

15TH Al fārābi

INTERNATIONAL SCIENTIFIC RESEARCH AND INNOVATION CONGRESS

CONGRESS ABSTRACT BOOK

EDITORS

Prof. Dr. Yusuf TEMÜR

Prof. Dr. İlhan EROĞLU

MAY 15-17, 2026

TOKAT, TÜRKİYE

TOKAT GAZİOSMANPAŞA UNIVERSITY



ECONOMIC
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AL FARABI

15th INTERNATIONAL SCIENTIFIC RESEARCH AND INNOVATION CONGRESS

May 15-17, 2026 / Tokat, Türkiye

Tokat Gaziosmanpaşa University



ECONOMIC
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RAZZAKOV KYRGYZ STATE
TECHNICAL UNIVERSITY



Scientific-
Research Institute
of Economic
Studies

ABSTRACT BOOK

EDITORS

Prof. Dr. Yusuf TEMÜR

Prof. Dr. İlhan EROĞLU

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adapted by Mariam Rasulan

CONGRESS ID

CONGRESS TITLE

AL FARABI 15th INTERNATIONAL SCIENTIFIC RESEARCH AND INNOVATION CONGRESS

DATE and PLACE

May 15-17, 2026 / Tokat, Türkiye

ORGANIZATION

Tokat Gaziosmanpaşa University, Türkiye
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NUMBER of ACCEPTED PAPERS- 325 (*Türkiye — 150, Other Countries — 175*)

NUMBER of REJECTED PAPERS-47

PARTICIPANTS COUNTRY

Albania, Algeria, Azerbaijan, Bangladesh, Belarus, Benin, Brazil, Bulgaria, Cambodia, China, Ethiopia, Finland, Georgia, Hungary, India, Indonesia, Kazakhstan, Kyrgyzstan, Malaysia, Mexico, Moldova, Morocco, Nigeria, Northern Cyprus (TRNC), Pakistan, Philippines, Poland, Portugal, Romania, Serbia, Türkiye, Ukraine, United States

PRESENTATION

Oral & Poster presentation

EVALUATION PROCESS

All applications have undergone a double-blind peer review process

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PROGRAM

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-Opening Ceremony-

Date: 16.05.2026 / Time: 10:00-11:00

Tokat Gaziosmanpaşa Üniversitesi 15 Temmuz Kongre ve Kültür Merkezi

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Aida ISATBEK KYZY

Deputy Minister of Labour, Social Security and Migration of the Kyrgyz Republic

Yusuf BEYAZIT

Member of the Grand National Assembly of Türkiye

Abdullah KÖKLÜ

Governor of Tokat

-Recycling Exhibition & Workshop-

Date: 16.05.2026 / Time: 11:00-11:30

Tokat Gaziosmanpaşa Üniversitesi 15 Temmuz Kongre ve K lt r Merkezi

Participants Countries: Albania, Algeria, Azerbaijan, Bangladesh, Belarus, Benin, Brazil, Bulgaria, Cambodia, China, Ethiopia, Finland, Georgia, Hungary, India, Indonesia, Kazakhstan, Kyrgyzstan, Malaysia, Mexico, Moldova, Morocco, Nigeria, Northern Cyprus (TRNC), Pakistan, Philippines, Poland, Portugal, Romania, Serbia, T rkiye, Ukraine, United States

16.05.2026 / IN-PERSON SESSION-1 / HALL-1



Ankara Local Time

13³⁰ : 15³⁰



Tokat Gaziosmanpaşa Üniversitesi 15
Temmuz Kongre ve Kültür Merkezi

HEAD OF SESSION: Assoc. Prof. Dr. Kenan ALTUN

TOPIC TITLE	AUTHORS	AFFILIATION
INVESTIGATION OF CHAOS-BASED GATE TRIGGER SIGNALS IN INDUCTION HEATING SYSTEMS	Assoc. Prof. Dr. Kenan ALTUN Assoc. Prof. Dr. Didem ALTUN	Sivas Cumhuriyet University, Türkiye
DESULFATOR DEVICE DESIGN AND SIMULATION FOR DEAD BATTERIES	Assoc. Prof. Dr. Mustafa Ergin ŞAHİN Aslan CHAKALOV Theodore Azemtsop MANFO	Recep Tayyip Erdoğan University, Türkiye University of Vaasa, Finland
DESIGN AND CONTROL OF A VERTICAL AXIS WIND TURBINE BASED ENERGY SYSTEM USING A BOOST CONVERTER	Elif Gülşah SEÇKİN Assoc. Prof. Dr. Mustafa Ergin ŞAHİN	Recep Tayyip Erdoğan University, Türkiye
EILIMINATING HYSTERESIS EFFECT in DOMESTIC OVENS: DATA DRIVEN SYSTEM ESTIMATION and OVERSHOOT CONSTRAINED ABC-PID CONTROLLER DESIGN	Hakkı YELER Mehmet EKİCİ	Amasya University, Türkiye
ROBUST TEMPERATURE CONTROL OF A DOMESTIC TURKISH COFFEE MACHINE UNDER VARYING THERMAL LOADS USING A PSO-TUNED PI CONTROLLER	Recep ÇAKMAK Mehmet EKİCİ	Amasya University, Türkiye
EVALUATION OF THE MECHANICAL PERFORMANCE OF POLYPROPYLENE AND POLYETHYLENE MATERIALS USED IN ORTHOSIS AND PROSTHETIC PRODUCTION	Lect. Dr. Erhan BAYSAL Assoc. Prof. Dr. Nergizhan ANAÇ Assoc. Prof. Dr. Oğuz KOÇAR	Zonguldak Bülent Ecevit University, Türkiye

16.05.2026 / IN-PERSON SESSION-1 / HALL-2



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Tokat Gaziosmanpaşa Üniversitesi 15
Temmuz Kongre ve Kültür Merkezi

HEAD OF SESSION: Assoc. Prof. Dr. Oktay ÖZKAN

TOPIC TITLE	AUTHORS	AFFILIATION
SUSTAINABILITY OF SOCIAL SECURITY SYSTEMS IN THE FACE OF ARTIFICIAL INTELLIGENCE-INDUCED UNEMPLOYMENT RISK: ROBOT TAX AND ALTERNATIVE MODEL PROPOSALS	Dr. Şeyda AKKUŞ	Independent Researcher, Türkiye
THE LIMITS OF THE TAXATION POWER OF THE ADMINISTRATION: AN EVALUATION WITHIN THE FRAMEWORK OF THE PRINCIPLE OF PREDICTABILITY	Assoc. Prof. Dr. Doğan BOZDOĞAN Amine Berra IRK Gülizar Defne DOĞAN	Tokat Gaziosmanpaşa University, Türkiye
TESTING THE FRACTAL MARKET HYPOTHESIS ON THE BIST SUSTAINABILITY INDEX	İsmail TUYGUN Assoc. Prof. Dr. Oktay ÖZKAN	Tokat Gaziosmanpaşa University, Türkiye
THE ROLE OF BLUE FINANCE IN SUSTAINABLE DEVELOPMENT: A CONCEPTUAL ANALYSIS	Tuğba KAVAKLI Assoc.Prof.Dr. Oktay ÖZKAN	Tokat Gaziosmanpaşa University, Türkiye
EVALUATION OF THE POSITIVE AND NEGATIVE EFFECTS OF THE PRE-ASSESSMENT SETTLEMENT INSTITUTION ON THE TAX SYSTEM	Lect. Dr. Serhat KURT	Selçuk University, Türkiye
AN EVALUATION OF THE REGULATIONS ON TAXATION UNDER THE SIMPLIFIED PROCEDURE SET FORTH IN PRESIDENTIAL DECREE NO. 10380 WITHIN THE FRAMEWORK OF CONSTITUTIONAL PRINCIPLES	Lect. Dr. Serhat KURT	Selçuk University, Türkiye
GLOBAL AVIATION ECONOMICS AND FINANCE LITERATURE: A BIBLIOMETRIC ANALYSIS OF THE 1928-2026 PERIOD	Lect. Mutlu Can SOYDAN Assoc. Prof. Dr. Yusuf Bahadır Kavas Lect. Burak Can Kara	Amasya University, Türkiye
IG ECONOMY AND THE TRANSFORMATION OF LABOR RELATIONS: ANALYSIS IN THE CONTEXT OF AZERBAIJAN	Assoc. Prof. Dr. Farhad G. Mikayilov Dr. Narmin R. Babayeva Emin Mustafayev Nigar M. Alasgarova Nicat F. Mikayilov	Economic Research Institute under the Ministry of Economy of the Republic of Azerbaijan Azerbaijan Technical University, Azerbaijan
MAINSTREAMING OF POPULISM IN EUROPEAN POLITICS	Alp ARSLAN Assoc. Prof. Dr. Mustafa Ozan ŞAHİN	Tokat Gaziosmanpaşa University, Türkiye

16.05.2026 / IN-PERSON SESSION-1 / HALL-3



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Tokat Gaziosmanpaşa Üniversitesi 15
Temmuz Kongre ve Kültür Merkezi

HEAD OF SESSION: Assoc. Prof. Dr. Ediz GÜRİPEK

TOPIC TITLE	AUTHORS	AFFILIATION
ON AUGMENTED SOMBOR INDEX OF DENDRIMER AND THORN GRAPHS	Assoc. Prof. Dr. Gül ÖZKAN KIZILIRMAK	Gazi University, Türkiye
AN AI-POWERED MOBILE PLATFORM FOR SCHOLARSHIP MANAGEMENT AND APPLICATION	Asst. Prof. Dr. Atilla SUNCAK Kemal BAYIR Handan ACAR	Kastamonu University, Türkiye
PERCEIVED VALUE OF GASTRONOMY TOURISM AMONG LOCAL RESIDENTS: THE CASE OF TOKAT	Lect. Elif DEMİRÇAL Assist. Prof. Dr. Cansu UZUN GÜRİPEK	Tokat Gaziosmanpaşa University, Türkiye
RECONCEPTUALIZING TOURISM IN THE VINEYARD CULTURE OF TOKAT: AN AUTHENTICITY-BASED CONCEPTUAL APPROACH	Feyza ÜÇGÜL Assoc. Prof. Dr. Ediz GÜRİPEK Assist. Prof. Dr. Cansu UZUN GÜRİPEK	Tokat Gaziosmanpaşa University, Türkiye
TOURIST ENGAGEMENT IN MUSEUM: THE CASE IN SARAJEVO	Prof. Voon Chin Phua	Gettysburg College, USA
CONSTRUCTION OF A MULTIREGIONAL SOCIAL ACCOUNTING MATRIX FOR AZERBAIJAN, TÜRKİYE AND RUSSIA AND MODELING OF STRUCTURAL EFFECTS	Rauf MUSAYEV	Azerbaijan Technical University, Azerbaijan

16.05.2026 / IN-PERSON SESSION-1 / HALL-4



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Tokat Gaziosmanpaşa Üniversitesi 15
Temmuz Kongre ve Kültür Merkezi

HEAD OF SESSION: Prof. Dr. Ahmet GÜVEN

TOPIC TITLE	AUTHORS	AFFILIATION
ANALYSIS OF THE WORKLOAD OF AMBULANCE AND EMERGENCY CARE TECHNICIANS	Sadık KARABAĞ	Sivas Cumhuriyet University, Türkiye
DIGITAL TRANSFORMATION IN HEALTHCARE: AN EXAMINATION OF THE CONCEPT OF DIGITAL EMPATHY	Gökçe KOÇYİĞİT	Sivas Cumhuriyet University, Türkiye
THE EFFECT OF 'PATIENT- HEALTHCARE WORKER' COMMUNICATION ON PATIENT SATISFACTION IN HEALTHCARE SERVICES	Gökçe KOÇYİĞİT Nuriye SARIAKÇALI	Sivas Cumhuriyet University, Türkiye
EXAMINATION OF PROFESSIONAL EXPECTATIONS OF NURSES WORKING IN SIVAS NUMUNE HOSPITAL PEDIATRIC EMERGENCY SERVICE	Şahika KOÇAK	Sivas Cumhuriyet University, Türkiye
INVESTIGATION OF RESOURCE UTILIZATION AND EMPLOYEE SATISFACTION IN HEALTHCARE INSTITUTIONS	Gülhan FIRAT AKBULUT	Sivas Cumhuriyet University, Türkiye
COMMUNICATION DIFFICULTIES AND CRISIS MANAGEMENT AMONG HEALTH COMMAND AND CONTROL CENTER EMPLOYEES	Gülşah EKEN	Sivas Cumhuriyet University, Türkiye
A STUDY ON THE SCALE AND EXAMINATION OF GASLIGHTING IN THE WORKPLACE FOR NURSES	Cansu KOÇYİĞİT ATAYETER	Sivas Cumhuriyet University, Türkiye

16.05.2026 / IN-PERSON SESSION-2 / HALL-1



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HEAD OF SESSION: Assoc. Prof. Dr. Günay KAYA KANTAR

TOPIC TITLE	AUTHORS	AFFILIATION
PRODUCTION OF SOAP CONTAINING TEA TAR AND INVESTIGATION OF ANTIMICROBIAL PROPERTIES	Assoc. Prof. Dr. Günay KAYA KANTAR	Recep Tayyip Erdoğan University, Türkiye
ZnO-NP GREEN SYNTHESIS FROM SAGE (<i>Sideritis montana</i>) EXTRACT	Farooq Ali OBAİD Fatma GEDİKLİ Ayşegül ŞENOCAK	Tokat Gaziosmanpaşa University, Türkiye
IMPACT OF DIGITAL-BASED SEXUAL HEALTH INTERVENTIONS ON KNOWLEDGE AND BEHAVIOR CHANGE: A SYSTEMATIC REVIEW OF GLOBAL EVIDENCE AND A TURKEY SUBGROUP ANALYSIS	Derya BOLAT	Istanbul Şişli Vocational School, Türkiye
EFFECTIVENESS OF TACTICAL TOURNIQUET USE IN PREHOSPITAL TRAUMA MANAGEMENT: A SYSTEMATIC REVIEW	Derya BOLAT	Istanbul Şişli Vocational School, Türkiye

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HEAD OF SESSION: Assoc. Prof. Dr. Serkan KEKEVİ

TOPIC TITLE	AUTHORS	AFFILIATION
FROM LEGISLATION TO PRATICA: AN ASSESSMENT OF SUSTAINABLE SMART CITIES	Lect. Dr. Betül DİLFİRUZ	Tokat Gaziosmanpaşa University, Türkiye
THE THEORETICAL ROLE OF OFFICE MANAGEMENT AND EXECUTIVE ASSISTANCE IN THE CONTEXT OF SUSTAINABLE PUBLIC ADMINISTRATION	Lect. Dr. Betül DİLFİRUZ	Tokat Gaziosmanpaşa University, Türkiye
SMART CITY PHENOMENON FROM CONCEPTUAL DIMENSION TO PRACTICE: GLOBAL TRENDS AND THE CASE OF TÜRKİYE	Nuriye AYGİN Sefa SAĞDIÇ Prof. Dr. Ahmet GÜVEN	Tokat Gaziosmanpaşa University, Türkiye
CITTASLOW AS A LOCAL MODEL OF RESISTANCE AGAINST GLOBALIZATION: A REVIEW OF THEORETICAL FOUNDATIONS AND APPLICATIONS IN TURKEY	Sefa SAĞDIÇ Nuriye AYGİN Prof. Dr. Ahmet GÜVEN	Tokat Gaziosmanpaşa University, Türkiye
FROM HISTORICAL DEPTH TO LOCAL DEVELOPMENT STRATEGIES: A SOCIO-ECONOMIC TRANSFORMATION ANALYSIS OF ZİLE DISTRICT	Sefa SAĞDIÇ Assoc. Prof. Dr. Yavuz ACUNGİL	Tokat Gaziosmanpaşa University, Türkiye
THE PLACE AND IMPORTANCE OF FOUNDATIONS ESTABLISHED BY WOMEN IN SOCIAL LIFE WITHIN OTTOMAN FOUNDATION CULTURE	Assoc. Prof. Dr. M. Nazan ARSLANEL Prof. Dr. Ahmet ÖZKİRAZ	Tokat Gaziosmanpaşa University, Türkiye
VALUATION OF POLITICAL PARTY PROGRAMS, SPECIFICALLY AKP AND CHP, IN THE CONTEXT OF WOMEN'S POLICIES AND THEIR PRACTICAL CONFORMITY	Assoc. Prof. Dr. M. Nazan ARSLANEL	Tokat Gaziosmanpaşa University, Türkiye
TRACING THE TRACES OF NEOREALIST THOUGHT IN THE ORKHON INSCRIPTIONS	Assoc. Prof. Dr. Serkan KEKEVİ Assoc. Prof. Dr. Gökmen KILIÇOĞLU	Duzce University, Türkiye
INSTITUTIONAL DISINTEGRATION IN THE INTERNATIONAL SYSTEM AND THE DYSFUNCTION OF INTERNATIONAL ORGANIZATIONS: THE UNITED NATIONS EXAMPLE	Assoc. Prof. Dr. Gökmen KILIÇOĞLU Assoc. Prof. Dr. Serkan KEKEVİ	Duzce University, Türkiye

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MODERNISM, THE DIGITAL AGE, AND THE CHILD'S PERSPECTIVE IN THIS AGE WITHIN THE FRAMEWORK OF CHILDREN'S LITERATURE	Prof. Dr. Murat ÖZBAY Elmas TAŞKIRAN	Gazi University, Türkiye
RECONSTRUCTING İBN SİNÂ'S "FLOATING MAN" THOUGHT EXPERIMENT AS A SOCRATIC INQUIRY-BASED PHILOSOPHICAL STIMULUS	Dr. Feyza YÜKSEL TEMİZ Prof. Dr. Şenol KORKUT	Tokat Gaziosmanpaşa University, Türkiye
AI-SUPPORTED SELF-REGULATION IN YOUTH UNDER STATE PROTECTION INTEGRATED INTO SOCIAL AND WORKING LIFE: AN INVESTIGATION ON ACADEMIC SUCCESS AND LIFE ADJUSTMENT	Burak VANLIOĞLU Asst. Prof. Dr. Tuğba KOCADAĞ ÜNVER	Tokat Gaziosmanpaşa University, Türkiye
EVALUATION OF E-HEALTH LITERACY AMONG UNIVERSITY STUDENTS: THE CASE OF TEACHER CANDIDATES AT SIVAS CUMHURİYET UNIVERSITY FACULTY OF EDUCATION	Muhlis YILDIZ	Sivas Cumhuriyet University, Türkiye
EXAMINING THE CONCEPT OF SENSITIVITY IN SOCIAL SCIENCES RESEARCH	Assist. Prof. Dr. Zafer YILDIZ	Sivas Cumhuriyet University, Türkiye
THE ADAPTATION OF DIGITAL COMMUNICATION EMPATHY SCALE INTO TURKISH: VALIDITY AND RELIABILITY STUDY	Assoc. Prof. Özge MAVİŞ SEVİM Res. Assist. Ece LEVENTOĞLU Gönül ÇELEBİ Assist. Prof. Tuğba KOCADAĞ ÜNVER Assist. Prof. Neslihan CANPOLAT ÇIĞ Hatice DİLER	Tokat Gaziosmanpaşa University, Türkiye 15 Temmuz Şehitler Anadolu Lisesi Tokat- Türkiye

16.05.2026 / IN-PERSON SESSION-2 / HALL-4



Ankara Local Time

15³⁰ : 17³⁰



Tokat Gaziosmanpaşa Üniversitesi 15
Temmuz Kongre ve Kültür Merkezi

HEAD OF SESSION: Prof. Dr. Türker ŞİMŞEK

TOPIC TITLE	AUTHORS	AFFILIATION
THE INSTITUTION OF WHISTLEBLOWING AND REWARDS IN THE FIGHT AGAINST TAX EVASION AND TAX LOSSES: AN ASSESSMENT FOR TÜRKİYE	Assist. Prof. Dr. Hüseyin AKKAYA	Tokat Gaziosmanpaşa University, Türkiye
TIME SERIES TRENDS AND SIMPLE LINEAR REGRESSION ANALYSIS OF HEALTHCARE EXPENDITURES IN TÜRKİYE: 2010–2023	Dr. Mustafa Burak KARAGÖZ	Sivas Cumhuriyet University, Türkiye
A THEORETICAL EXAMINATION OF SOCIAL CAPITAL IN THE FIELD OF REGIONAL SUSTAINABLE DEVELOPMENT	Salih PELİT Müşfika Nazan ARSLANEL	Tokat Gaziosmanpaşa University, Türkiye
AI-SUPPORTED BUDGETING IN STRATEGIC DECISION-MAKING: CONCEPTUAL FRAMEWORK AND IMPLEMENTATION RECOMMENDATIONS	Senem ŞEN Mustafa GÜL	Tokat Gaziosmanpaşa University, Türkiye
THE INTERACTION BETWEEN OPENNESS, R&D, AND INNOVATION PERFORMANCE: AN APPLICATION ON BALKAN COUNTRIES	Prof. Dr. Türker ŞİMŞEK Asst. Prof. Dr. Emre YİĞİT Res. Asst. Oğuzhan DEMİR	Tokat Gaziosmanpaşa University, Türkiye
A STUDY ON THE IMPACT OF THE REGULATIONS INTRODUCED BY LAW NO. 4749 ON BUDGET DISCIPLINE AND DEBT MANAGEMENT	Assoc. Prof. Dr. Hayrettin TÜLEYKAN	Tokat Gaziosmanpaşa University, Türkiye
APPLICATION OF DYNAMIC PANEL DATA TO CARBON EMISSION PREDICTION	İbrahim GÜNEY	İstanbul Sabahattin Zaim University, Türkiye
THE RELATIONSHIP BETWEEN MIGRATION, REFUGEE STATUS, AND URBANIZATION WITH THE PHENOMENON OF CRIME: A BIBLIOMETRIC ANALYSIS FOR THE 1923-2026 PERIOD	Esra ACUR Asst. Prof. Dr. Burak ACAR	Tokat Gaziosmanpaşa University, Türkiye

15TH Al fārābi

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Participants Countries: Albania, Algeria, Azerbaijan, Bangladesh, Belarus, Benin, Brazil, Bulgaria, Cambodia, China, Ethiopia, Finland, Georgia, Hungary, India, Indonesia, Kazakhstan, Kyrgyzstan, Malaysia, Mexico, Moldova, Morocco, Nigeria, Northern Cyprus (TRNC), Pakistan, Philippines, Poland, Portugal, Romania, Serbia, Türkiye, Ukraine, United States

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Assoc. Prof. Dr. Kübra ŞAHİN ÇEKEN

TOPIC TITLE	AUTHORS	AFFILIATION
DARK ART ILLUSTRATIONS IN VISUAL DESIGN	Damla AYDIN Assoc. Prof. Dr. Kübra ŞAHİN ÇEKEN	İstanbul Arel University, Türkiye
THE USE OF ARTIFICIAL INTELLIGENCE IN DIGITAL COMMUNICATION CHANNEL VISUALS OF ISTANBUL, LONDON, AND PARIS OPERAS	Assoc. Prof. Dr. Kübra ŞAHİN ÇEKEN Mehmet DEMİRTAŞ	İstanbul Arel University, Türkiye
TYPOLGICAL READABILITY AND SPATIAL MEMORY IN THE PROCESS OF ADAPTIVE REUSE: THE CASE OF THE ORHAN GAZI BATH IN THE BURSA KHANS DISTRICT	Dr. Mehmet Fatih AYDIN	Bursa Technical University, Türkiye
COMPARATIVE ANALYSIS OF GENERATIVE AI TOOLS IN SOCIAL POSTER DESIGN: "CHILDREN OF WAR"	Sepideh SEYEDHOSSEİNİ Assoc. Prof. Dr. Kübra ŞAHİN ÇEKEN	İstanbul Arel University, Türkiye
ANALYSIS OF 3D CHARACTER DESIGNS GENERATED WITH ARTIFICIAL INTELLIGENCE ALGORITHMS FROM THE PERSPECTIVE OF VISUAL COMMUNICATION DESIGN PRINCIPLES	Ebubekir KOÇAK Assoc. Prof. Dr. Kübra ŞAHİN ÇEKEN	İstanbul Arel University, Türkiye
NEW BUILDINGS IN SULU STREET: TOKAT CITY MUSEUM AND MUSEUM CAFE	Ahmet Can DURMAZER Assoc. Prof. Dr. Aygün KALINBAYRAK ERCAN	Tokat Gaziosmanpaşa University, Türkiye

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Assoc. Prof. Dr Ozan ŞAHİN

TOPIC TITLE	AUTHORS	AFFILIATION
TEACHING MATHEMATICS SUPPORTED BY VISUAL ARTS IN RURAL SCHOOLS: LITERATURE-BASED RECOMMENDATIONS ON ARTIFICIAL INTELLIGENCE INTEGRATION	Mahmut ÖĞ	Ministry of National Education, Türkiye
BIBLIOMETRIC ANALYSIS OF STUDIES ON THE INTEGRATION OF VISUAL ARTS, MATHEMATICS, AND ARTIFICIAL INTELLIGENCE BETWEEN 2000–2025	Mahmut ÖĞ	Ministry of National Education, Türkiye
AN EXAMINATION OF PRE-SERVICE TEACHERS' PERSPECTIVES ON ENCRYPTION-BASED ACTIVITIES IN MATHEMATICS EDUCATION	Res. Assist. Zeynep ARSLAN Res. Assist. Esra ERDOĞAN KAYALI Res. Assist. Asude Gülsen ŞEHİT Prof. Dr. Ahmet Şükrü ÖZDEMİR	İstanbul Medipol University, Türkiye
VARIOUS TYPES OF CONTINUITY IN IDEAL TOPOLOGICAL SPACES	Assoc. Prof. Dr. Nazmiye ALEMDAR Res. Assist. Zuhale TULUCE	Erciyes University, Türkiye
THREADS OF INTELLIGENCE: DECIPHERING THE 'REAL DESIGNER' IN AI-GENERATED FASHION	Lect. Yeliz YAZICI DEMİR Lect. Naile ERDOĞAN	Sinop University, Türkiye
THE GHOST IN THE MACHINE: MAPPING THE 'DIGITAL CONSCIENCE' OF COUNSELOR TRAINEES IN THE AGE OF AI	Lect. Yeliz YAZICI DEMİR	Sinop University, Türkiye
THE ROLE OF FEAR AND CONSPIRACY BELIEFS IN TEACHERS' ACCEPTANCE OF ARTIFICIAL INTELLIGENCE USE	Kadir ALTUNOK Assist. Prof. Dr. Tuğba KOCADAĞ ÜNVER	Tokat Gaziosmanpaşa University, Türkiye

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HEAD OF SESSION: Assist. Prof. Dr. Muhammad FAISAL

TOPIC TITLE	AUTHORS	AFFILIATION
GLOBAL CONSUMER PURCHASING PREFERENCES: DATA COLLECTION METHODS, STATISTICAL TECHNIQUES FOR ANALYSIS, SEGMENTATION AND PROFILING, AND ADVANCED ANALYTICS AND MACHINE LEARNING	Prof. Dr. Cristina Raluca Gh. Popescu	University of Bucharest, Romania
BLOCKCHAIN-BASED INVENTORY MANAGEMENT SYSTEM WITH AI INTEGRATION	Assist. Prof. Dr. Muhammad FAISAL	Allama Iqbal Open University, Pakistan
MODERN ANTI-CRISIS CONCEPTS OF THE EUROPEAN UNION "RESILIENCE 1.0" AND "RESILIENCE 2.0" AS STRATEGIC FORECASTING APPROACHES	Tetiana BURLAY	Institute for Economics and Forecasting of the NAS of Ukraine, Ukraine
DIGITAL WELLNESS AND NEURO-SOVEREIGNTY AI-MEDIATED TOOLS FOR MENTAL HEALTH RESILIENCE	Assist. Prof. Dr. Muhammad FAISAL	Allama Iqbal Open University, Pakistan
NATIONAL BRANDING AS A TOOL FOR REGIONAL INTEGRATION AND ENHANCING THE INVESTMENT ATTRACTIVENESS OF CENTRAL ASIAN COUNTRIES	Gulzhakhan KHAJIYEVA Zhaniya JUMADILDAYEVA	Turan University, Kazakhstan
EXPLORING THE INNOVATIVE HOUSING FINANCING STRATEGIES IN ECO FRIENDLY REAL ESTATE DEVELOPMENT IN ABUJA, NIGERIA	Ibrahim Nuruddeen Dr. Mohammed Ishaq Mohammed Prof. Neoma Iroaganachi Violet	Abubakar Tafawa Balewa University, Nigeria
METHODOLOGICAL LIMITATIONS OF SOVIETERA HISTORIOGRAPHY IN STUDYING KAZAKHSTAN'S COLONIAL ADMINISTRATIVETERRITORIAL STRUCTURE	Saule Mergentayevna Yesengeldiyeva	Abai Kazakh National Pedagogical University, Republic of Kazakhstan
NAVIGATING TECHNO-STRESS IN THE DIGITAL AGE: UNDERSTANDING THE HUMAN COSTS OF TECHNOLOGICAL ADVANCEMENT - A REVIEW STUDY	Abdulmalik Abdul Kareem Omeiza	University of Abuja, Nigeria
DIGITAL DIVIDE, CASTE, AND THE REINFORCEMENT OF SOCIAL STRATIFICATION: A POLITICAL ECONOMY PERSPECTIVE ON CONTEMPORARY BANGLADESH	Md. Foysal Ahmme Rajiwan Anwar Ratul	University of Dhaka, Bangladesh

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HEAD OF SESSION: Bianca Maria MĂDESCU

TOPIC TITLE	AUTHORS	AFFILIATION
DETERMINANTS OF MEAT QUALITY IN AUBRAC CATTLE: EFFECTS OF REARING SYSTEM AND POST-MORTEM BIOCHEMICAL PROCESSES	Bianca Maria MĂDESCU Ioana BOLOHAN (ACORNICESEI) Ioana POROSNICU Madalina DAVIDESCU Paul Corneliu BOIȘTEANU	„Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
INNOVATIVE SENSOR-BASED APPROACHES FOR ETHOLOGICAL ASSESSMENT AND WELFARE MONITORING IN DAIRY CATTLE	Bianca Maria MĂDESCU Ioana BOLOHAN (ACORNICESEI) Ioana POROSNICU Madalina DAVIDESCU Paul Corneliu BOIȘTEANU	„Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
SENSOR-DRIVEN ARTIFICIAL INTELLIGENCE APPROACHES FOR FINE-SCALE BEHAVIORAL MONITORING IN WILD BOAR (SUS SCROFA)	Eusebiu Gabriel STROIE Bianca Maria MĂDESCU Paul Corneliu BOIȘTEANU	„Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
INTEGRATING ARTIFICIAL INTELLIGENCE AND MULTI-SENSOR DATA FOR BEHAVIORAL PATTERN RECOGNITION IN ROE DEER (CAPREOLUS CAPREOLUS)	Eusebiu Gabriel STROIE Bianca Maria MĂDESCU Paul Corneliu BOIȘTEANU	„Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
EFFECT OF SUPPLEMENTATION WITH AQUEOUS EXTRACTS OF MEDICINAL PLANTS IN THE CALF DIET ON DIGESTIVE HEALTH	Adina-Mirela ARITON Silviu-Ionuț BORȘ Ioana POROSNICU Vasile VINTILĂ Elena UNGUREANU Ovidiu UNGUREANU	Research and Development Station for Cattle Breeding Dancu, Iași, Romania "Ion Ionescu de la Brad" Iași University of Life Sciences, Romania "Vasile Goldis" Western University of Arad, Romania
IMPORTANCE OF BOVINE COLOSTRUM IN ENSURING PASSIVE IMMUNITY IN NEWBORN CALVES	Adina-Mirela ARITON Silviu-Ionuț BORȘ Ioana POROSNICU Vasile VINTILĂ Elena UNGUREANU Ovidiu UNGUREANU	Research and Development Station for Cattle Breeding Dancu, Iași, Romania "Ion Ionescu de la Brad" Iași University of Life Sciences, Romania "Vasile Goldis" Western University of Arad, Romania
INCIDENCE OF PHYTOPATHOGENIC FUNGI AND MYCOTOXINS IN TWO CEREAL PRODUCTION SYSTEMS (SUSTAINABLE VS. CONVENTIONAL): IMPLICATIONS FOR FOOD SECURITY AND RURAL DEVELOPMENT	Ioana POROSNICU Madalina DAVIDESCU Bianca-Maria MĂDESCU	Research and Development Station for Cattle Breeding Dancu, Romania „Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
INNOVATION AND SUSTAINABILITY IN AGRI-FOOD SYSTEMS: INTEGRATING MODERN TECHNOLOGIES INTO RURAL DEVELOPMENT	Ioana POROSNICU Madalina DAVIDESCU Bianca-Maria MĂDESCU	Research and Development Station for Cattle Breeding Dancu, Romania „Ion Ionescu de la Brad” Iasi University of Life Sciences, Romania
DEVELOPMENT OF FUNCTIONAL FOODS USING MILLETS: CURRENT TRENDS AND INNOVATIONS	Gaurav Dhaked Dr. Kamla Mahajani Yogita Paliwal	Maharana Pratap University of Agriculture and Technology, India

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HEAD OF SESSION: Assoc. Prof. Dr. Fatma KAYIKCI HEKİM

TOPIC TITLE	AUTHORS	AFFILIATION
MORPHOMETRIC AND HISTOLOGICAL ANALYSIS OF THE HEART IN CHICK EMBRYOS	Assoc. Prof. Dr. Fatma KAYIKCI HEKİM Assoc. Prof. Dr. Muhammet Lütfi SELÇUK	Karamanoğlu Mehmetbey University, Türkiye
EARLY SURGICAL REPAIR OF PENILE FRACTURE: A SINGLE-CENTER EXPERIENCE	Ilke Onur Kazaz Res. Assist. Goktug Atnallar	Karadeniz Technical University, Türkiye
FREQUENCY AND CLINICAL CORRELATES OF ILIAC ENTHESITIS IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS	Cemal GÜRBÜZ Kemal EROL	Selçuk University, Türkiye
EVALUATION OF SPINAL CORD PERFUSION USING NIRS MONITORING DURING SPINAL TUMOR SURGERY: A PRELIMINARY TWO-CASE REPORT	Ceren Nur DUYGUN ŞAHİN Res. Assis. Nesibe ŞENTÜRK ÖZDEMİR Prof. Ahmet BEŞİR Assoc. Prof. Ali Rıza GÜVERCİN	Karadeniz Technical University, Türkiye
EVALUATION OF INTRAPATELET ATP LEVELS AND BIOCHEMICAL PARAMETERS ACCORDING TO SYNTAX SCORE IN PATIENTS WITH CORONARY ARTERY DISEASE	Assist. Prof. Dr. Gülsel AYAZ Yağmur Fatma GÜNEY* Assoc. Prof. Dr. Aykut DEMİRKIRAN Assoc. Prof. Dr. Birol TOPÇU Assoc. Prof. Dr. Aliye ÇELİKKOL Assoc. Prof. Dr. Cihan AYDIN Assoc. Prof. Dr. Aydın AKYÜZ Res. Assist. Dr. Damla ÖZTÜRK EFE Assist. Prof. Dr. Hüseyin ORTA Prof. Dr. Şeref ALPSOY	Tekirdağ Namık Kemal University, Türkiye
COMPARISON OF PLATELET INDICES, CRP, AND TROPONIN T LEVELS ACCORDING TO RS3742106 GENE VARIANTS IN PATIENTS WITH MYOCARDIAL INFARCTION	Assist. Prof. Dr. Gülsel AYAZ Assoc. Prof. Dr. Aykut DEMİRKIRAN Assoc. Prof. Dr. Birol TOPÇU Assoc. Prof. Dr. Aliye ÇELİKKOL Assist. Prof. Dr. Özlem YALÇIN ÇAPAN Assoc. Prof. Dr. Sertaç ATALAY Assoc. Prof. Dr. Serhat ÖRÜN Assoc. Prof. Dr. Cihan AYDIN	Tekirdağ Namık Kemal University, Türkiye
MARESINS MITIGATED LIVER AND BRAIN INJURY IN AN EXPERIMENTAL SEPSIS MODEL	Res. Assist. Dr. Betül CAN Ramil ALMAMMADOV Prof. Dr. Dilek BURUKOĞLU DÖNMEZ Prof. Dr. İbrahim Özkan ALATAŞ	Eskisehir Osmangazi University, Türkiye
SURGICAL MANAGEMENT OF ODONTOGENIC CYSTS IN DIFFERENT ANATOMICAL LOCALIZATIONS: A REPORT OF TWO CASES	Asst. Prof. Dr. Ahmet Can HASKAN Res. Assist. Çağdaş ARSLAN	Hatay Mustafa Kemal University, Türkiye

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HEAD OF SESSION: Prof. Dr. Seda YILDIRIM

TOPIC TITLE	AUTHORS	AFFILIATION
A REVIEW ON LIVING LABS IN SUSTAINABILITY AREAS	Prof. Dr. Seda H. BOSTANCI Prof. Dr. Seda YILDIRIM	Tekirdağ Namık Kemal University, Türkiye
WASTE ENTREPRENEURSHIP, CIRCULAR ECONOMY AND INNOVATION	Prof. Dr. Seda YILDIRIM Prof. Dr. Seda H. BOSTANCI	Tekirdağ Namık Kemal University, Türkiye
GREEN LEADERSHIP IN AVIATION MANAGEMENT	Assis. Prof. Elif ÜZEL Prof. Özgür DEMİRTAŞ	Kayseri University, Türkiye
OPERATIONAL RISK MANAGEMENT IN A FUZZY ENVIRONMENT	Assis. Prof. Elif ÜZEL Prof. Özgür DEMİRTAŞ	Kayseri University, Türkiye
THE 'COOLCATION' POTENTIAL OF HIGHLAND TOURISM IN TÜRKİYE	Muhammet Çağrı MURAT Assoc. Prof. Dr. Ercan KARAÇAR Lect. Emre AKMANOĞLU	Sinop University, Türkiye
ASTROTOURISM WITHIN THE FRAMEWORK OF SPECIAL INTEREST TOURISM: AN ANALYSIS ON THE POTENTIAL AREAS OF SİNOP PROVINCE	Muhammet Çağrı MURAT Assoc. Prof. Dr. Ercan KARAÇAR Lect. Emre AKMANOĞLU	Sinop University, Türkiye
DIGITAL TRANSFORMATION AND SUSTAINABLE LOGISTICS MANAGEMENT IN THE EAST-WEST TRANSPORT CORRIDOR: EVIDENCE FROM AZERBAIJAN	PhD Samira Rustamova Rasim	Azerbaijan State University of Economics(UNEC), Azerbaijan
GOLF TOURISM, WATER STRESS AND SUSTAINABILITY: A STUDY OF THE BELEK DESTINATION	Assist. Prof. Dr. Melahat AVŞAR	Amasya University, Türkiye

