum was for the years 2020 (11.6%) while the minimum for 2018 (8.9%). The compounds of this group are more volatile than the other groups (they are the first to appear in the chromatogram of essential oil for sage samples) therefore their fluctuation for different years should be related to the average air temperature for these years as and with the drying temperature and the temperature at which the sage plants were stored before they were analyzed. This is also supported by the fact that for the same years when there is a decrease in the percentage of bicyclic monoterpenes, higher levels of sesquiterpenes (compounds with higher boiling points because of their molecular mass) have been found. Thus, the maximum of sesquiterpenes (beta-Caryophyllene and alpha-Humulene) was found for the year 2018 (6.2%) while the minimum for the year 2020 (10.8%). Air humidity, amount of precipitation and hours of sunshine also have an influence on the changes observed for bicyclic monoterpenes and sesquiterpenes in the analyzed samples. For monocyclic terpenes (alpha+gamma-Terpinene and Limonene) it is noted that their maximum was for the years 2023 (10.0%) while their minimum was found for 2018 with 0.9%. Although the changes of this group are very large from year to year, we can say that they are mainly influenced by the relative percentages of other compounds within a year. Atmospheric factors (humidity, amount of precipitation, etc.) or the way of storing/handling the samples before their analysis are also not excluded. Aliphatic monoterpene (Myrcene) and aromatic monoterpene (para-Cymene) were found in non-significant percentages ($\leq 1\%$) to have an impact on the general chemical profile of essential oil for salvia samples of Leskovik, South-East Albania. The data obtained from this work showed that the chemical composition of *Salvia officinalis* from the South-East of Albania was almost the same chemical profile as other works reported from the Balkan and Mediterranean area. (Khedher et al 2017; Oniga et al 2010; Damyanova et al 2016; Miguel et al 2011; Bernotiene et al 2007; Aëen et al 2011; Perry et al 1999).

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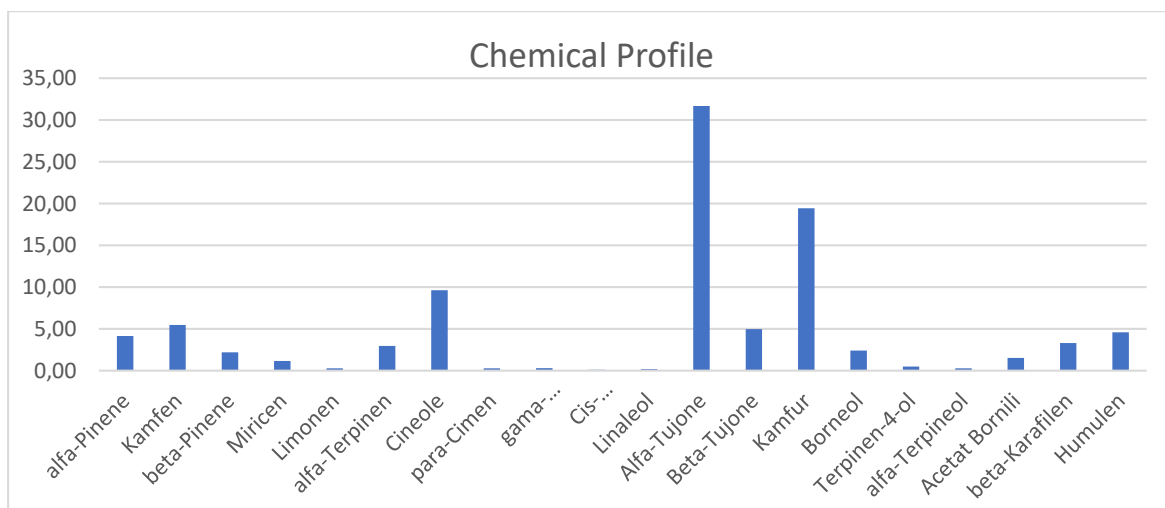


Figure 3. Chemical profile of *Salvia officinalis* essential oil from Leskovik, South-East Albania

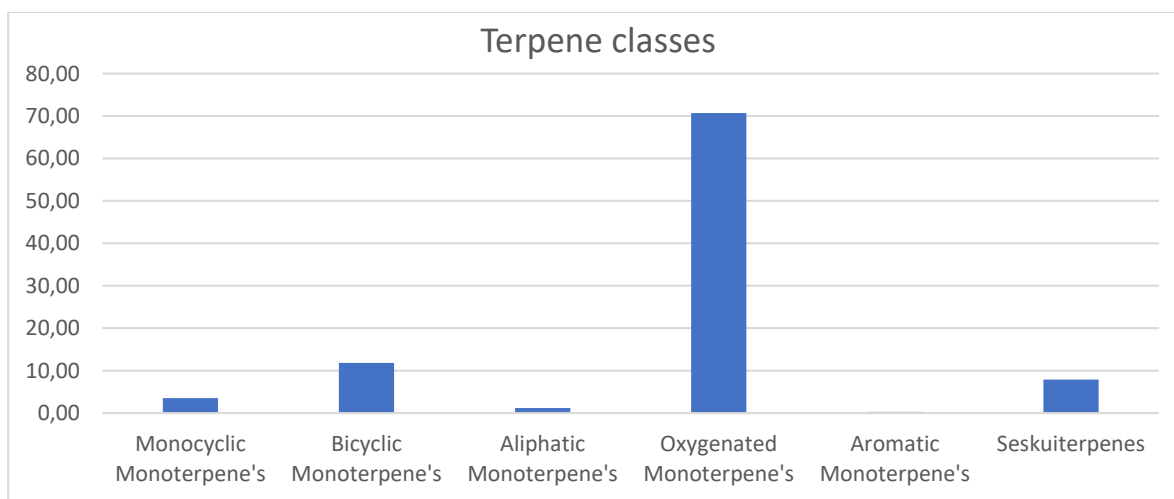


Figure 4. Profile of terpene classes for *Salvia officinalis* samples from South-East Albania

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Table 1. Average data for chemical composition of *Salvia officinalis* from South-East Albania