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HEAD OF SESSION: Major Gheorghe Giurgiu

TOPIC TITLE	AUTHORS	AFFILIATION
THE GUT-BRAIN-SKIN AXIS IN ACNE: IMPACT OF POLENODERM	Major Gheorghe Giurgiu Prof. Dr. Manole Cojocaru	Deniplant-Aide Sante Medical Center, Biomedicine, Bucharest, Romania Titu Maiorescu University, Faculty of Medicine, Bucharest, Romania
GREEN SYNTHESIS INSPIRED BY THE CIRCULAR ECONOMY OF HIGH-SURFACE-AREA ZNO NANOPARTICLES USING ARGANIA SPINOSA CAKE EXTRACT: BOX-BEHNKEN DESIGN OPTIMIZATION, INTEGRATION INTO TERNARY CHITOSAN-GHASSOUL CLAY NANOCOMPOSITE BEADS FOR THE PHOTOCATALYTIC DEGRADATION OF BASIC YELLOW 28 DYE, AND REUSE OF REGENERATED FORMS FOR THE SEQUENTIAL AND EFFICIENT PHOTOREDUCTION OF CU ²⁺ IONS WITH OUTSTANDING KINETICS, HIGH REUSABILITY, AND DUAL ENVIRONMENTAL REMEDIATION FUNCTIONALITY.	Soukaina El Bourachdi Ali Raza Ayub Abdelhay El Amri Amal Lakhimi	Sidi Mohamed Ben Abdellah University, Morocco Beijing Institute of Technology, China Mohammed VI Polytechnic University, Morocco
ECOLOGICAL EVALUATION OF GURARA WATERFALLS FOR BIOPHILIC ECO-RESORT DEVELOPMENT IN NIGER STATE, NIGERIA	Frank Jirnuya Clever Dr. Adebisi Gafari Olabamiji	Federal University of Technology, Nigeria
HARNESSING LACTIC ACID BACTERIA ISOLATED FROM DAIRY PRODUCTS FOR SUSTAINABLE BIOCONTROL STRATEGIES IN FOOD SAFETY	BELLIL Zahra DERBAK Larbi BELLIL Dassine MAIRI Assia TOUATI Abdelaziz MECHIAH Fahima INOURI Ahlam BOUCHEMAL Amina MEGHLAOU Zoubaida BENHOULA Mohammed MADI Nassim	Campus Universitaire, Algérie
ASSESSMENT OF GROUNDWATER STORAGE TRENDS IN THE JEL AQUIFER (GUERCIF BASIN, MOROCCO) USING GRACE DATA AND INNOVATIVE TREND ANALYSIS	Aynaou Anass Khattach Driss Nouayti Nordine El Gout Radia Adghiss Yassine Ziani Soufian	Abdelmalek Essaadi University, Morocco
PHYTOCHEMICAL SCREENING, EXTRACTION PROFILING, AND ANTIOXIDANT EVALUATION OF PHALERIA MACROCARPA (MAHKOTA DEWA) TWIGS	Abdulmalik Abdulkareem Omeiza	University of Abuja, Nigeria
MICROBIAL MEDIATION OF NUTRIENT CYCLING IN LIVESTOCK AGROECOSYSTEMS: ENVIRONMENTAL IMPLICATIONS, TRADE-OFFS, AND MANAGEMENT STRATEGIES	Adeniyi Olarewaju Adeleye Michael Edet Nkereuwem Olukemi Adeleye Catherine Iyabo Asaju Afeez Oladeji Amoo Gbolabo Olaitan Onasanya Mohammed Bello Yerima	Federal University Dutse, Nigeria Ekiti State University Ado-Ekiti, Nigeria Sokoto State University, Nigeria
STRUCTURAL INHERITANCE AND OROGENIC EVOLUTION OF THE OUZELLARH (HIGH ATLAS, MOROCCO)	Abdelfattah ABOULFARAJ Abdelhalim TABIT Abdelmalek GOUMIH	Cadi ayyad University, Morocco

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HEAD OF SESSION: Moses Adeolu AGOI

TOPIC TITLE	AUTHORS	AFFILIATION
ENGINEERING INTELLIGENT EDGE SYSTEMS FOR REAL-TIME AI APPLICATIONS	Oluwanifemi Opeyemi AGOI Moses Adeolu AGOI Success Eniola OGBOYE Samuel Olayiwola AJAGA	Obafemi Awolowo University, Nigeria Lagos State University of Education, Nigeria
FIRST-ORDER DIRICHLET-TO-NEUMANN APPROXIMATION FOR A THIN LAYER IN COUPLE STRESS ELASTICITY WITH VOIDS: ASYMPTOTIC ANALYSIS AND STABILITY	Athmane Abdallaoui	Ecole Normale Supérieure de Bou Saada, Laboratoire de Mathématiques et Physique Appliquées, Bou Saada, Algeria
PREDICTIVE MODELING OF FINANCIAL INCLUSION IN NIGERIA: A MACHINE LEARNING APPROACH TO EVALUATING FINTECH ADOPTION	Victor AKOH	Federal University Lokoja, Nigeria
INTELLIGENT STOCK MAINTENANCE SYSTEM USING MACHINE LEARNING FOR DEMAND PREDICTION AND INVENTORY OPTIMIZATION	Deepika D	R.M.K. Engineering College, India
AI-DRIVEN DESIGN AND OPTIMIZATION OF NANOSTRUCTURED SEMICONDUCTOR DEVICES FOR ENERGY-EFFICIENT INTELLIGENT SYSTEMS	Syed Alamdar Ul Hasnain Naqvi	Government College University Faisalabad, Pakistan
ASSESSMENT OF MORPHOMETRIC TRAITS IN THE PINE PROCESSIONARY MOTH (THAUMETOPOEA PITYOCAMPA) IN TLEMEN, ALGERIA	Mounir KHERROUBI Zakarya Izzeddine ZERROUK Yasmine BENHALIMA	Ecole normale supérieure de kouba, Algeria
EXPLAINABLE ARTIFICIAL INTELLIGENCE FOR NATURAL LANGUAGE PROCESSING: METHODS, CHALLENGES, AND APPLICATIONS	MSc. Anxhela Dema	European University of Tirana, Albania
DEMOCRATIZATION OF BIG DATA: BRIDGING THE GAP OF INDONESIAN MSMEs	Az Zahra Noor Syawali Cahyadi Balqis Zulaikha	Perbanas Institute, Indonesia

15.05.2026 / ONLINE SESSION-3 / HALL-1



Ankara Local Time

15 00 : 17 00



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Assoc. Prof. Dr. Veysel YILMAZ

TOPIC TITLE	AUTHORS	AFFILIATION
NURSING APPROACH AND EVIDENCE-BASED RECOMMENDATIONS FOR PATIENTS WITH PANCREATIC CANCER IN LINE WITH THE FUNCTIONAL HEALTH PATTERNS MODEL	Prof. Dr. Semiha AKIN EROĞLU Assist. Prof. Dr. Anita KARACA	University of Health Sciences, Türkiye Biruni University, Türkiye
EVIDENCE-BASED TREATMENT AND CARE RECOMMENDATIONS FOR PATIENTS WITH RHEUMATOID ARTHRITIS	Fatma ERTEN Prof. Dr. Semiha AKIN EROĞLU Assist. Prof. Dr. Anita KARACA	Istanbul University, Türkiye University of Health Sciences, Türkiye Biruni University, Türkiye
THE EFFECT OF PHYSICAL ACTIVITY ON HbA1c IN DIABETIC PATIENTS	Lect. Dr. Sidrenur ASLAN KOLUKISA Res. Assist. Muhammed HALİL KOLUKISA	Artvin Coruh University, Türkiye Karadeniz Technical University, Türkiye
THE USE OF ARTIFICIAL INTELLIGENCE IN OPERATING ROOM NURSING	Dr. Beyzanur KIZILOĞLU AĞGÜL	Atatürk University, Türkiye
SOCIAL PERCEPTION of ARTIFICIAL INTELLIGENCE in HEALTHCARE SERVICES and ITS DETERMINANTS: A CROSS-SECTIONAL STUDY IN TÜRKİYE	Res. Assist. Dr. Birgül YABANA KİREMİT	Ondokuz Mayıs University, Türkiye
ORGANIZATIONAL CULTURE THE ROLE OF LEADERSHIP IN HEALTHCARE INSTITUTIONS	Gülersin HONÇA	Ondokuz Mayıs University, Türkiye

15.05.2026 / ONLINE SESSION-3 / HALL-2



Ankara Local Time

15 00 : 17 00



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Assoc. Prof. Dr. Fulya KİNCAL

TOPIC TITLE	AUTHORS	AFFILIATION
THE EPISTEMOLOGICAL TENSION IN STANFORD'S NEW INDUCTIVE ARGUMENT AND THE DEFENCE OF SCIENTIFIC REALISM	Fadime ERCIYES	Mugla Sıtkı Kocman University, Türkiye
FROM MYTHOLOGY TO ASTRONOMY- THE STORY OF THE TAURUS CONSTELLATION	Assist. Prof. Dr. Didem DEMİRALP	HBV University, Türkiye
A COMPARATIVE INQUIRY FROM AL-FARABI'S 'ACTIVE INTELLECT' TO 'ARTIFICIAL INTELLECT'	Assist. Prof. Dr. Adalet ASLAN	Bingol University, Türkiye
MELANCHOLIC IDENTITY IN JHUMPA LAHIRI'S "A TEMPORARY MATTER"	Assoc. Prof. Dr. Fulya KİNCAL	Tekirdağ Namık Kemal University, Türkiye
THE EFFECT OF STORYTELLING TECHNIQUES ON STORY WRITING SKILLS	Melike YILMAZ TÜRKOĞLU	Kırşehir Ahi Evran University, Türkiye
THE THEORETICAL CORE OF AL-FARABI'S SYSTEM: EMANATION THEORY FROM METAPHYSICS TO ETHICS	Prof. Dr. Ibrahim BOR	Hakkari University, Türkiye

15.05.2026 / ONLINE SESSION-3 / HALL-3



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15 00 : 17 00



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Prof. Azzedine BOUZAOUT

TOPIC TITLE	AUTHORS	AFFILIATION
THE INFLUENCE ANALYSIS OF THE SUCTION FILTER CLOGGING ON THE PARAMETERS OF AN AXIAL FAN	Prof. Azzedine BOUZAOUT Chouaib ZEGHIDA Dr. Mounir GAHGAH	The august 20th 1955 University of Skikda, Algeria
ACOUSTIC INTEGRITY VS. TROPICAL VENTILATION: ASSESSING BUILDING ENVELOPE PERFORMANCE FOR NOISE MITIGATION IN DAY SECONDARY SCHOOLS OF MINNA, NIGERIA	Yisa Joy Happiness Dr. Makun Charles Yakubu	Federal University of Technology, Nigeria
HYBRID INTELLIGENT DIAGNOSIS OF ELECTRICAL FAULTS IN MATRIX CONVERTER-FED DFIG WIND ENERGY SYSTEMS USING ARTIFICIAL NEURAL NETWORKS AND FUZZY LOGIC	Aboubaker Essaddiq MAZOUZ Said HASSAINE Hamid BOUMEDIENE Lallouani HELLALI Oussama MOUSSA	University of Tiaret, Algeria University Mohamed Boudiaf of Msila, Algeria University of Ghardaia, Algeria
SLIDING MODE CONTROL USING FUZZY LOGIC SPEED REGULATOR FOR ASYNCHRONOUS MACHINE	HELLALI LALLOUANI NOUAOUÏ Tahar OUSSAMA Moussa MAZOUZ Aboubaker Essadiq AKKA Ali BELHAMDI Saad BOUZIDI Ali	University of Msila, M'sila, Algeria University of Biskra, Algeria
HIGH-GAIN AND WIDEBAND COMPACT MICROSTRIP PATCH ANTENNA FOR 28 GHz 5G MILLIMETER-WAVE APPLICATIONS	Amal NEJJARI Anouar ES-SALEH Sara SAID Ahmed FAIZE	The Higher School of Technology of Nador (ESTN), affiliated with Mohammed Premier University of Oujda, Morocco
A DELIBERATE HUMOUR: THE MASKS OF THE OPPRESSED TRUTH	Dr. Mas'ud Hamdan	University of Haifa, Israel/Palestine

15.05.2026 / ONLINE SESSION-3 / HALL-4



Ankara Local Time

15 00 : 17 00



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Dr.B. MAHADEVAN

TOPIC TITLE	AUTHORS	AFFILIATION
SONGS OF THE SEA, STORIES OF MIGRATION: MEDITERRANEAN FOLKLORE IN AMERICAN DIASPORIC IDENTITY	Rajiwan Anwar Ratul Md Habibur Rahman	University of Rajshahi, Bangladesh
INCLUSIVITY AND RESILIENCE IN SCIENCE EDUCATION: A TECHNOLOGY INTEGRATION FRAMEWORK FOR COLLEGES OF EDUCATION IN NORTH-CENTRAL NIGERIA	ABDULLAHI Muhammad Kobo NURATANKO Zainab Nasko MUSA Abdulrasheed Ibn	Umaru Sanda Ahmadu College of Education, Nigeria School of Sciences College of Education Akwanga, Nigeria
PERCEIVED COMPLEXITIES IN TEACHING ABSTRACT CHEMISTRY CONCEPTS: A STUDY AMONG SECONDARY SCHOOL TEACHERS IN INDIA	Faseela T	Jamia Millia Islamia, India
GLOBAL RESEARCH TRENDS ON PODCASTS IN LANGUAGE EDUCATION: A BIBLIOMETRIC ANALYSIS (2007–2025)	Mohd Shahbaz Khan Dr. Sameer Babu M	Jamia Millia Islamia, India
EXPLORING THE PERCEPTION AND USE OF VIRTUAL LABORATORIES DURING TEACHING PRACTICE: A MIXED-METHOD STUDY OF PROSPECTIVE TEACHERS	Sehar Nigar Prof Jasim Ahmad Dr. Aerum Khan	Jamia Millia Islamia, India
BRIDGING THE GAP BETWEEN POLICY AND PRACTICE: INSTITUTIONAL READINESS FOR AI INTEGRATION IN STEM EDUCATION IN INDIA	Sapna Raj Dr. Aerum Khan	Jamia Millia Islamia, India
THE EFFECTIVENESS OF USING A VIDEO-BASED PLATFORM TO IMPROVE STUDENT ENGAGEMENT IN LEARNING ENGLISH AMONG COMMUNITY COLLEGE STUDENTS	Norsyariza Hanim binti Mohd Sabri Noorshakira binti Ismail	Kulim Community College, Malaysia
ASSESSING PROFESSIONAL INFORMATION LITERACY SKILLS AMONG FACULTY IN VELLALAR COLLEGE FOR WOMEN, ERODE, TAMIL NADU	Dr.B. MAHADEVAN	Vellalar College for Women (Autonomous), India
BETWEEN ROOTS AND ROUTES: LABOUR MIGRATION, CULTURAL RESILIENCE, AND ENVIRONMENTAL SUSTAINABILITY IN THE KYRGYZ REPUBLIC	Nazarkulova Gulzana Amankulovna Prof. Dr. Akylbekova N.I. Asanbekova Ch. M.	Diplomatic Academy of the Ministry of Foreign Affairs of the Kyrgyz Republic named after K.Dikambaev, Kyrgyzstan Razzakov Kyrgyz State Technical University, Kyrgyzstan

16.05.2026 / ONLINE SESSION-1 / HALL-1



Ankara Local Time

10 00 : 12 00



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Asst. Prof. Dr. Ahmet EŞİYOK

TOPIC TITLE	AUTHORS	AFFILIATION
AN EFFICIENT LED DRIVER TOPOLOGY WITH REDUCED HARMONICS USING BOOST PFC AND LLC RESONANT CONVERTER	Lect. Buket Meryem EKER Assoc. Prof. Dr. Yücel ÇETİNCİVİZ	Yüksek İhtisas University, Türkiye Kastamonu University, Türkiye
FORMULATION AND EVALUATION OF A BIODEGRADABLE WINDSHIELD WASHER ANTIFREEZE	Sena Ezgi SELÇUK Sevda ATAR	Petrol Ofisi Technology Center, Türkiye
DEEP REINFORCEMENT LEARNING-BASED VOLTAGE CONTROL IN A DISTRIBUTION NETWORK	Assist. Prof. Dr. Muhammed Sait AYDIN	Siirt University, Türkiye
A NATURAL LANGUAGE PROCESSING-BASED ANALYSIS OF PROMPT ENGINEERING DISCOURSE ON THE X PLATFORM	Sema ÜVER Assist. Prof. Dr. Mesut POLATGİL	Sivas Cumhuriyet University, Türkiye
SECURITY IN E-GOVERNMENT SYSTEMS: PRACTICES IN TURKEY AND WORLDWIDE	Selahattin ÖZDEMİR Assist. Prof. Dr. Özgür TONKAL	Samsun University, Türkiye
OCCUPATIONAL HEALTH AND SAFETY IN RAPID PROTOTYPING PROCESSES USING THE FUSED DEPOSITION MODELING (FDM) METHOD	Asst. Prof. Dr. Ahmet EŞİYOK	Istanbul Beykent University, Türkiye
A CRITICAL OCCUPATIONAL ACCIDENT IN GEOTHERMAL PRODUCTION TESTING: ROOT CAUSE ANALYSIS AND PREVENTIVE MEASURES	Mehmet Selim BAT Assoc. Prof. Dr. Derya SİNANOĞLU	Batman University, Türkiye
AI-BASED DOWNTIME CLASSIFICATION AND PREDICTIVE MAINTENANCE APPROACH IN INDUSTRIAL PRODUCTION SYSTEMS	Orkun RAZİ Muhammet ÇANAKÇI Recep Nuri SAĞIR Asst. Prof. Dr. Ayşe Nuray CANAT	İstanbul Sabahattin Zaim University, Türkiye

16.05.2026 / ONLINE SESSION-1 / HALL-2



Ankara Local Time

10 00 : 12 00



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Assist. Prof. Dr. Hüseyin ÇEVİK

TOPIC TITLE	AUTHORS	AFFILIATION
AN INVESTIGATION OF PRE-SERVICE TEACHERS' DIGITAL CITIZENSHIP COMPETENCIES AND SELF-EFFICACY REGARDING EDUCATION 5.0 DIGITAL LEARNING TECHNOLOGIES IN TERMS OF CERTAIN VARIABLES	Assist. Prof. Dr. Hüseyin ÇEVİK Dr. Ayşemine Dinçer Gül	Zonguldak Bülent Ecevit University, Türkiye
AN EXAMINATION OF UNIVERSITY STUDENTS' STUDENT ENGAGEMENT, COURSE INTEREST, AND ACADEMIC SELF-EFFICACY LEVELS	Assist. Prof. Dr. Hüseyin ÇEVİK	Zonguldak Bülent Ecevit University, Türkiye
AN EXAMINATION OF LEARNING PROCESSES DESIGNED BY ASSOCIATING THE TOPIC OF FRACTIONS WITH MUSIC	Zeynep ATAM Prof. Dr. Menekşe Seden TAPAN BROUTİN Assoc. Prof. Dr. Tuğçe KOZAKLI ÜLGER	Bursa Uludag University, Türkiye
CHALLENGES FACED BY DIFFERENT TEACHER PROFILES IN IMPLEMENTING THE TÜRKİYE CENTURY MAARİF MODEL	Tuğba TAŞDEMİR ALP Prof. Dr. Menekşe Seden TAPAN BROUTİN Prof. Dr. Rıdvan EZENTAŞ	Bursa Uludag University, Türkiye
SMART ACCREDITATION: AI-DRIVEN MONITORING AND DOCUMENTATION OF QUALITY STANDARDS IN EDUCATION	Sümeyye TAŞAN Esra Nur AKBUĞA Assist. Prof. Dr. Adem YURDUNKULU	İbn Haldun University, Türkiye
EXPLORING CLIMATE LITERACY AMONG EIGHT GRADERS	Sümeyye ŞAHİN Assoc. Prof. Dr. Cansel KADIOĞLU AKBULUT	Tokat Gaziosmanpasa University, Türkiye
AI-BASED INTERVENTIONS FOR REDUCING INEQUALITY OF OPPORTUNITY IN PRESCHOOL EDUCATION: A PERSPECTIVE FROM TÜRKİYE	Şule BAL Assist. Prof. Dr. Adem YURDUNKULU	İbn Haldun University, Türkiye

16.05.2026 / ONLINE SESSION-1 / HALL-3



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10⁰⁰ : 12⁰⁰



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Dr. Akogwu Blessing Omojo

TOPIC TITLE	AUTHORS	AFFILIATION
THERMOELECTRIC AND HYDROGEN STORAGE PROPERTIES OF RB/CS-BASED SBPBH ₆ DOUBLE PEROVSKITES: A FIRST-PRINCIPLES STUDY	Aman Kumar	Swami Vivekanand Subharti University, India
ON THE CAUCHY PROBLEM FOR THE KELLER-SEGEL SYSTEM WITH FRACTIONAL DIFFUSION IN BESOV-MORREY SPACES	Research Assistant Ahmed El Idrissi Prof. Dr. Brahim El Boukari Prof. Dr. Jalila El Ghordaf	Sultan Moulay Slimane University, Morocco
QUANTIFYING THE IMPACT OF FAMILY PLANNING ON POPULATION GROWTH: A COMPARTMENTAL MODEL WITH BASIC REPRODUCTIVE NUMBER ANALYSIS	Agbo Christiana Ene Ayinde Muhammed Abdullahi Chuseh Ahmadu John Ugwu Clement Ugochukwu	University of Abuja, Nigeria
A ONE-DIMENSIONAL VISCOELASTIC FRACTIONAL PARTIAL DIFFERENTIAL EQUATION MODEL FOR BLOOD FLOW IN A COMPLIANT ARTERY USING THE FRACTIONAL REDUCED DIFFERENTIAL TRANSFORM METHOD	Dr. Akogwu Blessing Omojo Dr. Ayinde Muhamed Abdullahi	Applied Mathematics and Simulation Advanced Research Centre, Nigeria University of Abuja, Nigeria
MODELING THE SPREAD AND CONTROL DYNAMICS OF BOKO HARAM INSURGENCY IN BORNO STATE, NORTHERN NIGERIA: A MATHEMATICAL APPROACH	Kabiru Musa Durojaye Mary Oziohu Ayinde Muhammed Abdullahi	Baze University, Nigeria University of Abuja, Nigeria
AN OPTIMIZED EXPONENTIAL RATIO-TYPE ESTIMATOR TO ENHANCE PRECISION IN POST-STRATIFIED SAMPLING	Yashpal Singh Raghav Daniyal Khan Khalid Ul Islam Rather Irfan Ali	Jazan University, Kingdom of Saudi Arabia Aligarh Muslim University, India
APPLICATION OF GEOMETRIC AVERAGE MODEL FOR IDENTIFYING HIGH MINERALIZATION ZONES USING GAMMA-RAY SPECTROMETRY DATA IN THE BOKE BAUXITE DISTRICT, REPUBLIC OF GUINEA	Adama SANGARE Lahsen ACHKOUCH Younesse El CHEIKH	Hassan First University of Settat, Morocco
EFFECT OF AG IONS WORK FUNCTION ON TIN OXIDE NANOSTRUCTURES FOR ELECTROCHEMICAL ETHANOL GAS SENSING APPLICATION	Nishu Rani Prof. Vijay Kumar Prof. Sunil Kumar	Indira Gandhi University, India
ANALYSIS OF MILD SOLUTIONS AND CONTROLLABILITY FOR MULTI-TERM HILFER FRACTIONAL DIFFERENTIAL INCLUSIONS	Chinmayee Naik Asma Afreen	C.V. Raman Global University, India

16.05.2026 / ONLINE SESSION-1 / HALL-4



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10⁰⁰ : 12⁰⁰



Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Dr. ATHOI KAMEI

TOPIC TITLE	AUTHORS	AFFILIATION
INTEGRATING GIS TECHNOLOGIES FOR SUSTAINABLE FOREST MONITORING AND MANAGEMENT IN THE ROMANIAN CARPATHIANS	Ana-Maria CIOBOTARU Radu-Daniel PINTILII Marian MARIN	University of Bucharest, Romania
VERBAL AGGRESSION AND THE MEDIATORY ROLE OF FAMILY SOCIAL SUPPORT ON SOCIAL WITHDRAWAL AMONGST UNDERGRADUATE STUDENTS OF OLABISI ONABANJO UNIVERSITY STUDENTS, AGO-IWOYE, NIGERIA	Ekong Akpan ESSIEN	Olabisi Onabanjo University, Nigeria
TEACHER TRAINERS' PERSPECTIVES ON ACTION RESEARCH IN TEACHER TRAINING CENTERS IN CAMBODIA	Kimsron Srieng Chanphirun Sam	Science Teacher Educator in Phnom Penh Teacher Education College (PTEC), Cambodia
A MODELING-BASED TEACHING AND LEARNING SEQUENCE IMPROVES STUDENTS' CONCEPTUAL UNDERSTANDING OF BIODIVERSITY	Romeissa RACHI Mounir KHERROUBI Zakarya Izzeddine ZERROUK	Ecole normale superieure de kouba, Algeria
TOWARDS ENHANCED ENVIRONMENTAL PROTECTION LEGISLATION IN MOROCCO	HARIBOU Nissrine NFISSI Kawtar	Sidi Mohammed Ben Abdellah University, Morocco
THE IMPLEMENTATION OF THE RESPONSIVE EVALUATION MODEL IN CHRISTIAN RELIGIOUS EDUCATION PROGRAMS: A THEOLOGICAL - PEDAGOGICAL ANALYSIS	Anita NENOHARAN Ester Magdalena SINAGA Desi SIANIPAR	Universitas Kristen Indonesia, Indonesia
MAHATMA GANDHI'S VISION OF HOLISTIC EDUCATION: THEORY AND PRACTICE	Dr. ATHOI KAMEI	University of Delhi, India
THE INTEGRATION OF FORMAL, NON-FORMAL AND INFORMAL EDUCATION AS A MECHANISM FOR THE EDUCATIONAL INCLUSION OF ROMA PUPILS: THE EXPERIENCE OF BLAGOEVGRAD MUNICIPALITY	Bilyana Ivanova	National Institute of Geophysics, Bulgarian

16.05.2026 / ONLINE SESSION-2 / HALL-1



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12³⁰ : 14³⁰



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Dr. Tuğba GÜLEÇ

TOPIC TITLE	AUTHORS	AFFILIATION
CHARACTERIZATION OF GREEN-SYNTHESIZED COPPER NANOPARTICLES USING KALE (BRASSICA OLERACEA L. VAR. ACEPHALA) EXTRACT AND INVESTIGATION OF THEIR ELECTROSTATIC INTERACTIONS WITH DNA	Melek ÜNAL Assoc. Prof. Dr. Ufuk YILDIZ	Zonguldak Bülent Ecevit University, Türkiye
EFFECT OF VRN GENES ON ROOT ANGLES IN SOME MODERN BREAD WHEAT (TRITICUM AESTIVUM L.) GENOTYPES	Dr. Tuğba GÜLEÇ	Karamanoğlu Mehmetbey University, Türkiye
MORPHOLOGY AND ANATOMY OF THE ENDEMIC SPECIES GALANTHUS BURSANUS (AMARYLLIDACEAE)	Muhammet Eray YİĞİT Assist. Prof. Dr. Ceren AKTÜRK Prof. Dr. Özer YILMAZ	Bursa Uludağ University, Türkiye
USE OF PRECISION AGRICULTURE TECHNOLOGIES IN VITICULTURE	Kanivar SÖNMEZ Assoc. Prof. Dr. Mehmet Settar ÜNAL	Ministry of Agriculture and Forestry / Derik District Directorate of Agriculture and Forestry, Türkiye Şırnak University, Türkiye
IMPACTS OF CLIMATE CHANGE ON VITICULTURE	Kanivar SÖNMEZ Assoc. Prof. Dr. Mehmet Settar ÜNAL	Ministry of Agriculture and Forestry / Derik District Directorate of Agriculture and Forestry, Türkiye Şırnak University, Türkiye

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Muhammad Abbas Ahmad Zaini

TOPIC TITLE	AUTHORS	AFFILIATION
STRUCTURAL, MORPHOLOGICAL AND OPTICAL PROPERTIES OF STRONTIUM HEXAFERRITES SRFE 12-X AL X O 19 (X = 1, 1.5, 2, AND 2.5) SYNTHESIZED VIA SOL-GEL AUTO-COMBUSTION	Z. Rachyq Z. Yamkane M. Sadik R. Moubah M. Abdellaoui M. El Achaby	Hassan II University of Casablanca, Morocco Mohammed V University in Rabat, Morocco
ACTIVATION STRATEGIES TO DECORATE POROUS CARBONS FROM CRUSTACEAN SHELL	Muhammad Abbas Ahmad Zaini	Universiti Teknologi Malaysia, Malaysia
MICROPLASTICS IN FOOD SYSTEMS: DIETARY EXPOSURE AND EMERGING HEALTH RISKS IN NORTH AFRICA	Sanaa El-Jamal Houda Elfane Imane Barakat Rekia Belahsen	Chouaib Doukkali University, Morocco
EFFECT OF SHOE BASE CONTACT AREA ON HEEL PRESSURE AND FOOT PAIN IN PROLONGED STANDING OCCUPATIONS: A BIOMECHANICAL AND ERGONOMIC STUDY	Seifeslasie Asmamaw Biniyam Solomon Tamrat Tesfaye	Bahir Dar University, Ethiopia
ASSESSMENT OF COASTAL WATER QUALITY USING SATELLITE DATA FOR STRATEGIC PLANNING OF SEAWATER DESALINATION FACILITIES	Khadija Mouhim Khadija El-Moustaqim Jamal Mabrouki	Mohammed V University in Rabat, Morocco Ibn Tofail University— KENITRA- University Campus, Morocco
RECENT ADVANCED IN BIO-BASED MATERIALS SURFACE FUNCTIONALIZATION FOR THE REMOVAL OF HEAVY METALS AND DYES AND FROM WASTEWATER	Kaoutar Benbrahim Basma Zarrik El Mahdi Hbaiz	Ibn Tofail University, Morocco
PREDICTIVE MODELING OF CONVERSION AND SUSTAINABILITY METRICS IN CATALYTIC REACTIONS USING DEEP LEARNING AND FEEDFORWARD NETWORKS	Research Assistant Rafael Alexandre Pinho LOPES Prof. Dr. Henrique Antonio Mendonça FARIA	São Paulo State University, Brasil
ROUTE FOR CAOS AND CONTROL BY PYRAGAS IN A TREE VARIABLE CHEMICAL REACTION	Gabrielle Oliveira da Silva Prof. Dr. Henrique Antonio Mendonça Faria Prof. Dr. Fábio Roberto Chavarette	UNESP, Institute of Chemistry, Brazil

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: PhD Helmina Ardeleanu

TOPIC TITLE	AUTHORS	AFFILIATION
NUTRITIONAL AND TOXICOLOGICAL ASSESSMENT OF DRIED FRUITS USING ATOMIC ABSORPTION SPECTROMETRY, MOROCCO	Farida Aitlhaj Abdelkebir Bellaouchou	Mohammed V University in Rabat, Morocco
EXTRACT PLANT AS CORROSION INHIBITOR FOR CARBON STEEL IN HYDROCHLORIC ACID MEDIUM	Selmaoui Abdelmoula	University Mohammed V, Morocco
EFFECTIVENESS OF SHELL-WASTE-DERIVED NPS IN MITIGATING CARBON STEEL DEGRADATION IN WASTE SOYBEAN OIL	Omar HAFI Maha EL Hawary Hajar ROUCHDI Abdelkbir Bellaouchou	Mohammed V University in Rabat, Morocco
SURFACE CHARACTERIZATION OF Ni-CR DENTAL ALLOYS PROTECTED BY NATURAL PLANT EXTRACTS IN SIMULATED SALIVA	AHMYIANE Israe EL HAWARY Maha BOUTAKIOUT Amale BELLAOUCHOU Abdelkebir	Mohammed V University in Rabat, Morocco
INFLUENCE OF SOIL AND CLIMATIC FACTORS ON THE CHEMICAL PROFILE AND ANTIOXIDANT PROPERTIES OF SIMONASEULI WINE	Tamari Araviashvili	Iakob Gogebashvili Telavi State University, Georgia
COMPREHENSIVE SCREENING BY LC-ESI-QTOF-MS/MS FOR PROFILING OF POLYPHENOLS AND ANTIOXIDANT ACTIVITIES IN SELECTED AUSTRALIAN PLANTS	Siddiqa Ayesha Beyatli Ahmet Suleria Hafiz Hina Rasheed	The University of Melbourne, Australia Khwaja Fareed University of Engineering and Information Technology, Pakistan
EXPERIMENTAL EVALUATION OF SWIMMING PERFORMANCE AND SOCIAL BEHAVIOR IN ZEBRAFISH (DANIO RERIO) IN A DOSE-RESPONSE FRAMEWORK	PhD Viorica Rarinca PhD Student Cătălina Ionescu PhD Student Mălina Visternicu Prof. Dr. Alin Ciobica	“Alexandru Ioan Cuza” University of Iasi, Romania “Ioan Haulica” Institute, Apollonia University, Romania
STUDY OF NOBLE METAL STABILIZED MAGNETIC NANOPARTICLES FOR BIOMEDICAL APPLICATIONS	PhD Helmina Ardeleanu Maria Crinela Ardeleanu Prof.univ.habil. Dorina Emilia Creanga	“Alexandru Ioan Cuza” University of Iași, Romania
EVALUATING THE BEHAVIORAL IMPACT OF IRON OXIDE NANOPARTICLE IN A MODEL OF ALZHEIMER'S-TYPE COGNITIVE IMPAIRMENT INDUCED IN ZEBRAFISH	Crinela Ardeleanu PhD Helmina Ardeleanu CS I. PhD. habil. Alin Stelian Ciobică Prof.univ. Mircea Nicușor Nicoară	“Alexandru Ioan Cuza” University of Iași, Romania
THE ACUTE PHARMACOLOGICAL EFFECTS OF CAFFEINE AND ITS MODULATION BY N-ACETYL-CYSTEINE IN ZEBRAFISH (DANIO RERIO)	PhD Student Cătălina Ionescu PhD Student Mălina Visternicu PhD Viorica Rarinca Prof. Dr. Alin Ciobica	“Alexandru Ioan Cuza” University of Iași, Romania

16.05.2026 / ONLINE SESSION-2 / HALL-4



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12³⁰ : 14³⁰



Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Kampalli Praveen Kumar

TOPIC TITLE	AUTHORS	AFFILIATION
IMPACT OF SARS-COV-2 INFECTION ON SPERM QUALITY AND MALE REPRODUCTIVE FUNCTION: A META-ANALYSIS STUDY	Anfel ABID Yamina BELKHIRI Boutheyna BOUSLIMANI	University of Batna 2, Algeria
MAGNETICALLY SEPARABLE ACTIVATED CARBON FROM WASTE CORNCOB FOR THE EXCELLENT REMOVAL OF ARSENIC FROM WATER	Bijoylakshmi Boruah P.K. Swain	National Institute of Technology Arunachal Pradesh, India
STATISTICAL STUDY OF THE PHYSICO-CHEMICAL CHARACTERISTICS OF GROUNDWATER IN THE GHIS-NEKOR AQUIFER - MOROCCO: BY HYDROCHEMICAL ANALYSIS	Ahali Taoufik Driss khatch Nouayti Nordine Nouayti Abderrahim Ouassila Riouchi Cherif Elkhail	Abdelmalek Essaadi University, Morocco Université Mohammed 1er, Morocco Mohammed V University in Rabat, Morocco Cadi Ayyad University, Morocco Insituto Superior Technico, Portugal
ANTIBIOTICS SUSCEPTIBILITY PATTERN AND CHLORINE TOLERANCE OF GRAM-POSITIVE COCCI BACTERIA ISOLATED FROM SELECTED SWIMMING POOLS IN IBADAN NIGERIA	Elizabeth Adewumi Ajekiigbe Jesse Michael Olutayo Israel Falodun	University of Ibadan, Nigeria
STRUCTURE-BASED COMPUTATIONAL PROFILING OF RESVERATROL AGAINST THE ERCC AND XRCC DNA-REPAIR NETWORKS	Kampalli Praveen Kumar Dr. Afroz Alam Dr. Sujatha Peela	Banasthali Vidyapith, India Dr. B. R. Ambedkar University, India
ZOONOTIC RISKS ASSOCIATED WITH URBAN STRAY CAT POPULATION	Vikram Chandu V Sivassarane V	Rajiv Gandhi Institute of Veterinary, India
DENTAL PROBLEMS IN PATIENTS WITH ALZHEIMER'S DISEASE AND PARKINSON'S DISEASE DEMENTIA WITH LEWY BODIES	Maria Ciubotaru Prof. Dr. Alin Stelian Ciobica	"Alexandru Ioan Cuza" University of Iasi, Romania
EFFECTS OF TARTRAZINE EXPOSURE ON BEHAVIOR AND LOCOMOTOR ACTIVITIES IN ZEBRAFISH (DANIO RERIO)	Malina Visternicu PhD Alexandra Savuca Cătălina Ionescu PhD Viorica Rarinca Prof. Dr. Alin Ciobica	"Alexandru Ioan Cuza" University of Iasi, Romania

16.05.2026 / ONLINE SESSION-3 / HALL-1



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15 00 : 17 00



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Dr. Tuğba Turan

TOPIC TITLE	AUTHORS	AFFILIATION
AN OVERVIEW OF CHILD POVERTY IN TURKEY: AN ANALYSIS OF TÜİK DATA	Dr. Meryem GÜL Assist. Prof. Dr. Cemalettin LEVENT Assist. Prof. Dr. Ahmet USANMAZ Assist. Prof. Dr. Hüseyin DOĞAN	Ağrı İbrahim Çeçen University, Türkiye
HOW AZERBAIJAN'S LABOR INCOME STRUCTURE SHIFTED OVER 2011–2021: EVIDENCE FROM SECTORAL MULTIPLIERS AND NETWORK CENTRALITY ANALYSIS	Seyfullazadə Natiq	Azerbaijan State University of Economics, Azerbaijan
VOLATILITY DYNAMICS OF RISK TENDENCIES ACROSS DIFFERENT INVESTOR GROUPS IN TÜRKİYE	Res. Assist. Kübra KARADAĞ Prof. Dr. Mehmet Kenan TERZIOĞLU	Trakya University, Türkiye
ANALYSIS OF THE DYNAMIC DEPENDENCE STRUCTURE AMONG INVESTOR GROUPS' RISK TENDENCIES THROUGH MGARCH MODELS	Res. Assist. Kübra KARADAĞ Prof. Dr. Mehmet Kenan TERZIOĞLU	Trakya University, Türkiye
SMELLS LIKE MONETARY INTELLIGENCE: MONETARY POLICY IN THE AGE OF ARTIFICIAL INTELLIGENCE	Dr. Tuğba Turan Prof. Dr. Durmuş Çağrı Yıldırım	University of Namık Kemal, Turkey
THE DEVELOPMENT OF SUPPLEMENTARY HEALTH INSURANCE IN TÜRKİYE: DETERMINANTS OF DEMAND AND ITS EFFECTS ON THE HEALTHCARE SYSTEM	Assist. Prof. Dr. Sibel ÖLMEZ CANGİ Pınar EVSEN	Tokat Gaziosmanpaşa University, Türkiye
SOCIAL EXCLUSION AND CONSUMER CHOICES FROM A COMPENSATORY CONSUMPTION PERSPECTIVE	Lect. Dr. Nazlı TIĞLI	Van Yüzüncü Yıl University, Türkiye

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15 00 : 17 00



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Prof. Dr. İlhan EROĞLU

TOPIC TITLE	AUTHORS	AFFILIATION
THE CHANGING FACE OF DOCUMENTS IN TAX LAW: ELECTRONIC DOCUMENTS	Assoc. Prof. Dr. Yasemin TAŞKIN	İstanbul University, Türkiye
THE ROLE OF ARTIFICIAL INTELLIGENCE LITERACY FROM THE PERSPECTIVE OF OPPORTUNITIES AND THREATS	Prof. Dr. İlhan EROĞLU Ülkü SATANER	Tokat Gaziosmanpaşa University, Türkiye
THE IMPACT OF CLIMATE CHANGE ON MACROECONOMIC CONDITIONS: AN ASSESSMENT OF THE REAL AND FINANCIAL ECONOMY	Duygu YILMAZ Prof. Dr. İlhan EROĞLU	Tokat Gaziosmanpaşa University, Türkiye
COMPARISON OF PARTICIPATION BANKS AND SAVINGS FINANCE COMPANIES IN TERMS OF INTEREST-FREE HOUSING FINANCE	Prof. Dr. Erdal ARSLAN Assist. Prof. Dr. Ali BORA Selim TAŞAR	Selçuk University, Türkiye
THE ROLE OF ENERGY TAXES IN COMBATING CLIMATE CHANGE: AN ANALYSIS OF OECD COUNTRIES	Assoc. Prof. Dr. Gamze Yıldız ŞEREN Prof. Dr. Ömer ESEN	Tekirdağ Namık Kemal University, Türkiye
DATA MANAGEMENT: AN ASSESSMENT OF HEALTHCARE INSTITUTIONS	Halise EROĞLU Assoc. Prof. Dr. Murat TÜRK Prof. Dr. İlhan EROĞLU	Tokat Gaziosmanpaşa University, Türkiye
THE IMPACT OF ENVIRONMENTAL PROTECTION EXPENDITURES ON THE CARBON FOOTPRINT: EVIDENCE FROM ASYMMETRIC PANEL FOURIER ANALYSIS FOR 26 OECD COUNTRIES	Prof. Dr. Ömer ESEN	Tekirdağ Namık Kemal University, Türkiye

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Dr. Ana NEACSU

TOPIC TITLE	AUTHORS	AFFILIATION
THERMODYNAMIC INSIGHTS INTO SOME POLAR AMINO ACIDS: A CALORIMETRIC STUDY	Ana NEACSU Daniela GHEORGHE Ancuta Mihaela SOFRONIA	Institute of Physical Chemistry - Ilie Murgulescu of the Romanian Academy, Romania
GREEN SYNTHESIS OF HIGH-SURFACE-AREA ZNO USING ARGANIA PRESS-CAKE, OPTIMIZED VIA BOX-BEHNKEN DESIGN, INTEGRATED INTO CHITOSAN-CLAY BEADS FOR DYE DEGRADATION AND REGENERATED FOR Cu^{2+} PHOTOREDUCTION	Soukaina El Bourachdi Yassine Rakcho Amal Lahkimi Abdelhay El Amri Ali Raza Ayub Amal Lahkimi	Sidi Mohamed Ben Abdellah University, Morocco Cadi Ayyad University (UCA), Morocco
COMPARISON OF GC-FID AND GC-MS BIOLOGICAL ACTIVITIES USING METHANOL FRACTION OF CUMINUM CYMINUM LEAVES	Chinedu Happiness Uzoagulu	State University of Medical and Applied Science, Nigeria
SELF COMPACTING CONCRETE USING PALM KERNEL SHELL AS PARTIAL REPLACEMENT FOR COARSE AGGREGATE	LAWAL N.A. OLAOYE J.O	Federal Polytechnic Ilaro Ogun State, Nigeria
APPLICATION OF GEOMETRIC AVERAGE MODEL FOR IDENTIFYING HIGH MINERALIZATION ZONES USING GAMMA-RAY SPECTROMETRY DATA IN THE BOKE BAUXITE DISTRICT, REPUBLIC OF GUINEA	Adama SANGARE Lahsen ACHKOUCH Younesse El CHEIKH	Hassan First University of Settat, Morocco
VALORIZATION OF LEMNA GIBBA BIOMASS AS A SUSTAINABLE CORROSION INHIBITOR FOR MILD STEEL IN SULFURIC ACID SOLUTION	Farah Gourchane Maha EL Hawary Younes Kerroum Abdelkbir Bellaouchou	Mohammed V University in Rabat, Morocco
ENGINEERING AMORPHOUS ARCHITECTURES: THE COMPETING ROLES OF LITHIUM AND NIOBIUM IN NOVEL PHOSPHATE GLASSES	OUHRA Zineb Laourayed Mohamed El Hawary Maha BELLAOUCHOU Abdelkbir EL MOUDANE Mouloud	Mohammed V University in Rabat, Morocco
COMPARATIVE STUDY BETWEEN PALM KERNEL OIL SOAP AND JATROPHA OIL SOAP	Hauwa Abubakar Balarabe Kazeem Ibraheem Ajadi Abdullahi Nuraddeen Bakori	Bayero University, Kano Ahmadu Bello University, Nigeria Kaduna Polytechnic, Nigeria
PERFORMANCE EVALUATION OF HYDROTHERMALLY PREPARED Ce-DOPED SrSnO_3 FOR ELECTROCHEMICAL ENERGY STORAGE	Shahzaib Khan Soumaya Gouadria Abdullah G. Al-Sehemi Abhinav Kumar Prof. Muhammad Usman	Government College University Faisalabad, Pakistan

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HEAD OF SESSION: PhD Dragos MANEA

TOPIC TITLE	AUTHORS	AFFILIATION
CROSS-PLATFORM MODERNIZATION OF HYPERSPECTRAL IMAGING SOFTWARE FOR SKIN OXYGENATION AND MELANIN ANALYSIS	PhD Dragos MANEA	National Institute of Research and Development for Optoelectronics, Romania
ADHERENCE TO THE MEDITERRANEAN DIET IN PATIENTS UNDERGOING RENAL REPLACEMENT THERAPY IN MOROCCO	Rachida MOUSTAKIM Firdaous FRIKI Imane BARAKAT Mohamed MZIWIRA Rekia BELAHSEN	Chouaib Doukkali University, Morocco Higher Normal School of Hassan II University, Morocco
BIOENGINEERED SOLUTIONS IN THE GOLDEN HOUR: A SYSTEMATIC REVIEW OF TRAUMA NURSING PERSPECTIVES	PhD Aisha A. Ohieku	University of Abuja, Nigeria
COMPARATIVE EFFECTS OF PHONOPHORESIS WITH DICLOFENAC SODIUM VERSUS THERAPEUTIC ULTRASOUND WITH CONVENTIONAL PHYSICAL THERAPY IN KNEE OSTEOARTHRITIS	Dr. Muhammad Atif Khan	Nazeer Hussain University, Pakistan
VISUAL ARTS PEDAGOGICAL THERAPY AND STRUCTURED ENVIRONMENTAL ECOLOGY: AUTISM-FRIENDLY RESIDENTIAL MICRO-ENVIRONMENTS DURING COVID-19	Zsuzsanna Hedvig Szikora Dr. habil. Judit Forrai	Wesley Theological College, Hungary Simmelweis University, Hungary
EPIDEMIOLOGY, RISK FACTORS, CLASSIFICATION, PROGNOSTIC MARKERS, AND CURRENT THERAPEUTIC STRATEGIES FOR BREAST CANCER	Maroua RIAD Jamal MABROUKI Ahmad AL-SHAMI	Mohammed V University in Rabat, Morocco
FEATURES OF RENAL AND LUMBAR HEMODYNAMICS DURING MUSCLE CONTRACTION AND AFTER COFFEE INTAKE IN STUDENTS	Ruslan SHEVERDIN PhD Victor KAZAKEVICH	Belarusian State University, Republic of Belarus
PHYSIOLOGICAL ADAPTATIONS TO LONG-TERM APNEA TRAINING IN FREEDIVERS: MECHANISMS OF SURVIVAL AND RISK OF MALADAPTATION	Alona CHUBARYKOVA Yevdokiya RESHETNIK Olga PODPALOVA Mariia CHERNYKH Svitlana BYCHKOVA	Taras Shevchenko National University of Kyiv, Ukraine

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Assist. Prof. Dr. Seyda AYDOĞDU

TOPIC TITLE	AUTHORS	AFFILIATION
DESIGN AND MOLECULAR DOCKING ANALYSIS OF A REDOX-RESPONSIVE GLUCOSE-MITOMYCIN C CONJUGATE TARGETING GLUT1 AND GLUT3 TRANSPORTERS	Mehmet Emin Yazıcı Doğukan Çoban Sezgin Güneş Neslihan Hekim	Ondokuz Mayıs University, Türkiye
UTILIZATION OF HYDROPHOBIC DEEP EUTECTIC SOLVENT-MODIFIED MAGNETIC NANOPARTICLES FOR THE MICROEXTRACTION AND DETERMINATION OF 2,4-DICHLOROPHENOL IN WATER SAMPLES	Assist. Prof. Dr. Elif YILDIZ	Zonguldak Bülent Ecevit University, Türkiye
A DENSITY FUNCTIONAL THEORY STUDY OF THE REACTIVITY PROPERTIES AND DEGRADATION OF IMIDACLOPRID	Assist. Prof. Dr. Seyda AYDOĞDU	Yildiz Technical University, Türkiye
CORRECTION OF PILE-UP DISTORTIONS AND OPTIMIZATION OF TISSUE DIFFERENTIATION IN PHOTON-COUNTING DETECTOR SPECTRAL MAMMOGRAPHY USING NEURO-ADAPTIVE METHODS	Gunay Khasmammadova Aygün Ağhasiyeva Azizagha Aliyev Ağshin Salimzade Murad Yusifov	Azerbaijan Technical University, Azerbaijan
IMPACT OF CTAB SURFACE MODIFICATION ON CO ₂ ADSORPTION PERFORMANCE OF ZIF-7: TOWARD A HYBRID EXPERIMENTAL-COMPUTATIONAL STRATEGY	Res. Assist. Mahammadali Ayrarov	Baku Engineering University, Azerbaijan
FIELD-BASED INVESTIGATION OF WHEEL (BODEN) WEAR BEHAVIOUR IN E23000 TRAIN SETS: EFFECTS OF INITIAL OPERATION, BOGIE POSITION AND LINE CHARACTERISTICS	İbrahim Yılmaz Kadir Akif Ertan Assist. Prof. Dr. Celalettin Baykara	Sakarya University of Applied Sciences, Türkiye

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HEAD OF SESSION: Dr. Alina Amanzhol

TOPIC TITLE	AUTHORS	AFFILIATION
REPRESENTATION OF PEER BULLYING IN DIGITAL NEWS MEDIA	Assoc. Prof. Dr. Selin KİRAZ DEMİR Assist. Prof. Dr. Akın AY	Amasya University, Türkiye
FROM URBAN GHETTOS TO THE CYBER WORLD: A COMPARATIVE ANALYSIS OF THE EFFECTS OF URBAN SPACE AND NEW MEDIA USE ON INDIVIDUALS' IDENTITY FORMATION: THE CASE OF GAZİ NEIGHBORHOOD	Cem EREN	Marmara University, Türkiye
UTOPIAN SOCIALISM AND ITS IMPORTANT THINKERS	Nisanur KARACA	Karabük University, Türkiye
THE EVOLUTIONARY DEVELOPMENT OF NATO'S CRISIS MANAGEMENT APPROACH	Dr. Mehmet Kaan ÖNEM	Independent Researcher, Türkiye
CONTENT ANALYSIS OF THE WEBSITES OF COFFEE HOUSES IN KAYSERİ: GASTRONOMIC IDENTITY AND PRESENTATION STRATEGIES	Assoc. Prof. Dr. Seda DERİNALP ÇANAKÇI Zarsheda Talabovna QURBONOVA	Erciyes Üniversitesi, Türkiye
CONSTITUTIONAL CONTROL AND CONSTITUTIONAL SUPERVISION: PROBLEMS OF DIFFERENTIATION IN MODERN LEGAL DOCTRINE	Orujlu Rustam Afgan oglu	Centre of Forensic Expertise of the Ministry of Justice of the Republic of Azerbaijan, Azerbaijan

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HEAD OF SESSION: Dr. Mariana VATAMANITA

TOPIC TITLE	AUTHORS	AFFILIATION
TÜRKİYE AS AN EMERGING ENERGY HUB AND ITS ROLE IN ENERGY DIPLOMACY AND REGIONAL SECURITY IN THE SOUTH CAUCASUS AND EU CONTEXT 2002–2024	Mahammad Ahmadov	Maria Curie-Skłodowska University, Poland
ESCALATION DYNAMICS IN THE KASHMIR CONFLICT: NUCLEAR DETERRENCE, CRISIS BEHAVIOUR, AND REGIONAL INSTABILITY IN SOUTH ASIA	Deboleena Bhattacharya	Maria Curie-Skłodowska University, Poland
ETHNOCHEMISTRY AND THE SUSTAINABLE DEVELOPMENT GOALS: POSITIONING INDIGENOUS CHEMICAL KNOWLEDGE WITHIN GLOBAL SUSTAINABILITY FRAMEWORKS	Abdulkadir HALLIRU	Umaru Musa Yar'adua University, Nigeria
A STUDY OF THE FOOD SECURITY AND THE PATTERN OF CONSUMPTION OF FOOD BY RURAL WOMEN IN ASSAM: A CASE STUDY IN THAURA JAPIHOJIA VILLAGE OF SIVASAGAR, ASSAM	Dr. Saurabh Kumar Sarma	Academic Councilor IGNO University, India
THE ROLE OF PUBLIC OFFICIALS IN PREVENTING CORRUPTION PERMITS: A COMPARATIVE ANALYSIS BETWEEN THE REPUBLIC OF MOLDOVA AND EUROPE	Dr. Mariana VATAMANITA	“Constantin Stere” University, Republic of Moldova
LEGAL DELIMITATION OF FORCED MARRIAGE FROM HUMAN TRAFFICKING IN CRIMINAL LAW	Milea DIANA	“Constantin Stere” University, Republic of Moldova
EXPONENTIAL-TYPE ESTIMATORS FOR MEAN ESTIMATION UNDER COMPLETE AND PARTIAL AUXILIARY INFORMATION UNDER CIRCULAR SYSTEMATIC SAMPLING	Muhammad Irfan Kainat, Maria Javed Muhammad Ali Raza Muhammad Ali Hussain	Government College University, Pakistan NingboTech University, China
SPEED, POWER, AND SILENCE AN ANALYSIS OF JOURNALISTS' PERCEPTIONS OF THE ALBANIAN MEDIA LANDSCAPE	Dr. Irena Myzeqari	European University of Tirana, Albania

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Ahmed Osmane

TOPIC TITLE	AUTHORS	AFFILIATION
GOVERNANCE AND WATER RESILIENCE: A SYSTEMATIC REVIEW OF THE LITERATURE	Ahmed ZYAT KHALID Oussama CHAIB	Cadi ayyad University, Morocco
HEALTH AND DISEASE IMPLICATIONS OF PEARL MILLET IRRIGATED WITH TRICKLING FILTER-TREATED WASTEWATER IN SEMI-ARID NORTH AFRICA	Ahmed Osmane Khadija Zidan Moustapha Belmouden	Agadir University Ibn Zohr, Morocco Cadi Ayyad University, Morocco
ASSESSING THE NUTRITIONAL AND HEALTH OUTCOMES OF MILLET GROWN WITH TRICKLING FILTER-EFFLUENT UNDER ARID NORTH AFRICAN CONDITIONS	Ahmed Osmane Khadija Zidan Moustapha Belmouden	Agadir University Ibn Zohr, Morocco Cadi Ayyad University, Morocco
ADSORPTION OF POLYPHENOLS EXTRACTED FROM OLIVE OIL BY POZZOLAN-BASED BEADS AND SODIUM ALGINATE	Ahmed Osmane Khadija Zidan Moustapha Belmouden	Agadir University Ibn Zohr, Morocco Cadi Ayyad University, Morocco
SYNTHESIS OF POZZOLAN (AZROU-TIMAHDITE) AND SODIUM ALGINATE BEADS FOR EFFICIENT ADSORPTION OF OLIVE OIL POLYPHENOLS	Ahmed Osmane Khadija Zidan Moustapha Belmouden	Agadir University Ibn Zohr, Morocco Cadi Ayyad University, Morocco
BUSINESS ADMINISTRATION LOGISTICS	Aishwarya S	R.M.K. Engineering College, India
WHAT DRIVES PUBLIC FINANCE DEFICITS IN THE EMERGING ECONOMIES? A THEORETICAL INVESTIGATION	CHAIB Oussama ZIKY Mustapha ZYAT KHALID Ahmed	Cadi ayyad University, Morocco
VALORIZATION OF WASTE ROCKS FROM THE FORMER FRENCH MINING COMPANY OF MIBLADEN: RECOVERY OF LEAD AND BARITE	BKIRI Abderrahim	Institution: Faculty of Sciences of Kénitra

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Assist. Prof. K.R.Padma

TOPIC TITLE	AUTHORS	AFFILIATION
ANALYSIS OF PRODUCTION RESULTS OF LAYER HENS IN CONDITIONS OF ORGANIC PRODUCTION	Prof. Dr. Bratislav Pešić Prof. Dr. Nikola Stolić Prof. Dr. Nebojša Zlatković	Toplicka Academy of Vocational Studies, Serbia
EVALUATION OF FRUIT PULP SOLVENT EXTRACTS OF XIMENIA AMERICANA ON SOME PATHOGENIC BACTERIA	Aminu Idi Muhammad Aminu Umar Abdullahi Nasir	Bayero University, Nigeria Umaru Musa Yar'adua University, Nigeria
NUTRITIONAL CHARACTERIZATION OF WHEAT-UNRIPE PLANTAIN COMPOSITE COOKIES BASED ON PROXIMATE AND MINERAL ANALYSIS	Ezeofor Nebechi Jane	Federal Polytechnic, Nigeria
ADVANCING FOOD SAFETY IN ARTIFICIAL INTELLIGENCE: CURRENT PROGRESS, CHALLENGES, AND FUTURE DIRECTIONS	Babita Gupta	Integral University, India
COMPARATIVE STUDY OF MAILLARD-INDUCED CROSSLINKING IN STARCH-SOY PROTEIN SYSTEMS: EFFECT OF STARCH CONCENTRATION AND BOTANICAL ORIGIN	Vaishanvi Kanwar	I. K. Gujral Punjab Technical University, India
PRODUCTION OF POLYLACTATE FROM FRUIT, VEGETABLE WASTE, AND RICE USING DIFFERENT LACTIC ACID BACTERIA AND THEIR CONSORTIUM	Assist. Prof. K.R.Padma	Sri Padmavati Mahila Visvavidyalayam (Women's University), India
UNRAVELING SELECTIVE ADSORPTION MECHANISMS IN EUCALYPTUS CAMALDULENSIS-DERIVED GREEN NANOCOMPOSITES VIA MULTI-SCALE MOLECULAR MODELING	Fatima Charboub Abdallah Albourine Rachid Ait Akbour	Ibn Zohr University, Morocco
INNOVATIVE STRATEGIES FOR AQUATIC SAFETY ENHANCEMENT: ELIMINATION OF NOVEL POLLUTANTS WITH INTEGRATED ECOLOGICAL HAZARD ASSESSMENT	Abderrazzak Ihouaten Khadija El-Moustaqim Jamal Mabrouki	Mohammed V University in Rabat, Morocco

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Ronel S. De Guzman

TOPIC TITLE	AUTHORS	AFFILIATION
REVISITING SPUTTERING PHYSICS: PERSPECTIVE ON THIN FILM PRECISION ENGINEERING	BOUAZZA Abdelkader	University of Tiaret, Algeria
NUMERICAL MODELING OF TRIBOLOGICAL BEHAVIOR OF FILLED POLYMER UNDER DRY SLIDING CONDITIONS	TELDJOUN Mohamed OUALI Mohammed	Khemis Miliana University, Algeria
INFLUENCE OF MECHANICAL PROPERTIES ON THE STRUCTURAL BEHAVIOR FACTOR OF REINFORCED CONCRETE BEAMS	Mohammed OUALI Mahfoud TOUHARI Mohamed TELDJOUN	Khemis Miliana University, Algeria Hassiba Benbouali University of Chlef, Algeria
PRELIMINARY SURVEY OF INSECTS OF CASHEW (<i>Anacardium occidentale</i> L.) IN PRMSU SAN MARCELINO, ZAMBALES, PHILIPPINES	Daisy C. Dalit Rico L. Piga Kimberly Ann S. Domingo	President Ramon Magsaysay State University, Philippines
PRELIMINARY SURVEY OF INSECTS ASSOCIATED WITH DRAGON FRUIT (<i>Hylocereus undatus</i>) IN SELECTED FARMS IN ZAMBALES, PHILIPPINES	Alyssa P. Balaoing Kimberly Ann S. Domingo	President Ramon Magsaysay State University, Philippines
PERFORMANCE OF SNAPBEANS (<i>Phaseolus vulgaris</i> L.) APPLIED WITH MYCORRHIZAE AND VARYING LEVELS OF FULVIC ACID	Ronel S. De Guzman Justine Gabriel H. Coronel Maybelyn P. Dumlao	President Ramon Magsaysay State University, Philippines
NAPHTHALENE ACETIC ACID (NAA) AND FERMENTED AZOLLA EXTRACT SUPPLEMENTATION IN HYDROPONICALLY GROWN CELERY (<i>Apium graveolens</i> L.)	Ronel S. De Guzman Reinz E. Grimaldo Joyce Ann C. Revasto	President Ramon Magsaysay State University, Philippines
NANO-ENCAPSULATED MANGOSTEEN PEEL: AN ECONOMIC EVALUATION OF ITS USE AS A PHYTOGENIC ADDITIVE IN APEC-INFECTED BROILERS	Ristina Siti Sundari Andri Kusmayadi	Universitas Perjuangan Tasikmalaya, Indonesia

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12³⁰ : 14³⁰



Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Assoc. Prof. Dr. Zeynep Sağır

TOPIC TITLE	AUTHORS	AFFILIATION
ARTIFICIAL INTELLIGENCE AND NURSING: YESTERDAY, TODAY, AND TOMORROW	Haticekbra İLTER Assoc. Prof. Dr. Fatma TOK YILDIZ	Sivas Cumhuriyet University, Trkiye
INCREASE IN SMOKING ADDICTION AFTER THE EARTHQUAKE: AN EXAMINATION OF ADDICTION BEHAVIORS AMONG EARTHQUAKE SURVIVORS IN MALATYA	Assoc. Prof. Dr. Zeynep Sağır Fatih Baysal Hilal Akçay Muhammed Hasan Baki	Malatya Turgut zal University, Trkiye
A QUALITATIVE STUDY ON THE FUTURE ANXIETY OF UNAPPOINTED TEACHERS	Assoc. Prof. Dr. Zeynep Sağır Efsa YCEL	Malatya Turgut zal University, Trkiye
EVALUATION OF THE RELATIONSHIP BETWEEN STRESS STATUS AND NUTRITION HABITS OF STUDENTS PREPARING FOR THE MEDICAL SPECIALIZATION EXAM	Esma TAŞ Assist. Prof. Dr. Derya Dursun SAYDAM	Halic University, Trkiye Istanbul Yeni Yzyıl University, Trkiye
PHYSIOLOGICAL EFFECTS OF HIGH-ALTITUDE EXERCISES ON THE ORGANISM	Murat AYDIN Yeliz PEHLİVAN	İstanbul Health Sciences University, Trkiye
THE EFFECT OF TRAINING USING VIRTUAL REALITY (VR) TECHNOLOGIES ON SPORTS PERFORMANCE	Beyzanur BAL Yeliz PEHLİVAN	İstanbul Health Sciences University, Trkiye
EVALUATION OF PSYCHOLOGICAL FOOD AND SOCIAL MEDIA ADDICTIONS AMONG UNIVERSITY STAFF	Meryem Gzde KOÇAK Prof. Dr. Vugar Ali TRKSOY	Yozgat Bozok University, Trkiye
ANESTHESIA MANAGEMENT DURING THE PERIOPERATIVE PERIOD IN TWO CASES DIAGNOSED WITH ROCURONIUM ALLERGY	Dr. Serap Karakaş Dr. Niyazi Şafak Arslan Assoc. Prof. Dr. Sedat Saylan Assoc. Prof. Dr. Ali Akdoğan	Karadeniz Technical University, Trkiye

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Zoom Meeting ID: 844 6001 0824

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HEAD OF SESSION: Assist. Prof. Dr. Nazan KORUCUK

TOPIC TITLE	AUTHORS	AFFILIATION
EVALUATION OF OECD MEMBER COUNTRIES BASED ON ECONOMIC INDICATORS USING MULTIDIMENSIONAL SCALING ANALYSIS	Aylin ALKAYA Emine ÇİÇEK Tuğba DEĞERLİ	Nevşehir Hacı Bektaş Veli University, Türkiye
A COMPARATIVE ASSESSMENT OF OECD MEMBER COUNTRIES ACCORDING TO THE SOCIOECONOMIC INDICATORS USING CLUSTER ANALYSIS	Aylin ALKAYA Emre ÖZBAY Halil YAVUZ Yiğit Arslan ERTUNA	Nevşehir Hacı Bektaş Veli University, Türkiye
SOCIAL STATE PRACTICES IN THE DIGITAL AGE: DIGITALIZATION OF PUBLIC SERVICES	Lect. Yeliz BULUT Lect. Sibel DUYGULU	Yozgat Bozok University, Türkiye
THE RELATIONSHIP BETWEEN DIGITALIZATION AND TECHNOLOGY ADDICTION: A COMPARATIVE ANALYSIS ON CHILDREN IN TURKEY	Lect. Sibel DUYGULU Lect. Yeliz BULUT	Yozgat Bozok University, Türkiye
FUZZY TOPSIS-BASED PRIORITISATION OF DIGITAL TRANSFORMATION PROJECTS IN PARTICIPATION BANKING: A MULTI-CRITERIA DECISION ANALYSIS UNDER UNCERTAINTY	Mahmut Emin SARIKAYA Dogan SENGUL	İstanbul Sabahattin Zaim University, Türkiye
FUZZY SERVQUAL BENCHMARKING OF TURKISH TELECOMMUNICATIONS OPERATORS: IMPLICATIONS FOR THE COST OF POOR QUALITY AND CUSTOMER RETENTION	Mahmut Emin SARIKAYA Feyza KULE Dogan SENGUL	İstanbul Sabahattin Zaim University, Türkiye
VISIBLE FACIAL DIFFERENCE, STIGMA, AND DISCRIMINATION: A REVIEW FROM A SOCIAL WORK PERSPECTIVE	Lect. Elvan ULUCAN ÖZKAN	Çankırı Karatekin University, Türkiye
THE IMPLICATIONS OF ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN-BASED SMART SUPPLY CHAINS ON PHARMACEUTICAL MARKETING	Assist. Prof. Dr. Ömer CENGİZ Assist. Prof. Dr. Nazan KORUCUK	Kafkas University, Türkiye

17.05.2026 / ONLINE SESSION-2 / HALL-3



Ankara Local Time

12³⁰ : 14³⁰



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Dorothée Tchada

TOPIC TITLE	AUTHORS	AFFILIATION
GRAMMATICAL COHESION IN DESCRIPTIONS AND CONVERSATIONS OF TWO SELECTED EXCERPTS FROM CHARLES DICKENS'S GREAT EXPECTATIONS	Dorothée Tchada	University of Abomey-Calavi, Benin Republic
THE DEVELOPMENT OF COMMUNICATION SKILLS THROUGH INTERACTIVE ENGLISH LANGUAGE CLASSES AT A NON-LANGUAGE UNIVERSITY	Assel KASSYMOVA	S.Seifullin Kazakh Agro Technical Research University, Kazakhstan
LOOKING BACK TO INDIA: A LIGHT ON A. K. RAMANUJAN'S POETRY	Jaheda Sharmin Urmi	Metropolitan University, Sylhet, Bangladesh
PERCEPTION AND USE OF DRONE TECHNOLOGY IN NEWS GATHERING AND REPORTING IN NIGERIA	Saidu Abdulrahman Anas Saleh Muhammed Sani Babakatun	Abdu-Gusau Polytechnic Talata Mafara, Nigeria
APPLICATIONS OF TRANSFORMATION SEMIGROUPS IN REAL-WORLD SYSTEMS	Aviram Panda Mosarof Sarkar	C.V. Raman Global University, India

17.05.2026 / ONLINE SESSION-2 / HALL-4



Ankara Local Time

12³⁰ : 14³⁰



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Melik Sami

TOPIC TITLE	AUTHORS	AFFILIATION
APPLICATION OF DAYLIGHTING STRATEGIES IN THE DESIGN OF AN ARCHITECTURAL CRAFT LABORATORY FOR THE SCHOOL OF ARCHITECTURE, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA.	Atanu Ojoajogwu Josiah Dr. Lateef Ademola Lawal	Federal University of Technology, Nigeria
URBAN PLANNING AND ARCHITECTURAL REGULATIONS FOR THE IMPROVEMENT OF INDOOR AIR QUALITY IN BOMU, EGBEMA AND OBITE OIL-PRODUCING COMMUNITIES TO MITIGATE THE POLLUTION CAUSED BY GAS FLARING IN RIVERS STATE, NIGERIA	Amira Abdul-Azeez	Ahmadu Bello University, Nigeria
FROM CURVES TO STRUCTURES: MATHEMATICAL MODELING OF FREE-FORM ARCHITECTURE THROUGH DIFFERENTIAL GEOMETRY	Melik Sami Khelil Sara Tallal Abdel Karim Bouzir	Mohamed Khider Biskra University, Algeria
VORONOI DIAGRAMS AND HUMAN BEHAVIOR: SPATIAL CONFIGURATION AND MOVEMENT PATTERNS IN ARCHITECTURE	Melik Sami Khelil Sara Tallal Abdel Karim Bouzir	Mohamed Khider Biskra University, Algeria
PROPORTION AS A DESIGN LANGUAGE: MATHEMATICAL FRAMEWORKS IN CLASSICAL AND CONTEMPORARY ARCHITECTURE	Melik Sami Khelil Sara Tallal Abdel Karim Bouzir	Mohamed Khider Biskra University, Algeria
MATHEMATICAL FOUNDATIONS OF GENERATIVE ARCHITECTURE: MORPHOGENESIS THROUGH RULE-BASED GEOMETRY	Melik Sami Khelil Sara Tallal Abdel Karim Bouzir	Mohamed Khider Biskra University, Algeria
MORTALITY IN PATIENTS WITH INTRACEREBRAL HEMORRHAGE	Assoc. Prof. Dr Afsheen Mahmood	Khyber Girls Medical College, Pakistan

17.05.2026 / ONLINE SESSION-2 / HALL-5



Ankara Local Time

12³⁰ : 14³⁰



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Assoc. Prof. Dr. Zubia Shah

TOPIC TITLE	AUTHORS	AFFILIATION
MICROBIAL CONTAMINATION AND ANTIBIOTIC RESISTANCE IN SOLID WASTE DUMPING SITES: IMPLICATIONS FOR ENVIRONMENTAL AND PUBLIC HEALTH	Dr. Akshay Chandra Deka Mr. Bikash Bania Mr. Nitul Ali Dr. Deep Prasad Panika	Regional College of Health Sciences, India Rangia College, India Nilachal College of Allied Health Sciences, India
ASSOCIATION OF SMARTPHONE USE DURING MEALS AND STUDY TIME WITH ATTENTION SPAN, EATING BEHAVIOR, SLEEP QUALITY, AND ACADEMIC PERFORMANCE IN SCHOOL- GOING CHILDREN	Km Tanu Chandra Dr. Digvijay Sharma Dr. Adarsh Kumar Srivastav	Chhatrapati Shahu Ji Maharaj University (CSJMU), India
HARNESSING ARTIFICIAL INTELLIGENCE FOR PREDICTIVE ANTIMICROBIAL STEWARDSHIP AND ACCELERATED ANTIBIOTIC DISCOVERY: A MULTI-OMIC INTEGRATION FRAMEWORK	Fares Khermouche Faycal mokhtari Samir Laib Djamel Eddine Merad	University of Batna, Algeria
PROTECTIVE EFFECTS OF SOME BIOACTIVE COMPOUNDS NEUROPATHY	Pooja Rasal Gaurav Kasar	JES's SND College of Pharmacy, India Divine College of Pharmacy, India
THE USE OF AI IN HEALTHCARE: EFFICIENCY AND COMPASSION	Rafee'ah Omowunmi Aare Azeez Abeeb Adekunle	University of Ibadan, Nigeria Emanuel Alayande University of Education, Nigeria
INFLUENCE OF STRUCTURED MODERATE EXERCISE ON OXIDATIVE STRESS BIOMARKERS IN PREDIABETES	Assoc. Prof. Dr. Zubia Shah	Khyber Girls Medical College, Pakistan
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HEART RATE VARIABILITY IN ELITE FOOTBALL: AN INTEGRATED APPROACH TO MONITORING TRAINING LOAD, RECOVERY, AND COMPETITIVE READINESS	Samir Essafi	Hassan First University of Settat, Morocco

17.05.2026 / ONLINE SESSION-2 / HALL-6



Ankara Local Time

12³⁰ : 14³⁰



Zoom Meeting ID: 844 6001 0824

Passcode: 151617

HEAD OF SESSION: Dr. Desi SIANIPAR

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FAMILY WORSHIP AS A SPIRITUAL BULWARK AGAINST BRAIN ROT: A CONCEPTUAL STUDY IN CHRISTIAN RELIGIOUS EDUCATION	Dr. Desi SIANIPAR Sozanolo TELAUMBANUA	Universitas Kristen Indonesia, Indonesia
RELIGION-BASED COOPERATIVES: INTEGRATING PROPHETIC VALUES, SOCIAL CAPITAL, AND COOPERATIVE EDUCATION	Dinn Wahyudin Trida Gunadi Nanang Sobarna	Ikopin University in Bandung, Indonesia
REGULATORY COMPLIANCE IN MEXICAN SMES: THE INTERPLAY BETWEEN REGULATORY BURDEN AND COMPLIANCE CULTURE	Alejandra Montes Sotelo Yazmin Isolda Álvarez García	Universidad Juárez Autónoma de Tabasco, Mehico
DEVELOPING CRITICAL THINKING OF EFL STUDENTS USING LLMs IN HIGHER EDUCATION	Natalia Petiy Olha Kishko Tetiana Pochepetska	Uzhhorod National University, Ukraine
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APPLICATIONS OF AGRICULTURAL AUTOMATION AND ROBOTICS FOR IMPROVING FARM DECISION-MAKING AND RESOURCE USE EFFICIENCY	Fahad Amjad Muhammad Zain Faiqa Abid	The Islamia University of Bahawalpur, Pakistan

PHOTO GALLERY



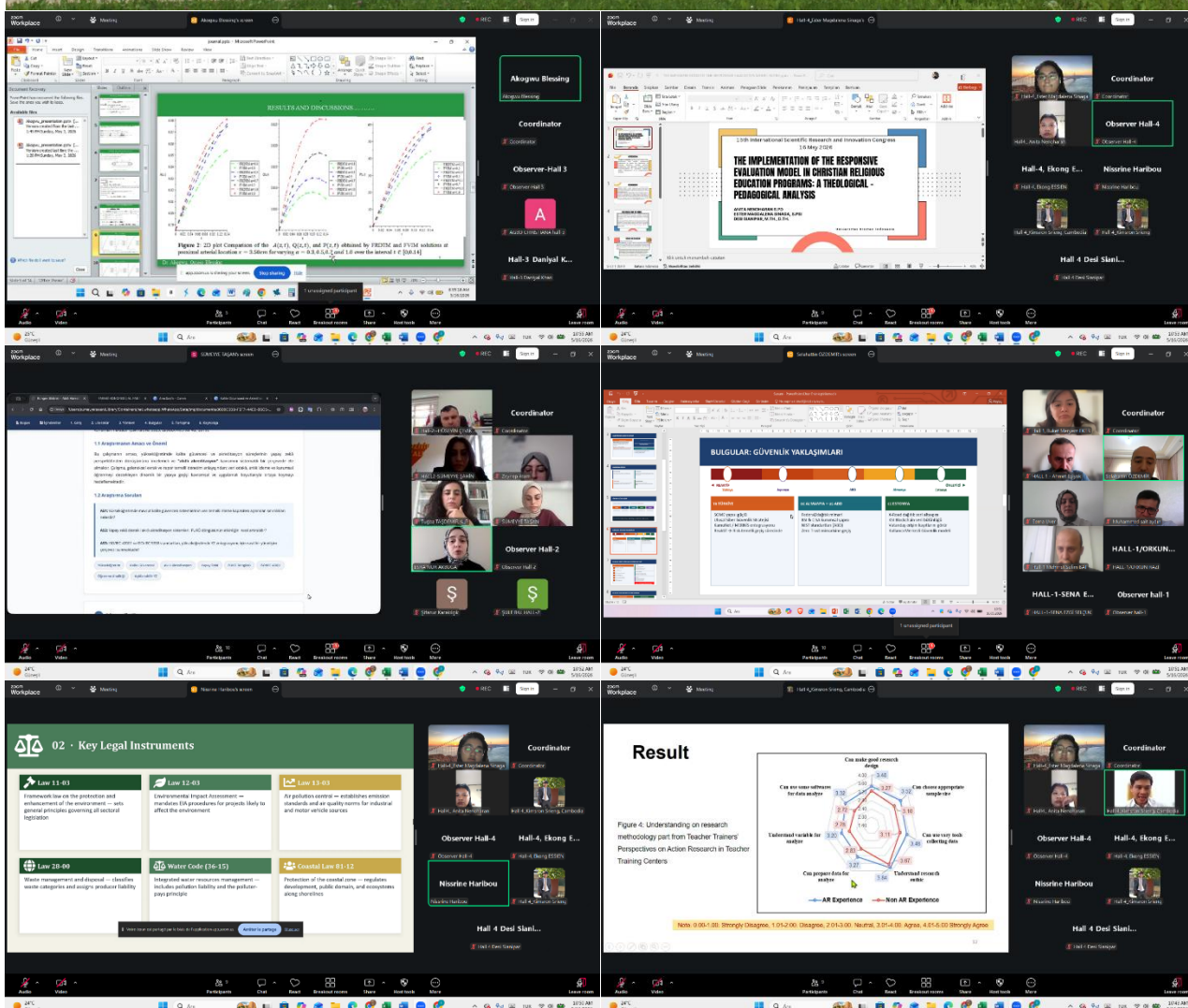












Limitations & Future Work

UV-VIS Spectra Analysis

The absorption band edge of pure SnO_2 occurs at 330nm and a shift towards longer wavelength region when doping concentration increase from 2% to 4%.