	Year 2015	Year 2016	Year 2017	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022	Year 2023	Year 2024
alfa-Pinene	3.70	3.45	3.86	3.00	3.86	4.77	6.49	3.62	3.82	4.98
Camphene	5.06	5.99	6.19	4.26	6.03	8.02	2.43	5.66	6.01	5.02
beta-Pinene	1.32	3.15	2.54	1.62	2.60	2.27	1.91	2.30	2.13	2.01
Myrcene	0.98	1.72	1.12	1.32	1.15	0.76	1.12	1.26	1.06	1.07
Limonene	0.30	0.22	0.51	0.08	0.45	0.31	0.10	0.34	0.28	0.23
alfa-Terpinene	0.71	0.42	3.60	0.30	3.08	1.52	1.23	4.84	9.50	4.30
Cineole	11.67	15.22	9.63	8.16	8.65	12.21	6.49	11.25	4.13	8.87
para-Cymene	0.10	0.04	0.58	0.67	0.20	0.13	0.20	0.24	0.33	0.34
gama-Terpinene	0.41	0.71	0.20	0.51	0.10	0.10	0.10	0.43	0.23	0.17
Cis-Sabinene hydrate	0.10	0.05	0.10	0.03	0.10	0.20	0.10	0.08	0.11	0.23
Linalool	0.25	0.40	0.10	0.30	0.10	0.10	0.10	0.25	0.17	0.10
alfa-Thujone	31.76	28.31	32.95	35.10	31.07	22.93	40.31	30.56	29.27	34.60
beta-Thujone	5.58	7.00	4.89	4.26	4.51	4.26	4.87	5.74	4.28	4.28
Camphor	19.81	17.96	18.57	16.44	19.82	25.00	19.07	18.51	20.13	19.01
Borneol	2.77	2.33	2.23	2.56	2.30	2.29	2.43	2.41	2.35	2.43
Terpinen-4-ol	0.51	0.46	0.49	0.51	0.45	0.52	0.51	0.48	0.48	0.46
alfa-Terpineol	0.20	0.32	0.22	0.20	0.21	0.21	0.61	0.25	0.20	0.31
Bornyl Acetate	1.52	2.45	1.13	1.77	0.89	1.40	1.65	1.67	1.33	1.39
beta-Cariophyllen	4.00	3.04	2.84	4.03	3.59	2.23	3.35	3.25	3.24	3.40
alpha-Humulene	4.36	4.46	4.00	6.78	4.88	4.00	4.06	4.21	5.14	3.91
Total	95.13	97.69	95.73	91.90	94.03	93.24	97.15	97.34	94.20	97.13
Total Monoterpene's	86.77	90.18	88.89	81.09	85.56	87.01	89.74	89.88	85.82	89.82
Monocyclic Monoterpene's	1.42	1.35	4.31	0.89	3.63	1.94	1.44	5.61	10.01	4.71
Bicyclic Monoterpene's	10.08	12.58	12.58	8.89	12.48	15.06	10.84	11.58	11.97	12.01
Aliphatic Monoterpene's	0.98	1.72	1.12	1.32	1.15	0.76	1.12	1.26	1.06	1.07
Oxygenated Monoterpene's	74.17	74.49	70.31	69.32	68.11	69.12	76.15	71.20	62.45	71.69
Aromatic Monoterpene's	0.10	0.04	0.58	0.67	0.20	0.13	0.20	0.24	0.33	0.34
Sesquiterpenes	8.36	7.51	6.84	10.81	8.47	6.23	7.41	7.46	8.38	7.31

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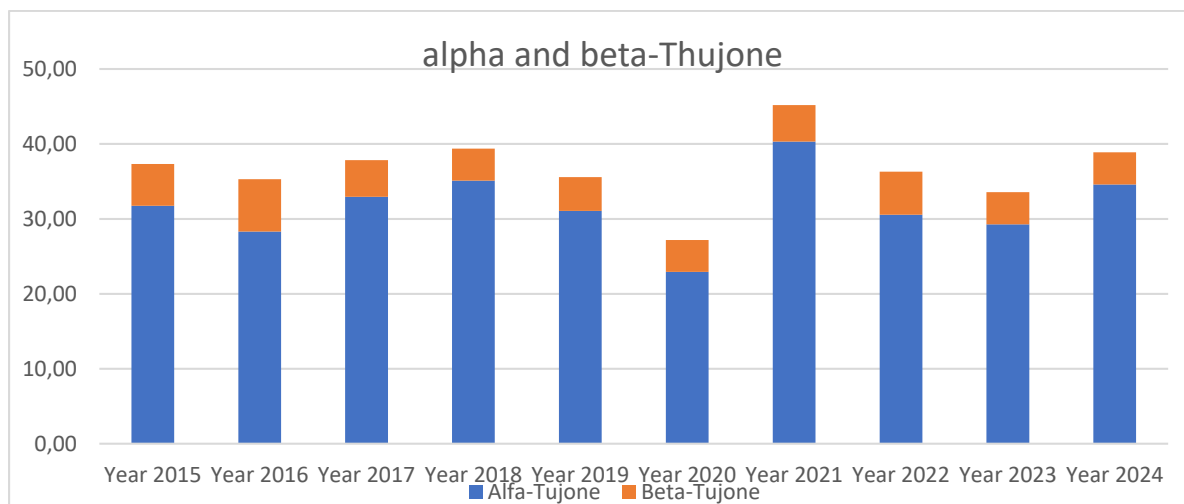


Figure 5. Total of alpha + beta-Thujone in *Salvia officinalis* samples from South-East Albania

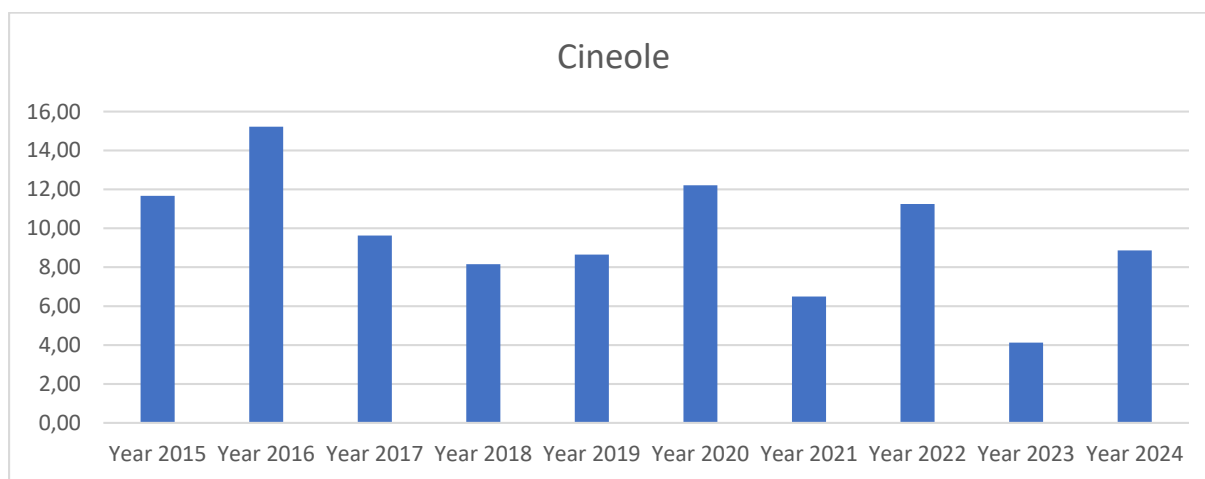


Figure 6. Percentage of Cineole for *Salvia officinalis* samples of Leskovik area

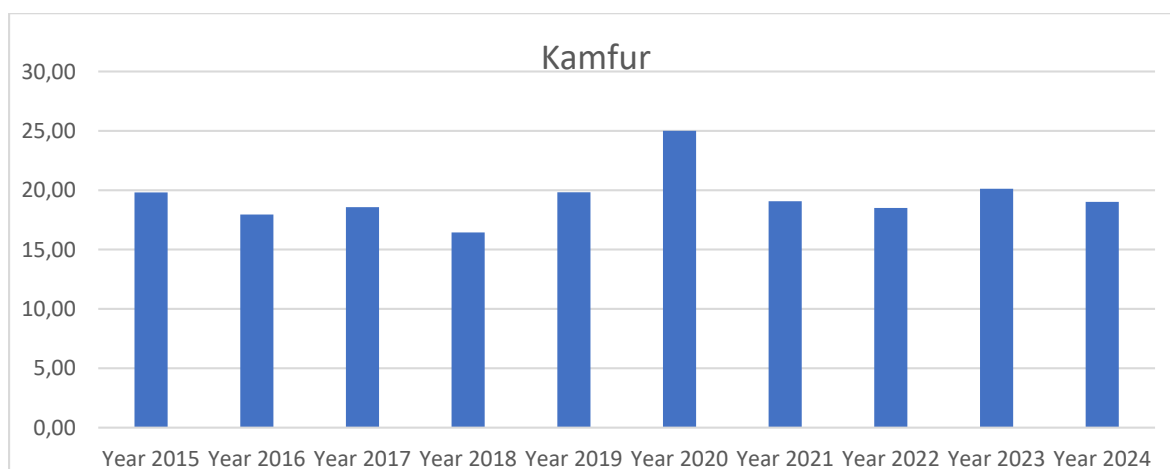


Figure 7. Percentage of Camphor for salvia samples of Leskovik (2015-2024)

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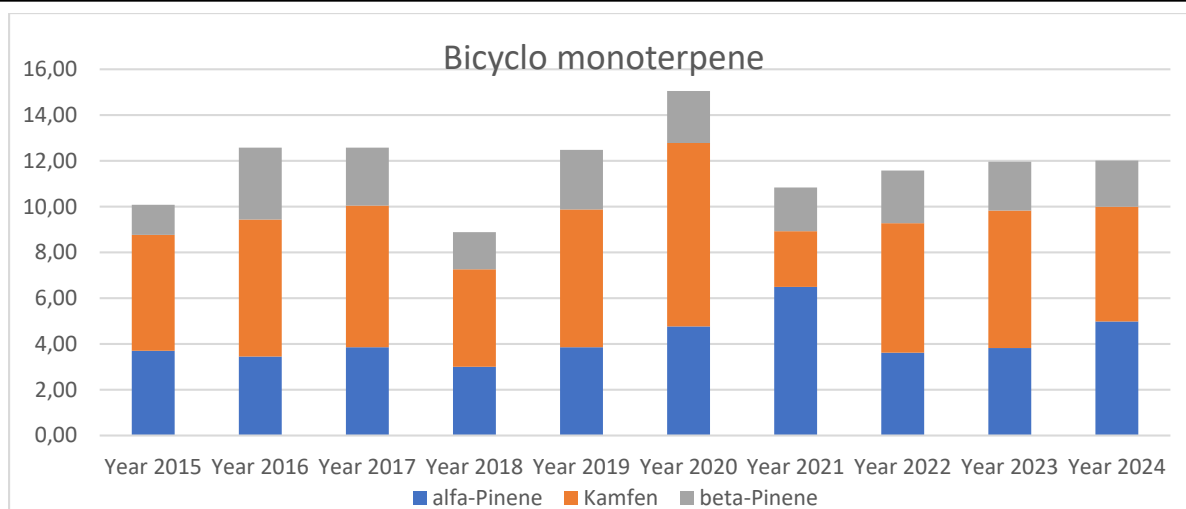


Figure 8. Bicyclic monoterpene percentage in salvia samples of Leskovik (2015-2024)

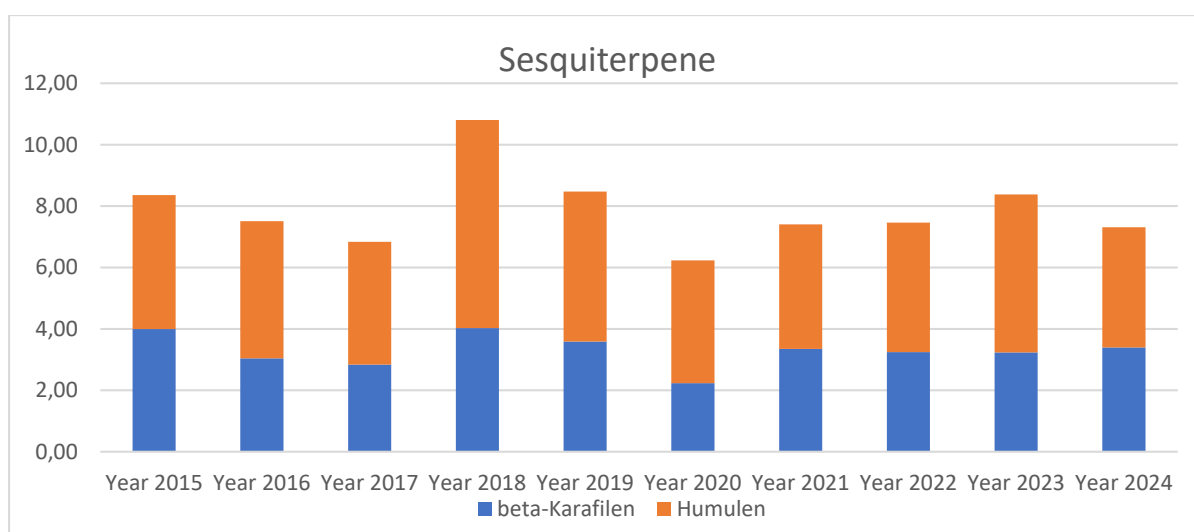


Figure 9. Percentage of sesquiterpenes for salvia samples of Leskovik (2015-2024)

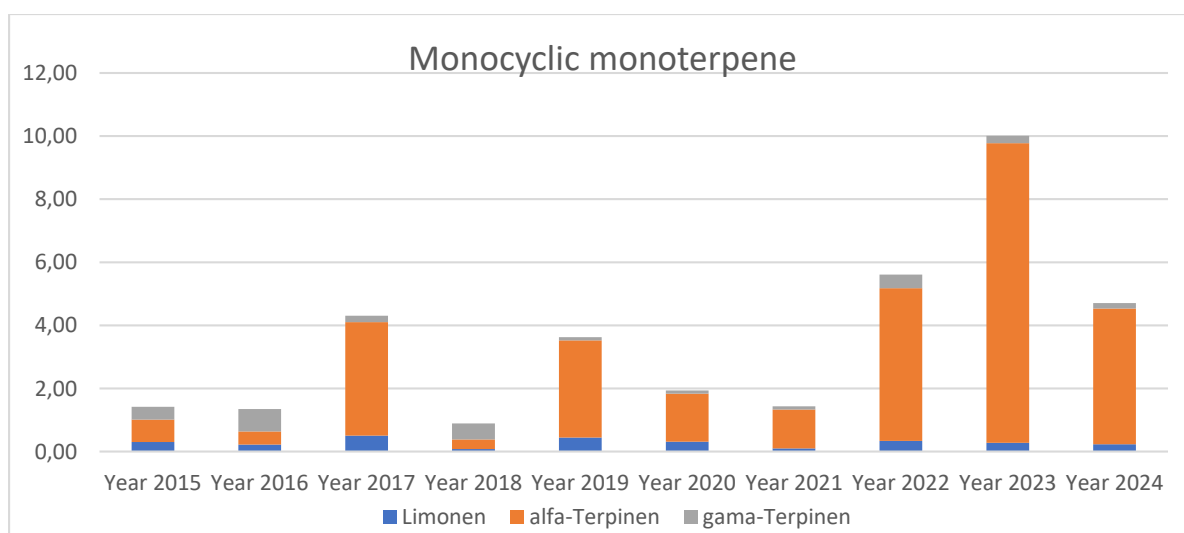


Figure 10. Percentage of monocyclic monoterpenes for salvia samples of Leskovik (2015-2024)