The observed absorbance behaviour could be the consequence of changes in the unmeasured band density, brought by Ag doping which could neither alter the localized surface density within the bandgap.

Decrease in band gap with higher concentration of Ag as calculated from Tauc plot.

AMSARC Coordinator
Observer hall-1
Hall-1 SENA E...
Hall-1 Mehmet...
Hall-1 Mehmet...

Result

AR Experience 44 teacher trainers
Non AR Experience 30 teacher trainers

Indicators	Mean	Correlation (r)	P-Value
Number of Doing AR	1.10	0.297	0.010
Self-Rating Knowledge on AR	4.85	0.556	0.000

P-Value < 0.05 and r = 0.297 meaning they have weak correlation

Indicators	Mean	Correlation (r)	P-Value
confident to supervise students	42.45	0.556	0.000
Self-Rating Knowledge on AR	4.85	0.556	0.000

P-Value < 0.01 and r = 0.556 meaning they have moderate correlation

Coordinator
Observer Hall-4
Observer Hall-4
Nisrin Harbous
Hall 4 Dedi Sian...

UV-VIS Spectra Analysis

The absorption band edge of pure SnO_2 occurs at 330nm and a shift towards longer wavelength region when doping concentration increase from 2% to 4%.

The observed absorbance behaviour could be the consequence of changes in the unmeasured band density, brought by Ag doping which could neither alter the localized surface density within the bandgap.

Decrease in band gap with higher concentration of Ag as calculated from Tauc plot.

AMSARC Coordinator
Observer Hall-3
Hall-3 Daniyal K...

Üniten Testi

Coordinator
Observer Hall-4
Observer Hall-4
Nisrin Harbous
Hall 4 Dedi Sian...

TOKAT GAZİOSMANPAŞA ÜNİVERSİTESİ

AL FARABI 15. ULUSLARARASI BİLİMSEL ARAŞTIRMALAR VE İNOVASYON KONGRESİ

SULU SOKAK'TA YENİ YAPILAR: TOKAT ŞEHİR MÜZESİ VE MÜZE KAFE

NEW BUILDINGS IN SULU STREET: TOKAT CITY MUSEUM AND MUSEUM CAFE

Ahmet Can DÜRMÄZER, TOĞU
Doç. Dr. Aygün KALINBAĞRAK ERCAN, TOĞU

15/05/2026

Hall-1 Betül Can

AL FARABI 15th INTERNATIONAL SCIENTIFIC RESEARCH AND INNOVATION CONGRESS

TYPOLICAL READABILITY AND SPATIAL MEMORY IN THE PROCESS OF ADAPTIVE REUSE: THE CASE OF THE ORHAN GAZI BAZI IN THE BÜŞA KİRAŞI DISTRICT

ADAPTE YENİDEN KULLANIM SÜRECİNDE TYPOLİK OKUNURLUK VE MEKANSLI BELLEK: BÜŞA HANLAR BÖLGESİNDEKİ ORHAN GAZI HAMAMI ÖRNEĞİ

Dr. M. Faik AYDIN
MAYIS 2026

mahsa shaghag... Hall1 farzaneh...

Observer hall-1

mahsa shaghag... Hall1 farzaneh...

Observer hall-1

HALL-1, Gülsen...

Sonuç ve Klinik Mesajlar

Ana çıkarımlar

Ortodontik tedavi farklı anatomik bölgeye farklı cerrahi planlar gerektirir.
Maksiller posterior tepeylerde sınırsız, nazal taban ve inframaxilla fossa kompozitliği önemlidir.
Mandibula anterior tepeylerde diş yüksekliği, kemik defekt boyutu ve primer kasama planlaması belirleyicidir.
Endikasyon, uygun seçilmiş olgularla etkili bir tedavi uygulanabilir.
Hüsnüpatoloji değerlendirilme ve doğru takip önemlidir.

Teşekkür ederim

Observer hall-1
HALL-1, Gülsen...

Observer Hall-2

Zuhal Tülüce

Observer Hall-2

ÇEVRE DOSTU CAM SUYU FORMÜLASYON TASARIMI
FORMULATION AND EVALUATION OF A
BIODEGRADABLE WINDSHIELD WASHER
ANTIFREEZE

Sevda Atar¹, Sena Egi Selçuk¹, Kübra Vatansever¹, Semih Koç¹

¹Penel Ofisi A.Ş., Penel Ofisi Technology Center (POTEM), Kocaeli, Turkey

15 AL FARABI INTERNATIONAL SCIENTIFIC RESEARCH AND INNOVATION CONGRESS
16 MAY 2024

Observer hall-1

CHARACTERIZATION OF GREEN-SYNTHESIZED COPPER NANOPARTICLES USING KALE (BRASSICA OLERACEA L. VAR. ACEPHALA) EXTRACT AND INVESTIGATION OF THEIR ELECTROSTATIC INTERACTIONS WITH DNA

KARALAHAN, BRASSICA OLERACEA L. VAR. ACEPHALA EXTRACTI İLE LAMİNARAK YERİŞİRENTZ METOTUYLA ELDE EDİLEN BAKIR NANOPARTİKÜLLERİNİN KARAKTERİZASYONU VE DNA İLE ELEKTROSTATİK ETKİLEŞİMLERİNİN İNCELENMESİ

15 AL FARABI INTERNATIONAL SCIENTIFIC RESEARCH AND INNOVATION CONGRESS

Observer hall-1

TÜRKİYE'DE FARKLI YATIRIMCI GRUPLARININ RİSK EĞİLİMLERİNİN VOLATİLİTE DİNAMİKLERİ

Farklı Yatırımcı Gruplarının Şoklara, Volatiliteye ve Belirsizliğe Verdiği Tepkilerin Ekonometrik Profili (2010-2020)

AMAÇ VE BİLGİLENDİRME:

- Bu çalışma, Türkiye sermaye piyasalarında farklı yatırımcı gruplarının risk eğilimlerinin volatilité dinamiklerini incelemektedir.
- Aynı piyasa şokları karşısında yatırımcı grupları benzer mi, yoksa farklı volatilité, kalıcılık ve asimetriyi yapıları mı sergilemektedir?
- Analiz, REKS serilerinde çok kalıcılığı, asimetrik tepki, uzun hafıza ve kalın kuyruk özelliklerini GARCH tipi modellerle karşılamaktadır.

High volatility
Low volatility
Critical Threshold

Observer Hall-2

Hall-2, Rafael Al...

K.MOUHIM

Observer Hall-2

Observer hall-1

HALL-1/ORKUN...

Observer hall-1

İklim Değişikliğinin Bağcılık Üzerine Etkileri

Ziraat Mühendisi: Kaniyar SÖMEZ
Doç. Dr. Mehmet Settar ÜNAL

Observer Hall-2

Observer-Hall 3

Discipline : Chemistry

Laboratory of Materials, Nanotechnologies and Environment (LMNE)

METHODS FOR THE DETECTION OF TRACE METALLIC ELEMENTS IN DRIED FRUITS AND NUTS

Presented by: Farida AIT LHAJ

Observer hall-1

AL-FARABI 15TH INTERNATIONAL SCIENTIFIC RESEARCH AND INNOVATION CONGRESS

FOTON SAYAN DETEKTORLU SPECTRAL MAMMOGRAFIYADA PILE-UP TƏHRİFLƏRİNİN NEYRO-ADAPTİV METODLARLA KORREKSIYASI VƏ TOXUMA DİFERENSIYASIYININ OPTİMALLAŞDIRILMASI

GÜNAY XASMƏMMƏDOVA - ELMİ RƏHBƏR
AYGÜN AGASIYEVA
ƏZİZƏGƏ ƏLİYEV
AQSİN SƏLİMƏDƏ
MURAD YUSİFOV

Observer hall-1

yeliz

Observer Hall-3

Saidu AbdulRah...

Observer Hall-6

session2 Hall 6 s...

Fahad Amjad

Sozanolo

Observer hall-1

YAPAY ZEKA VE HEMŞİRELİK; DÜN, BUGÜN VE YARIN

HATİCEKUBRİ İLTER
DOÇ. DR. FATMA TOK YILDIZ

Observer hall-1

AL-FARABI 15TH INTERNATIONAL SCIENTIFIC RESEARCH AND INNOVATION CONGRESS
May 15-17, 2024 | Sakar, Türkiye | Sakar Gaziemirpaşa Kampüsü

EVALUATION OF THE RELATIONSHIP BETWEEN STRESS STATUS AND NUTRITION ATTITUDES OF STUDENTS PREPARING FOR THE MEDICAL SPECIALIZATION EXAM

Dr. HATİCE KUBRİ İLTER
Department of Nutrition and Dietetics, Faculty of Health Sciences, Sakar University
Hattice Kubri Ilder

Observer Hall-6

H6S1 Maybelyn...

Observer Hall-4

Nissrine Haribou

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İNDÜKSİYON ISITMA SİSTEMLERİNDE KAOS TABANLI TETİKLEME SİNYALLERİNİN İNCELENMESİ

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Özet

İndüksiyon ısıtma sistemlerinde evirici anahtarlarının tetikleme sinyali, anahtarlama kayıpları, elektromanyetik girişim (EMI), akım harmonikleri ve dolaylı olarak ısı kararlılık üzerinde belirleyici rol oynar. Klasik sabit frekanslı PWM stratejileri, dar bantlı spektral çizgiler nedeniyle özellikle iletilen EMI ve akustik gürültü açısından istenmeyen tepe bileşenler üretebilir. Bu bildiride, indüksiyon ısıtma eviricilerinde tetikleme işaretinin kaos tabanlı biçimde üretilmesinin olası avantajları, Sprot D kaotik sistemi kullanılarak incelenmiştir. Önerilen yaklaşımda Sprot D dinamiklerinden elde edilen kaotik zaman serisi, (i) anahtarlama frekansının küçük sapmalarla yayılımı (chaotic frequency dithering) ve/veya (ii) görev oranının kaotik modülasyonu amacıyla normalize edilerek PWM üretim zincirine entegre edilmektedir. Böylece anahtarlama spektrumunun yayılması, belirgin harmonik tepe değerlerinin bastırılması ve evirici akımındaki dalgalanmanın kontrol altında tutulması hedeflenmektedir. Çalışmada, klasik PWM ile kaos tabanlı tetikleme stratejileri; spektral yayılım, toplam harmonik bozunum (THD) eğilimi ve evirici akım zarfı gibi metrikler üzerinden karşılaştırmalı olarak ele alınacaktır. Elde edilecek sonuçların, özellikle düşük maliyetli mikrodenetleyici tabanlı indüksiyon ısıtma sistemlerinde EMI yönetimine katkı sunması beklenmektedir.

Anahtar Kelimeler: İndüksiyon ısıtma, kaotik PWM, Sprot D.

INVESTIGATION OF CHAOS-BASED GATE TRIGGER SIGNALS IN INDUCTION HEATING SYSTEMS

Abstract

In induction heating systems, inverter gate triggering signals strongly affect switching losses, electromagnetic interference (EMI), current harmonics, and consequently thermal stability. Conventional fixed-frequency PWM strategies may generate narrowband spectral lines, which can lead to undesirable EMI peaks and audible noise. This paper investigates the potential benefits of chaos-based triggering for induction heating inverters by employing the Sprot D chaotic system. In the proposed approach, a chaotic time series derived from Sprot D dynamics is normalized and integrated into the PWM generation chain to implement (i) chaotic switching-frequency dithering and/or (ii) chaotic duty-ratio modulation. The main objective is to spread the switching spectrum, suppress dominant harmonic peaks, and maintain the inverter current ripple within acceptable limits. The study comparatively analyzes conventional PWM and chaos-based triggering strategies using metrics such as spectral spreading characteristics, trends in total harmonic distortion (THD), and the envelope behavior of inverter current. The expected outcome is an improved EMI profile without sacrificing controllability, particularly for low-cost microcontroller-based induction heating platforms where practical EMI mitigation options are limited.

Keywords: Induction heating, chaotic PWM, Sprot D.

DESULFATOR DEVICE DESIGN AND SIMULATION FOR DEAD BATTERIES

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Abstract

This study presents the design and simulation of a desulfator device intended to mitigate sulfation in lead-acid batteries. Sulfation, which occurs due to prolonged use, deep discharge, and improper charging conditions, leads to increased internal resistance, reduced capacity, and shortened battery lifespan. Recent research indicates that short-duration; high-energy electrical pulses can effectively break down lead sulfate crystals formed on battery plates. Based on this principle, a desulfator circuit utilizing the LM555 timer integrated circuit was designed and analysed using NI Multisim simulation software. The proposed circuit operates on switched-mode power electronics principles, generating high-frequency, short-duration pulses applied to the battery terminals through inductive components. Simulation results demonstrate stable circuit operation and the generation of appropriate pulse characteristics suitable for desulfation applications. The findings suggest that the proposed design offers a low-cost and practical solution for improving the performance of sulfated lead-acid batteries. Future work will focus on experimental validation through hardware implementation and testing on batteries with varying conditions.

Keywords: Lead-acid batteries, Sulfation, Desulfator device, Multisim simulation

**DESIGN AND CONTROL OF A VERTICAL AXIS WIND TURBINE BASED ENERGY SYSTEM
USING A BOOST CONVERTER**

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Abstract

With the increasing demand for renewable energy sources, wind turbines and wind energy systems have emerged as a significant area of research. In this study, a power electronics converter system is proposed and designed to rectify and boost the low-level alternating voltage obtained from a vertical axis wind turbine model. The proposed system consists of a wind turbine, a permanent magnet synchronous generator, a three-phase bridge rectifier, a DC-DC boost converter, a battery model and an automatic control unit. The proposed systems aim to charge batteries with the regulated DC voltage. Simulation studies are carried out using MATLAB/Simulink software environment. The system performance is analysed under different wind speed conditions. In addition, a maximum power point tracking (MPPT) algorithm and proportional integrated derivative (PID) based control method are implemented to ensure maximum power extraction and stable output voltage. The obtained results demonstrate that low-level input voltages can be successfully boosted and the system operates stably under variable operating conditions. In a future work aimed to verify the simulation results experimentally for real wind turbine and wind speeds.

Keywords: Wind energy, Vertical axis turbine, Boost converter, PID control, MPPT control

ELIMINATING HYSTERESIS EFFECT in DOMESTIC OVENS: DATA DRIVEN SYSTEM ESTIMATION and OVERSHOOT CONSTRAINED ABC-PID CONTROLLER DESIGN**Hakkı YELER**

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Abstract

Traditional ON/OFF thermostat controllers, commonly used in household ovens, cause continuous oscillations and unwanted overshoots around the reference temperature due to the high thermal inertia and heat transfer delays of the system. This increases energy consumption while reducing cooking quality and thermal stability. In this study, to overcome these problems, a system identification based on real sensor data was performed, and a robust PID temperature controller optimized with metaheuristic algorithms was designed. In the first stage, the First Order Plus Dead Time (FOPDT) mathematical transfer function of the oven was obtained using open-loop heating data collected with an external thermocouple. The calculated model ($K = 1.854$, $\tau = 406.5$ s, $\theta = 130$ s) has been proven to represent the real furnace dynamics with high accuracy, with an 80.94% agreement and a coefficient of determination of $R^2 = 0.9637$ based on NRMSE. In the second stage, the Artificial Bee Colony (ABC) algorithm was used to compensate for the high dead time disadvantage of the system and to achieve the zero-overshoot objective. The algorithm was run in 20 independent runs according to literature standards with an objective function that includes time-weighted absolute error integral (ITAE) and strict overshoot penalty. As a result of optimization, statistically consistent global optimum PID coefficients ($K_p = 1.3110$, $K_i = 0.0029$, $K_d = 60.9640$) were determined. The results show that the ABC-based controller completely eliminates ON/OFF hysteresis fluctuations and the system settles with stable damping with 0% overshoot to the reference value. This study provides a strong theoretical foundation for the hardware implementation of high-precision digital temperature control strategies in smart home appliances.

Keywords: System Estimation, FOPDT, PID Optimization, Artificial Bee Colony Algorithm, Temperature Control.

**ROBUST TEMPERATURE CONTROL OF A DOMESTIC TURKISH COFFEE MACHINE
UNDER VARYING THERMAL LOADS USING A PSO-TUNED PI CONTROLLER**

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Abstract

This study presents the design and simulation of a robust temperature control system for a domestic Turkish Coffee machine. Changes in water volume in coffee machines significantly alter thermal inertia, making controller design challenging. To model this parametric uncertainty, water temperature data at full load for four different water levels in a 4-cup capacity home coffee machine were experimentally collected. System characterization techniques were used based on the collected experimental data. First-Order Dead Time (FOPDT) models were obtained where the time constant varied between 68 and 232 seconds for each cup. High accuracy rates were achieved with real data during the modeling phase: 90.20% for 1 cup, 92.27% for 2 cups, 96.11% for 3 cups, and 93.53% for 4 cups. To ensure stable operation without temperature overshoot across all thermal masses, the coefficients of the PI controller were determined using Particle Swarm Optimization (PSO). The fixed cost value of 522.76, obtained with a standard deviation of 0.0013 from 20 independent runs of the algorithm, proves that the solution has reached the global optimum. As a result of the optimization, the robust controller coefficients were determined as $K_p=50.0$ and $K_i=0.505$. The simulation results showed that the designed controller managed to keep the maximum overshoot value below the 2% limit, regardless of the water volume, and achieved high steady-state accuracy.

Keywords: Robust Control, Particle Swarm Optimization, System Identification, Thermal Modeling, PI Controller

EVALUATION OF THE MECHANICAL PERFORMANCE OF POLYPROPYLENE AND POLYETHYLENE MATERIALS USED IN ORTHOSIS AND PROSTHETIC PRODUCTION

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Abstract

One of the additive manufacturing technologies, fused deposition modeling (FDM), is gaining increasing attention in orthopedic applications due to its ability to produce polymer-based parts with complex geometries and customized designs. In this study, polypropylene (PP) and polyethylene (PE) sheet materials commonly used in orthosis and prosthetic components production were taken as reference materials, and the tensile and flexural behavior of specimens with varying thicknesses was experimentally investigated. Additionally, PP and carbon fiber reinforced polypropylene (PP-CF) materials were produced using the FDM method, and their mechanical performance was compared with other samples in sheet form.

Experimental results indicated that tensile strength and elongation at break increased with specimen thickness in PE samples. In contrast, a decreasing trend in tensile strength was observed in PP sheet specimens as thickness increased. Flexural tests revealed that increasing thickness significantly enhanced the flexural load capacity in both PE and PP specimens. While the FDM-produced PP specimen exhibited relatively low mechanical performance, the carbon fiber reinforced PP-CF specimen achieved the highest values in both tensile and flexural tests.

The findings demonstrate that the manufacturing method, specimen thickness, and reinforcement type play a decisive role in mechanical performance, and they provide an evaluation of the applicability of FDM-based additive manufacturing in medical applications.

Keywords: Fused Deposition Modeling, 3D printing, Orthosis, Prosthetic, Polypropylene, Polyethylene, Mechanical properties

SUSTAINABILITY OF SOCIAL SECURITY SYSTEMS IN THE FACE OF ARTIFICIAL INTELLIGENCE-INDUCED UNEMPLOYMENT RISK: ROBOT TAX AND ALTERNATIVE MODEL PROPOSALS

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Abstract

The rapid development of artificial intelligence and automation technologies is triggering a structural transformation in the labor market while rendering traditional fiscal policy tools insufficient. Traditional social security systems largely rely on the taxation of labor and contributions collected from employees. However, the replacement of human labor by artificial intelligence in production processes brings with it the risk of a narrowing of the tax base and disruption of the fiscal balance in the system. This study aims to examine the challenges in financing social security expenditures by addressing the effects of artificial intelligence on the labor market from a financial perspective. The study focuses particularly on two key solutions: firstly, separating digital service tax revenues from the general budget and transferring them directly to social security funds; and secondly, developing new models where the premium system is based on the level of automation and production efficiency of the business rather than the number of employees. These models offer alternative implementation approaches for the “technology-driven” financing transformation indicated in the literature. Managing this transformation is critically important for maintaining fiscal sustainability, especially in economies like Türkiye, which, despite having a young population advantage, may face the risk of technological unemployment.

Keywords: Artificial Intelligence, Social Security Financing, Robot Tax, Fiscal Sustainability.

İDARENİN VERGİLENDİRME YETKİSİNİN SINIRLARI: ÖNGÖRÜLEBİLİRLİK İLKESİ AÇISINDAN BİR DEĞERLENDİRME

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Özet

Vergileendirme yetkisi, anayasal düzeyde yasama organına ait olmakla birlikte, uygulamada idareye tanınan düzenleyici ve yorumlayıcı yetkiler aracılığıyla somutlaşmaktadır. Bu durum, özellikle idarenin tebliğ, genelge ve benzeri ikincil düzenlemeler yoluyla vergileendirme sürecine aktif şekilde müdahil olmasına imkân tanımaktadır. Ancak idarenin bu yetkisini kullanma biçimi, vergilemede öngörülebilirlik ilkesinin korunması bakımından önem arz etmektedir. Öngörülebilirlik ilkesi; mükelleflerin vergiye ilişkin yükümlülüklerini önceden açık ve net bir biçimde bilmesini, hukuki güvenlik içinde hareket edebilmesini ve idarenin keyfi uygulamalarına karşı korunmasını ifade etmektedir. Türk vergi sisteminde ise sık değişen ikincil düzenlemeler, idarenin geniş yorum yetkisi ve uygulamada ortaya çıkan belirsizlikler, bu ilkenin zedelenmesine yol açabilmektedir.

Bu çalışmada, idarenin vergileendirme yetkisinin sınırları öngörülebilirlik ilkesi çerçevesinde incelenmektedir. Öncelikle vergileendirme yetkisinin anayasal temelleri ortaya konulmakta, ardından idarenin düzenleyici işlemleri ve uygulama alanı değerlendirilmektedir. Devamında, öngörülebilirlik ilkesinin unsurları açıklanarak Türk vergi sisteminde karşılaşılan başlıca sorun alanları tespit edilmektedir. Çalışmanın sonuç kısmında ise, idarenin yetkilerinin daha belirli sınırlar içine alınması, ikincil düzenlemelerde istikrarın sağlanması ve mükellef lehine yorum ilkesinin güçlendirilmesi yönünde öneriler sunulmaktadır.

Anahtar Kelimeler: Vergileendirme yetkisi, öngörülebilirlik ilkesi, vergi idaresi.

THE LIMITS OF THE TAXATION POWER OF THE ADMINISTRATION: AN EVALUATION WITHIN THE FRAMEWORK OF THE PRINCIPLE OF PREDICTABILITY

Abstract

Although the power of taxation constitutionally belongs to the legislative body, it is concretized in practice through the regulatory and interpretative powers granted to the administration. This enables the administration to actively participate in the taxation process through secondary regulations such as communiqués and circulars. However, the manner in which this authority is exercised is crucial for maintaining the principle of predictability in taxation. The principle of predictability refers to taxpayers' ability to clearly foresee their tax obligations, act within the framework of legal certainty, and be protected against arbitrary administrative practices. In the Turkish tax system, frequent changes in secondary legislation, broad discretionary powers of the administration, and practical ambiguities may undermine this principle.

This study examines the limits of the administrative taxation power within the framework of the principle of predictability. First, the constitutional foundations of the power of taxation are addressed, followed by an evaluation of the administration's regulatory actions and scope of application. Subsequently, the components of the principle of predictability are explained, and the main problem areas observed in the Turkish tax system

are identified. Finally, the study proposes that clearer boundaries should be established for administrative powers, stability in secondary regulations should be ensured, and the principle of interpretation in favor of taxpayers should be strengthened.

Keywords: Taxation power, principle of predictability, tax administration

BİST SÜRDÜRÜLEBİLİRLİK ENDEKSİ ÜZERİNDE FRAKTAL PİYASA HİPOTEZİ’NİN TEST EDİLMESİ**İsmail TUYGUN**

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Özet

1952 yılında Markowitz ile başlayan modern finans dönemi, yatırımcıların yatırım ufuklarının homojen olduğunu varsaymıştır. Ardından Fama tarafından geliştirilen Etkin Piyasa Hipotezi (EPH), hisse senedi fiyatlarının rassal yürüyüş sergilediğini ve fiyat değişimlerinin normal dağılım gösterdiğini ileri sürmüştür. Ancak Mandelbrot, hisse senedi fiyatlarının rassal yürüyüş sergilemediğini ve dağılımların normal olmadığını savunmuştur. Mandelbrot'a göre hisse senedi fiyatlarının dağılımları kalın kuyruklara sahiptir ve fraktal bir yapı göstermektedir. 1994 yılında Peters, Mandelbrot'un bu yaklaşımını teoriye dönüştürerek EPH'ye alternatif olarak Fraktal Piyasa Hipotezi'ni (FPH) geliştirmiştir. FPH, yatırımcıların yatırım ufuklarının homojen olmadığını, aksine saniye gibi çok kısa bir dönemden başlayarak çok daha uzun çeşitli zaman dilimlerine sahip olduklarını savunmaktadır. Bu çeşitlilik piyasadaki likiditeyi ve piyasa dengesini koruyan temel unsurdur. Piyasa dengesinin bozulması, uzun vadeli yatırım ufuklarına sahip olan yatırımcıların piyasaya gelen olumsuz bilgiler nedeniyle ya işlem yapmayı bırakmasından ya da kısa vadeli yatırım ufukuna sahip yatırımcılar gibi hareket etmeye başlamasından kaynaklanmaktadır. Bu durum piyasa dengesini bozmaktadır. Bu çalışmanın amacı, Borsa İstanbul'da (BİST) işlem gören ve kurumsal sürdürülebilirlik performansları üst seviyede olan şirketlerin paylarının yer aldığı BİST Sürdürülebilirlik Endeksi'nin (XUSRD) yapısını FPH çerçevesinde analiz etmektir. Bu amaç doğrultusunda XUSRD'nin 5 Kasım 2014 ile 17 Nisan 2026 yılları arasındaki günlük verileri kullanılarak Dalgacık Güç Spektrumu yöntemiyle analizler gerçekleştirilmiştir. Elde edilen bulgular XUSRD'nin FPH'yi desteklediğini ortaya koymaktadır. Özellikle COVID-19 Pandemisi dönemi, 2022 Rusya-Ukrayna Savaşı ve 2023 yılı için ise hem 6 Şubat Depremi hem de ülkede gerçekleştirilen siyasi seçim döneminde yaşanan belirsizliğin XUSRD'de yatırım ufuklarını etkilediği gözlemlenmiştir.

Anahtar Kelimeler: Fraktal Piyasa Hipotezi, Dalgacık Güç Spektrumu, BİST Sürdürülebilirlik Endeksi.

TESTING THE FRACTAL MARKET HYPOTHESIS ON THE BIST SUSTAINABILITY INDEX**Abstract**

The modern financial era, beginning with Markowitz in 1952, assumed that investors' investment horizons were homogeneous. Subsequently, the Efficient Market Hypothesis (EMH), developed by Fama, proposed that follow a random walk and that price changes follow a normal distribution. However, Mandelbrot argued that stock prices do not exhibit a random walk and that their distributions are not normal. According to Mandelbrot, stock price distributions have fat tails and exhibit a fractal structure. In 1994, Peters transformed Mandelbrot's approach into a theory and developed the Fractal Market Hypothesis (FMH) as an alternative to the EMH. The FMH argues that investors' investment horizons are not homogeneous; rather, they range from very short periods, such as seconds, to much longer time frames. This diversity is a fundamental element that maintains market liquidity and market equilibrium. Market equilibrium is disrupted when investors with long-term investment horizons either cease trading due to negative market information or begin acting like investors with short-term investment horizons. This situation disrupts market equilibrium. The objective of this study is to analyze the structure of the BIST Sustainability Index (XUSRD), which includes companies traded on Borsa İstanbul (BIST) with high corporate sustainability performance, within the FMH framework. For this purpose,

daily data of XUSRD between 5 November 2014 and 17 April 2026 are analyzed using the Wavelet Power Spectrum approach. The findings show that the XUSRD supports the FMH. In particular, it is observed that the COVID-19 pandemic, the 2022 Russia-Ukraine War, and, for 2023, both the February 6 earthquake and the uncertainty surrounding the political elections held in the country affected investment horizons in the XUSRD.

Keywords: Fractal Market Hypothesis, Wavelet Power Spectrum, BIST Sustainability Index.

MAVİ FİNANSIN SÜRDÜRÜLEBİLİR KALKINMADAKİ ROLÜ: KAVRAMSAL BİR DEĞERLENDİRME**Tuğba KAVAKLI**

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Özet

Küresel ısınma ve iklim değişikliğinin su kaynaklarını olumsuz etkilemesi, deniz ve okyanus temelli ekonomik faaliyetlerin sürdürülebilirliğini küresel gündemin öncelikli konularından biri haline getirmiştir. Bu bağlamda, mavi ekonomi yaklaşımının finansal boyutunu oluşturan ve deniz ile okyanus ekosistemlerinin korunmasını, sürdürülebilir kullanımını ve bu alanlara yönelik yatırımların artırılmasını hedefleyen finansal araçlar, politikalar ve mekanizmalar bütününe ifade eden mavi finans kavramı, son yıllarda hem akademik literatürde hem de politika yapım süreçlerinde giderek daha fazla önem kazanmıştır. Bu çalışmanın amacı, mavi finans kavramını teorik bir çerçevede ele alarak sürdürülebilir kalkınma ile olan ilişkisini bütüncül bir bakış açısıyla değerlendirmektir. Çalışmada, mavi finans ile ilgili akademik çalışmalar, uluslararası raporlar ve politika belgeleri sistematik olarak incelenmiştir. İncelemeler sonucunda mavi finansın deniz kirliliğinin azaltılması, sürdürülebilir balıkçılığın teşvik edilmesi, denizlerdeki biyolojik çeşitliliğin korunması ve çevre dostu deniz taşımacılığı yatırımlarının artırılması gibi alanlarda stratejik bir araç işlevi gördüğü anlaşılmıştır. Ayrıca mavi tahviller, sürdürülebilir sigortacılık uygulamaları ve kamu-özel sektör iş birlikleri gibi finansal enstrümanların, bu alandaki yatırımlar için kritik rol oynadığı belirlenmiştir. Sonuç olarak, mavi finans sürdürülebilir kalkınma hedeflerine ulaşmada tamamlayıcı ve dönüştürücü bir mekanizma olmakla birlikte; özellikle iklim değişikliği ile mücadele ve su kaynaklarının korunması bağlamında stratejik önem taşımaktadır. Başta politika yapıcılar olmak üzere finansal kurumların sürdürülebilir kalkınma için oldukça önemli olan mavi finans uygulamalarını teşvik etmesi ve bu alandaki düzenlemeleri güçlendirmeleri önerilmektedir.

Anahtar Kelimeler: Mavi Finans, Sürdürülebilir Kalkınma, İklim Değişikliği.

THE ROLE OF BLUE FINANCE IN SUSTAINABLE DEVELOPMENT: A CONCEPTUAL ANALYSIS**Abstract**

The negative impact of global warming and climate change on water resources has made the sustainability of marine and ocean-based economic activities one of the top priorities on the global agenda. In this context, the concept of blue finance, which refers to the comprehensive set of financial instruments, policies, and mechanisms that constitute the financial dimension of the blue economy and aim to protect marine and ocean ecosystems, ensure their sustainable use, and increase investments in these areas, has gained increasing importance in recent years, both in academic literature and in policy-making processes. The aim of this study is to examine the concept of blue finance within a theoretical framework and evaluate its relationship with sustainable development from a holistic perspective. The study systematically reviews academic research, international reports, and policy documents related to blue finance. The findings reveal that blue finance serves as a strategic tool in areas such as reducing marine pollution, promoting sustainable fisheries, protecting marine biodiversity, and increasing investments in environmentally friendly maritime transport. Additionally, it was determined that financial instruments such as blue bonds, sustainable insurance practices, and public-private partnerships play a critical role in investments in this field. In conclusion, while blue finance serves as a complementary and transformative mechanism for achieving sustainable development goals, it holds strategic

importance particularly in the context of combating climate change and protecting water resources. It is recommended that policymakers and financial institutions promote blue finance practices, which are highly significant for sustainable development, and strengthen regulations in this area.

Keywords: Blue Finance, Sustainable Development, Climate Change.

**EVALUATION OF THE POSITIVE AND NEGATIVE EFFECTS OF THE PRE-ASSESSMENT
SETTLEMENT INSTITUTION ON THE TAX SYSTEM**

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Abstract

The Turkish tax system employs numerous mechanisms for resolving tax disputes through administrative means. The settlement mechanism is one such mechanism. Within the Turkish tax system, settlement is implemented in two ways: pre-assessment and post-assessment. Pre-assessment settlement is a mechanism that allows disputes arising between the tax office and the taxpayer to be resolved at the administrative level before the tax is assessed, thus avoiding recourse to the judiciary. Because pre-assessment settlement involves early intervention in determining the amount of tax and penalties to be applied to the taxpayer, it has many positive effects, both in terms of reducing the workload of the judiciary and ensuring the timely collection of tax receivables. However, it can also be argued that pre-assessment settlement has negative effects. In particular, it is criticized for reducing the deterrent effect of penalties, violating the principle of fairness in taxation, and causing a decrease in public revenues. This study will discuss the positive and negative effects of pre-assessment settlement by evaluating the implementation process and the settlement data of the Ministry of Treasury and Finance.

Keywords: Tax, Agreement, Pre-assessment agreement

AN EVALUATION OF THE REGULATIONS ON TAXATION UNDER THE SIMPLIFIED
PROCEDURE SET FORTH IN PRESIDENTIAL DECREE NO. 10380 WITHIN THE
FRAMEWORK OF CONSTITUTIONAL PRINCIPLES

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Abstract

In the Turkish tax system, taxpayers who are not subject to the real assessment regime fulfill their tax obligations through the simplified taxation method. This method is considered highly significant in enabling taxpayers, characterized as small tradespeople and artisans, to sustain their professional activities with minimal exposure to economic adversities. In response to prevailing economic conditions, the tax administration implements policies aimed at alleviating the tax burden of taxpayers subject to the simplified procedure in order to safeguard their economic viability.

The thresholds for the simplified taxation regime are updated at the beginning of each calendar year and announced in the Official Gazette. An examination of these thresholds suggests that, in terms of annual income and workplace rent levels, it has become extremely difficult—under current economic conditions—to qualify for the simplified procedure. Nevertheless, according to data from 2024, it is observed that 821,849 taxpayers remain subject to this regime. Maintaining eligibility for the simplified procedure through underreporting of income or through misleading rental agreements may constitute a violation of the constitutional principles of taxation, leading not only to a loss of tax revenue but also to a deterioration in tax compliance among other groups of taxpayers. Accordingly, by virtue of Presidential Decree No. 10380, certain professional groups have been excluded from the simplified procedure and transferred to the real (actual) assessment regime. This study discusses the legal regulations governing the simplified procedure and evaluates them in light of constitutional principles of taxation, while also proposing solutions aimed at minimizing the adverse effects arising from the application of the simplified taxation regime.