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CONCLUSIONS

Essential oil of *Salvia officinalis* wild populations from Leskovik, South-East Albania were analyzed by using hydro-distillation (Clevenger apparatus) followed by GC/FID technique. Averages of results of a ten years period (2015-2024) were presented in this study. The data were based on the 20 main compounds that were found from analyzed *Salvia officinalis* samples. The main compounds identified for all sage samples were: alpha-Thujone, beta-Thujone, Camphor, Cineole, and Camphene. In the analyzed samples of sage essential oil, the main place is occupied by monoterpenes. The main group of monoterpenes were oxygenated monoterpenes. Their highest level was found for sage samples taken in 2021. After them, bicyclic monoterpenes and sesquiterpenes were found. Monocyclic monoterpenes, aliphatic monoterpenes and aromatic monoterpenes were found in non significant percentage. The differences found between different years are related to atmospheric factors (humidity, amount of precipitation, etc.) or the way the samples were stored/treated before their analysis. The chemical composition found for sage plants from the South-East area has obvious differences from other areas of our country. The main change is related to the lower percentages for alpha+beta-Thujone for essential oil of *Salvia officinalis* samples from South-East Albania, while for Cineole and Camphor it is the opposite, these are found in more abundance compared to other areas. This difference with other areas should be related to climatic factors (humidity, amount of precipitation, altitude, hours of sunshine, etc.), geological factors (chemical content of the soil where plants grow, slope, etc.) and biological factors (type of plants, genotype). Chemical profile of *Salvia officinalis* samples from South-East Albania area was almost the same with other reported studies from Balkan and Mediterranean areas.

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NEW ENERGY FOR SPACE EXPLORATION: THORIUM REACTORS AS THE FUTURE OF SPACE STATIONS

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ABSTRACT

Modern space exploration requires reliable and durable energy sources capable of operating in the extreme conditions of deep space. Traditional energy supply methods, such as solar panels and radioisotope generators, have serious limitations, which requires searching for alternative solutions. This article examines the prospects for using thorium nuclear reactors as an innovative and sustainable energy source for deep space missions. Their advantages over traditional uranium reactors are analyzed, and the prospects for their implementation in the space industry are assessed. Particular attention is paid to safety issues, waste management, and the impact of these technologies on future space exploration.

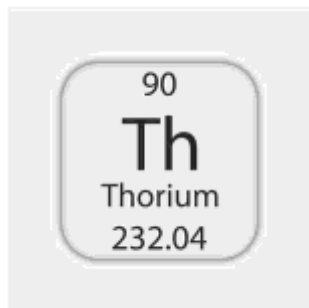
Keywords: safety, durability, space energy, thorium, sustainability.

Introduction:

Power supply is a fundamental issue when planning space missions. Whether it is exploring the far reaches of our galaxy, long-term expeditions beyond the solar system or creating autonomous orbital stations, a reliable and efficient power source remains a key factor for success.

Traditional solutions such as solar panels and radioisotope generators have limitations that make them unsuitable for large-scale projects. Solar panels lose efficiency with increasing distance from the Sun, and radioisotope generators provide only a limited amount of energy. In this regard, scientists and engineers are turning their attention to alternative solutions that could provide long-term energy independence in space conditions.

One of the most promising areas is the use of thorium nuclear reactors, which offer safe and long-lasting energy supply. These technologies are capable of not only radically changing the structure of space stations, but also becoming the basis for interstellar missions of the future. In this article, we will consider the key operating principles of thorium reactors, their advantages over traditional uranium systems, as well as the prospects for their implementation in the space industry.



Thorium (Th) is a silvery-white metal belonging to the actinide family of elements in the periodic table. It has a number of physical and chemical properties that make it a promising candidate for use in nuclear power.

Basic physical and chemical properties of thorium
• Melting point: 1750 °C. • Boiling point: 4788 °C.

• Density: 11.78 g/cm³ at standard conditions.

• Crystal structure: At temperatures up to 1360 °C, thorium has a face-centered cubic lattice (α -form), and at higher temperatures it changes to a

body-centered cubic structure (β -form).

• Reactivity: In air, thorium quickly oxidizes, forming an oxide film. In a finely dispersed state, the metal can spontaneously ignite. It is soluble in dilute mineral acids such as hydrochloric and nitric [4].

Key advantages of thorium over uranium

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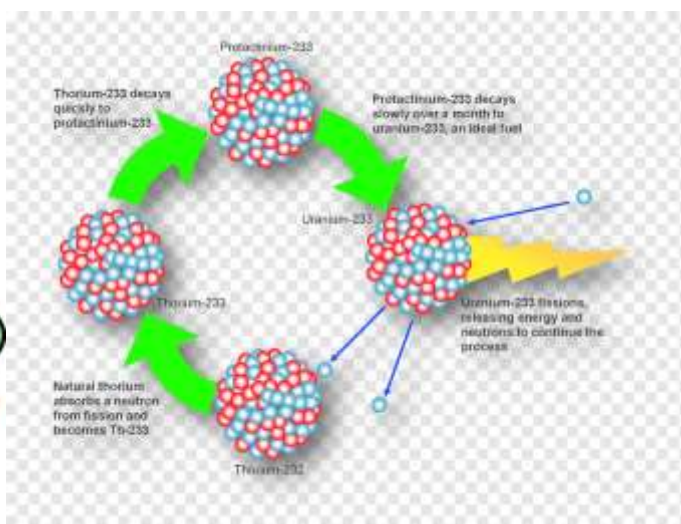
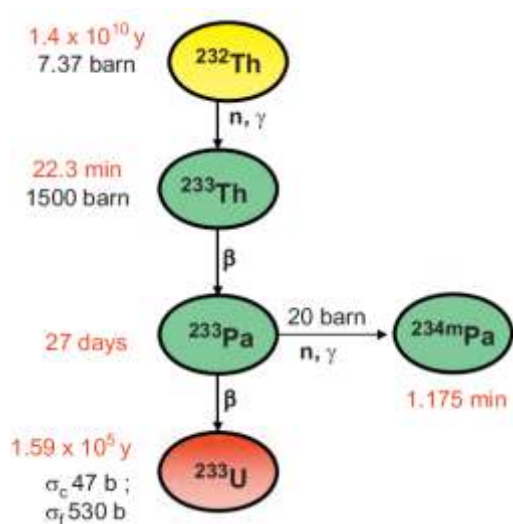
1. More widespread in nature: The abundance of thorium in the earth's crust is about 10.5 parts per million, which is higher than the abundance of uranium (approximately 3 parts per million) [3].
2. High melting point and stability of compounds: Thorium and its compounds, such as thorium dioxide (ThO_2), have a high melting point and stability, making them more resistant to the high temperature conditions found in nuclear reactors [2].
3. Less generation of long-lived radioactive waste: Thorium-based reactors produce fewer long-lived actinides than uranium-based reactors, reducing the problems associated with storage and disposal of nuclear waste [3].
4. Reducing the risk of nuclear proliferation: During the operation of thorium reactors, plutonium-239, which is used to create nuclear weapons, is not formed, which reduces the risk of its proliferation [5].
5. High fuel efficiency: in the thorium fuel cycle, uranium-233 is formed, which is an effective fissile material, which allows for more complete use of the energy potential of the fuel [1].

The thorium fuel cycle is an alternative approach to nuclear energy based on the use of the isotope thorium-232 (Th-232) to produce the fissile isotope uranium-233 (U-233). This process has the potential to improve the efficiency of nuclear reactors and reduce the volume of radioactive waste [3].

Conversion of Th-232 to U-233 and its uses

The thorium cycle is based on nuclear transmutation, in which Th-232 , by absorbing a neutron, is transformed into U-233 through several stages:

1. Neutron capture: Th-232 absorbs a neutron, turning into Th-233 [3].
2. Beta decay of Th-233 : Th-233 is unstable and undergoes beta decay with a half-life of about 22 minutes, converting to protactinium-233 (Pa-233).
3. Beta decay of Pa-233 : Pa-233 is also unstable and decays into U-233 with a half-life of about 27 days [3].
4. The resulting U-233 is a fissile material., capable of sustaining a nuclear chain reaction, similar to U-235 or Pu-239 . Thus, thorium acts as a "raw" material, which after irradiation and subsequent transformations becomes an effective nuclear fuel [2].



Minimization of radioactive waste

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One of the significant advantages of the thorium fuel cycle is the reduction in the formation of long-lived radioactive waste.

- Less transuranic elements: Unlike the uranium-plutonium cycle, which produces elements such as plutonium and americium, the thorium cycle produces minimal amounts of transuranic elements, making waste management easier [3].
- Formation of U-233: The main product of the thorium cycle is U-233, which can be reused as fuel, reducing the need to mine new materials and reducing waste [2].

Comparison of Thorium and Uranium Reactors

Comparison of thorium and uranium reactors reveals key differences in fuel reproducibility, safety, radiation risks and durability.

In uranium reactors, the primary fuel is the isotope uranium-235 (U-235), which makes up about 0.7% of natural uranium. For use in most reactors, uranium must be enriched to 3–5% U-235. During reactor operation, some of the uranium-238 (U-238), which makes up the bulk of the fuel, captures neutrons and is converted to plutonium-239 (Pu-239), which is also a fissile material and contributes to the overall energy output [3].

Thorium reactors use the isotope thorium-232 (Th-232), which, by absorbing a neutron, is converted into uranium-233 (U-233) through a chain of nuclear transformations. U-233 is a highly efficient fissile material capable of sustaining a chain reaction. As a result, the thorium cycle provides fuel reproduction similar to the uranium cycle, but using a different isotope [2].

Safety of Thorium and Uranium Reactors

Traditional uranium reactors require complex safety systems to prevent overheating and core meltdown. In the event of an accident, significant amounts of radioactive material may be released. In addition, uranium reactors produce transuranic elements such as plutonium and americium, which pose a long-term radiation hazard [5].

Thorium reactors have a number of potential safety advantages. Some designs, such as molten salt reactors, operate at atmospheric pressure, reducing the risk of depressurization. In addition, in the event of overheating, the liquid fuel can be drained into an emergency reservoir, stopping the reaction and preventing a meltdown [3].

However, it is worth noting that during the operation of thorium reactors, the isotope uranium-232 (U-232) is formed, which decays with the emission of high-energy gamma radiation, requiring additional radiation protection measures during fuel reprocessing [2].

Durability of nuclear reactors

The longevity of nuclear reactors is determined by their safe operating life, which is typically 40–60 years for traditional uranium reactors. This life depends on many factors, including material deterioration, radiation exposure, and the efficiency of cooling systems [1].

Thorium reactors, especially those using molten salts as coolant and fuel, have the potential to have longer service lives due to lower operating pressures and temperatures, and the absence of solid fuel elements susceptible to radiation damage. However, these technologies are in the development stage, and more research is needed to confirm their long-term durability [3, p. 30].

Thorium reactors and prospects for their use in space

Thorium reactors offer promising alternatives to traditional uranium systems, especially in terms of safety and radioactive waste management. However, their widespread implementation requires overcoming technical and economic barriers, as well as additional research and testing [6].

In spacecraft (SC), mass and size constraints play a critical role in design and development. These constraints determine the maximum allowable mass and dimensions of components, which directly

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affects the selection of equipment, systems, and materials to ensure optimal operation of the vehicle in space conditions [9].

Space thorium reactors could offer a number of advantages:

- Compact and efficient: Thorium reactors can be designed with high energy density, making them more suitable for long-duration missions [14].
- Reduced fuel storage requirements: Due to the highly efficient fuel cycle and less radioactive waste, such systems can operate longer without replacing fuel [10].
- Radiation protection: Although uranium-232 is produced during the operation of a thorium reactor, its intense gamma radiation can be used to prevent unauthorized access to nuclear material [7].

One of the most promising areas is the use of molten salt reactors to provide energy for future lunar bases and Martian missions [12]. NASA is already considering similar technologies as part of the Kilopower program to power future long-term space expeditions [13].

Thorium reactors thus represent an innovative solution for future space energy, providing a safer and more sustainable energy source for long-term missions and colonization of other planets.

Mass restrictions

Spacecraft (SC) mass and its impact on the mission

The mass of the spacecraft is one of the key parameters that influences the cost and capabilities of the mission. The modern classification of spacecraft by mass is as follows:

- Large satellites: weight over 1000 kg.
- Medium satellites: weight from 500 to 1000 kg.
- Small satellites (SSS): weight less than 500 kg, including:
 - Mini-satellites: 100–500 kg.
 - Micro-satellites: 10–100 kg.
 - Nano-satellites: 1–10 kg.
 - Pico satellites: less than 1 kg [9].

Reducing the mass of a spacecraft allows for a reduction in the cost of launching into orbit and an increase in the efficiency of using launch vehicles. However, reducing the mass requires the use of advanced technologies and materials, which may increase the cost of development [10].

Spacecraft dimensional limitations

The dimensions of the spacecraft are determined by the dimensions of the launch vehicle fairing and the requirements for the placement of equipment on board. For example, the CubeSat standard assumes a modular structure with a base size of $10 \times 10 \times 10$ cm and a mass of up to 1.33 kg for one module (1U) [10].

Larger configurations are achieved by combining multiple modules, such as 2U, 3U, etc. [10].

Limited dimensions require careful arrangement of systems and equipment inside the spacecraft, as well as consideration of thermal conditions, radiation protection and structural strength [9].

The influence of weight and size restrictions on the choice of energy systems

When selecting power systems for spacecraft, it is necessary to take into account their mass and dimensions.

- Traditional nuclear reactors, despite their high power, often have significant mass and size characteristics, which limits their use in small devices [11].

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- Radioisotope thermoelectric generators (RTGs) and solar panels may be more compact, but their power may be insufficient for energy-intensive missions [10].

The development of new energy systems that combine high power with minimal weight and size characteristics is a key area in the field of space technologies [12].

Nuclear Microreactors for Space Missions

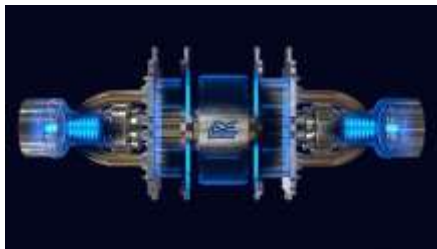
In recent years, leading organizations have been actively developing nuclear microreactors designed to provide reliable and compact power supply for space missions.

Let's look at the key projects in this area:

- NASA Kilopower is a compact uranium-235 nuclear reactor designed for operation on the Moon and Mars [13].
- JANUS Space Reactor is a concept of a gas-cooled reactor for propulsion systems and power supply of spacecraft [14].
- European developments of microreactors for future deep space missions [15].

These technologies could radically change the approach to powering spacecraft and manned missions beyond Earth.