Keywords: Tax, Simplified Taxation Procedure, Constitutional Principles of Taxation

GLOBAL AVIATION ECONOMICS AND FINANCE LITERATURE: A BIBLIOMETRIC ANALYSIS OF THE 1928-2026 PERIOD

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Abstract

The aviation sector is a cornerstone of global economic cooperation, yet it remains one of the industries most vulnerable to external shocks. Consequently, it requires a robust financial system. This study aims to systematically analyze the academic literature at the intersection of aviation and finance. The data used in the research were retrieved from the Scopus and Web of Science databases, focusing on themes such as aviation, airline, and airport management alongside financial performance, capital structure, profitability, and cost analysis. For the bibliometric analysis, duplicate records were removed from the initial 2,023 data points, resulting in 1,382 unique articles analyzed using the R-based bibliometrix software and VOSviewer. Analysis results indicate that the literature, which began in 1928, showed a significant increase, particularly after 2010, and reached its peak in 2025 with 107 publications. Based on country-specific publications, the USA (405) and China (300) stand out, while Türkiye ranks 8th in the global standings with 56 publications. It was also determined that they are from the United States and China. Word cloud and conceptual mapping analyses reveal that, beyond the topics of "cost", "efficiency", and "airport management", articles in recent years have increasingly been written within the framework of environmental finance themes such as "sustainable development", "biofuels", and "energy transition". At the institutional level, universities such as Cranfield University, Hong Kong Polytechnic University, and Delft University of Technology were identified among those with the highest number of publications. Furthermore, it was found that the most-cited articles focus on sectoral liberalization, privatization, and airport efficiency. This research presents the bibliometric structure of the aviation finance field from a holistic perspective and provides a roadmap for researchers on how financial performance is evolving along the axes of digitalization and the green energy transition.

Keywords: aviation economics, aviation finance, bibliometric analysis, financial performance, sustainability.

**IG ECONOMY AND THE TRANSFORMATION OF LABOR RELATIONS: ANALYSIS IN THE
CONTEXT OF AZERBAIJAN**

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Abstract

This study provides a comprehensive and systematic analysis of the interrelationship between digitalization, the green economy, and the gig economy within the context of contemporary global economic transformations. The findings indicate that the rapid development of digital technologies has led not only to structural changes in production and service sectors but also to profound transformations in labor markets, resulting in the emergence of new employment models such as the gig economy. This model is based on platform-mediated labor relations and significantly reshapes traditional interactions between employers and employees by increasing flexibility in the labor market.

The research demonstrates that the gig economy contributes to the expansion of employment opportunities, facilitates easier entry into the labor market, and creates additional sources of income. In particular, it offers attractive opportunities for young people, women, and individuals newly entering the workforce due to its low entry barriers and flexible working arrangements. Moreover, digital platforms enable access to global labor markets, enhancing international economic integration and creating cross-border employment opportunities.

However, alongside these advantages, the gig economy presents significant institutional and social challenges. Key issues include the ambiguity of workers' legal status, the lack of adequate social protection mechanisms, income instability, and the emergence of asymmetric power relations driven by algorithmic management systems. These factors contribute to the formation of a new social group often referred to as the "precariat," characterized by insecure employment conditions and limited social safeguards.

The study explores the theoretical foundations of the gig economy through the lenses of platform capitalism, institutional economics, and Rasmussen's systemic risk management model. These approaches highlight that the gig economy is not merely an economic phenomenon but a complex, multi-level socio-technical system that requires comprehensive and integrated regulatory frameworks for effective governance.

In the context of Azerbaijan, the analysis reveals that the gig economy is still in a developmental stage but possesses significant growth potential. The expansion of digital infrastructure, widespread adoption of mobile technologies, and increasing availability of platform-based services create favorable conditions for its development. Nevertheless, several structural challenges persist, including insufficient legal regulation, weak social protection systems, lack of transparency in taxation mechanisms, and disparities in digital skills across regions and social groups.

The SWOT analysis conducted in the study indicates that the strengths of the gig economy are primarily associated with digitalization, labor market flexibility, and access to global markets. Its weaknesses stem from institutional and legal gaps, inadequate social protection, and dependency on dominant digital platforms. At the same time, the integration of digital transformation with green economy principles creates new opportunities, while risks such as climate change, digital inequality, and increasing global competition remain significant concerns.

In conclusion, the research suggests that the gig economy can play a crucial role in Azerbaijan's economic development. However, achieving sustainable and inclusive growth in this sector requires the development of a clear legal framework, strengthening of social protection mechanisms, enhancement of digital skills, and improvement of institutional capacities. Only through such comprehensive measures can the opportunities of the gig economy be fully realized while minimizing its associated risks.

Keywords: gig economy, platform labor, digitalization, labor market, Azerbaijan

GİG EKONOMİSİ VE ÇALIŞMA İLİŞKİLERİNİN DÖNÜŞÜMÜ: AZERBAIJAN BAĞLAMINDA BİR ANALİZ

ÖZET

Bu araştırmada, modern küresel ekonomik dönüşümler bağlamında dijitalleşme, yeşil ekonomi ve gig ekonomisinin karşılıklı ilişkisi kapsamlı ve sistematik biçimde analiz edilmiştir. Tespit edilmiştir ki, dijital teknolojilerin hızlı gelişimi yalnızca üretim ve hizmet sektörlerinde değil, aynı zamanda işgücü piyasasında da köklü yapısal değişikliklere yol açmış ve bunun sonucunda gig ekonomisi gibi yeni bir istihdam modeli ortaya çıkmıştır (Schwab, 2016; World Bank, 2021). Bu model, platform temelli iş ilişkilerine dayanarak çalışan ile işveren arasındaki geleneksel ilişkileri dönüştürmekte ve işgücü piyasasında esnekliği artırmaktadır (De Stefano, 2016; Srnicek, 2017).

Araştırma göstermektedir ki, gig ekonomisi bir yandan istihdam olanaklarının genişlemesine, işgücü piyasasına girişin kolaylaşmasına ve ek gelir kaynaklarının oluşmasına katkı sağlamaktadır (Wood et al., 2019). Özellikle gençler, kadınlar ve işgücü piyasasına yeni katılan bireyler için bu model, düşük giriş engelleri ve esnek çalışma saatleri açısından cazip kabul edilmektedir (ILO, 2021). Aynı zamanda, dijital platformlar aracılığıyla küresel işgücü piyasasına erişim imkânları genişlemekte ve bu durum ülkelerin uluslararası ekonomik entegrasyonunu güçlendirmektedir (OECD, 2020).

Öte yandan, gig ekonomisinin gelişimi bir dizi önemli kurumsal ve sosyal sorunla birlikte ilerlemektedir. Başlıca zorluklar arasında çalışanların hukuki statüsünün belirsizliği, sosyal güvenlik mekanizmalarının zayıflığı, gelirlerin istikrarsızlığı ve algoritmik yönetim sonucunda ortaya çıkan asimetrik güç ilişkileri yer almaktadır (De Stefano, 2016; Srnicek, 2017). Bu faktörler, gig ekonomisinde “prekarya” olarak adlandırılan yeni bir sosyal grubun oluşmasına neden olmakta ve işgücü piyasasında sosyal eşitsizlik risklerini artırmaktadır (Schor et al., 2020).

Araştırmada gig ekonomisinin teorik temelleri, platform kapitalizmi, kurumsal yaklaşım ve Rasmussen'in sistematik risk yönetimi modeli çerçevesinde açıklanmıştır (Rasmussen, 1997; Thelen, 2018). Bu yaklaşımlar, gig ekonomisinin yalnızca ekonomik bir olgu değil, aynı zamanda çok katmanlı bir sosyo-teknik sistem olduğunu ve etkin biçimde düzenlenmesinin kapsamlı bir yaklaşım gerektirdiğini ortaya koymaktadır.

Azerbaycan bağlamında yapılan analiz sonucunda, ülkede gig ekonomisinin gelişim aşamasında olduğu ancak yüksek bir potansiyele sahip bulunduğu belirlenmiştir. Dijital altyapının gelişmesi, mobil internet kullanımının yaygınlaşması ve platform hizmetlerinin artması, bu alanın genişlemesi için uygun bir zemin oluşturmaktadır (World Bank, 2022). Bununla birlikte, hukuki düzenlemelerin yetersizliği, sosyal koruma mekanizmalarının zayıflığı, vergi sisteminde şeffaflık eksikliği ve dijital becerilerin eşitsiz dağılımı başlıca sorunlar olarak öne çıkmaktadır (ILO, 2021).

SWOT analizi sonucunda, gig ekonomisinin güçlü yönlerinin temel olarak dijitalleşme, esnek istihdam ve küresel pazarlara erişim imkânlarıyla ilişkili olduğu belirlenmiştir. Zayıf yönler ise hukuki ve kurumsal boşluklar, sosyal güvenliğin yetersizliği ve platformlara bağımlılık ile karakterize edilmektedir (OECD, 2020).

Aynı zamanda, yeşil ekonomi ve dijital dönüşüm ile entegrasyon yeni fırsatlar yaratırken; iklim değişikliği, dijital eşitsizlik ve artan küresel rekabet gibi riskler de söz konusudur (UNEP, 2011; World Bank, 2021).

Sonuç olarak, araştırma gig ekonomisinin Azərbaycan'ın ekonomik kalkınmasında önemli bir rol oynayabileceğini göstermektedir. Ancak bunun için hukuki çerçevenin geliştirilmesi, sosyal güvenlik sistemlerinin güçlendirilmesi, dijital becerilerin artırılması ve kurumsal mekanizmaların iyileştirilmesi gerekmektedir (ILO, 2021; OECD, 2020). Ancak bu şekilde gig ekonomisinin sunduğu fırsatlardan etkin biçimde yararlanmak ve potansiyel risklerini en aza indirmek mümkün olacaktır.

Anahtar kelimeler: gig ekonomisi, platform eməği, digitalleşme, işgücü piyasası, Azərbaycan

GİG İQTİSADİYYATI VƏ ƏMƏK MÜNASİBƏTLƏRİNİN TRANSFORMASIYASI: AZƏRBAYCAN KONTEKSTİNDƏ TƏHLİL

XÜLASƏ

Tədqiqat işində müasir global iqtisadi transformasiyalar fonunda rəqəmsallaşma, yaşıl iqtisadiyyat və gig iqtisadiyyatının qarşılıqlı əlaqəsi kompleks və sistemli şəkildə təhlil edilmişdir. Müəyyən olunmuşdur ki, rəqəmsal texnologiyaların sürətli inkişafı yalnız istehsal və xidmət sahələrində deyil, həm də əmək bazarında köklü struktur dəyişikliklərinə səbəb olmuş, nəticədə gig iqtisadiyyatı kimi yeni məşğulluq modeli formalaşmışdır (Schwab, 2016; World Bank, 2021). Bu model platforma əsaslı əmək münasibətlərinə əsaslanaraq işçi və işəgötürən arasında ənənəvi əlaqələri transformasiya edir və əmək bazarında çevikliyi artırır (De Stefano, 2016; Srnicek, 2017).

Araşdırma göstərir ki, gig iqtisadiyyatı bir tərəfdən məşğulluq imkanlarının genişlənməsinə, əmək bazarına daxilolmanın asanlaşmasına və əlavə gəlir mənbələrinin yaranmasına şərait yaradır (Wood et al., 2019). Xüsusilə gənclər, qadınlar və əmək bazarına yeni daxil olan şəxslər üçün bu model aşağı giriş baryerləri və çevik iş qrafiki baxımından cəlbəedici hesab olunur (ILO, 2021). Eyni zamanda, rəqəmsal platformalar vasitəsilə global əmək bazarına çıxış imkanları genişlənir və bu, ölkələrin beynəlxalq iqtisadi integrasiyasını gücləndirir (OECD, 2020).

Digər tərəfdən, gig iqtisadiyyatının inkişafı bir sıra ciddi institusional və sosial problemlərlə müşayiət olunur. Əsas çağırışlar sırasında işçilərin hüquqi statusunun qeyri-müəyyənliyi, sosial təminat mexanizmlərinin zəifliyi, gəlirlərin qeyri-sabitliyi və alqoritmik idarəetmə nəticəsində yaranan asimmetrik güc münasibətləri xüsusi yer tutur (De Stefano, 2016; Srnicek, 2017). Bu amillər gig iqtisadiyyatında "prekariat" adlandırılan yeni sosial qrupun formalaşmasına səbəb olur və əmək bazarında sosial bərabərsizlik risklərini artırır (Schor et al., 2020).

Tədqiqatda gig iqtisadiyyatının nəzəri əsasları platform kapitalizmi, institusional yanaşma və Rasmussen-in sistemli risk idarəetmə modeli çərçivəsində izah edilmişdir (Rasmussen, 1997; Thelen, 2018). Bu yanaşmalar göstərir ki, gig iqtisadiyyatı yalnız iqtisadi fenomen deyil, həm də çoxsəviyyəli sosial-texniki sistemdir və onun effektiv tənzimlənməsi kompleks yanaşma tələb edir.

Azərbaycan kontekstində aparılan təhlil nəticəsində müəyyən olunmuşdur ki, ölkədə gig iqtisadiyyatı inkişaf mərhələsində olsa da, yüksək potensiala malikdir. Rəqəmsal infrastrukturun inkişafı, mobil internetin geniş yayılması və platforma xidmətlərinin artması bu sahənin genişlənməsi üçün əlverişli şərait yaradır (World Bank, 2022). Bununla belə, hüquqi tənzimləmənin natamamlığı, sosial müdafiə mexanizmlərinin zəifliyi, vergi sistemində qeyri-şəffaflıq və rəqəmsal bacarıqların qeyri-bərabər paylanması əsas problemlər kimi çıxış edir (ILO, 2021).

SWOT təhlili nəticəsində müəyyən edilmişdir ki, gig iqtisadiyyatının güclü tərəfləri əsasən rəqəmsallaşma, çevik məşğulluq və global bazarlara çıxış imkanları ilə bağlıdır. Zəif tərəflər isə hüquqi və institusional boşluqlar, sosial təminatın zəifliyi və platforma asılılığı ilə xarakterizə olunur (OECD, 2020). Eyni zamanda, yaşıl iqtisadiyyat və rəqəmsal transformasiya ilə integrasiya bu sahədə yeni imkanlar yaratsa da, iqlim dəyişiklikləri, rəqəmsal bərabərsizlik və global rəqabətin güclənməsi kimi risklər də mövcuddur (UNEP, 2011; World Bank, 2021).

Nəticə etibarilə, tədqiqat göstərir ki, gig iqtisadiyyatı Azərbaycanın iqtisadi inkişafında mühüm rol oynaya bilər, lakin bunun üçün hüquqi çərçivənin təkmilləşdirilməsi, sosial təminat sistemlərinin gücləndirilməsi, rəqəmsal bacarıqların artırılması və institusional mexanizmlərin inkişaf etdirilməsi zəruridir (ILO, 2021; OECD, 2020). Yalnız bu halda gig iqtisadiyyatının yaratdığı imkanlardan səmərəli istifadə etmək və onun potensial risklərini minimuma endirmək mümkün olacaqdır.

Açar sözlər: gig iqtisadiyyatı, platform əmək, rəqəmsallaşma, əmək bazarı, Azərbaycan

ЭКОНОМИКА ГИГ (GIG ECONOMY) И ТРАНСФОРМАЦИЯ ТРУДОВЫХ ОТНОШЕНИЙ: АНАЛИЗ В КОНТЕКСТЕ АЗЕРБАЙДЖАНА

АННОТАЦИЯ

В исследовании комплексно и системно проанализирована взаимосвязь цифровизации, зелёной экономики и гиг-экономики в условиях современных глобальных экономических трансформаций. Установлено, что стремительное развитие цифровых технологий привело не только к значительным изменениям в производственной и сервисной сферах, но и к глубоким структурным трансформациям рынка труда, в результате чего сформировалась новая модель занятости — гиг-экономика (Schwab, 2016; World Bank, 2021). Данная модель основана на платформенных трудовых отношениях и трансформирует традиционные связи между работодателем и работником, одновременно повышая гибкость рынка труда (De Stefano, 2016; Srnicek, 2017).

Исследование показывает, что, с одной стороны, гиг-экономика способствует расширению возможностей занятости, облегчает вход на рынок труда и создаёт дополнительные источники дохода (Wood et al., 2019). Особенно привлекательной она является для молодёжи, женщин и лиц, впервые выходящих на рынок труда, благодаря низким барьерам входа и гибкому графику работы (ILO, 2021). В то же время цифровые платформы расширяют доступ к глобальному рынку труда, усиливая международную экономическую интеграцию стран (OECD, 2020).

С другой стороны, развитие гиг-экономики сопровождается рядом серьёзных институциональных и социальных проблем. Ключевыми вызовами являются неопределённость правового статуса работников, слабость механизмов социальной защиты, нестабильность доходов и асимметрия властных отношений, обусловленная алгоритмическим управлением (De Stefano, 2016; Srnicek, 2017). Эти факторы способствуют формированию нового социального слоя — «прекариата» — и усиливают риски социального неравенства на рынке труда (Schor et al., 2020).

Теоретические основы гиг-экономики в работе раскрываются в рамках концепций платформенного капитализма, институционального подхода и системной модели управления рисками Рамуссена (Rasmussen, 1997; Thelen, 2018). Данные подходы показывают, что гиг-экономика представляет собой не просто экономическое явление, а многоуровневую социально-техническую систему, требующую комплексного регулирования.

Анализ в контексте Азербайджана показал, что, несмотря на находящуюся на стадии становления гиг-экономику, она обладает значительным потенциалом развития. Развитие цифровой инфраструктуры, широкое распространение мобильного интернета и рост платформенных сервисов создают благоприятные условия для её расширения (World Bank, 2022). Однако основными проблемами остаются несовершенство правового регулирования, слабость системы социальной защиты, недостаточная прозрачность налоговых механизмов и неравномерное распределение цифровых навыков (ILO, 2021).

SWOT-анализ показал, что сильные стороны гиг-экономики связаны прежде всего с цифровизацией, гибкой занятостью и доступом к глобальным рынкам. Слабые стороны включают правовые и институциональные пробелы, недостаточную социальную защиту и зависимость от платформ (OECD, 2020). В то же время интеграция с зелёной экономикой и цифровой трансформацией открывает новые возможности, однако сохраняются риски, связанные с изменением климата, цифровым неравенством и усилением глобальной конкуренции (UNEP, 2011; World Bank, 2021).

В заключение следует отметить, что гиг-экономика может сыграть значительную роль в экономическом развитии Азербайджана. Однако для этого необходимо совершенствование правовой базы, укрепление систем социальной защиты, развитие цифровых навыков и институциональных механизмов (ILO, 2021; OECD, 2020). Только при выполнении этих условий станет возможным эффективное использование потенциала гиг-экономики при минимизации связанных с ней рисков.

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MAINSTREAMING OF POPULISM IN EUROPEAN POLITICS¹**Alp ARSLAN**

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Abstract

This study examines the transformative impact of populism on mainstream politics in Europe. The rise of populism is not limited to the electoral success of anti-establishment parties; it also reshapes the discourse and policy preferences of mainstream political actors. A key trend observed in recent years is the ability of populist actors to reframe the political agenda, prompting mainstream parties to adapt selectively to these frames. This adaptation is particularly visible in policy areas such as migration, national identity, and welfare. The electoral success of right-wing populist parties has generated a “contagion effect,” encouraging mainstream parties to adopt similar rhetoric and strategic positions. This discursive shift has also produced tangible policy outcomes. Following the 2015 refugee crisis, the European Union has increasingly securitized its migration policies, as evidenced by stricter border controls, accelerated return mechanisms, and the centralization of border management. Similarly, in the aftermath of the Russia-Ukraine war, the EU's ambition to become a “geopolitical actor” has gained momentum, leading to intensified efforts to strengthen its collective defense capacity. These developments suggest that populist discourse functions as a catalyst, accelerating securitization processes. In the socio-economic domain, left-wing populist actors have also influenced mainstream politics by foregrounding issues such as inequality and the protection of the welfare state. At the institutional level, the weakening of exclusion strategies and increasing cooperation between mainstream and populist actors have contributed to the normalization and legitimization of populist narratives. In conclusion, the influence of populism on mainstream European politics can be conceptualized as a three-stage process: challenge, adaptation, and transformation. This process not only shifts European politics toward a more security-oriented and sovereignty-focused framework but also redefines European identity in more exclusionary and culturally grounded terms.

Keywords: Populism, Mainstream Politics, Securitization, European Identity.

AVRUPA SİYASETİNDE POPÜLİZMİN ANA AKIMLAŞMASI²**Özet**

Bu çalışma, Avrupa’da popülizmin ana akım siyaset üzerindeki dönüştürücü etkisini incelemektedir. Popülizmin yükselişi yalnızca sistem karşıtı partilerin seçim başarısıyla sınırlı kalmamakta; aynı zamanda ana akım siyasal aktörlerin söylem ve politika tercihlerini yeniden şekillendirmektedir. Son yıllarda gözlemlenen temel eğilim, popülist aktörlerin siyasal gündemi yeniden çerçeveleme kapasitesi ve ana akım partilerin bu çerçevelere seçici biçimde uyum sağlamasıdır. Bu uyum özellikle göç, ulusal kimlik ve refah politikaları gibi

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² Bu bildiri, sorumlu yazar Alp ARSLAN’ın Tokat Gaziosmanpaşa Üniversitesi Lisansüstü Eğitim Enstitüsü’nde Doç. Dr. Mustafa Ozan Şahin danışmanlığında hazırlamakta olduğu “Popülizmin Gölgesinde Avrupa Kimliğinin Geleceği” başlıklı yüksek lisans tez çalışmasından türetilmiştir.

alanlarda belirginleşmektedir. Sağ popülist partilerin seçim başarıları, “bulaşma etkisi” yaratarak ana akım partileri benzer söylem ve stratejik pozisyonlar benimsemeye teşvik etmektedir. Bu söylemsel dönüşüm, politika çıktılarına da somut sonuçlar doğurmaktadır. 2015 mülteci krizi sonrasında Avrupa Birliği’nin göç politikalarında artan bir güvenlikleştirme eğilimi görülmektedir. Daha sıkı sınır kontrolleri, hızlandırılmış geri gönderme mekanizmaları ve sınır yönetiminin merkezileştirilmesi bu eğilimin başlıca göstergeleridir. Benzer şekilde, Rusya-Ukrayna savaşı sonrasında Avrupa Birliği’nin “jeopolitik aktör” olma yönündeki hedefi güç kazanmış ve ortak savunma kapasitesini artırmaya yönelik çabalar hızlanmıştır. Bu gelişmeler, popülist söylemin güvenlikleştirme süreçlerini hızlandıran bir katalizör işlevi gördüğünü ortaya koymaktadır. Sosyo-ekonomik alanda ise sol popülist aktörler, eşitsizlik ve refah devletinin korunması gibi konuları öne çıkararak ana akım siyaseti etkilemiştir. Kurumsal düzeyde, dışlama stratejilerinin zayıflaması ve ana akım ile popülist aktörler arasındaki iş birliğinin artması, popülist söylemlerin normalleşmesine ve meşrulaşmasına katkı sağlamaktadır. Sonuç olarak, popülizmin Avrupa ana akım siyaseti üzerindeki etkisi üç aşamalı bir süreç olarak kavramsallaştırılabilir: meydan okuma, uyum ve dönüşüm. Bu süreç, Avrupa siyasetini daha güvenlik odaklı ve egemenlik vurgusu yüksek bir yapıya yönlendirirken, Avrupa kimliğini de daha dışlayıcı ve kültürel temellere dayalı biçimde yeniden tanımlamaktadır.

Anahtar Kelimeler: Popülizm, Ana Akım Siyaset, Güvenlikleştirme, Avrupa Kimliği

ON AUGMENTED SOMBOR INDEX OF DENDRIMER AND THORN GRAPHS

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Abstract

Topological indices are numerical descriptors of molecular structures and are widely used in quantitative structure–property and structure–activity relationship studies. These indices provide important information about the structural characteristics of molecules and play a significant role in chemical graph theory.

In this study, the Augmented Sombor Index is investigated and the theoretical background of the Augmented Sombor Index is presented. The dependence of this index on vertex degrees is discussed, and its role as a degree-based topological descriptor is emphasized. This approach allows the structural properties of molecular graphs to be analyzed in a systematic and effective way.

In addition, as a theoretical extension of this work, thorn graphs are considered and the behavior of the Augmented Sombor Index on these graphs is examined. Since the thorn graph transformation increases vertex degrees and introduces new types of edges, it leads to an increase in the index values. This demonstrates the sensitivity of the index to structural changes and branching in graph models.

The obtained results indicate that the Augmented Sombor Index is an effective and discriminative measure for both classical and extended graph structures, and it provides a useful tool for modeling complex chemical structures.

Keywords: Augmented Sombor Index, Dendrimer Graphs, Thorn Graphs, Topological Index, Chemical Graph Theory.

AN AI-POWERED MOBILE PLATFORM FOR SCHOLARSHIP MANAGEMENT AND APPLICATION

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Abstract

Access to higher education is significantly influenced by both academic achievement and economic conditions. Therefore, scholarship mechanisms play a crucial role in ensuring equal opportunities in education. However, the current scholarship systems present significant challenges for students due to the scattered nature of scholarship announcements across different platforms, the repetitive form-filling processes for each application, and uncertainties regarding the reliability of the institutions. These problems hinder access to scholarships and reduce the efficiency of application processes.

This study proposes an AI-powered mobile scholarship platform aimed at improving interaction between students and scholarship-providing institutions. The developed system gathers scholarship announcements on a single platform, enabling students to access suitable scholarships more quickly. The platform eliminates repetitive application processes by offering the possibility of multiple applications with a single profile. Furthermore, thanks to an automated criteria matching algorithm, students' profile information is compared with scholarship criteria, and suitable scholarships are suggested to the user. To increase the system's reliability, an AI-based verification module that analyzes the websites of scholarship-providing institutions has been integrated into the platform. This module evaluates the reliability of institutions by analyzing URL structure and domain name characteristics. Thus, the registration of fake or misleading institutions on the platform is prevented, and system security is increased.

The developed platform has a modular architecture consisting of student and institution modules. The mobile application was developed using the Flutter framework, and Firebase infrastructure was used in data management and user authentication processes. Thanks to this structure, a scalable, reliable, and user-friendly system has been created.

The results of the study show that AI-powered digital scholarship platforms have the potential to make scholarship processes more accessible, reliable, and efficient. In future studies, it is planned to develop machine learning-based recommendation systems, improve personalization mechanisms, and expand the system to different user groups.

Keywords: Artificial Intelligence, Scholarship Management System, Mobile Application, Institution Verification, Automatic Criteria Matching

YEREL HALKIN GASTRONOMİ TURİZMİNE YÖNELİK DEĞER ALGISI: TOKAT ÖRNEĞİ

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Özet

Bu çalışma, Tokat ilinde yaşayan yerel halkın gastronomi turizmine yönelik değer algısını çok boyutlu bir çerçevede incelemeyi amaçlamaktadır. Deneyim ekonomisi yaklaşımı doğrultusunda gastronomi, destinasyonların kültürel kimliğini yansıtan ve turist deneyimini şekillendiren temel unsurlardan biri haline gelmiştir. Bu nedenle yerel halkın gastronomi turizmine yüklediği değer, destinasyonun sürdürülebilir gelişimi açısından kritik bir belirleyici olarak değerlendirilmektedir. Araştırma nicel yöntemle gerçekleştirilmiş olup, veri toplama aracı olarak yapılandırılmış anket formu kullanılmıştır. Tokat ilinde ikamet eden 467 katılımcıdan elde edilen veriler, güvenilirlik analizi, doğrulayıcı faktör analizi ve tanımlayıcı istatistikler ile analiz edilmiştir. Analiz sonuçları, model uyum değerlerinin kabul edilebilir düzeyde olduğunu ve ölçeklerin güvenilir bir yapıya sahip olduğunu göstermektedir. Bulgular, yerel halkın gastronomi turizmine yönelik değer algısının genel olarak yüksek olduğunu ortaya koymaktadır. Duygusal değer ($\bar{x}=4,15$), epistemik değer ($\bar{x}=4,00$), sağlık değeri ($\bar{x}=4,16$), lezzet/kalite değeri ($\bar{x}=4,14$) ve destinasyon imajı ($\bar{x}=4,11$) boyutlarının yüksek düzeyde algılandığı belirlenmiştir. Otantiklik değeri ($\bar{x}=3,93$), etkileşim değeri ($\bar{x}=3,75$) ve prestij değeri ($\bar{x}=3,69$) ise görece daha düşük ancak olumlu düzeyde algılanmaktadır. Buna karşılık fiyat değeri algısının ($\bar{x}=3,30$) diğer boyutlara kıyasla en düşük seviyede olduğu tespit edilmiştir. Ayrıca Tokat kebabının 921 puan ile en bilinen yemek olduğu; Bat (408 puan) ve yaprak sarmasının (263 puan) ise onu takip ettiği belirlenmiştir. Demografik analizler, cinsiyete göre anlamlı bir farklılık olmadığını göstermektedir. Buna karşın medeni durum, yaş, eğitim, gelir durumu, meslek ve Tokat'ta bulunma amacı değişkenlerinde anlamlı farklılıklar tespit edilmiştir. Sonuç olarak, Tokat'ın gastronomi turizmi açısından güçlü bir potansiyele sahip olduğu ve yerel halkın genel olarak olumlu bir değer algısı geliştirdiği söylenebilir. Fiyat algısının görece düşük düzeyde olması, yerel halkın sunulan gastronomik ürünleri yeterince "değerine uygun" bulmadığını göstermektedir. Bu doğrultuda işletmelerin yalnızca fiyat düşürmeye odaklanmaları yerine, değer temelli bir fiyatlandırma yaklaşımı benimsemeleri gerekmektedir. Özellikle Tokat mutfağının sahip olduğu kültürel, tarihsel ve yerel üretim temelli özgünlük unsurlarının menü ve hizmet sürecinde daha görünür hale getirilmesi, tüketicinin ödediği bedeli anlamlandırmasını sağlayacaktır. Bununla birlikte, farklı hedef kitlelere yönelik katmanlı fiyatlandırma stratejileri (örneğin yerel halka yönelik daha erişilebilir menü seçenekleri, küçük porsiyon alternatifleri veya sadakat uygulamaları) geliştirilmelidir. Ayrıca gastronomi deneyiminin yalnızca lezzet boyutuyla değil, sunum, hikâye anlatımı ve hizmet kalitesiyle bütüncül bir deneyime dönüştürülmesi, algılanan değeri artırarak fiyat hassasiyetini azaltacaktır. Bu bağlamda işletmelerin temel odak noktası, fiyatı düşürmekten ziyade sunulan deneyimin algılanan değerini güçlendirmek olmalıdır.

Anahtar Kelimeler: Gastronomi Turizmi, Değer Algısı, Otantiklik, Yerel Halk, Tokat.

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PERCEIVED VALUE OF GASTRONOMY TOURISM AMONG LOCAL RESIDENTS: THE CASE OF TOKAT**Abstract**

This study aims to examine the perceived value of gastronomy tourism among local residents in Tokat within a multidimensional framework. In line with the experience economy approach, gastronomy has become one of the fundamental elements reflecting the cultural identity of destinations and shaping tourist experiences. Therefore, the value attributed to gastronomy tourism by the local community is considered a critical determinant for the sustainable development of a destination. The research was conducted using a quantitative method, and a structured questionnaire was employed as the data collection tool. The data obtained from 467 participants residing in Tokat were analyzed through reliability analysis, confirmatory factor analysis, and descriptive statistics. The findings indicate that the model fit indices are within acceptable limits and that the scales used are reliable. The results reveal that the overall perceived value of gastronomy tourism among local residents is high. Emotional value ($\bar{x}=4.15$), epistemic value ($\bar{x}=4.00$), health value ($\bar{x}=4.16$), taste/quality value ($\bar{x}=4.14$), and destination image ($\bar{x}=4.11$) were found to be at high levels. Authenticity ($\bar{x}=3.93$), interaction ($\bar{x}=3.75$), and prestige ($\bar{x}=3.69$) values were relatively lower but still positive. In contrast, price value ($\bar{x}=3.30$) was identified as the lowest dimension. Additionally, Tokat kebab was determined to be the most well-known dish with 921 points, followed by Bat (408 points) and stuffed vine leaves (263 points). Demographic analyses showed no significant differences based on gender, whereas significant differences were found in terms of marital status, age, education level, income, occupation, and purpose of residence in Tokat. In conclusion, Tokat possesses a strong potential for gastronomy tourism, and local residents generally hold a positive perception of it. However, the relatively low perception of price value indicates that local residents do not fully perceive the offered gastronomic products as worth their cost. In this context, businesses should adopt a value-based pricing approach rather than focusing solely on lowering prices. Making the cultural, historical, and locally rooted characteristics of Tokat cuisine more visible in menus and service processes would help consumers better justify the price they pay. Moreover, segmented pricing strategies targeting different customer groups (such as more accessible menu options for local residents, smaller portion alternatives, and loyalty programs) should be developed. Enhancing gastronomy experiences through presentation, storytelling, and service quality, beyond mere taste, will increase perceived value and reduce price sensitivity. Accordingly, the primary focus of businesses should be on strengthening perceived value rather than simply reducing prices.

Keywords: Gastronomy Tourism, Perceived Value, Authenticity, Local Residents, Tokat.

TOKAT BAĞ KÜLTÜRÜNDE TURİZMİN YENİDEN KURGULANMASI: OTANTİKLİK TEMELLİ KAVRAMSAL BİR YAKLAŞIM

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Özet

Turizm faaliyetlerinin yaygınlaşması, yerel kültürel mekânların turizme açılmasını hızlandırırken, bu sürecin otantiklik kaybı, aşırı ticarileşme ve kültürel dönüşüm gibi riskleri de beraberinde getirdiği görülmektedir. Özellikle gündelik yaşam pratiklerinin bir parçası olan alanların turizmle ilişkilendirilmesi, bu mekânların özgün yapısının korunması açısından dikkatli ve dengeli bir yaklaşımı gerekli kılmaktadır. Bu bağlamda Tokat'ta yaygın olarak görülen bağ kültürü, yalnızca tarımsal üretim alanı değil; sosyalleşme, misafir ağırlama ve birlikte vakit geçirme pratiklerinin gerçekleştiği çok işlevli kültürel mekânlar olarak öne çıkmaktadır. Bu çalışmanın amacı, Tokat bağ kültürü bağlamında turizmin nasıl yeniden kurgulanabileceğini, otantikliğin korunmasını esas alan kavramsal bir yaklaşım çerçevesinde tartışmaktır. Çalışma, nitel araştırma yaklaşımı kapsamında kavramsal bir değerlendirme olarak tasarlanmıştır. Bu doğrultuda bağ kültürü, otantiklik, küçük ölçekli işletmecilik ve sürdürülebilir turizm kavramları birlikte ele alınarak bütüncül bir çerçeve oluşturulmuştur. Çalışmada, bağların doğrudan turistik tesislere dönüştürülmesi yerine, mevcut kültürel işlevlerini koruyacak şekilde sınırlı ve kontrollü bir turizm entegrasyonunun gerekliliği vurgulanmaktadır. Bu kapsamda önerilen yaklaşım, turizmin bağ kültürüne uyum sağlamasını esas almakta; ön rezervasyon, küçük grup katılımı, yerel sahiplik ve deneyimsel sadelik ilkelerine dayanan bir kullanım biçimi önermektedir. Böylece bağların gündelik yaşam içindeki işlevi korunurken, ziyaretçilere yapaylaştırılmamış ve katılımcı bir deneyim sunulması hedeflenmektedir. Sonuç olarak çalışma, bağ kültürünün turizmle ilişkisinin yeniden düşünülmesi gerektiğini ortaya koymakta ve kitlesel turizm anlayışı yerine, otantiklik temelli, küçük ölçekli ve sürdürülebilir bir yaklaşımın benimsenmesini önermektedir. Bu yönüyle çalışma, bağ kültürünü turizme entegre edilecek bir unsur olarak değil, turizmin kendisine uyum sağlamak zorunda olduğu bir kültürel zemin olarak ele alması bakımından literatürde farklılaşmaktadır.

Anahtar Kelimeler Tokat, Bağ Kültürü, Otantiklik.

RECONCEPTUALIZING TOURISM IN THE VINEYARD CULTURE OF TOKAT: AN AUTHENTICITY-BASED CONCEPTUAL APPROACH

Abstract

The expansion of tourism activities has accelerated the opening of local cultural spaces to tourism; however, this process also brings risks such as the loss of authenticity, excessive commercialization, and cultural transformation. In particular, the association of spaces that are part of everyday life with tourism necessitates a careful and balanced approach to preserving their original character. In this context, the vineyard culture widely observed in Tokat stands out not only as an area of agricultural production but also as multifunctional cultural spaces where socialization, hospitality, and shared leisure practices take place. The aim of this study is to discuss how tourism can be reconfigured within the context of Tokat's vineyard culture through a

conceptual framework that prioritizes the preservation of authenticity. The study is designed as a qualitative, conceptual evaluation. Accordingly, a holistic framework is developed by addressing the concepts of vineyard culture, authenticity, small-scale entrepreneurship, and sustainable tourism together. The study emphasizes the necessity of a limited and controlled integration of tourism that preserves the existing cultural functions of vineyards, rather than transforming them directly into tourist facilities. Within this scope, the proposed approach is based on aligning tourism with vineyard culture, suggesting a model grounded in principles such as pre-reservation, small group participation, local ownership, and experiential simplicity. In this way, while maintaining the role of vineyards within everyday life, it is aimed to provide visitors with a non-artificial and participatory experience. In conclusion, the study reveals the need to rethink the relationship between vineyard culture and tourism and proposes the adoption of an authenticity-based, small-scale, and sustainable approach instead of mass tourism. In this respect, the study differs in the literature by treating vineyard culture not as an element to be integrated into tourism, but as a cultural ground to which tourism itself must adapt.

Keywords: Tokat, Vineyard Culture, Authenticity.

TOURIST ENGAGEMENT IN MUSEUM: THE CASE IN SARAJEVO

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Abstract

Tourism generates revenue and employment and has been considered a form of education and cultural exchange. An important aspect of attracting tourists lies in securing tourist engagements. Tourist engagement reflects how an attraction is able to draw tourists and enhance their experiences. This has consequences for good reviews, securing high site rankings and increasing repeat visits. The concept of tourist gaze offers a framework to guide our understanding of tourists' engagements. The strength of this concept lies not only the conceptualization of tourist experience as multi-sensuous but also in its emphasis that the gaze is a relational and interactive process shaped by existing social structures.

To better understand how the tourists learn about and engage with the culture and history of a place, I study the engagement of tourists at the Museum of Crimes against Humanity and Genocide 1992-1995 in Sarajevo. Specifically, I used all 1239 TripAdvisor reviews collected in Fall 2025. I also visited the museum in 2025 to verify the details of the reviews and collected visual data. I conducted thematic analysis to examine the reviews.