- Rolls-Royce



Rolls-Royce is developing a high-energy-density microreactor that can reliably and sustainably support a variety of operational needs. The microreactor is compact and transportable, making it suitable for use in space. The reactor uses a safe and robust form of fuel, where each uranium particle is surrounded by multiple protective layers to withstand extreme conditions.

For a more detailed look at the Rolls-Royce microreactor, watch the following video: <https://www.youtube.com/watch?v=EiP4wocRp3g&t=122s>

- NASA Kilopower



NASA has developed the Kilopower project, a compact nuclear reactor designed for long-term space missions, including expeditions to the Moon and Mars. Kilopower is capable of providing electrical power of about 10 kilowatts for 10 years. In 2018, the reactor was successfully tested, confirming its efficiency and safety.

- Chinese projects

China is also actively working on developing nuclear microreactors for space applications. In March 2024, significant progress was reported in developing a megawatt-class reactor designed for use in space [16].

These developments aim to overcome current limitations in spacecraft (SC) power supply, offering compact, reliable and efficient solutions for future missions [17].

Radiative cooling in space

In the vacuum of space, removing excess heat from spacecraft equipment is a significant engineering challenge. The absence of an atmosphere eliminates the possibility of using traditional heat exchange methods such as convection and conduction, leaving the only effective cooling method – radiation cooling [9].

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Radiative cooling is based on the emission of thermal energy in the form of infrared radiation. For this purpose, radiation panels or radiators are installed on the surface of the spacecraft, which emit excess heat into the surrounding space. The efficiency of such cooling depends on the area and emission properties of the radiator surface [10].

The spacecraft thermal control systems include the following elements:

Heat-dissipating panels: special surfaces with high emissivity designed to efficiently dissipate heat [12].

Heat pipes: devices that transfer heat from sources to radiators with minimal losses [12].

Emission-controlled coatings: materials that can change their emissivity depending on temperature or external conditions, allowing the cooling system to be adapted to variable thermal loads [10].

For example, the James Webb Space Telescope (JWST) project uses a passive cooling system that includes a multi-layer sunshield that protects sensitive instruments from solar radiation and allows them to cool to temperatures below -173°C [14].

Modern technologies of radiation cooling

In the vacuum of space, efficient heat removal from spacecraft equipment is a challenging task. Traditional methods, such as panel radiators, have limitations in terms of mass and efficiency. Radiative



cooling is a key method of heat removal in spacecraft, and its improvement plays an important role in ensuring reliable operation of equipment in space conditions [15].

The main challenges in the development of radiative cooling systems are:

Limited dimensions and weight of the spacecraft

The need to ensure stable operation under conditions of variable thermal loads

Modern research is aimed at creating new materials and designs of radiators with increased efficiency, as well as developing active thermal control systems capable of adapting to changing operating conditions [15].

In this context, special attention is paid to innovative heat exchangers, which make it possible to significantly increase the efficiency of spacecraft thermal control systems.

Droplet coolers-radiators (DCR)

One of the promising solutions is a drop refrigerator-radiator (DCR). Its operating principle is as follows:

The heated coolant is ejected into space in the form of a stream of monodisperse droplets, forming a droplet veil. Moving in a vacuum, the droplets radiate heat and cool down. The cooled droplets are collected and returned to the system for reuse [16].

The advantages of the CCI include a reduction in the mass of the cooling system and an increase in the efficiency of heat removal. This method is being developed within the framework of projects to create megawatt-class nuclear power plants [17].

Pulsating heat pipes (PHP)

Pulsating heat pipes (PHP) are passive heat transfer devices consisting of a meandering channel filled with a two-phase working fluid.

Under microgravity conditions, PTTs demonstrate high efficiency in removing heat from sources with low and medium heat flux [15].

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Experiments on board the International Space Station (ISS) confirmed the potential of using PTT in spacecraft thermal control systems [17].

Multi-layer insulation (MLI)

Multi-layer insulation (MLI) consists of alternating layers of reflective and insulating materials separated by a vacuum.

Key benefits of MLI:

- Effective reduction of heat transfer.
- Protection of sensitive spacecraft components from extreme temperature fluctuations [10].

Thus, the introduction of innovative heat exchangers and insulating materials makes it possible to significantly increase the efficiency of spacecraft thermal control systems, ensuring their reliable operation in the conditions of a space vacuum [12].

Artificial intelligence (AI) is playing an increasingly important role in the management of nuclear installations, helping to improve their efficiency, safety and reliability [18].

AI is used to model and optimize complex processes in nuclear reactors. By combining digital modeling of real nuclear installations with AI systems, reactor design can be improved, their performance and safety can be increased, and maintenance costs can be reduced [19].

Machine learning, a subset of AI, helps in predicting the technical condition of equipment. By analyzing large amounts of data, AI can identify anomalies and predict possible failure situations, which allows for scheduled maintenance and reduces the likelihood of unscheduled shutdowns [20].

In the field of microreactors, AI is used to develop autonomous control systems. The use of reinforcement learning algorithms allows the creation of systems capable of making independent decisions to maintain optimal reactor operating conditions [21].

AI helps improve nuclear safety by processing data from radiation monitoring systems to more effectively detect and identify radioactive materials. In addition, AI analyzes data from physical protection systems to help identify potential threats, including cyberattacks on nuclear facilities [19].

AI helps in the creation of new radiation-resistant materials for nuclear power. By analyzing the composition and irradiation conditions, AI predicts the behavior of materials, which speeds up the development process and increases the efficiency of new solutions [22].

Despite significant achievements, full autonomy of AI in nuclear reactor control has not yet been achieved. Experts note that it is too early to allow AI to control a reactor without limiting its functions, and additional research and development are needed to ensure the safety of such systems [23].

Thus, the integration of AI into the management of nuclear installations opens up wide opportunities for improving their efficiency and safety, but requires a careful approach and further research [24].

The problems of implementing thorium reactors are related to the lack of developed infrastructure, difficulties in fuel reprocessing, as well as economic and political factors [3].

Unlike the uranium fuel cycle, which is supported by a developed infrastructure for uranium mining, enrichment and processing, the thorium cycle does not have such a base [2].

The development and implementation of the thorium cycle requires significant investment in the creation of new infrastructure, including:

- Thorium is typically mined as a by-product of the extraction of rare earth elements from the mineral monazite. However, the lack of sustainable demand for thorium makes its extraction economically unviable. Increasing demand for thorium could change this situation, but this would require significant investment in the appropriate technologies and processes [4].

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- The production of thorium fuel requires the development of new technologies and equipment, which is associated with additional costs and time resources [3].

Reprocessing of spent thorium fuel is associated with a number of technical and economic difficulties:

- Formation of the isotopes Pa-233 and U-232. During operation of a thorium reactor, protactinium-233 (Pa-233) is formed, which over time is converted into uranium-233 (U-233), the main fissile material in the thorium cycle. However, together with U-233, uranium-232 (U-232) is formed, the decay products of which emit hard gamma radiation. This creates additional difficulties in handling spent fuel and requires the use of remote technologies and enhanced radiation protection measures, which increases the cost of reprocessing [2].
- Technological difficulties. Dissolving thorium dioxide (ThO_2), the main component of thorium fuel, is a complex task due to its chemical inertness. Reprocessing processes require the use of aggressive chemical reagents, which increases the risk of equipment corrosion and complicates the technological process [3].
- Economic aspects. Reprocessing of thorium fuel is expensive. In addition, the lack of large-scale experience in this area leads to uncertainty in assessing the economic efficiency of the thorium cycle compared to the uranium cycle [5].