The thematic analysis showed three broad themes that underscore engagement modes: engaging different senses, engagement with other tourists, and engagement with tourism. Tourist engagements reflect not only their experience and level of involvement but also how tourists move from a museum-specific to a broader perspective. This is particularly important as this museum captures and presents one but critical take on the country's history. The diversity of tourism in Bosnia and Herzegovina has moved beyond the focus on "dark tourism" but conflicts and tensions still linger. Balancing the necessity to move forward without diminishing the significance and tragedy of that time period may be one of the greatest challenges in creating an integrated tourism brand.

Keywords: Museum, Sarajevo, Tourist Gaze, TripAdvisor

CONSTRUCTION OF A MULTIREGIONAL SOCIAL ACCOUNTING MATRIX FOR AZERBAIJAN, TÜRKİYE AND RUSSIA AND MODELING OF STRUCTURAL EFFECTS**Rauf MUSAYEV**

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Abstract

In the modern era, the deepening of intercountry economic relations, the expansion of regional production chains, and the growing mutual trade dependence necessitate the comprehensive evaluation of national economic systems. Traditional input-output tables (IOT) and Social Accounting Matrix (SAM) models mainly reflect domestic economic relations and therefore have certain limitations in fully assessing regional interactions, indirect economic effects, and structural interdependencies among countries. In this context, the main objective of the study is to establish the methodological foundations of a Multiregional Social Accounting Matrix (MRSAM) covering the economies of Azerbaijan, Türkiye, and Russia, and to integrate intercountry economic flows within a unified system framework.

Within the scope of the research, data for the three countries were harmonized based on the methodology of the System of National Accounts (SNA), mutual import-export relations by economic activity were integrated, the alignment of goods and services flows was carried out, and the separation of domestic and imported flows was ensured. The model combines production, intermediate consumption, value added, institutional sectors, final use, capital transactions, and foreign economic relations within a single balanced structure. This approach enables not only the analysis of domestic economic circulation but also the systematic tracking of intercountry production, income, and demand relations.

As a result of the research, a methodologically consistent, balanced, and analytically versatile multiregional SAM model was developed for the analysis of regional economic integration. The constructed model can serve as an important analytical framework for evaluating structural multipliers, import leakages, mutual economic dependencies, indirect effects, as well as regional economic policy scenarios in future studies.

Keywords: Multiregional Social Accounting Matrix; System of National Accounts; input-output table; regional economic integration; economic multipliers; Azerbaijan–Türkiye–Russia economic relations.

“AZƏRBAYCAN, TÜRKİYƏ VƏ RUSİYA ÜZRƏ MULTİREGIONAL SOSIAL HESABLAR MATRİSİNİN QURULMASI VƏ STRUKTUR TƏSİRLƏRİN MODELƏŞDİRİLMƏSİ”**Özet**

Müasir dövrdə ölkələrarası iqtisadi əlaqələrin dərinləşməsi, regional istehsal zəncirlərinin genişlənməsi və qarşılıqlı ticarət asılılığının artması milli iqtisadi sistemlərin kompleks şəkildə qiymətləndirilməsini zəruri edir. Ənənəvi sahələrarası balans (SAB) və sosial hesablar matrisi (SHM) modelləri əsasən ölkədaxili iqtisadi münasibətləri əks etdirdiyindən, regional qarşılıqlı təsirlərin, dolay iqtisadi effektlərin və ölkələrarası struktur asılılıqların tam qiymətləndirilməsi baxımından müəyyən məhdudiyyətlərə malikdir. Bu baxımdan tədqiqatın əsas məqsədi Azərbaycan, Türkiyə və Rusiya iqtisadiyyatlarını əhatə edən multiregional sosial hesablar matrisinin (MRSHM) metodoloji əsaslarının formalaşdırılması və ölkələrarası iqtisadi axınların vahid sistem çərçivəsində inteqrasiyasıdır.

Tədqiqat çərçivəsində Milli Hesablar Sistemi (MHS/SNA) metodologiyası əsasında üç ölkə üzrə məlumatlar harmonizasiya edilmiş, iqtisadi fəaliyyət növləri üzrə qarşılıqlı idxal-ixrac əlaqələri inteqrasiya olunmuş, mal və xidmət axınlarının uyğunlaşdırılması aparılmış və yerli-idxal axınlarının ayrılması təmin edilmişdir. Modeldə istehsal, aralıq istehlak, əlavə dəyər, institusional sektorlar, son istifadə, kapital əməliyyatları və xarici iqtisadi əlaqələr vahid balanslaşdırılmış strukturda birləşdirilmişdir. Bu yanaşma yalnız ölkədaxili

iqtisadi dövrünü deyil, həm də ölkələrarası istehsal, gəlir və tələb əlaqələrini sistemli şəkildə izləməyə imkan verir.

Tədqiqat nəticəsində regional iqtisadi integrasiyanın təhlili üçün metodoloji cəhətdən uyğun, balanslaşdırılmış və analitik baxımdan geniş istifadə imkanlarına malik multiregional SHM modeli əldə edilmişdir. Qurulmuş model gələcəkdə struktur multiplikatorların, idxal sızmalarının, qarşılıqlı iqtisadi asılılıqların, dolayı təsirlərin, eləcə də regional iqtisadi siyasət ssenarilərinin qiymətləndirilməsi üçün mühüm analitik baza kimi istifadə oluna bilər.

Açar sözlər: Multiregional sosial hesablar matrisi; Milli Hesablar Sistemi; sahələrarası balans; regional iqtisadi integrasiya; iqtisadi multiplikatorlar; Azərbaycan–Türkiyə–Rusiya iqtisadi əlaqələri

AZERBAIJAN, TURKEY AND RUSSIA OVER MULTIREGIONAL SOCIAL ACCOUNTS MATRIX'S ESTABLISHMENT AND STRUCTURAL EFFECTS MODELING

Özet

Günümüzde ülkelerarası ekonomik ilişkilerin derinleşmesi, bölgesel üretim zincirlerinin genişlemesi ve karşılıklı ticari bağımlılığın artması, ulusal ekonomik sistemlerin kapsamlı biçimde değerlendirilmesini zorunlu kılmaktadır. Geleneksel girdi-çıkı tabloları (GÇT) ve sosyal hesaplar matrisi (SHM) modelleri esas olarak ülke içi ekonomik ilişkileri yansıttığından, bölgesel karşılıklı etkilerin, dolaylı ekonomik etkilerin ve ülkelerarası yapısal bağımlılıkların tam olarak değerlendirilmesi bakımından belirli sınırlılıklara sahiptir. Bu bağlamda çalışmanın temel amacı, Azerbaycan, Türkiye ve Rusya ekonomilerini kapsayan multiregional sosyal hesaplar matrisinin (MRSHM) metodolojik temellerinin oluşturulması ve ülkelerarası ekonomik akımların tek bir sistem çerçevesinde entegre edilmesidir.

Araştırma kapsamında Milli Hesaplar Sistemi (MHS/SNA) metodolojisi esas alınarak üç ülkeye ait veriler harmonize edilmiş, ekonomik faaliyet kolları bazında karşılıklı ithalat-ihracat ilişkileri entegre edilmiş, mal ve hizmet akımlarının uyumlaştırılması gerçekleştirilmiş ve yerli-ithal akımların ayrıştırılması sağlanmıştır. Modelde üretim, ara tüketim, katma değer, kurumsal sektörler, nihai kullanım, sermaye işlemleri ve dış ekonomik ilişkiler tek bir dengelenmiş yapı içerisinde birleştirilmiştir. Bu yaklaşım yalnızca ülke içi ekonomik dolaşımı değil, aynı zamanda ülkelerarası üretim, gelir ve talep ilişkilerinin sistematik biçimde izlenmesine de olanak sağlamaktadır.

Araştırma sonucunda bölgesel ekonomik entegrasyonun analizi için metodolojik açıdan uygun, dengelenmiş ve analitik kullanım imkânları geniş olan multiregional bir SHM modeli elde edilmiştir. Kurulan model gelecekte yapısal çarpanların, ithalat sızıntılarının, karşılıklı ekonomik bağımlılıkların, dolaylı etkilerin ve bölgesel ekonomik politika senaryolarının değerlendirilmesi için önemli bir analitik temel olarak kullanılabilir.

Anahtar Kelimeler: Multiregional sosyal hesaplar matrisi; Milli Hesaplar Sistemi; girdi-çıkı tablosu; bölgesel ekonomik entegrasyon; ekonomik çarpanlar; Azerbaycan–Türkiye–Rusya ekonomik ilişkileri.

AMBULANS VE ACİL BAKIM TEKNİKERİ OLARAK ÇALIŞANLARIN İŞ YÜKÜNÜN İNCELENMESİ**Sadık KARABAĞ**

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Özet

Bu çalışmanın amacı ambulans ve acil bakım hizmeti veren çalışanların (teknikerlerin) acil vakalara hizmet verdiklerinden dolayı yaşamış oldukları zorlukları ve tıbbi risklerini çalışan gözünden değerlendirilmesidir. Ambulans ve acil bakım teknikerleri yaşam ile ölüm arasındaki ince çizgide saniyelerle yarışırken hem fiziksel hem de psikolojik engellerle mücadele etmektedirler. Bu çalışmada nitel araştırma yöntemlerinden olgu bilim (fenomenoloji) deseni kullanılmıştır. Çalışmada sınırlılıklar meslekte en az 5 yıl tecrübeye sahip olmasına göre belirlenmiştir. Veriler, 3 kadın 2 erkek toplam 5 Ambulans ve acil bakım teknikeri ile yapılan görüşmeler sonucunda elde edilmiştir. Toplanan veriler içerik analizi yöntemiyle temalandırılmıştır. Çalışmada tespit etmiş olduğumuz temalar; Psikolojik ve ruhsal etki, Çalışma sistemi ve fiziksel etkiler, Operasyonel riskler ve hata faktörleri, Sistemsel sorunlar: Gereksiz kullanım ve Yenilikçi çözüm önerilerinden oluşmaktadır. Katılımcılar travmatik vakalara maruz kalmanın anksiyete ve uyku bozukluklarına yol açtığını; zamanla duygusal duyarsızlaşma geliştiğini, psikolojik destek alma gereksinimi olabileceğini belirtmiştir. Yirmidört saatlik nöbet sisteminin ağır olduğu ve nöbetin ilerleyen saatlerinde uykusuzluğun dikkat eksikliği ile yanlış müdahale gibi tıbbi hataları doğrudan artırdığı sonucuna ulaşılmıştır. Ambulansların yol açtırma veya basit sağlık sorunları gibi gereksiz kullanımının acil vakalara ulaşım süresini uzattığını, personel üzerinde değersizlik hissi yarattığı ve motivasyonu düşürdüğü ifade edilmiştir. Katılımcılar; fiziksel iş yükünü hafifletecek taşıma ekipmanlarının tedarik edilmesi ve aciliyeti olmayan yeşil kodlu hastalar için caydırıcı ücretlendirme politikasının hayata geçirilmesini temel çözüm önerisi olarak vermişlerdir. Çalışanlar iş yükünü hafifletmek ve hasta güvenliğini sağlamak için mevcut çalışma saatlerinin iyileştirilmesi, teknolojik sistemlerin sürece entegre edilmesi ve toplumun acil servis kullanımı konusunda bilinçlendirilmesi önerilmektedir.

Anahtar Kelimeler: Ambulans ve Acil Bakım Teknikeri, İş Yüğü, Tıbbi Hata, Psikolojik Dayanıklılık, 112 Acil Sağlık Hizmetleri.

ANALYSIS OF THE WORKLOAD OF AMBULANCE AND EMERGENCY CARE TECHNICIANS**Abstract**

The aim of this study is to evaluate the difficulties and medical risks experienced by ambulance and emergency care technicians from their perspective, due to their involvement in emergency cases. Ambulance and emergency care technicians struggle with both physical and psychological obstacles while racing against the clock on the thin line between life and death. This study utilized a phenomenological design, a qualitative research method. The study's limitations were defined as having at least 5 years of experience in the profession. Data were obtained through interviews with a total of 5 ambulance and emergency care technicians (3 women and 2 men). The collected data were themed using content analysis. The themes identified in the study are: Psychological and mental impact, Work system and physical effects, Operational risks and error factors, Systemic problems: Unnecessary use, and Innovative solution suggestions. Participants stated that exposure to traumatic events leads to anxiety and sleep disorders; that emotional desensitization develops over time; and that there may be a need for psychological support. The study concluded that the 24-hour shift system is demanding, and that sleep deprivation in the later hours of the shift directly increases medical errors such as attention deficit and incorrect intervention. It was stated that unnecessary use of ambulances for things like clearing roads or minor health issues prolongs the response time to emergencies, creates feelings of worthlessness among staff, and lowers motivation. Participants suggested that the procurement of transport

equipment to lighten physical workload and the implementation of a deterrent pricing policy for non-urgent, green-code patients should be key solutions. To alleviate workload and ensure patient safety, it was recommended that current working hours be improved, technological systems be integrated into the process, and public awareness campaigns be conducted regarding the use of emergency services.

Keywords: Ambulance and Emergency Care Technician, Workload, Medical Error, Psychological Resilience, 112 Emergency Medical Services.

SAĞLIK HİZMETLERİNDE DİJİTAL DÖNÜŞÜM: DİJİTAL EMPATİ KAVRAMININ İNCELENMESİ**Gökçe KOÇYİĞİT**

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Özet

Bu çalışmanın amacı dijital dönüşümle birlikte değişen empati kavramını incelemektir. Dijital dönüşümle birlikte iletişim biçimlerinin değiştiği günümüzde empati kavramının fiziksel sınırları aşarak dijital boyuta taşınması dijital empati kavramını ortaya çıkarmaktadır. Sağlık hizmetlerinin de dijitalleşmesiyle sağlık çalışanı – hasta arasındaki empati yavaş yavaş yerini dijital empatiye bırakmaktadır. Dünya Sağlık Örgütü’nün tanımıyla “Sadece hastalık veya sakatlığın olmayışı değil, bedensel, ruhsal (zihinsel) ve sosyal yönlerden tam bir iyilik halidir.” diye tanımlanan hastalık hali, hastaların bu süreçte empatiye daha fazla ihtiyaç duymasını sağlık sektöründe dijital empati kavramının önemini artırmaktadır. Sağlık hizmetleri kapsamında dijital empatinin, hasta odaklı bakımın güçlendirilmesi, hasta sonuçlarının iyileştirilmesi ve tele-tıp uygulamalarının etkinliğinin artırılması açısından önemlidir. Empatinin değişmemesi ifade biçiminin değişmesi bazı olumsuzlukları da beraberinde getirmiştir. Bunlardan bazıları yazılı iletişimdeki sınırlılık, teknolojik kısıtlar, yanlış anlama riski kültürel farklılıklardır.

Doküman analizi yapılarak hazırlanan bu çalışmada uluslararası toplam 6 çalışma incelenmiş olup; bu çalışmaların sonuç bölümleri içerik analizi yöntemiyle temalandırılmıştır. Çalışmada toplamda 8 tema tespit edilmiş olup bunlar; Dijital empatinin tanımı ve doğası, dijital ortamda empati zorlukları, sağlık hizmetlerinde dijital empati, eğitim ve gelişim süreçleri, teknoloji ve yapay zekâ etkisi, empatiyi geliştirme yaklaşımları, gelecek ve dönüşüm, kurumsal ve mesleki etkilerden oluşmaktadır. Elde edilen bulgular sonucunda empatinin insani bir gereklilik olduğunu göstermektedir. Dijital dönüşümle birlikte empati ihtiyacının devam ettiği ve gelecek teknolojilerin insan merkezli ve empati odaklı olması gerektiği değerlendirilmektedir. Ancak duygusal bağlamda yetersiz kalacağına da dikkat çekilmiştir. Dijital empatinin geliştirilmesi için dijital empati eğitimlerinin verilmesi ve kullanıcıların deneyimlendirilmesi ayrıca daha insan merkezli teknolojilerin geliştirilmesi önerilmektedir. Ayrıca dijital empati çalışan memnuniyetini artırarak personel refahını ve kurumların başarısını da olumlu yönde etkilediği tespit edilmiştir.

Anahtar kelimeler: Sağlık hizmetleri, dijital empati, dijital dönüşüm

DIGITAL TRANSFORMATION IN HEALTHCARE: AN EXAMINATION OF THE CONCEPT OF DIGITAL EMPATHY**Abstract**

This study examines the transformation of empathy in the context of digitalization. As communication practices evolve through digital transformation, empathy has extended beyond physical interaction and entered a digital dimension, giving rise to the concept of digital empathy. With the digitalization of healthcare services, empathy in the relationship between healthcare professionals and patients is gradually shifting toward digitally mediated forms. According to the World Health Organization, health is defined not merely as the absence of disease or disability, but as a state of complete physical, mental, and social well-being. This understanding highlights the increasing importance of empathy in healthcare, particularly during illness, and underscores the significance of digital empathy in patient care. Within healthcare services, digital empathy is essential for strengthening patient-centered care, improving patient outcomes, and enhancing the effectiveness of telemedicine practices. Although empathy itself remains unchanged, its mode of expression has transformed, bringing several challenges. These include the limitations of written communication, technological constraints, the risk of misunderstanding, and cultural differences. This study was conducted using a document analysis method and examined six international studies. The findings sections of these studies were analyzed and

themed using content analysis. A total of eight themes were identified: the definition and nature of digital empathy, challenges of empathy in digital environments, digital empathy in healthcare, education and development processes, the impact of technology and artificial intelligence, approaches to enhancing empathy, future and transformation, and institutional and professional effects.

The findings demonstrate that empathy remains a fundamental human necessity. Despite digital transformation, the need for empathy persists, and future technologies should be designed with a human-centered and empathy-oriented approach. However, digital empathy may remain limited in emotional depth. The study recommends digital empathy training, experiential user-oriented practices, and the development of more human-centered technologies. Furthermore, digital empathy was found to increase employee satisfaction, improve staff well-being, and positively influence institutional success.

Keywords: Healthcare, digital empathy, digital transformation

SAĞLIK HİZMETLERİNDE ‘HASTA – SAĞLIK ÇALIŞANI’ İLETİŞİMİNİN HASTA MEMNUNİYETİ ÜZERİNDEKİ ETKİSİ**Gökçe KOÇYİĞİT**

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Özet

Bu çalışmanın amacı sağlık hizmeti sunumunda hasta – sağlık çalışanı arasındaki iletişimin hasta memnuniyeti üzerindeki etkisini incelemektir. Doküman analizi yöntemiyle hazırlanan bu çalışmada toplam 5 adet ulusal ve uluslararası çalışmanın sonuç kısımları veri analizi yöntemiyle temalandırılmıştır. Çalışmada toplamda 9 adet tema tespit edilmiştir. Bu temalar şu şekildedir; Etkili iletişim davranışları, hasta memnuniyeti ve deneyimi, güven ve hasta- hekim ilişkisi, iletişim engelleri, hekim kaynaklı zorluklar, sosyodemografik faktörler, iletişimin sonuçları, dijital ve sosyal etkiler, eğitim ve gelişim ihtiyacıdır. Elde edilen bulgular sonucunda etkili iletişim davranışları, göz teması kurma, gülümseme, el sıkışma, açık uçlu soru sorma, özür dileme, jest kullanımı, hastayı dinleme, ilgi gösterme, anlaşılır dil kullanma gibi davranışların hasta memnuniyetini artırdığı görülmüştür. Hasta memnuniyeti ve deneyimi teması kapsamında ise genel memnuniyet, saygı görme, danışılma, ağrı yönetimi, geri gelme niyeti hizmet kalitesi algısı ve hasta deneyimini ön plana çıkarmaktadır. Ayrıca Güven ve Hasta-Hekim ilişkisi temasında ise güven oluşturma, hasta merkezli yaklaşım, etkili iletişimin tedaviye uyumu ve olumlu sağlık sonuçları almayla doğrudan ilişkilendirilmiştir.

Araştırmada iletişim sürecinin olumsuz etkileyen unsurlarda ortaya konmuştur. İletişim engelleri temasında tıbbi terim kullanımı, hastanın kendini ifade edememesi, yanlış veya eksik bilgi verme ön yargı ilgisizlik algısı öne çıkarken ‘hekim kaynaklı zorluklar’ kapsamında yoğun iş temposu ve standart bir iletişim tekniğinin bulunmaması dikkat çekmektedir. Ayrıca yaş, cinsiyet ve sosyal sınıf gibi sosyodemografik faktörlerin iletişim sürecini etkilediği belirtilmiştir. Sonuç olarak, sağlık hizmetlerinde hasta-sağlık çalışanı arasındaki iletişimin geliştirilmesine yönelik eğitim programlarının artırılması ve hasta merkezli iletişim yaklaşımlarının benimsenmesi önerilmektedir. Ayrıca sağlık kurumlarının düzenli aralıklarla hasta memnuniyeti ölçümleri yapması önerilmektedir.

Anahtar kelimeler: Hasta memnuniyeti, sağlık hizmetlerinde iletişim,

THE EFFECT OF ‘PATIENT-HEALTHCARE WORKER’ COMMUNICATION ON PATIENT SATISFACTION IN HEALTHCARE SERVICES**Abstract**

The aim of this study is to examine the effect of communication between patients and healthcare professionals on patient satisfaction in healthcare delivery. Prepared using document analysis, the results sections of a total of 5 national and international studies were themed using data analysis. A total of 9 themes were identified in the study. These themes are as follows: Effective communication behaviors, patient satisfaction and experience, trust and patient-physician relationship, communication barriers, physician-related difficulties, sociodemographic factors, communication outcomes, digital and social effects, and training and development needs. The findings show that effective communication behaviors such as making eye contact, smiling, shaking hands, asking open-ended questions, apologizing, using gestures, listening to the patient, showing interest, and using clear language increase patient satisfaction. Within the theme of patient satisfaction and experience, general satisfaction, feeling respected, being consulted, pain management, intention to return, perceived service quality, and patient experience are highlighted. Furthermore, in the theme of trust and patient-physician

relationship, building trust, a patient-centered approach, and effective communication are directly related to treatment adherence and positive health outcomes. The research revealed factors that negatively impact the communication process. Under the theme of communication barriers, the use of medical terminology, the patient's inability to express themselves, providing incorrect or incomplete information, and perceptions of prejudice and indifference stand out. Under the category of 'physician-related difficulties,' the intense workload and lack of a standard communication technique are noteworthy. Furthermore, sociodemographic factors such as age, gender, and social class are indicated as influencing the communication process. In conclusion, it is recommended that training programs aimed at improving communication between patients and healthcare professionals in healthcare settings be increased, and that patient-centered communication approaches be adopted. Additionally, it is suggested that healthcare institutions conduct regular patient satisfaction surveys.

Keywords: Patient satisfaction, communication in healthcare,

SİVAS NUMUNE HASTANESİ ÇOCUK ACİL SERVİSTE ÇALIŞAN HEMŞİRELERİN MESLEKİ BEKLENTİLERİNİN İNCELENMESİ**Şahika Koçak**

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Özet

Bu çalışma, çocuk acil serviste görev yapan hemşirelerin mesleki deneyimlerini, karşılaştıkları temel zorlukları ve mesleki gelecekte beklentilerini derinlemesine belirlemek amacıyla yürütülmüştür. Nitel araştırma deseninde kurgulanan bu çalışmada, Sivas Numune Hastanesi bünyesinde aktif olarak çalışan beş hemşire ile yarı yapılandırılmış görüşme tekniği kullanılarak veriler toplanmıştır. Görüşmelerden elde edilen veriler, nitel veri analizi tekniklerinden biri olan tematik analiz yöntemiyle titizlikle çözümlenmiştir. Araştırma sonuçlarına göre, hemşirelerin karşılaştığı en önemli mesleki zorluk, hasta yakınları ile yaşanan iletişim sorunları ve kriz anlarındaki yönetim güçlükleridir. Katılımcılar; özellikle uzun çalışma saatleri, fiziksel ortamın yetersizliği, teknik ekipman eksikliği ve pediatri alanında yetişmiş uzman kadro yetersizliği gibi faktörlerin iş yükünü ve stres düzeyini ciddi oranda artırdığını vurgulamaktadır. Hasta yakınlarının tedavi sürecine doğrudan müdahale etmesi ve ebeveynlerin bilinçsiz uygulamaları, sağlık çalışanları üzerindeki hata yapma baskısını ve psikolojik gerginliği yükseltmektedir. Çalışmada iş doyumunu artıran temel unsurlar; ekip ruhu, uyumlu çalışma ortamı, başarılı tıbbi müdahaleler ve maddi tatmin olarak saptanmıştır. Hemşirelerin mesleki gelişim için sunduğu öneriler arasında branşlaşma, sürekli hizmet içi eğitimler, sertifika programları ve güncel bilimsel yayınların takibi yer almaktadır. Beklentiler bazında ise maaşların iyileştirilmesi, tek kalem ödeme sistemine geçilmesi ve mesleki saygınlığın yasal düzenlemelerle güvence altına alınması ön plana çıkmaktadır. Sonuç olarak, çocuk acil servislerinde iş barışının sağlanması, hizmet kalitesinin sürdürülebilir artışı ve hemşirelerin refahı için özlük haklarının iyileştirilmesi ile mesleki uzmanlaşmanın teşvik edilmesi büyük önem arz etmektedir.

Anahtar Kelimeler: Çocuk Acil Hemşireliği, Mesleki Beklenti, İş Doyumu, Sağlıkta İletişim

EXAMINATION OF PROFESSIONAL EXPECTATIONS OF NURSES WORKING IN SIVAS NUMUNE HOSPITAL PEDIATRIC EMERGENCY SERVICE**Abstract**

This study was conducted to determine the professional experiences, fundamental challenges encountered, and future expectations of nurses working in the pediatric emergency service through an in-depth analysis. In this study, designed with a qualitative research pattern, data were collected using semi-structured interview techniques with five nurses actively working at Sivas Numune Hospital. The data obtained from these comprehensive interviews were meticulously analyzed using the thematic analysis method, one of the primary qualitative data analysis techniques. According to the research results, the most significant professional challenge for nurses is communication problems and crisis management difficulties with patient relatives. Participants emphasized that factors such as long working hours, inadequate physical environments, lack of technical equipment, and the absence of specialized expert personnel in the field of pediatrics significantly increase the workload and stress levels. Furthermore, the direct interference of patient relatives in the treatment process and the unconscious practices of parents increase the potential for error and psychological tension among healthcare professionals. The main elements increasing job satisfaction were identified as team spirit, a harmonious working environment, successful medical interventions, and financial satisfaction. Recommendations for professional development include specialization, continuous in-service training, certificate programs, and following current scientific literature. Expectations such as transitioning to a single-item payment system for salaries, increasing social respectability, and protecting professional rights through legal regulations come to the fore. In conclusion, to ensure professional peace and improve service quality in pediatric emergency services, it is highly recommended to enhance the personal rights of nurses and encourage

professional specialization. Such institutional improvements are vital for sustainable healthcare delivery and professional well-being.

Keywords: Pediatric Emergency Nursing, Professional Expectation, Job Satisfaction, Communication in Health

SAĞLIK KURUMLARINDA KAYNAK KULLANIMI VE ÇALIŞAN MEMNUNİYETİNİN İNCELENMESİ**Gülhan FIRAT AKBULUT**

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Özet

Bu çalışmanın amacı; sağlık kurumlarında kaynak kullanımı ile çalışan memnuniyeti arasındaki ilişkiyi nitel veri analizi yöntemi kullanarak incelemektir. Sağlık kurumları; kısıtlı kaynaklar ile artan sağlık talepleri arasında denge kurmaya çalışan çok boyutlu, karmaşık, dinamizmi yüksek örgütsel yapılardır. Denge sürecinin kritik unsurlarından biri, sağlık çalışanlarının memnuniyetidir. Bu kapsamda; Aiken (2012), Kovner (2016), Blegen (2019), Ulrich (2020) gibi isimlerin makaleleri nitel veri analizi yöntemiyle incelenmiştir. Dört akademik çalışma üzerinde yapılan analiz sonucunda 4 ana tema ve bu temalara ait 15 kod belirlenmiştir. Temalar sırasıyla; İnsan Kaynakları ve Eğitim, Çalışma Ortamı ve İş Memnuniyeti, Bakım Kalitesi ve Hasta Güvenliği, Sağlık Politikaları ve Kaynak Yönetimidir. Bu temalara bağlı en çok tekrar eden kodlar ise Hasta-Hemşire Oranı/Personel Sayısı (4), İş Tatmini/Memnuniyet (7), Hasta Bakım Kalitesi/Algısı (5) ve Kaynak Tahsisi ve Dağıtımı (4)'dır. Bu inceleme ile, sağlık kurumlarında insan kaynağı, malzeme, tıbbi teknoloji, finansal kaynaklar ve zaman gibi kritik unsurların etkin yönetiminin hem hizmet kalitesinin sürdürülebilirliği hem de çalışan performansı açısından belirleyici bir faktör olduğu görülmüştür. Akademik çalışmalar üzerinde yapılan analiz sonucunda elde edilen bulgular, etkin kaynak yönetiminin çalışanların iş yükünü azalttığını, stres düzeyini düşürdüğünü ve tükenmişliğini azalttığını göstermektedir. Buna karşılık, kaynak yetersizliği, ekipman eksikliği ve personel yetersizliği çalışan memnuniyetini olumsuz etkileyen başlıca unsurlar olarak tanımlanmaktadır. Nitel veri analizi yöntemiyle yapılan bu çalışmanın bulguları, sağlık kurumlarında kaynak kullanımının çalışan memnuniyeti ile güçlü bir ilişki içerisinde olduğunu göstermektedir. Kurum bu kaynakları tehdit ettiğinde (kaynak yetersizliği, aşırı iş yükü vb.) memnuniyet oranının düştüğü görülmektedir. Sonuç olarak, kaynakların sadece niceliksel varlığının yeterli olmadığı, bu kaynakların destekleyici bir çalışma ortamı içerisinde adil dağıtımının çalışan memnuniyeti için temel şart olduğu saptanmıştır. Ayrıca sağlık kurumlarının, çalışan memnuniyetini artırmak için insan gücü planlamasını, malzeme tedarik süreçlerini ve organizasyonel yönetim stratejilerini iyileştirmeleri gerektiği önerilmektedir.

Anahtar Kelimeler: Kaynak Kullanımı, Çalışan Memnuniyeti, Sağlık Yönetimi, Örgütsel Verimlilik, Nitel Veri Analizi

INVESTIGATION OF RESOURCE UTILIZATION AND EMPLOYEE SATISFACTION IN HEALTHCARE INSTITUTIONS**Abstract**

This study aims to investigate the relationship between resource utilization and employee satisfaction in healthcare institutions using qualitative data analysis. Healthcare institutions are multidimensional, complex, and highly dynamic organizational structures striving to balance limited resources with increasing healthcare demands. A critical element in maintaining this balance is the satisfaction of healthcare professionals. Within this context, articles by prominent scholars such as Aiken (2012), Kovner (2016), Blegen (2019), and Ulrich (2020) were analyzed through qualitative methods. The analysis of four academic studies identified 4 main themes and 15 associated codes. These themes are Human Resources and Education, Working Environment and Job Satisfaction, Quality of Care and Patient Safety, and Health Policies and Resource Management. The most frequently recurring codes include Patient-Nurse Ratio/Staffing (4), Job Satisfaction (7), Patient Care Quality/Perception (5), and Resource Allocation and Distribution (4). The review demonstrates that the effective management of critical elements—such as human resources, materials, medical technology, financial resources, and time—is a decisive factor for both the sustainability of service quality and employee

performance. Findings indicate that efficient resource management reduces workload, stress levels, and burnout. Conversely, resource insufficiency, equipment shortages, and personnel deficits are identified as primary factors negatively impacting satisfaction. The results show a strong correlation between resource utilization and employee satisfaction. When institutional factors threaten these resources, satisfaction rates decline. Consequently, the quantitative presence of resources alone is insufficient; their fair distribution within a supportive environment is essential. It is recommended that healthcare institutions improve manpower planning, procurement processes, and organizational strategies to enhance employee satisfaction.

Keywords: Resource Utilization, Employee Satisfaction, Healthcare Management, Organizational Productivity, Qualitative Data Analysis.

SAĞLIK KOMUTA KONTROL MERKEZİ ÇALIŞANLARINDA İLETİŞİM ZORLUKLARI VE KRİZ YÖNETİMİ**Gülşah EKEN**

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Özet

Bu çalışma, 112 Acil Sağlık Komuta Kontrol Merkezi (SKKM) bünyesinde görev yapan personelin, kriz durumlarında karşılaştıkları iletişim engellerini ve bu süreçleri yönetmek adına geliştirdikleri stratejileri derinlemesine incelemek amacıyla gerçekleştirilmiştir. Nitel araştırma deseniyle kurgulanan bu çalışmada, Sivas SKKM’de görev yapan ve farklı kıdem sürelerine sahip yedi katılımcı ile yarı yapılandırılmış görüşmeler yapılmıştır. Elde edilen veriler tematik analiz yöntemiyle çözümlenmiş; iletişim kaynaklı aksaklıklar ve çözüm yolları belirli kategoriler altında toplanmıştır. Araştırma bulguları, iletişim problemlerinin en yoğun şekilde vatandaşlarla yaşandığını; bu durumun temelinde ise arayan kişilerin aşırı panik hali, talimatları dinlememesi, yetersiz adres tarifi ve bölgesel şive farklılıkları olduğunu göstermektedir. Personel tarafından "kriz" olarak nitelendirilen olayların başında; çoklu yaralamalı otobüs kazaları, toplu süt zehirlenmeleri, terör olayları ve yoğun kış şartları nedeniyle ulaşılamayan vakalar gelmektedir. Kriz yönetimini zorlaştıran temel unsurlar ise telsiz sinyal yetersizliği gibi teknik sorunlar, olay yerindeki ilk ekipten net bilgi alamama ve mevcut ambulans sayısının vaka yoğunluğuna kıyasla kısıtlı kalmasıdır. Katılımcılar, yoğun stres altındayken profesyonel mesafeyi korumaya çalıştıklarını ancak çocuk vakalarında duygusal olarak daha fazla zorlandıklarını ifade etmişlerdir. Çözüm önerisi olarak; vatandaşların 112 sistemini doğru kullanımı için kamu spotları ve okul eğitimleriyle bilinçlendirilmesi, SKKM personel sayısının artırılması, simülasyon temelli kriz eğitimlerinin sürekliliği ve saha ile komuta merkezi arasında rotasyon programlarının uygulanması gerektiği vurgulanmıştır. Sonuç olarak, etkin bir kriz yönetimi için teknik altyapının iyileştirilmesi ve toplumsal farkındalığın artırılması elzemdir.

Anahtar Kelimeler: 112 Acil Sağlık, Kriz Yönetimi, İletişim Zorlukları, Sağlık Komuta Kontrol Merkezi, Stres Yönetimi.

COMMUNICATION DIFFICULTIES AND CRISIS MANAGEMENT AMONG HEALTH COMMAND AND CONTROL CENTER EMPLOYEES**Abstract**

This study was conducted to examine in depth the communication barriers encountered by personnel working in the 112 Emergency Health Command and Control Center (HCCC) during crisis situations and the strategies they develop to manage these processes. Designed with a qualitative research method, semi-structured interviews were conducted with seven participants working in Sivas HCCC with different seniority periods. The data were analyzed using thematic analysis, and communication-related disruptions and solutions were grouped under specific categories. Research findings indicate that communication problems are most intensely experienced with citizens; the root causes being the extreme panic of callers, failure to follow instructions, inadequate address descriptions, and regional dialect differences. Events defined as "crises" by the personnel include multi-casualty bus accidents, mass food poisonings, terror incidents, and cases that cannot be reached due to severe winter conditions. The main factors complicating crisis management are technical problems such as radio signal insufficiency, inability to obtain clear information from the first team at the scene, and the limited number of available ambulances compared to the density of cases. Participants stated that they try to maintain professional distance under high stress but find it more emotionally challenging in pediatric cases. As solution proposals, it was emphasized that citizens should be made aware of the correct use of the 112 system through public service announcements and school education, the number of HCCC personnel should be increased, the continuity of simulation-based crisis training should be ensured, and rotation programs should

be implemented between the field and the command center. In conclusion, improving the technical infrastructure and increasing social awareness are essential for effective crisis management.

Keywords: 112 Emergency Health, Crisis Management, Communication Difficulties, Health Command and Control Center, Stress Management.

HEMŞİRELER İÇİN İŞYERİNDE GASTLING İN ÖLÇEKLENDİRİLMESİ İNCELENMESİ

Cansu KOÇYİĞİT ATAYETER

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Özet

Bu çalışmanın amacı, hemşirelerin işyerinde karşılaştıkları gaslighting düzeylerini belirlemek amacıyla yapılmıştır. Sağlık hizmetleri, yoğun iş yükü yüksek stres düzeyi nedeniyle çalışanların psikolojik şiddete maruz kalabildiği çalışma ortamlarıdır. Gaslighting, bireyin gerçeklik algısını sorgulamasına neden olan, özgüvenini zedeleyen ve bilişsel süreçlerini olumsuz etkileyen sistematik bir psikolojik manipülasyon türüdür. Çalışmada veri toplama aracı olarak “Hemşireler için İş Yerinde Gaslighting Ölçeği” (Katsiroumpa ve ark .2025) kullanılmıştır. Bu ölçek kendine güven kaybı cronbach alpha katsayısı 0,86 düzeyinde , gücün kötüye kullanılması cronbach alpha katsayısı 0,83 düzeyinde oldukça güvenilir bu iki faktör ile çalışılmıştır .Araştırma, Sivas il merkezindeki sağlık kuruluşunda görev yapan 100 kadın 49 erkek hemşirelere uygulanmıştır. Bu hemşirelerin , çalışma yılları 1-5 yıl 58 kişi, 6-10 yıl 45 kişi , 10+ yıl 27 kişi ve 1 yıldan az 19 kişi. Çalıştıkları birim servis 78 kişi , yoğun bakım 61 kişi ,steril alan 10 kişi. Çalışma şekilleri 41 kişi sadece gündüz 108 kişi hem gündüz hem gece olarak analiz edilmiştir .Veriler uygun istatistiksel yöntemler kullanılarak analiz edilmiştir.

Çarpıklık ve basıklık değerleri standart hataya bölünerek elde edilen sonuçlar kendine güven kaybında Skewness (çarpıklık) değeri 2,76 kurtosis (basıklık) değeri 1,76 gücün kötüye kullanılmasında Skewness (çarpıklık) değeri 2,01 kurtosis (basıklık) değeri 1,03 olarak bulunmuştur . Verilerin normal dağılım gösterdiği için parametrik teknikler kullanılmıştır. Sonuç olarak Cinsiyete , Eğitim Durumuna ve Birime göre faktörlerde istatistiksel olarak anlamlı farklılık bulunmamaktadır. Çalışma yılına ve çalışma şekline göre bakıldığında ise kendine güven kaybı faktöründe istatistiksel olarak anlamlı farklılık bulunmuştur ($p=0,03<0,05$). Kendine güven kaybı gündüz – gece çalışanların ,sürekli gündüz çalışanlarından daha fazladır. Çalışma yılına göre ise kendine güven kaybı 1 yıl ve altı çalışanları ile 10 yıl ve üstü çalışanların kendine güven kaybı düzeyindeki fark 0,74 olarak bulunmuştur, bu durumda 1 yıl ve altı çalışanların kendine güven kaybı 10 yıl ve üstü çalışanlarından daha fazla olduğu anlaşılmıştır.

Anahtar kelime: hemşirelerde mobbing, sağlıkta ve hemşirelikte gastling,

A STUDY ON THE SCALE AND EXAMINATION OF GASLIGHTING IN THE WORKPLACE FOR NURSES

Abstract

The aim of this study was to determine the levels of gaslighting (psychological manipulation) encountered by nurses in the workplace. Healthcare services are work environments where employees can be exposed to psychological violence due to heavy workload and high stress levels. Gaslighting is a type of systematic psychological manipulation that causes individuals to question their perception of reality, damages their self-confidence, and negatively affects their cognitive processes. The "Workplace Gaslighting Scale for Nurses" (Katsiroumpa et al. 2025) was used as a data collection tool in the study. This scale has a Cronbach alpha coefficient of 0.86 for loss of self-confidence and a Cronbach alpha coefficient of 0.83 for abuse of power was studied with a Cronbach's alpha coefficient of 0.83, indicating a highly reliable result for these two factors. The research was conducted on 100 female and 49 male nurses working in a healthcare facility in Sivas city center. The nurses' years of experience were distributed as follows: 1-5 years (58 individuals), 6-10 years (45 individuals), 10+ years (27 individuals), and less than 1 year (19 individuals). Their work units were: ward (78 individuals), intensive care unit (61 individuals), and sterile area (10 individuals). Their work schedules were analyzed as follows: day-only (41 individuals), both day and night shifts (108 individuals). Data were analyzed using appropriate statistical methods. The results obtained by dividing the skewness and kurtosis values by the

standard error were found to be 2.76 Skewness and 1.76 kurtosis for loss of self-confidence, and 2.01 Skewness and 1.03 kurtosis for abuse of power. Parametric techniques were used because the data showed a normal distribution. As a result, there were no statistically significant differences in the factors according to Gender, Education Level, and Unit. However, a statistically significant difference was found in the loss of self-confidence factor according to years of service and working style ($p=0.03<0.05$). Loss of self-confidence was greater among those working day and night shifts than those working continuously during the day. Regarding years of service, the difference in the level of loss of self-confidence between employees with 1 year or less of service and those with 10 years or more of service was found to be 0.74, indicating that employees with 1 year or less of service experienced a greater loss of self-confidence than those with 10 years or more of service.

Keywords: mobbing among nurses, gaslighting in healthcare and nursing,

ÇAY KATRANI İÇEREN SABUN ÜRETİMİ VE ANTİMİKROBİYAL ÖZELLİKLERİNİN İNCELENMESİ

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Özet

Çay endüstrisi atıklarının piroliz yöntemiyle katma değerli ürünlere dönüştürülmesi, sürdürülebilir biyo-ekonomi ve atık yönetimi açısından kritik bir öneme sahiptir. Bu çalışma, Çaydalı Kömür İşletmesi'nde mangal kömürü üretimi esnasında bir piroliz yan ürünü olarak elde edilen çay katranının (tea tar) sabunlaştırma (saponifikasyon) sürecindeki kullanım potansiyelini ve sentezlenen ürünlerin biyolojik aktivitesini belirlemeyi amaçlamaktadır.

Araştırma kapsamında hazırlanan lipid fazı temel olarak %25 Hindistan cevizi yağı, %35 Zeytin yağı, %5 Hint yağı, %5 fındık yağı ve %5 Ayçiçek yağından oluşan bir formülasyon ile yapılandırılmıştır. Sentez aşamasında, 30°C sıcaklıktaki lipid fazı, 32°C sıcaklıktaki %29'luk sodyum hidroksit çözeltisi (300 g yağ karışımı için 148 g kostik oranıyla) ile muamele edilerek soğuk süreç (cold process) yöntemi uygulanmıştır. Elde edilen baz sabun formülasyonuna kütlece %1, %1.5 ve %2 oranlarında çay katranı entegre edilerek farklı konsantrasyonlarda test numuneleri üretilmiştir. Hazırlanan ürünlerin antimikrobiyal spektrumu; *Mycobacterium smegmatis* (tüberküloz modeli), *Pseudomonas aeruginosa*, *Escherichia coli* ve *Staphylococcus aureus* dahil olmak üzere 10 farklı bakteri suşu ile *Candida albicans* gibi 3 farklı maya mantarı üzerinde Agar Blok, Minimum İnhibitör Konsantrasyonu (MIC) ve Minimum Bakterisidal Konsantrasyonu (MBC) yöntemleriyle analiz edilmiştir.

Elde edilen bulgular, antimikrobiyal etkinliğin çay katranı konsantrasyonu arttıkça (%1 < %1.5 < %2) lineer bir artış sergilediğini ve test edilen tüm patojenler üzerinde güçlü bir inhibitör aktivite gösterdiğini kanıtlamıştır. Özellikle Gram-pozitif bakteriler ve mayalar üzerindeki yüksek biyosidal etki, çay katranının terapötik değerini doğrulamaktadır. Literatürde ilk kez bu çalışma ile raporlanan çay katranlı sabunlar, tarımsal atıkların değerlendirilmesi (valorization) bağlamında özgün bir yaklaşım sunmakta; egzama ve sedef gibi dermatolojik rahatsızlıkların tedavisinde biyo-tabanlı yenilikçi bir terapötik ajan potansiyeli taşımaktadır.

Anahtar Kelimeler: Katran sabunu, Çay katranı, Saponifikasyon, Antimikrobiyal aktivite, Tarımsal atık değerlendirme, Piroliz.

PRODUCTION OF SOAP CONTAINING TEA TAR AND INVESTIGATION OF ANTIMICROBIAL PROPERTIES

Abstract

The valorization of tea industry wastes into value-added products via pyrolysis is critical for a sustainable bio-economy and effective waste management. This study aims to investigate the potential of tea tar, obtained as a thermotropic pyrolysis by-product during charcoal production at the Çaydalı Charcoal Enterprise, in the saponification process and to evaluate the biological activities of the synthesized products.

The lipid phase used in the research was primarily composed of 25% coconut oil, 35% olive oil, 5% castor oil, 5% hazelnut oil, and 5% sunflower oil. During the synthesis phase, the lipid phase at 30°C was treated with a 29% sodium hydroxide solution (148 g of caustic per 300 g of oil mixture) at 32°C using the cold process method. Tea tar was integrated into the base formulation at concentrations of 1%, 1.5%, and 2% (w/w) to derive various test samples. The antimicrobial spectrum of the products was analyzed against 10 bacterial strains, including *Mycobacterium smegmatis*, *Pseudomonas aeruginosa*, *Escherichia coli*, and *Staphylococcus aureus*, and 3 yeast fungi, including *Candida albicans*, utilizing Agar Block, Minimum Inhibitory Concentration (MIC), and Minimum Bactericidal Concentration (MBC) assays.

The findings demonstrated that antimicrobial efficacy increased linearly with higher tea tar concentrations (1% < 1.5% < 2%), exhibiting robust inhibitory activity across a broad pathogen spectrum. The significant biocidal effects observed, particularly against Gram-positive strains and yeasts, confirm the therapeutic value of tea tar. This study provides the first report on the saponification of tea-waste-derived tar in the literature. These soaps represent an innovative approach to agricultural waste valorization and possess significant potential as bio-based therapeutic agents for dermatological conditions such as eczema and psoriasis.

Keywords: Tar soap, Tea tar, Saponification, Antimicrobial activity, Agricultural waste valorization, Pyrolysis.

ADAÇAYI (*Sideritis montana*) EKSTRAKTINDAN ZnO-NP YEŞİL SENTEZİ**Farooq Ali OBAİD**

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Özet

Nanoteknoloji, son yıllarda bilim ve teknolojide en hızlı gelişen alanlardan biri olarak öne çıkmaktadır. Nanoteknoloji, 1-100 nm ölçeğinde çalışma imkânı sağlamakla beraber, bu ölçek malzemelerin fiziksel, kimyasal ve biyolojik özelliklerini önemli ölçüde değiştirmektedir. Bu sayede kimya, tıp, enerji, çevre gibi birçok alanda yüksek performanslı ve fonksiyonel yeni malzemelerin geliştirilmesini mümkün kılmıştır. Bu nedenle nanoteknoloji, günümüzde lisansüstü akademik çalışmaların temel araştırma alanlarından biri hâline gelmiş ve ürünleri çok farklı aktiviteler sergileyerek araştırmaların artarak devam etmesini sağlamıştır. Sergiledikleri birçok farklı (antimikrobiyal, antioksidan, fotokatalitik aktivite, antibiyofilm, vb.) aktivitelerden dolayı metal nano parçacıkların üretimine yoğun bir ilgi vardır. Nano parçacıkların bu özellikleri sadece boyutuna bağlı olarak değil aynı zamanda üretimi esnasında kullanılan biyojenik kaynağa göre de değişim göstermektedir. ZnO-NP için literatürde farklı çok çalışma bulunmakla beraber, her biri farklı özellikler sergilemektedir.

Bu gelişmelerden ilham alan bu çalışma; yerel bir aktardan alınan adaçayı (*Sideritis montana*) bitkisinin kullanıldığı ve tamamen yeşil kimya kurallarına bağlı kalınarak ZnO-NP üretimine dayanmaktadır. Üretim için; bitkinin suda kaynatılıp, süzülmesiyle elde edilen ekstrakt üzerine çinko asetat [$\text{Zn}(\text{CH}_3\text{COOH})_2$] tuzunun suda hazırlanan çözeltisi damla damla eklenmiştir. Isınıp karışmaya bırakılan karışım bir gün sonra santrifüj işlemine tabi tutulmuştur. Santrifüjlenerek ayrılan nanoparçacık çökeltisi etüvde 1 gün kurutulduktan sonra porselen kroze içerisinde kül fırına konularak 400°C’ de 4 saat kalsine edilmiştir. Elde edilen katı kütle suyla yıkanıp santrifüjlendikten sonra çinko oksit nanoparçacık olarak izole edilmiştir. Üretimin ardından karakterizasyon çalışmaları yapılacak ve farklı biyolojik aktiviteleri denenecektir.

Anahtar kelimeler: nanoteknoloji, nano parçacık, adaçayı, çinko oksit, yeşil kimya

ZnO-NP GREEN SYNTHESIS FROM SAGE (*Sideritis montana*) EXTRACT**Abstract**

Nanotechnology stands out as one of the fastest developing fields in science and technology in recent years. Although nanotechnology provides the opportunity to work at the 1-100 nm scale, this scale significantly changes the physical, chemical and biological properties of materials. In this way, it has made it possible to develop high-performance and functional new materials in many fields such as chemistry, medicine, energy and environment. For this reason, nanotechnology has become one of the main research areas of postgraduate academic studies today, and its products have enabled the research to continue increasingly by exhibiting many different activities. There is intense interest in the production of metal nanoparticles due to the many different activities they exhibit (antimicrobial, antioxidant, photocatalytic activity, antibiofilm, etc.). These properties of nanoparticles vary not only depending on their size but also on the biogenic source used during their

production. Although there are many different studies in the literature for ZnO-NP, each of them exhibits different properties.

This study is inspired by these developments; It is based on the production of ZnO-NP using sage (*Sideritis montana*) plant purchased from a local herbalist and adhering completely to the rules of green chemistry. For production; The solution of zinc acetate $[Zn(CH_3COOH)_2]$ salt prepared in water was added dropwise to the extract obtained by boiling the plant in water and filtering it. The mixture was left to heat and mix and was centrifuged one day later. The nanoparticle precipitate, separated by centrifugation, was dried in the oven for 1 day and then placed in the muffle oven in a porcelain crucible and calcined at 400°C for 4 hours. The resulting solid mass was isolated as zinc oxide nanoparticles after being washed with water and centrifuged. After production, characterization studies will be carried out and different biological activities will be tested.

Keywords: nanotechnology, nano particle, sage, zinc oxide, green chemistry

DİJİTAL TABANLI CİNSEL SAĞLIK MÜDAHALELERİNİN BİLGİ VE DAVRANIŞ DEĞİŞİMİNE ETKİSİ: KÜRESEL KANITLARIN SİSTEMATİK DERLEMESİ VE TÜRKİYE ALT GRUP ANALİZİ

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Özet

Dijital teknolojilerin sağlık alanında kullanımı, özellikle cinsel sağlık ve üreme sağlığı hizmetlerinde bilgiye erişimi artırma ve davranış değişimini destekleme potansiyeli nedeniyle küresel ölçekte giderek daha fazla araştırılmaktadır. Bu çalışma, küresel literatürde tanımlanan dijital tabanlı müdahalelerin bilgi ve davranış çıktıları üzerindeki etkilerini sistematik biçimde sentezlemeyi ve Türkiye kaynaklı verileri alt grup düzeyinde karşılaştırmalı olarak değerlendirmeyi amaçlamaktadır.

Araştırma, önceden tanımlanmış bir protokol doğrultusunda yürütülmüş; PubMed, Scopus ve Web of Science veri tabanlarında gerçekleştirilen taramalar sonucunda ulaşılan çalışmalar dahil etme ve dışlama ölçütlerine göre değerlendirilmiştir. Uygun bulunan projeler; hedef nüfus, müdahale süresi, teknoloji türü ve raporlanan sonuçlar bakımından yapılandırılmış kategoriler çerçevesinde karşılaştırılmış, ayrıca programların kurumsal yürütücülük özellikleri ile önleyici hizmetler ve danışmanlık süreçlerine yönelik bildirilen işlevleri analiz edilmiştir.

Elde edilen bulgular, birçok ülkede dijital uygulamaların bilgi düzeylerinde artış ve hizmet kullanımında iyileşme bildirdiğini göstermektedir. Müdahaleler; hedef popülasyon, teknoloji türü, içerik sunum modeli, değerlendirme yaklaşımı ve sürdürülebilirlik göstergeleri bakımından yapılandırılmış kategoriler çerçevesinde analiz edilmiştir. Ölçme yaklaşımlarında heterojenlik bulunduğu ve uzun dönem davranış sonuçlarına ilişkin kanıtların görece sınırlı kaldığı saptanmıştır. Türkiye'ye ait veriler, küresel eğilimlerle benzerlikler taşımakla birlikte raporlama derinliği ve metodolojik standardizasyon açısından gelişime açık alanlar bulunduğunu işaret etmektedir.

Sonuç olarak bu çalışma, Türkiye'nin küresel dijital sağlık literatürü içindeki yerini görünür kılmaktadır. Türkiye'de dijital sağlık uygulamalarının mevcut durumuna ilişkin kanıta dayalı ve yapılandırılmış bir çerçeve sunmakta; politika yapıcılar, program geliştiriciler ve araştırmacılar için gelecekte tasarlanacak müdahalelerin planlanması, izlenmesi ve değerlendirilmesine katkı sağlayacak çıkarımlar ortaya koymaktadır gelecekte tasarlanacak müdahaleler için karşılaştırılabilir, izlenebilir ve kanıta dayalı planlama süreçlerine katkı sunmaktadır.

Anahtar Kelimeler: Dijital Sağlık, Cinsel Sağlık, Üreme Sağlığı, Davranış Değişimi

IMPACT OF DIGITAL-BASED SEXUAL HEALTH INTERVENTIONS ON KNOWLEDGE AND BEHAVIOR CHANGE: A SYSTEMATIC REVIEW OF GLOBAL EVIDENCE AND A TURKEY SUBGROUP ANALYSIS

Abstract

The use of digital technologies in healthcare has been increasingly investigated worldwide, particularly due to their potential to enhance access to information and support behavior change in sexual and reproductive health services. This study aims to systematically synthesize the effects of digital-based interventions identified in the global literature on knowledge and behavioral outcomes and to comparatively evaluate data originating from Turkey at the subgroup level.

The research was conducted in line with a predefined protocol. Studies identified through searches in PubMed, Scopus, and Web of Science databases were assessed according to inclusion and exclusion criteria. Eligible

projects were compared within structured categories in terms of target population, duration of intervention, type of technology, and reported outcomes. In addition, institutional implementation characteristics of the programs, as well as their reported functions in preventive services and counseling processes, were analyzed.

The findings indicate that digital applications in many countries report improvements in knowledge levels and increased utilization of services. Interventions were analyzed within structured categories with respect to target populations, technology types, content delivery models, evaluation approaches, and sustainability indicators. Considerable heterogeneity was identified in measurement methods, and evidence regarding long-term behavioral outcomes remains relatively limited. Data from Turkey, while demonstrating similarities with global trends, point to areas for improvement in reporting depth and methodological standardization.

Overall, this study enhances the visibility of Turkey's position within the global digital health literature. It provides an evidence-based and structured framework regarding the current status of digital health practices in Turkey and offers implications that will contribute to the planning, monitoring, and evaluation of future interventions for policymakers, program developers, and researchers. The study supports the development of comparable, traceable, and evidence-informed planning processes for forthcoming initiatives.

Keywords: Digital Health, Sexual Health, Reproductive Health, Behavior Change

**HASTANE ÖNCESİ TRAVMA YÖNETİMİNDE TAKTİK TURNİKE KULLANIMININ
ETKİNLİĞİ: SİSTEMATİK DERLEME****Derya BOLAT**

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Özet

Taktik turnike müdahaleleri, hem askeri hem de sivil ortamlarda hayatı tehdit eden kanamaların kontrol altına alınmasında ve önlenabilir ölümlerin azaltılmasında kritik öneme sahiptir. Acil sağlık personeli, çoğu zaman sınırlı bilgiyle, yüksek riskli ve zaman baskısı altında çalışmak zorunda kalmaktadır. Bu nedenle, bu süreçte alınan kararların karmaşıklığı göz önünde bulundurulmalıdır. Hayatı tehdit eden ekstremitte kanamalarında turnike kullanımının en önemli yönlerinden biri, hangi kanama durumlarında bu müdahalenin gerekli olduğunu doğru şekilde belirleyebilmektir.

Bu derlemenin amacı, hastane öncesi travma yönetiminde turnike kullanımının etkinliğini değerlendirmektir. PubMed ve Google Scholar veri tabanlarında ilgili anahtar kelimeler kullanılarak yapılan taramada toplam 28 çalışma incelenmiştir. Çalışmaların büyük çoğunluğunda, turnike kullanımının hem askeri hem de sivil alanlarda yüksek başarı oranlarına sahip olduğu ve kanama kontrolünde etkili olduğu bildirilmiştir. Hastane öncesi dönemde turnikelerin yaklaşık %96 oranında kanama kontrolü sağladığı gösterilmiştir. Aynı çalışmada, turnikeye bağlı ciddi komplikasyon oranı %7,7 olarak rapor edilmiştir. ABD’de yapılan bir kohort çalışmasında ise turnike uygulanan hastalarda mortalite oranı %3 olarak bulunmuştur. Ayrıca, hastaların %81’inde taburculuk sırasında uzuv fonksiyonunun tamamen korunduğu bildirilmiştir. Bununla birlikte, bazı çalışmalarda turnike uygulamalarının %77’sinin endikasyon dışı olduğu belirtilmiştir. Askeri çalışmalarda da turnike kullanımının sağkalımı artırdığı gösterilmiştir.

Sonuç olarak, turnike uygulamasının başarısının uygulayıcının bilgi ve deneyimi ile ilişkili olduğunu, yanlış veya endikasyon dışı kullanımın ise komplikasyon riskini artırabileceğini göstermektedir. Genel olarak, taktik turnike kullanımının hastane öncesi travma yönetiminde kanama kontrolünde yüksek etkinliğe sahip olduğu, mortaliteyi azaltmada önemli rol oynadığı ve hayat kurtarıcı bir müdahale olduğu anlaşılmaktadır. Ancak, uygun endikasyon ve uygulama süresine dikkat edilmemesi durumunda komplikasyon riskinin artabileceği unutulmamalıdır. Bu nedenle, klinik uygulama kılavuzlarının turnike kullanımına yönelik eğitimleri desteklemesi ve uygun hasta seçimi ile doğru uygulama tekniklerinin vurgulanması önerilmektedir.

Anahtar Kelimeler: Hastane öncesi bakım, Turnike, Travma yönetimi, Kanama kontrolü

**EFFECTIVENESS OF TACTICAL TOURNIQUET USE IN PREHOSPITAL TRAUMA
MANAGEMENT: A SYSTEMATIC REVIEW****Abstract**

Tactical tourniquet interventions are critical for controlling life-threatening hemorrhage and reducing preventable deaths in both military and civilian settings. Emergency medical personnel often operate under conditions of limited information, high risk, and significant time pressure. Therefore, the complexity of decision-making in such situations must be carefully considered. One of the most important aspects of tourniquet use in life-threatening extremity hemorrhage is accurately determining which bleeding scenarios warrant this intervention.

The aim of this review is to evaluate the effectiveness of tourniquet use in prehospital trauma management. A total of 28 studies were identified through searches conducted in PubMed and Google Scholar using relevant keywords. The majority of the included studies reported that tourniquet use is highly effective in controlling hemorrhage, with high success rates observed in both military and civilian settings. In the prehospital setting, tourniquets were shown to achieve hemorrhage control in approximately 96% of cases. In the same study, the rate of serious complications associated with tourniquet use was reported as 7.7%. A cohort study conducted in the United States found a mortality rate of 3% among patients who received tourniquet application. Additionally, complete preservation of limb function at discharge was reported in 81% of patients. However, some studies indicated that up to 77% of tourniquet applications were performed without appropriate indications. Military studies have similarly demonstrated that tourniquet use improves survival.

In conclusion, the effectiveness of tourniquet application appears to be closely associated with the provider's knowledge and experience, while improper or non-indicated use may increase the risk of complications. Overall, tactical tourniquet use demonstrates high effectiveness in controlling hemorrhage in prehospital trauma care, plays a significant role in reducing mortality, and stands out as a life-saving intervention. However, failure to adhere to appropriate indications and application duration may increase the risk of complications. Therefore, clinical practice guidelines should emphasize training in tourniquet use, appropriate patient selection, and correct application techniques.

Keywords: Prehospital care, Tourniquet, Trauma management, Hemorrhage control

MEVZUATTAN PRATIĞE: SÜRDÜRÜLEBİLİR AKILLI KENTLER ÜZERİNE BİR DEĞERLENDİRME**Betül DİLFİRÜZ**

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Özet

Artan kentleşme dinamikleri, doğal kaynakların verimli kullanımı ve çevresel sorunların yönetimi gerekliliği, akıllı kent yaklaşımlarını günümüz kent politikalarının merkezine yerleştirmektedir. Bu çalışmanın amacı, akıllı kent olgusunu sürdürülebilirlik ekseninde değerlendirerek, farklı ölçeklerdeki mevzuat düzenlemeleri ile uygulamadaki karşılıkları arasındaki ilişkiyi ortaya koymaktır. Bu bağlamda çalışma, akıllı kentlerin yalnızca teknoloji temelli bir dönüşüm değil, aynı zamanda sürdürülebilir kalkınma ilkeleriyle bütünleşen bir yönetim anlayışı sunduğunu tartışmaktadır.

Araştırmada nitel araştırma yöntemi tercih edilmiş; veri toplama sürecinde literatür incelemesi ve doküman analizi tekniklerinden yararlanılmıştır. Bu kapsamda, akıllı kent kavramına ilişkin akademik çalışmalar incelenmiş; uluslararası politika metinleri, ulusal strateji belgeleri ve yerel yönetim düzenlemeleri karşılaştırmalı bir çerçevede ele alınmıştır. Elde edilen bulgular, sürdürülebilirlik ile akıllı kent ilişkisi doğrultusunda analiz edilmiştir.

Çalışma sonucunda, akıllı kentlere yönelik mevzuatın genel olarak sürdürülebilirlik ilkeleriyle örtüştüğü; ancak uygulama düzeyinde çeşitli eksiklikler ve uyumsuzluklar bulunduğu belirlenmiştir. Özellikle yerel uygulamalarda mevzuatın öngördüğü hedeflerin tam olarak gerçekleştirilemediği görülmektedir. Bu doğrultuda, sürdürülebilir akıllı kentlerin hayata geçirilebilmesi için mevzuat ile uygulama arasındaki uyumun artırılması, çok aktörlü yönetim süreçlerinin güçlendirilmesi ve yerel düzeyde kurumsal kapasitenin geliştirilmesi gerektiği sonucuna ulaşılmıştır.

Anahtar Kelimeler: Sürdürülebilirlik, Akıllı Kentler, Kent Politikaları, Mevzuat Analizi

FROM LEGISLATION TO PRATICA: AN ASSESSMENT OF SUSTAINABLE SMART CITIES**Abstract**

Rapid urbanization, the need for efficient resource management, and increasing environmental challenges have positioned smart city approaches at the center of contemporary urban policies. This study aims to examine the concept of smart cities from a sustainability perspective by analyzing the relationship between legislative frameworks and their practical implementations at global, national, and local levels. In this context, the study argues that smart cities should be understood not only as a technology-driven transformation but also as an integrated governance model aligned with sustainable development principles.

The research adopts a qualitative methodology, utilizing literature review and document analysis techniques. Academic studies on smart cities are examined alongside international policy documents, national strategy papers, and local government regulations within a comparative framework. The collected data are analyzed in relation to the interplay between sustainability and smart city approaches.

The findings indicate that, while legislative frameworks for smart cities are largely consistent with sustainability principles, there are notable gaps and inconsistencies in their implementation. In particular, local-level practices often fall short of fully reflecting the objectives outlined in legislation. Therefore, the study concludes that enhancing coherence between legislation and practice, strengthening multi-stakeholder governance mechanisms, and improving local institutional capacity are essential for achieving sustainable smart cities.

Keywords: Sustainability, Smart Cities, Urban Policies, Legislative Analysis

SÜRDÜRÜLEBİLİR KAMU YÖNETİMİ BAĞLAMINDA BÜRO YÖNETİMİ VE YÖNETİCİ ASİSTANLIĞININ TEORİK ROLÜ**Betül DİLFİRİZ**

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Özet

Sürdürülebilirlik, günümüzde kamu yönetimi alanında giderek daha fazla tartışılan ve kuramsal açıdan derinleşen kavramlardan biridir. Bununla birlikte sürdürülebilir kamu yönetimine ilişkin çalışmalar çoğunlukla politika tasarımı, stratejik planlama ve üst yönetim düzeyindeki karar alma mekanizmalarına odaklanmakta; kamu örgütlerinin gündelik işleyişinde belirleyici olan büro yönetimi ve yönetsel destek faaliyetleri ise sınırlı ölçüde ele alınmaktadır. Bu çalışmada, sürdürülebilir kamu yönetiminin yalnızca makro düzey düzenlemelerle değil, kurum içindeki günlük yönetsel uygulamalar aracılığıyla yerleşiklik kazandığı ileri sürülmektedir.

Çalışmanın temel amacı, büro yönetimi ve yönetici asistanlığının sürdürülebilir kamu yönetimi içerisindeki kuramsal yerini açıklığa kavuşturmadır. Araştırma, nitel bir yaklaşım doğrultusunda kurgulanmış olup kavramsal ve kuramsal çözümlemeye dayanmaktadır. Bu kapsamda sürdürülebilir kamu yönetimi, sürdürülebilir yönetim ve kurumsal kapasite yaklaşımlarına ilişkin literatür incelenmiş; söz konusu kuramsal çerçeve büro yönetimi ve yönetici asistanlığının kamu kurumlarındaki yönetsel işlevleriyle ilişkilendirilerek yorumlanmıştır.

Yapılan değerlendirmeler, büro yönetimi ve yönetsel destek süreçlerinin bilgi dolaşımının düzenlenmesi, kurum içi eşgüdümün sağlanması, kurumsal hafızanın sürekliliğinin korunması ve idari istikrarın desteklenmesi yoluyla sürdürülebilirliğin kurumsal düzeyde yerleşmesine önemli katkılar sunduğunu göstermektedir. Sonuç olarak, büro yönetimi ve yönetici asistanlığının kamu örgütlerinde yalnızca idari destek sunan birimler olarak değil, sürdürülebilir yönetimin kurumsal sürekliliğini sağlayan temel unsurlar arasında değerlendirilmesi gerektiği savunulmaktadır. Bu yönüyle çalışma, büro yönetimi ve yönetici asistanlığı alanı ile sürdürülebilir kamu yönetimi literatürü arasında kuramsal bir bağlantı kurmakta ve söz konusu alanlardaki eğitim programları açısından sürdürülebilirlik odaklı yetkinliklerin önemine dikkat çekmektedir.

Anahtar Kelimeler: Sürdürülebilirlik, Kamu Yönetimi, Büro Yönetimi ve Yönetici Asistanlığı, Kurumsal Kapasite

THE THEORETICAL ROLE OF OFFICE MANAGEMENT AND EXECUTIVE ASSISTANCE IN THE CONTEXT OF SUSTAINABLE PUBLIC ADMINISTRATION**Abstract**

Sustainability is one of the concepts that has been increasingly discussed and theoretically deepened in the field of public administration today. However, studies on sustainable public administration mostly focus on policy design, strategic planning, and decision-making mechanisms at the top management level; office management and administrative support activities, which are decisive in the daily functioning of public organizations, are addressed only to a limited extent. This study argues that sustainable public administration is institutionalized not only through macro-level regulations but also through daily managerial practices within organizations.

The main aim of the study is to clarify the theoretical position of office management and executive assistance within sustainable public administration. The research is designed in line with a qualitative approach and is based on conceptual and theoretical analysis. In this context, the literature on sustainable public administration, sustainable governance, and institutional capacity approaches has been examined; this theoretical framework has been interpreted by associating it with the managerial functions of office management and executive assistance in public institutions.

The evaluations indicate that office management and administrative support processes make significant contributions to the institutionalization of sustainability by regulating the flow of information, ensuring internal coordination, maintaining the continuity of institutional memory, and supporting administrative stability. In conclusion, it is argued that office management and executive assistance should be considered not merely as units providing administrative support in public organizations, but as fundamental components that ensure the institutional continuity of sustainable governance. In this respect, the study establishes a theoretical link between the field of office management and executive assistance and the literature on sustainable public administration, and highlights the importance of sustainability-oriented competencies in educational programs related to these fields.

Keywords: Sustainability, Public Administration, Office Management and Executive Assistance, Institutional Capacity

SMART CITY PHENOMENON FROM CONCEPTUAL DIMENSION TO PRACTICE: GLOBAL TRENDS AND THE CASE OF TÜRKİYE

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Abstract

The phenomenon of the smart city has gained a central position in modern urbanization literature, aiming to maximize resource efficiency and sustainably improve the quality of life for citizens by integrating information and communication technologies (ICT) into every level of urban existence. The physical space-oriented structure of traditional urbanism has now been replaced by a digital ecosystem woven with technological layers such as the Internet of Things (IoT), big data analytics, artificial intelligence, and cloud computing. The historical and theoretical evolution of this concept has progressed from the automation-oriented "Smart City 1.0" model, initially dominated by technology providers, to "Smart City 2.0," where local governments approach technology as a strategic tool, and finally to the "Smart City 3.0" vision, which centers on human capital, social inclusion, and democratic participation. The six core components introduced to the literature by Rudolf Giffinger—smart economy, smart mobility, smart environment, smart people, smart living, and smart governance—prove that the issue is not merely a matter of technical infrastructure but rather a multidisciplinary governance area. From the perspective of the public administration discipline, this transformation symbolizes a transition from rigid hierarchical bureaucracies to flexible and participatory network governance models, institutionalizing democratic values such as transparency and accountability through digital platforms. However, as critical approaches in the literature point out, this process brings significant risks, such as the "digital divide" where groups with limited access to technology are excluded, violations of data privacy, and "technological determinism" where social needs are overlooked. In light of this theoretical framework, this study examines the reasons for the emergence of smart cities, such as rapid population growth and the limitation of urban resources, and compares global pioneering examples—such as Barcelona, Singapore, and Amsterdam—with local application practices in Türkiye through a descriptive analysis. As the primary output of the study, it is revealed that in order to increase the number of smart cities in Türkiye and enhance the quality of applications, an institutional strategy set is required. This set must include not only technology investment but also social integration, ethical data management, and citizen-centered design processes. Ultimately, smart cities are not projects consisting merely of sensors, but the construction of a sustainable and resilient urban future.

Keywords: Smart City, Governance, Digital Transformation, Urban Policy, Türkiye.

KAVRAMSAL BOYUTTAN UYGULAMAYA AKILLI KENT OLGUSU: KÜRESEL EĞİLİMLER VE TÜRKİYE ÖRNEĞİ

Özet

Akıllı kent olgusu, modern kentleşme literatüründe bilgi ve iletişim teknolojilerinin (BİT) kentsel yaşamın her kademesine entegre edilerek kaynak verimliliğinin maksimize edilmesi ve vatandaş yaşam kalitesinin

sürdürülebilir şekilde yükseltilmesi hedefiyle merkezi bir konum edinmiştir. Geleneksel şehircilik anlayışının fiziksel mekan odaklı yapısı, günümüzde yerini nesnelerin interneti (IoT), büyük veri analitiği, yapay zeka ve bulut bilişim gibi teknolojik katmanlarla örülü dijital bir ekosisteme bırakmıştır. Bu kavramın tarihsel ve kuramsal evrimi; başlangıçta teknoloji sağlayıcılarının domine ettiği otomasyon odaklı "Akıllı Kent 1.0" modelinden, yerel yönetimlerin teknolojiye stratejik bir araç olarak yaklaştığı "Akıllı Kent 2.0"a ve nihayetinde insan sermayesini, sosyal kapsayıcılığı ve demokratik katılımı merkeze alan "Akıllı Kent 3.0" vizyonuna doğru bir gelişim göstermiştir. Rudolf Giffinger tarafından literatüre kazandırılan; akıllı ekonomi, akıllı hareketlilik, akıllı çevre, akıllı insanlar, akıllı yaşam ve akıllı yönetimden oluşan altı temel bileşen, konunun sadece teknik bir altyapı meselesi olmadığını, aksine çok disiplinli bir yönetim alanı olduğunu kanıtlamaktadır. Kamu yönetimi disiplini penceresinden bakıldığında bu dönüşüm, katı hiyerarşik bürokrasiden esnek ve katılımcı ağ tipi yönetim modellerine geçişi simgelemekte; şeffaflık ve hesap verebilirlik gibi demokratik değerleri dijital platformlar üzerinden kurumsallaştırmaktadır. Ancak bu süreç, literatürdeki eleştirel yaklaşımların da dikkat çektiği üzere; teknolojiye erişimi kısıtlı grupların dışlandığı "dijital uçurum", veri mahremiyetinin ihlali ve toplumsal ihtiyaçların göz ardı edildiği "teknolojik determinizm" gibi ciddi riskleri de beraberinde getirmektedir. Bu teorik çerçeve ışığında hazırlanan çalışmada, akıllı kentlerin hızlı nüfus artışı ve kentsel kaynakların sınırlılığı gibi ortaya çıkış nedenleri irdelenmiş; Barselona, Singapur ve Amsterdam gibi küresel öncü örnekler ile Türkiye'deki yerel uygulama pratikleri betimsel bir analizle karşılaştırılmıştır. Çalışmanın temel çıktısı olarak, Türkiye'deki akıllı kent sayısının artırılması ve uygulamaların nitelik kazanması adına; sadece teknoloji yatırımı değil, aynı zamanda sosyal entegrasyonu, etik veri yönetimini ve vatandaş odaklı tasarım süreçlerini içeren kurumsal bir strateji setinin gerekliliği ortaya konulmuştur. Sonuç itibarıyla akıllı kentler, sensörlerden ibaret bir proje değil, sürdürülebilir ve dirençli bir kentsel gelecek inşasıdır.

Anahtar Kelimeler: Akıllı Kent, Yönetişim, Dijital Dönüşüm, Kent Politikası, Türkiye.

KÜRESELLEŞMEYE KARŞI YEREL BİR DİRENİŞ MODELİ OLARAK SAKİN ŞEHİR (CİTTASLOW): TEORİK TEMELLER VE TÜRKİYE UYGULAMALARI ÜZERİNE BİR İNCELEME

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Özet

Sakin şehir (Cittaslow) olgusu, küreselleşmenin beraberinde getirdiği mekânsal tek tipleşmeye, hızla artan tüketime ve kentsel yabancılaşmaya karşı yerel bir direniş modeli olarak günümüz şehircilik literatüründe kritik bir öneme sahiptir. 1999 yılında İtalya'da "Slow Food" hareketinin felsefi temelleri üzerine inşa edilen bu yaklaşım; kentin özgün kimliğini, yerel geleneklerini ve doğal kaynaklarını koruyarak sürdürülebilir bir yaşam kalitesi sunmayı hedeflemektedir. Kavramsal evrimi içerisinde Cittaslow; çevre politikaları, altyapı iyileştirmeleri, kentsel dokunun korunması, yerel üretimin desteklenmesi ve sosyal uyum gibi yetmişten fazla katı kriteri içeren kurumsal bir yönetim ağına dönüşmüştür. Kamu yönetimi perspektifinden bakıldığında bu model, yerel aktörlerin karar alma süreçlerine katılımını teşvik eden ve yerel kalkınma odaklı yeni bir belediyeçilik paradigmasını temsil etmektedir. Bu çalışmada, sakin şehir hareketinin felsefi kökenleri irdelenmiş; Avrupa'daki öncü örneklerin yanı sıra Türkiye'nin farklı bölgelerinden seçilen Cittaslow ağındaki kentler betimsel bir analizle incelenmiştir. Çalışmanın temel çıktısı olarak, Türkiye'deki uygulamaların salt turistik birer destinasyon olmanın ötesine geçebilmesi için kentsel kimlik, ekolojik sürdürülebilirlik ve sosyo-ekonomik refahı kapsayan bütünsel bir stratejik planlama sürecinin kurumsallaştırılması gerektiği vurgulanmaktadır.