Despite the potential advantages of thorium reactors, their large-scale implementation requires overcoming significant technical and economic barriers associated with the lack of developed infrastructure and the difficulties of processing thorium fuel [3].

The introduction of thorium reactors is associated with a number of economic factors that may slow down their development and widespread use. The main ones are the high cost of research and development (R&D), as well as political barriers and associated investment risks [5].

The development and implementation of thorium reactors require significant investment in R&D. The need to create new infrastructure, develop technologies for processing thorium fuel and ensure reactor safety leads to significant costs [5].

Political support plays an important role in the development of new nuclear technologies. However, the lack of a clear government policy on thorium reactors, as well as possible changes in the regulation of nuclear energy, create additional risks for investors. Public perception of nuclear energy and related political decisions can influence the financing and development of thorium projects [5].

Successful implementation of thorium reactors requires overcoming significant economic and political obstacles, requiring coordinated efforts from the scientific community, industry and government agencies [3].

Real Research and Prospects

Thorium reactors are attracting the attention of scientists and engineers due to their potential advantages in nuclear energy. Let's look at historical and modern projects aimed at researching and developing this technology.

Historical Projects: MSRE

In the 1960s, the Molten-Salt Reactor Experiment (MSRE) was implemented at the Oak Ridge National Laboratory (ORNL) in the United States. This reactor operated on molten salts and was used to study the possibilities of using thorium in nuclear reactors. MSRE achieved criticality in 1965 and operated successfully until 1969, demonstrating the viability of the molten salt reactor concept [2].

Chinese program

In recent years, China has been actively developing thorium reactor technologies. In 2021, the first experimental molten thorium salt reactor with a capacity of 2 MW was put into operation in the Gobi Desert. The successful implementation of this project confirmed the promise of the technology and became the basis for further developments [14].

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The world's first commercial nuclear power plant based on molten thorium salt is scheduled to begin construction in 2025. The new nuclear power plant will be located in the Gobi Desert and will use thorium instead of uranium as fuel. Its reactor does not require water for cooling, as it uses liquid salt and carbon dioxide to transfer heat and generate electricity. Completion and commissioning are scheduled for 2029. The thermal capacity of the plant will be 60 MW, and the electrical capacity will be 10 MW [16].

Using thorium as a fuel has a number of advantages over traditional uranium reactors. Thorium reactors operate on liquid fuel at normal pressure, which reduces the risk of accidents and simplifies the design. In addition, thorium is more abundant in nature than uranium, making it a promising long-term energy source [3].

China continues to lead the development and deployment of thorium nuclear technology in its efforts to create safer and cleaner energy sources [15].

Indian program

India has significant reserves of thorium and has been considering it as a promising nuclear fuel since the 1950s. India's nuclear energy development strategy includes three phases, with the final phase planned to involve the thorium fuel cycle. India is currently developing the Advanced Heavy Water Reactor (AHWR), which is designed to demonstrate the capabilities of the thorium cycle and passive safety systems [5].

Research and development into thorium reactors continues, and countries with large thorium reserves, such as China and India, are investing heavily in these technologies in an effort to create safer and more sustainable sources of nuclear energy [6].

Thermonuclear energy: problems and prospects

Fusion energy promises to be a revolutionary energy source due to its potential advantages, such as unlimited fuel supplies and minimal radioactive waste. However, there are significant obstacles to its practical application.

Why haven't fusion reactors become a reality yet?

1. Extreme conditions for reaction

Initiating thermonuclear fusion requires temperatures in excess of 100 million degrees Celsius, which is significantly higher than the core temperature of the Sun. Containing and controlling plasma at such temperatures presents a major technical challenge [17].

2. Plasma containment

The plasma must be stably contained for a sufficient time to sustain the reaction. Current technologies such as tokamaks face problems with plasma instability, which limits the duration of reactions [18].

3. Energy balance

Until recently, it was not possible to obtain more energy from a thermonuclear reaction than was spent on its initiation and maintenance. However, in December 2022, scientists from the United States reported achieving a positive energy balance in an experiment, which was a significant breakthrough in this field [19].

In the long term, fusion energy could become a key element in providing energy both on Earth and in space.

Space missions and thermonuclear energy

Thermonuclear reactors can provide spacecraft with powerful and long-lasting energy sources, which is especially important for long-term interplanetary missions. For example, the use of a thermonuclear engine based on deuterium-helium-3 (D-3He) will significantly reduce the flight time to other planets [20].

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Despite current technical difficulties, fusion energy has enormous potential and could play a decisive role in future space exploration [21].

Solar energy vs. nuclear technology.

In space missions, the choice of energy source plays a key role, especially when planning long-distance flights. Solar energy and nuclear technologies are the main options, each with its own advantages and limitations [9].

Why are solar panels not suitable for long-range missions?

1. Decrease in solar radiation intensity with distance from the Sun

The intensity of sunlight decreases proportionally to the square of the distance from the Sun. For example, in Jupiter's orbit, which is approximately five times farther from the Sun than Earth, the intensity of solar radiation decreases by a factor of 25. This requires the installation of significantly larger solar panel areas to provide the necessary energy, which increases the mass and dimensions of the spacecraft [10].

2. Impact of the space environment

Solar panels are subject to degradation by cosmic radiation and micrometeorites. Over time, their efficiency decreases, which is especially critical for long-term missions [12].

3. Limited power

For missions that require high power, such as operating scientific instruments or long-distance communications systems, solar panels may not be efficient enough. Increasing their area increases the mass and complexity of the spacecraft [11].

Possible hybrid solutions

To overcome the limitations of each energy source, hybrid systems are being considered that combine the advantages of solar and nuclear energy:

- Combination of solar panels and radioisotope thermoelectric generators (RTG)

In regions close to the Sun, the devices can use solar panels, and as they move away, they can switch to RTGs, which provide stable energy production regardless of the distance to the Sun [1].

- Solar Powered Nuclear Reactors

In missions requiring high power, nuclear reactors can provide primary power, and solar panels can support life support or backup systems [14].

- Hybrid propulsion systems

Combining nuclear and electric engines allows for optimization of thrust and fuel efficiency. For example, a NASA project involves using a hybrid nuclear-rocket engine for Mars flights, combining chemical and electric engines [15].

Hybrid energy systems offer promising solutions for providing reliable and efficient power supply in deep space missions by combining the advantages of different technologies and compensating for their disadvantages [16].

Power supply for expeditions beyond the solar system

For missions beyond the Solar System, the following approaches to power supply are being considered:

- Radioisotope thermoelectric generators (RTG)

These devices use the heat released by the decay of radioactive isotopes to generate electricity. RTGs were used in the Voyager missions, which are still operating in interstellar space [17].

- Nuclear reactors

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To provide higher power, the use of compact nuclear reactors is being considered. For example, a project for a transport and energy module (TEM) with a nuclear power plant is being developed for long-term expeditions into deep space, ensuring an increase in the cost-effectiveness of transport operations and available electrical power [18].

- Solar Sails

The use of light sails accelerated by laser radiation is a promising method for interstellar travel. The Breakthrough Starshot project proposes sending nanoprobes to Alpha Centauri using light sails accelerated by laser installations on Earth [19].

For deep space missions aimed at exploring our and other galaxies, alternative energy supply methods are being developed and applied to ensure reliable and stable operation of spacecraft in conditions where traditional energy sources become ineffective [20].

The Future of Space Stations

Modern space stations, such as the International Space Station (ISS), depend on regular supplies from Earth to provide the crew with food, water, oxygen, and other essential resources. The following technologies are being developed to increase autonomy:

- Closed-loop life support systems

The creation of systems capable of processing waste into usable resources such as water and oxygen. For example, NIIkhimmash is developing closed-loop systems for the ISS [21, p. 6].

- On-board food production

Experiments in growing plants in microgravity conditions are aimed at providing the crew with fresh food and reducing dependence on terrestrial supplies [22].

- Additive technologies Using 3D printing to produce the necessary tools and parts directly on the station allows for a reduction in the volume of cargo sent from Earth [23].

International cooperation in space

- International Space Station (ISS)

The ISS is an example of a successful international project involving NASA (USA), Roscosmos (Russia), ESA (European Space Agency), JAXA (Japan) and CSA (Canada). The station serves as a platform for scientific research and testing of new technologies [24].

- New projects

The China National Space Administration (CNSA) is actively developing its own orbital station, Tiangong, and is inviting other countries to cooperate in scientific research and use of the station [25].

- Educational programs

International initiatives such as the UN-led Human Space Technology Initiative (HSTI) aim to promote cooperation in human spaceflight and increase the participation of developing countries in space programmes [26].

The future of space stations is linked to the development of technologies that ensure their autonomy and the strengthening of international cooperation, which will allow the effective use of outer space in the interests of all mankind [27].

Thorium and Uranium Fuel Cycles: Comparing Radioactive Waste and Environmental Risks

Radioactive waste and environmental risks are key factors when choosing nuclear fuel. Let us compare the thorium and uranium fuel cycles in terms of waste generation and radiotoxicity [3].

- Volume and activity of waste

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Conventional uranium reactors produce significant amounts of long-lived actinides, including plutonium and minor actinides, which require long-term storage and complex disposal methods. In contrast, the thorium fuel cycle produces less of these elements, potentially reducing the long-term radiotoxicity of the waste [4].

- Radiotoxicity

However, irradiated thorium fuel contains isotopes such as uranium-232, the decay products of which emit hard gamma radiation. This increases the radiotoxicity of the spent fuel and complicates its reprocessing and storage [5].

Safety and disaster risk reduction

- Reactor stability

Thorium reactors have high stability due to the negative temperature coefficient of reactivity, which reduces the risk of uncontrolled power increase. This means that as the reactor temperature increases, its reactivity decreases, facilitating self-regulation of the process [6].

- Risk of nuclear proliferation

The thorium cycle is considered less suitable for nuclear proliferation because the uranium-233 produced in the process is contaminated with uranium-232, which emits hard gamma radiation, making it difficult to use for military purposes [7].

- Passive safety systems

Many thorium reactor designs include passive safety systems that do not require active intervention to prevent accidents. For example, if a molten salt reactor overheats, the fuel can drain into a special tank where the reaction is automatically stopped [8].

The thorium fuel cycle offers a number of advantages in terms of reducing the volume of long-lived radioactive waste and improving operational safety. However, there are technical and radiation challenges that require further research and development to overcome them [9].

Radiation Management in Space

Cosmic radiation, including galactic cosmic rays (GCR), solar cosmic rays (SCR), and the Earth's radiation belts, poses a serious threat to the health of astronauts and the functioning of equipment. Various methods and technical solutions are used to minimize radiation exposure [10].

Methods for minimizing radiation exposure

1. Passive protection

The use of materials capable of absorbing or deflecting radiation is the main method of protection. Traditionally, lightweight composite and polymer materials, as well as aluminum-based alloys, are used. For example, aluminum screens effectively protect against charged particles [11].

2. Active protection

Methods are being developed to create magnetic or electrostatic fields around a spacecraft to deflect charged particles. For example, the CREW HaT project proposes using a cylindrical system of magnetic fields to create a protective barrier around a space habitat [12].

3. Limitation of time of stay

Reducing the time spent in areas with increased background radiation helps reduce the accumulated dose of radiation. This is especially important when passing through radiation belts or during solar flares [13].

4. Monitoring and forecasting

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Constant monitoring of the radiation environment and forecasting of solar activity make it possible to take timely measures to protect the crew, such as moving to more protected compartments or changing the flight route [14].

Technical solutions for the protection of crew and equipment

- Structural materials

The use of radiation-resistant materials, such as special ceramics that can withstand high doses of radiation, protects both the crew and the equipment. For example, ceramics developed at UNN can protect spacecraft from exposure to high temperatures and radiation [15].

- Spacecraft architecture

Placing the most sensitive components in the central parts of the apparatus, surrounded by less sensitive elements or special screens, helps reduce radiation exposure [16].

- Development of shelters

On the surface of the Moon or Mars, natural formations such as lava tubes could be used, or artificial shelters could be created to protect against radiation during long-term missions [17].

An integrated approach, including the use of passive and active protection methods, as well as the development of new materials and design solutions, is key to ensuring the safety of the crew and equipment in conditions of increased radiation during space missions.

Conclusion:

A look at the history of space technology development reveals how each generation of engineers and scientists has encountered seemingly insurmountable barriers. While solar panels and radioisotope generators were once the only sources of energy in space, today's challenges require far more powerful, reliable, and autonomous solutions.

Thorium nuclear reactors open up new horizons for humanity. Their high safety, low formation of radioactive waste, and ability to operate in difficult conditions make them one of the leading candidates for the role of a key energy source for future interstellar missions. The implementation of these technologies will allow humanity to go beyond the Solar System, providing the power necessary for the operation of autonomous research stations, orbital complexes, and even promising interstellar ships.

Despite their enormous potential, however, thorium reactors still require extensive research, infrastructure development, and political support. But hasn't it always been that way? Space travel once seemed impossible, as did the idea of setting foot on the moon. Today, we are on the verge of another breakthrough that will determine how far we can advance in our understanding of the universe.

The future of space exploration depends on the energy that will power our ships and sustain life on distant stations. And if human history teaches us anything, it is that the boundaries of the possible are just temporary limitations that we overcome step by step. Perhaps in the coming decades, thorium energy will become the foundation on which our journey to the stars will be built.

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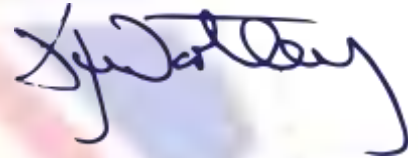
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İlgili makama;

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Bilgilerinize arz edilir,

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İLGİLİ KURUMA

İçişleri Bakanlığı tarafından tahsis edilen 06-146-071 tescil kodu ile Tüzel Kişiliğe sahip olan İKSAD Enstitüsü 5253 sayılı kanuna uygun olarak “Bilimsel araştırmalar ve akademik çalışmalar” alanında ulusal ve uluslararası düzeyde faaliyetlerini yürütmektedir.

Kurumumuzun Yönetim Kurulu 15 Ocak 2024 tarihinde saat 10.30’da “Bilimsel Diplomasi Projesi” görüşmeleri ile “Bilimsel Kongreler Düzenlenmesi” gündemleri ile toplanmış ve alınan (2 numaralı) karara istinaden aşağıda detayları yazılı olan bilimsel etkinliğin düzenlenmesine ve etkinliğe ilişkin resmi görevlendirme konusunda karar vermiştir.

Bilgi ve gereğini rica ederim



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