Anahtar Kelimeler: Sakin Şehir, Cittaslow, Yerel Kalkınma, Küreselleşme, Türkiye.

CITTASLOW AS A LOCAL MODEL OF RESISTANCE AGAINST GLOBALIZATION: A REVIEW OF THEORETICAL FOUNDATIONS AND APPLICATIONS IN TURKEY

Abstract

The Cittaslow (Slow City) phenomenon holds critical importance in contemporary urban planning literature as a local resistance model against the spatial homogenization, rapidly increasing consumption, and urban alienation brought about by globalization. Built upon the philosophical foundations of the "Slow Food" movement in Italy in 1999, this approach aims to offer a sustainable quality of life by preserving the city's unique identity, local traditions, and natural resources. In its conceptual evolution, Cittaslow has transformed into an institutional governance network encompassing over seventy strict criteria, including environmental policies, infrastructure improvements, preservation of the urban fabric, support for local production, and social cohesion. From a public administration perspective, this model represents a new municipal paradigm that encourages the participation of local actors in decision-making processes and focuses on local development. This study examines the philosophical origins of the Cittaslow movement; it descriptively analyzes leading examples from Europe as well as selected cities in the Cittaslow network from different regions of Turkey. The main outcome of the study emphasizes that, in order for practices in Turkey to go beyond being mere

tourist destinations, an integrated strategic planning process encompassing urban identity, ecological sustainability, and socio-economic well-being needs to be institutionalized.

Keywords: Slow City, Cittaslow, Local Development, Globalization, Türkiye.

FROM HISTORICAL DEPTH TO LOCAL DEVELOPMENT STRATEGIES: A SOCIO-ECONOMIC TRANSFORMATION ANALYSIS OF ZİLE DISTRICT

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Abstract

This study aims to deeply analyze the current socio-economic structure of Zile district in Tokat province, one of the oldest settlements in Anatolia, based on its four-thousand-year-old historical heritage and in light of modern economic and demographic indicators. The research evaluates Zile's historical continuity from ancient times to the Republic era through critical developmental stages such as the region's integration into modern economic networks, phases of financial deepening, and the institutionalization of local trade. The fundamental question of the study is how the district's past role as a regional trade center paved the way for structural transformations in the modern era. Methodologically, this research, which is a descriptive district analysis based on secondary data sources, synthesizes data from the Turkish Statistical Institute (TÜİK), reports from the Tokat Governorship, and current academic literature. Within the scope of the research, key demographic variables such as population projections, education level, and the general overview of the labor market are examined. The analyses reveal that Zile has experienced a significant population loss in recent years, and that this demographic erosion is primarily due to outward migration driven by socio-economic reasons. The study identifies the fundamental factors triggering the loss of human capital in Zile, particularly the preservation of the district's traditional agricultural production memory, coupled with limited industrialization initiatives and registered employment opportunities that would retain the workforce in the region. The findings indicate that Zile needs a qualitative acceleration in the industrial and service sectors to regain its historical status as a "center of attraction." To strengthen the socio-economic dynamics of the district and prevent outward migration, a holistic regional development model is necessary, strategically coordinating public investments with local entrepreneurial motivation. In conclusion, this paper aims to reinforce Zile's role as an actor in the regional economic system by presenting policy recommendations that integrate its historical capital with logistical and industrial opportunities.

Keywords: Zile, Socio-economic structure, Regional development, District analysis, Demographics, Employment.

TARİHSEL DERİNLİKTEN YEREL KALKINMA STRATEJİLERİNE: ZİLE İLÇESİNİN SOSYO-EKONOMİK DÖNÜŞÜM ANALİZİ

Özet

Bu çalışma, Anadolu'nun en köklü yerleşim merkezlerinden biri olan Tokat ili Zile ilçesinin dört bin yıllık tarihsel mirasından hareketle, günümüz modern iktisadi ve demografik göstergeleri ışığında mevcut sosyo-ekonomik yapısını derinlemesine analiz etmeyi amaçlamaktadır. Araştırma, Zile'nin antik dönemlerden Cumhuriyet'e uzanan tarihsel sürekliliğini; bölgenin modern iktisadi ağlara eklenme süreçleri, finansal derinleşme evreleri ve yerel ticaretin kurumsal bir kimlik kazanması gibi kritik gelişim aşamaları üzerinden değerlendirmektedir. İlçenin geçmişte üstlendiği bölgesel ticaret merkezi rolünün, modern dönemdeki yapısal dönüşümlere nasıl zemin hazırladığı çalışmanın temel sorunsalını oluşturmaktadır. Metodolojik olarak ikincil veri kaynaklarına dayalı betimsel bir ilçe analizi niteliği taşıyan bu çalışmada; Türkiye İstatistik Kurumu (TÜİK) verileri, Tokat Valiliği raporları ve güncel akademik literatür sentezlenmiştir. Araştırma kapsamında

ilçenin nüfus projeksiyonları, eğitim düzeyi ve işgücü piyasasının genel görünümü gibi demografi odaklı temel değişkenler incelenmiştir. Yapılan analizler, Zile'nin son yıllarda belirgin bir nüfus kaybı yaşadığını ve bu demografik erozyonun temelinde sosyo-ekonomik nedenlere bağlı dış göçün yer aldığını ortaya koymaktadır. Özellikle yerel ekonominin geleneksel tarım ağırlıklı üretim hafızasını korumakla birlikte, işgücünü bölgede tutacak sanayileşme girişimleri ve kayıtlı istihdam olanaklarının sınırlı kalması, ilçenin beşeri sermaye kaybını tetikleyen temel unsurlar olarak saptanmıştır. Elde edilen bulgular, Zile'nin sahip olduğu tarihsel "cazibe merkezi" vasfının yeniden kazanılması için sanayi ve hizmetler sektöründe nitelikli bir ivmelenmeye ihtiyaç duyduğunu göstermektedir. İlçenin sosyo-ekonomik yapı dinamiklerinin güçlendirilmesi ve dış göçün engellenmesi adına, kamu yatırımları ile yerel girişimci motivasyonunu stratejik bir eşgüdüm içerisinde birleştirecek bütüncül bir bölgesel kalkınma modelinin gerekliliği sonucuna ulaşılmıştır. Sonuç olarak bildiri; Zile'nin tarihsel sermayesini lojistik ve endüstriyel fırsatlarla bütünleştirecek politika önerileri sunarak, ilçenin bölgesel iktisadi sistemdeki aktörlüğünü yeniden tahkim etmeyi hedeflemektedir.

Anahtar Kelimeler: Zile, Sosyo-ekonomik yapı, Bölgesel kalkınma, İlçe analizi, Demografi, İstihdam.

**OSMANLI VAKIF KÜLTÜRÜNDE KADINLAR TARAFINDAN KURULAN VAKIFLARIN
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Özet

Vakıflar Osmanlı Devleti'nin en önemli kurumlarından biridir. Osmanlı Devletinde vakıflar, toplumun temel ihtiyaçları olan sağlık, eğitim, bayındırlık, dini ve kültürel hizmetlerin önemli bir kısmını yerine getirmesi nedeniyle Türk toplum yapısı içerisinde önemli bir yere sahip olduğunu görmek mümkündür. Osmanlı vakıfları, Osmanlı Devletinin yapısı göz önünde tutulduğunda günümüzdeki Sivil Toplum Kuruluşları'na benzer fonksiyonlar üstlenmişlerdir. Osmanlı Devleti'nde sivil topluma örnek niteliğinde olan Vakıflar devlet yönetiminin içinde yer almayan ancak devlet tarafından denetimi ile sosyal, ekonomik ve kültürel alanlarda hizmet vermişler başta yardımlaşma olmak üzere kamusal alanda faaliyetlerde bulunarak devletin yükünü hafifletme görevini yerine getirmişlerdir.

Çalışmamız açısından Osmanlı'da vakıfları önemli kılan husus ise, kadınların da vakıf kurabilmesidir. Her ne kadar Osmanlı'da kadınların çalışma hayatında etkin olmadıkları ve kamusal alanda var olmalarının mümkün olmadığı bir gerçek olsa da, vakıflar açısından durum farklıdır. Kadınların kurmuş oldukları vakıflar ve gerçekleştirdikleri hayır işleri Osmanlı kadınının mülk sahibi olduğunun bir göstergesi olarak kabul edilebilir. Osmanlı Devletinde kadınlar maddi güçleri oranında hayır işlerinde bulunmuşlar, vakıflarda yönetici olarak da görev almışlardır. Osmanlı toplumunda kadınlar tarafından kurulan vakıflara bakıldığında bu vakıfların özellikle eğitim başta olmak üzere sağlık, din ve kültüre yönelik olduğunu görülmektedir. Ayrıca Osmanlıda vakıf kuran kadınların özellikle saray kadınları ve valide sultanlar olması da dikkat çeken önemli bir husustur.

Bu çalışmamızda, toplumsal yapı içerisinde vakıflar aracılığıyla Osmanlı kadınının, kamusal alana katkısını ve bu vakıfların kadınlar açısından gerçekleştirdiği sosyal hizmetlerin neler olduğunu ortaya koymaya çalışacağız. Araştırmada literatür çalışması yapılarak; sosyal hizmet ve kamusal alanda kadınlar tarafından kurulmuş vakıfların koruyucu ve yerel düzeyde toplumsal problemleri çözen yönü üzerinde duracağız. Çalışmamızın sonucunda Osmanlıda kadının toplum hayatında vakıflar üzerinden nasıl etkin yer aldığı; aynı zamanda da sosyal sorumluluk alma hususunda üstlendiği rolü ortaya koymaya gayret edeceğiz.

Anahtar Kelimeler: Kadın, Vakıf, Sosyal Sorumluluk, Osmanlı Vakıfları

**THE PLACE AND IMPORTANCE OF FOUNDATIONS ESTABLISHED BY WOMEN IN SOCIAL
LIFE WITHIN OTTOMAN FOUNDATION CULTURE****Abstract**

Foundations were one of the most important institutions of the Ottoman Empire. In the Ottoman Empire, foundations held a significant place within the Turkish social structure due to their fulfillment of a substantial portion of the basic needs of society, such as health, education, public works, religious, and cultural services. Considering the structure of the Ottoman Empire, Ottoman foundations undertook functions similar to those of modern-day Civil Society Organizations. Serving as examples of civil society in the Ottoman Empire, these foundations, while not directly involved in state administration, provided services in social, economic, and cultural fields under state supervision. They primarily engaged in mutual aid activities, thus alleviating the burden on the state. What makes Ottoman foundations significant for our study is the ability of women to

establish them. Although it is true that women were not active in the workforce and their presence in the public sphere was not possible in the Ottoman Empire, the situation was different regarding foundations. The foundations established by women and the charitable works they carried out can be considered an indication of Ottoman women owning property. In the Ottoman Empire, women participated in charitable works to the extent of their financial means and also served as administrators in foundations. Examining the foundations established by women in Ottoman society, it is evident that these foundations were primarily focused on education, but also included health, religion, and culture. Furthermore, it is noteworthy that the women who established foundations in the Ottoman Empire were mainly palace women and valide sultans (mothers of sultans). In this study, we will attempt to reveal the contribution of Ottoman women to the public sphere through foundations within the social structure, and the social services these foundations provided for women. Through a literature review, we will focus on the protective and local-level problem-solving aspects of foundations established by women in the social service and public sphere. As a result of our study, we will strive to demonstrate how women in the Ottoman Empire effectively participated in social life through foundations and the role they undertook in assuming social responsibility.

Keywords: Women, Foundation, Social Responsibility, Ottoman Foundations

AKP ve CHP ÖZELİNDE SİYASİ PARTİ PROGRAMLARININ KADIN POLİTİKALARI BAĞLAMINDA DEĞERLENDİRİLMESİ VE PRATİK ALANDAKİ UYUMU**Doç. Dr. M. Nazan ARSLANEL**

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Özet

Demokrasilerde önemli bir role sahip olan siyasi partiler, toplumun farklı kesimlerinin talep ve tercihlerini dikkate alarak siyasal sisteme aktaran yapılardır. Siyasal partiler seçmen kitlesinin taleplerini gerçekleştirme noktasında gerek duyulan plan ve programı oluşturarak siyasal hayatta uygulamaya koyarlar. Seçmen kitlesini etkilemek adına belirlenen politikalar uygulamada bazen tam karşılığına ulaşabilirken bazen bu politikalar karşılığını bulamazlar. Partilerin uygulamada karşılığını bulamadığı alanların başında kadınlara yönelik politikalarında gözlemlemek mümkündür. Kadının toplumsal hayatta varlığını ortaya koyabilme mücadelesinde siyasi partiler önemli bir rol üstlenmektedirler. Özellikle parti programlarında ve söylemlerinde kadınlara yönelik vaatleri, kadın seçmenlerin partiye yakınlaştırmalarına hatta aktif olarak partide var olmalarına imkan verirken, parti program ve söylemlerinde kadına ayrı bir yer veriliyor olması aslında erkekler için olduğu iddia edilen siyasette kadının cinsiyet ayrımına tabi tutulduğunun da bir göstergesidir.

Kadınların toplum hayatının her alanında var olma mücadelesini bu çalışmamızda siyasal alana dahil olma çabası açısından ele almaya çalışacağız. Parti program ve söylemlerinde kadını siyasal hayata dahil etme sürecinde partilerin cinsiyetçi bir düşünceden hareketle nasıl ortaya konulduğunu açıklamaya gayret ederken, kadının siyasal alanda temsil yetersizliğini iktidar partisi olan Adalet ve Kalkınma Partisi ve a

na muhalefet partisi olan Cumhuriyet Halk Partisi'nin parti programları esas alınarak kadın söylemleri ve parti programlarının siyaset pratiğindeki karşılığı üzerinden değerlendirmeye çalışacağız.

Anahtar kelimeler: Kadın, Parti Programı, Siyasal Katılım, AKP, CHP

VALUATION OF POLITICAL PARTY PROGRAMS, SPECIFICALLY AKP AND CHP, IN THE CONTEXT OF WOMEN'S POLICIES AND THEIR PRACTICAL CONFORMITY**Abstract**

Political parties, which play a significant role in democracies, are structures that incorporate the demands and preferences of different segments of society into the political system. They create and implement plans and programs to meet the demands of their electorate. While policies designed to influence the electorate sometimes achieve their full potential in practice, sometimes they fail to do so. One of the areas where parties often fail to achieve their goals is in their policies concerning women. Political parties play a crucial role in women's struggle to assert their presence in social life. While promises made to women in party programs and rhetoric may draw female voters closer to the party and even enable their active participation, the fact that women are given a separate place in party programs and rhetoric is actually an indication that women are subjected to gender discrimination in politics, which is claimed to be for men.

In this study, we will try to examine women's struggle for presence in all areas of social life from the perspective of their efforts to participate in the political arena. While striving to explain how parties present themselves based on a sexist mindset in the process of including women in political life through their party programs and rhetoric, we will try to evaluate the insufficient representation of women in the political arena by focusing on the party programs of the ruling Justice and Development Party (AKP) and the main opposition party, the Republican People's Party (CHP), and their reflections on women's discourse and political practice.

Key words: Woman, Party Programs, Political Participation, AKP, CHP

ORHUN YAZITLARINDA NEOREALİST DÜŞÜNCENİN İZİNİ ARAMAK**Serkan KEKEVİ**

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Özet

Uluslararası ilişkiler kuramının Batı merkezli epistemolojik çerçevesine yönelik eleştiriler son yıllarda giderek yoğunlaşmaktadır. Kadim ve Batı dışı siyasi metinlerin teorik potansiyeli yeniden sorgulanmaktadır. Bu bildiri, söz konusu tartışmaya MS.8 yüzyıldan kalma Orhun Yazıtlarını neorealist uluslararası ilişkiler teorisi bağlamında bir okumaya tabi tutarak katkı sunmayı hedeflemektedir.

Bilge Kağan ve Kül Tigin adına dikilen yazıtlardaki siyasi söylem, anarşik uluslararası sistemde hayatta kalma kaygısını merkeze alan, güç dengesine dayalı modeline uygundur. Yazıtlarda devletin varlığını tehdit eden güç boşlukları, çevreleme stratejileri ve ittifak yönetimi gibi kavramlar, neorealizmin yapısal mantığıyla dikkat çekici bir örtüşme sergilemektedir. “Türk budun”un bekası için öngörülen stratejik önlemler; görece kazanımlar yerine mutlak güvenlik arayışını, iç bütünlüşmeyi ve dış dengeleme politikalarını ön plana çıkarmaktadır.

Metodolojik açıdan bu çalışma, tarih-sosyoloji ve karşılaştırmalı siyasi düşünce yöntemlerini harmanlayan disiplinlerarası bir yaklaşım benimsemektedir. Yazıtlar, özgün dilsel bağlamlarından koparılmadan stratejik bir perspektifle yorumlanmaktadır. Böylece neorealizmin evrensellik iddiası tarihsel bir test vakasına tabi tutulmakta; aynı zamanda erken Türk devlet geleneğinin özgün stratejik sezgileri analitik bir dille görünür kılınmaktadır.

Bildiri, neorealist kavramların Batı siyaset felsefesinden bağımsız biçimde Türk bozkır düşüncesinde içselleştirildiğini savunmaktadır. Bu bulgu, uluslararası ilişkiler kuramının evrenselleştirilmesine katkı sunduğu gibi, disiplinin tarih dışı ve Avrupamerkezci karakterini sorgulayan Batı-dışı kuram inşasına da önemli bir ampirik zemin sağlamaktadır.

Anahtar Kelimeler: Orhun Yazıtları, Neorealizm, Güç Dengesi, Stratejik Düşünce, Göktürk Devleti

TRACING THE TRACES OF NEOREALIST THOUGHT IN THE ORKHON INSCRIPTIONS**Abstract**

In recent years, criticism of the Western-centric epistemological framework of international relations theory has grown increasingly intense. The theoretical potential of ancient and non-Western political texts is being re-examined. This paper aims to contribute to that debate by subjecting the Orkhon Inscriptions, dating from the 8th century AD to a reading within the framework of neorealist international relations theory.

The political discourse in the inscriptions erected in honor of Bilge Qaghan and Kul Tigin aligns with a balance-of-power model that places the imperative of survival in an anarchic international system at its center. Concepts such as power vacuums that threaten the existence of the state, encirclement strategies, and alliance management as found in the inscriptions display a striking convergence with the structural logic of neorealism. The strategic measures envisioned for the survival of the “Türk budun” (an early definition of the term “Turkish nation”) foreground the pursuit of absolute security over relative gains, internal consolidation, and external balancing policies.

Methodologically, this study adopts an interdisciplinary approach that blends historical sociology and comparative political thought. The inscriptions are interpreted through a strategic perspective without severing them from their original linguistic context. In this way, neorealism's claim to universality is subjected to a historical test case, while the distinctive strategic intuitions of the early Turkic state tradition are rendered visible through an analytical lens.

The paper argues that neorealist concepts were internalized within Turkic steppe thought independently of Western political philosophy. This finding not only contributes to the universalization of international relations theory, but also provides a significant empirical foundation for non-Western theory-building that challenges the ahistorical and Eurocentric character of the discipline.

Keywords: Orkhon Inscriptions, Neorealism, Balance of Power, Strategic Thought, Gokturk State.

ULUSLARARASI SİSTEMDE KURUMSAL ÇÖZÜLME VE ULUSLARARASI ÖRGÜTLERİN İŞLEVSİZLİĞİ: BİRLEŞMİŞ MİLLETLER ÖRNEĞİ**Gokmen KILIÇOĞLU**

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Özet

Günümüz uluslararası sistemi, çok kutupluluğun hızlanması, jeopolitik fay hatlarının derinleşmesi ve normatif rekabetin kurumsallaşmasıyla yapısal bir dönüşüm sürecinden geçmektedir. Bu bağlamda, uluslararası örgütler giderek artan işlevsizlik, karar alma tıkanıklığı ve kurumsal çözülme baskısıyla karşı karşıyadır. Mevcut literatürde kurumsal aşınma genellikle teknik veya finansal yetersizlikler üzerinden okunurken, bu çalışma yapısal güç asimetrisinin örgütsel dizayna etkisini merkeze almaktadır. Birleşmiş Milletler'i (BM) paradigmatik bir vaka olarak ele alan araştırma, küresel yönetim mimarisindeki meşruiyet erozyonunu ve operasyonel iflası sistematik biçimde incelemektedir. Neorealist güç dağılımı varsayımları ile yeni kurumsalcı yolların bağımlılığı kuramını sentezleyen çalışma, nitel doküman analizi ve tarihsel-kurumsal karşılaştırma yöntemlerini kullanmaktadır. BM Güvenlik Konseyi'ndeki vetokrasi mekanizması, barış operasyonlarının sahadaki sınırlı etkisi, iklim değişimi ve siber güvenlik gibi 21. yüzyıl tehditlerine kurumsal yanıt vermedeki yapısal yetersizlik ile reform gündemlerinin kronik engellenmesi ampirik düzlemde değerlendirilmiştir. Bulgular, BM'nin 1945 sonrası bipolar düzene göre tasarlanmış hiyerarşik yapısının, günümüzün asimetrik güç ilişkileri ve çok aktörlü müdahale biçimleriyle kökten uyumsuz olduğunu ortaya koymaktadır. Büyük güç rekabetinin örgütsel karar süreçlerini felç etmesi, kolektif güvenlik normlarının aşınmasına ve çok taraflılığın işlevsel gerilemesine yol açmaktadır. Çalışma, BM'nin marjinalleşme riskini artıran bu yapısal katılığın, ancak temsiliyeti genişletilmiş, şeffaf ve hesap verebilir mekanizmalarla desteklenen köklü bir reformla aşılabileceğini savunmaktadır. Bu bulgular, gelecek dönem uluslararası ilişkiler araştırmalarında kurumsal adaptasyon kapasitesinin ölçülmesine yönelik yeni analitik çerçeveler geliştirilmesi gerektiğine işaret etmektedir. Sonuç olarak, uluslararası örgütlerin sürdürülebilirliği, statükocu korumacılıktan uzaklaşarak, değişen güç dinamiklerine uyum sağlayacak esnek ve çok katmanlı yönetim modellerinin inşasına bağlıdır.

Anahtar Kelimeler: uluslararası sistem, kurumsal çözülme, uluslararası örgütler

INSTITUTIONAL DISINTEGRATION IN THE INTERNATIONAL SYSTEM AND THE DYSFUNCTION OF INTERNATIONAL ORGANIZATIONS: THE UNITED NATIONS EXAMPLE**Abstract**

The contemporary international system is undergoing a structural transformation characterized by accelerating multipolarity, deepening geopolitical fault lines, and the institutionalization of normative competition. Within this context, international organizations are increasingly confronted with dysfunction, decision-making paralysis, and pressures toward institutional dissolution. While existing literature typically frames institutional erosion through technical or financial inadequacies, this study centers the impact of structural power asymmetries on organizational design. Taking the United Nations (UN) as a paradigmatic case, the research systematically examines the legitimacy erosion and operational bankruptcy within the global governance architecture. Synthesizing neorealist assumptions of power distribution with new institutionalist path dependency theory, the study employs qualitative document analysis and historical-institutional comparative methods. The vetocracy mechanism within the UN Security Council, the limited field effectiveness of peacekeeping operations, structural inadequacies in providing institutional responses to 21st-century threats

such as climate change and cybersecurity, and the chronic obstruction of reform agendas have been empirically evaluated. The findings reveal that the UN's hierarchical structure—designed according to the post-1945 bipolar order—is fundamentally incompatible with contemporary asymmetric power relations and multi-actor forms of intervention. The paralysis of organizational decision-making processes by great power competition leads to the erosion of collective security norms and the functional decline of multilateralism. The study argues that this structural rigidity, which increases the UN's risk of marginalization, can only be overcome through fundamental reform supported by mechanisms that expand representation and enhance transparency and accountability. These findings indicate the necessity of developing new analytical frameworks for measuring institutional adaptive capacity in future international relations research. In conclusion, the sustainability of international organizations depends on moving away from status quo protectionism toward the construction of flexible, multi-layered governance models capable of adapting to changing power dynamics.

Keywords: international system, institutional disintegration, International Organizations

ÇOCUK EDEBİYATI ÇERÇEVESİNDE MODERNİZM, DİJİTAL ÇAĞ VE BU ÇAĞIN ÇOCUĞA BAKIŞI**Murat ÖZBAY**

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Özet

Modernizmin temelleri dünyada çok önceleri atılmış olsa da ilk kıvılcımın sanayi devrimiyle çakıldığı söylenebilir. Modernizm, dünyada bu devrimle hareketlenen zihniyetin genel adı olarak tanımlanabilir. Latince “şimdi” anlamına gelen “modernus” kelimesinden türemiş ve geçmişe karşı şu anı yüceltmeyi ifade etmektedir. Bu yönüyle “şimdi”yi ideolojikleştirdiği söylenebilir. İşte modern dünyanın doğurduğu önemli kavramlardan biri olan “dijital”, günümüzde artık bir kavram olmanın ötesine geçmiştir. Kendi içinde somutlaşarak insanın dünyasını etkileyen somut, dijital araç ve gereçlere dönüşmüştür. Bu dönüşüm adeta kendi adıyla anılan bir çağı başlatmıştır. Bu nedenle dijital araç ve gereçlerin günlük hayatta neredeyse hayati öneme sahip bir yer edindiğini söylemek mümkündür. Hayatın içinde bu kadar önemli bir yer edinmeyi başaran dijital araç ve gereçlerin çocuk için de önemi büyüktür. Bu bildiride modernizm ve dijital çağ kavramları üzerinde durulmaktadır. Ayrıca dijitalleşen bir dünyanın çocuk için önemi yanında dijital araç ve gereçlerin çocuk açısından bir ihtiyaç olup olmadığı, çocuğun psikolojik, sosyal ve dil gelişimine etkisi, dijitalleşen dünyanın çocuğa yaklaşımı eleştirel bir bakış açısıyla sorgulanmaktadır. Bildiri nitel araştırma yöntemlerinden doküman analizi kullanılarak hazırlanmıştır. Bildiriyle ebeveynlere ve katılımcılara; çocuk, çocuk edebiyatı ve dijital araç- gereç ilişkisine daha duyarlı ve bilinçli bir yaklaşım kazandırılması amaçlanmaktadır.

Anahtar Kavramlar: çocuk, modernizm, dijitalleşme, dijital çağ, dijital araç ve gereçler

MODERNISM, THE DIGITAL AGE, AND THE CHILD'S PERSPECTIVE IN THIS AGE WITHIN THE FRAMEWORK OF CHILDREN'S LITERATURE**Abstract**

Although the foundations of modernism were laid long ago in the world, it can be said that the first spark was ignited with the Industrial Revolution. Modernism can be defined as the general term for the mindset that was set in motion by this revolution worldwide. Derived from the Latin word "modernus," meaning "now," it signifies the glorification of the present in contrast to the past. In this respect, it can be said to ideologize the "now." One of the significant concepts born from the modern world, "digital," has now gone beyond being merely a concept. It has materialized into concrete digital tools and devices that affect human life. This transformation has essentially ushered in an era named after itself. Therefore, it can be said that digital tools and devices have attained an almost vital place in daily life. The importance of these digital tools and devices is also substantial for children. This paper focuses on the concepts of modernism and the digital age. In addition to the significance of a digitalizing world for children, it critically examines whether digital tools and devices are a necessity for children, their effects on the child's psychological, social, and language development, and the digital world's approach to the child. The study was prepared using the document analysis method, one of the qualitative research methods. The aim of the paper is to provide parents and participants with a more sensitive and conscious approach to the relationship between children, children's literature, and digital tools and devices.

Keywords: child, modernism, digitalization, digital age, digital tools and devices

RECONSTRUCTING İBN SÎNÂ’S “FLOATING MAN” THOUGHT EXPERIMENT AS A SOCRATIC INQUIRY–BASED PHILOSOPHICAL STIMULUS

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Abstract

This study aims to reconstruct İbn Sînâ’s “Floating Man” thought experiment as a philosophical stimulus for Philosophy for Children (P4C) practices within the framework of Socratic inquiry techniques. In the tradition of Islamic philosophy, this thought experiment—primarily discussed in the context of metaphysics and the theory of the soul (nafs)—constitutes an original mental construct that raises fundamental philosophical problems such as self-awareness, consciousness, and the possibility of knowledge.

Although the “Floating Man” thought experiment has been employed as a stimulus in various P4C practices, studies that focus on its systematic structuring as a Socratic inquiry-based stimulus remain limited. Accordingly, this study seeks to transform this thought experiment into a pedagogical model grounded in dialogue and inquiry while preserving its conceptual integrity.

The study adopts a qualitative approach and is designed within the framework of design-based research. In this context, the thought experiment is analyzed in terms of its ontological and epistemological dimensions, and the concepts of “self,” “consciousness,” and “knowledge” are identified as core categories. Based on these categories, a three-stage Socratic stimulus model is developed, incorporating structured question sets in the forms of irony, elenchus (refutation), and maieutics.

While the study draws on Matthew Lipman’s Community of Inquiry approach, its primary focus is placed directly on the Socratic method. Within the proposed model, questions are categorized as contextual, bridging, and inquiry questions. This structured approach is considered to have the potential to support students’ abilities in concept formation and justification.

In conclusion, the study demonstrates that reconstructing the “Floating Man” thought experiment through Socratic inquiry processes—rather than mere content transmission—offers a more effective pedagogical model. In this respect, the study proposes a question-centered model based on thought experiments as an alternative to the narrative-based stimulus approach prevalent in the P4C literature.

Keywords: P4C; Socratic Method; Floating Man; Self; Consciousness; Epistemology

SOSYAL VE ÇALIŞMA HAYATINA ENTEGRE OLAN DEVLET KORUMASINDAKİ GENÇLERDE YAPAY ZEKÂ DESTEKLİ ÖZ-DÜZENLEME: AKADEMİK BAŞARI VE HAYATA UYUM ÜZERİNE BİR İNCELEME**Burak VANLIOĞLU**

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Özet

Eğitim ve sosyal entegrasyon süreçlerinde teknolojik dönüşümün hızı, dezavantajlı grupların bu sürece adaptasyonunu stratejik bir öncelik haline getirmiştir. Bu araştırmanın temel amacı, devlet koruması altından ayrılarak sosyal ve çalışma hayatına entegre olmuş bireylerin akademik başarı ve hayata uyum süreçlerinde yapay zekâ (YZ) destekli öz-düzenleme becerilerinin düzeyini ve bu becerilerin bireylerin hayat kalitesi üzerindeki etkisini derinlemesine incelemektir. Koruma altından ayrılan bireyler (care leavers), bağımsız hayata geçiş aşamasında akademik, ekonomik ve mesleki açılardan çeşitli bariyerlerle karşılaşabilmektedir. Bu noktada, bireyin kendi öğrenme ve gelişim süreçlerini planlama, izleme ve değerlendirme kapasitesi olarak tanımlanan öz-düzenleme becerilerinin yapay zekâ araçlarıyla desteklenmesi, toplumsal entegrasyon süreçlerinde kaldıraç etkisi yaratma potansiyeline sahiptir.

Araştırma, nicel araştırma yöntemlerinden tarama (survey) deseninde tasarlanmıştır. Veriler; Türkiye genelinde koruma altından ayrılmış ve hayatın farklı alanlarına (yükseköğretim, kamu sektörü, özel sektör) entegre olmuş katılımcılardan, araştırmacılar tarafından hazırlanan demografik bilgi formu ve Yurt (2025) tarafından geliştirilen “Yapay Zekâ Destekli Öğrenmede Öz-Düzenleme Ölçeği (SRAILS)” aracılığıyla toplanmıştır. SRAILS; bireylerin dijital ve yapay zekâ tabanlı öğrenme ekosistemlerindeki yeterliklerini ölçmek amacıyla geliştirilmiş oldukça güncel ve kapsamlı bir araçtır. Ölçek; Motivasyonel Bileşenler (içsel/dışsal motivasyon, öz-yeterlik), Bilişsel ve Metabilişsel Stratejiler, Zaman ve Görev Yönetimi ile Çevresel Öz-Düzenleme (kaynak yönetimi, teknolojik uyum ve esneklik) olmak üzere 4 ana boyut ve 9 alt boyuttan oluşan 46 maddelik bir yapıya sahiptir. Ölçeğin yapı geçerliği açıklayıcı ve doğrulayıcı faktör analizleri ile desteklenmiş; güvenirlik katsayılarının (Cronbach Alpha ve McDonald Omega) .85 ile .91 arasında değiştiği saptanmıştır.

Elde edilen bulgular, katılımcıların çoğunluğunun yapay zekâ araçlarını (ChatGPT, Gemini, Claude vb.) akademik içerik yapılandırma, karmaşık verileri özetleme ve profesyonel yazışma desteği amacıyla kullandığını ortaya koymaktadır. Analizler, bu araçların bireylerin akademik başarısında sadece teknik bir yardımcı değil, aynı zamanda motivasyonel birer itici güç ve öz-yeterlik inancını pekiştiren bir unsur olarak konumlandığını göstermektedir. Özellikle "Teknolojik Uyum ve Esneklik" alt boyutundaki yüksek eğilimler, bireylerin yeni nesil teknolojik dönüşümlere hızlı adapte olabildiğini kanıtlamaktadır. Sonuç olarak, yapay zekâ destekli öz-düzenleme becerilerinin, koruma altından ayrılan bireylerin akademik başarılarını sürdürmelerinde ve sosyal hayattaki rekabet güçlerini artırmalarında kritik bir faktör olduğu görülmüştür. Çalışmanın, dezavantajlı gruplara yönelik dijital kapsayıcılık politikalarına ve eğitim teknolojileri literatürüne özgün bir katkı sunması hedeflenmektedir.

Anahtar Kelimeler: Akademik Başarı, Hayata Uyum, Koruma Altındaki Bireyler, Sosyal Entegrasyon, SRAILS, Öz-Düzenleme Becerileri, Yapay Zekâ.

**AI-SUPPORTED SELF-REGULATION IN YOUTH UNDER STATE PROTECTION
INTEGRATED INTO SOCIAL AND WORKING LIFE: AN INVESTIGATION ON ACADEMIC
SUCCESS AND LIFE ADJUSTMENT****Abstract**

The rapid pace of technological transformation in education and social integration processes has made the adaptation of disadvantaged groups a strategic priority. The primary objective of this research is to conduct an in-depth examination of the level of artificial intelligence (AI)-supported self-regulation skills and their impact on the quality of life among individuals who have transitioned from state protection and integrated into social and professional life. Care leavers often encounter various academic, economic, and professional barriers during their transition to independent living. At this juncture, supporting self-regulation skills—defined as an individual's capacity to plan, monitor, and evaluate their own learning and development processes—with AI tools has the potential to create a leverage effect in social integration processes.

The research was designed using the survey model, one of the quantitative research methods. Data were collected from participants across Türkiye who have left state protection and integrated into various sectors (higher education, public sector, private sector) through a demographic information form prepared by the researchers and the "Self-Regulation in AI-Supported Learning Scale (SRAILS)" developed by Yurt (2025). SRAILS is a contemporary and comprehensive instrument designed to measure individuals' competencies within digital and AI-based learning ecosystems. The scale consists of 46 items across 4 main dimensions and 9 sub-dimensions: Motivational Components (intrinsic/extrinsic motivation, self-efficacy), Cognitive and Metacognitive Strategies, Time and Task Management, and Environmental Self-Regulation (resource management, technological adaptation, and flexibility). The construct validity of the scale is supported by exploratory and confirmatory factor analyses; reliability coefficients (Cronbach's Alpha and McDonald's Omega) were found to range between .85 and .91.

Findings indicate that the majority of participants utilize AI tools (e.g., ChatGPT, Gemini, Claude) for structuring academic content, summarizing complex data, and professional correspondence support. Analyses reveal that these tools function not only as technical aids but also as motivational drivers and elements that reinforce self-efficacy beliefs regarding academic success. High trends in the "Technological Adaptation and Flexibility" sub-dimension specifically demonstrate that individuals can rapidly adapt to next-generation technological transformations. In conclusion, AI-supported self-regulation skills were found to be a critical factor in care leavers' ability to sustain academic success and increase their competitiveness in social life. This study aims to provide an original contribution to digital inclusion policies for disadvantaged groups and the existing literature on educational technology.

Keywords: Academic Success, Life Adjustment, Care Leavers, Social Integration, SRAILS, Self-Regulation Skills, Artificial Intelligence.

ÜNİVERSİTE ÖĞRENCİLERİNDE E-SAĞLIK OKURYAZARLIĞININ DEĞERLENDİRİLMESİ SİVAS CUMHURİYET ÜNİVERSİTESİ EĞİTİM FAKÜLTESİ ÖĞRETMEN ADAYLARI ÖRNEĞİ

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Özet

Bu çalışmada, üniversite öğrencilerinin e-sağlık okuryazarlık düzeylerinin belirlenmesi ve sosyodemografik değişkenlere göre farklılıklarının incelenmesi amaçlanmıştır. Günümüzde dijital sağlık kaynaklarının yaygınlaşmasıyla birlikte bireylerin bu kaynakları doğru, güvenilir ve etkili şekilde kullanabilme becerisi büyük önem taşımaktadır. Bu çalışma 2026 yılı bahar döneminde 300 kişilik Eğitim Fakültesi öğrencileri ile yürütülmüş olup nicel veri analizi yöntemleri uygulanmıştır. Katılımcıların %80,7'si kadın, %19,3'ü erkektir. Çalışmada veri toplama işlemlerinde Kişisel Bilgi Formu ve e-HEALSE Sağlık Okuryazarlığı Ölçeği (Norman ve Skinner, 2006) tarafından oluşturulan, (Şenyurt ve Korkmaz Aslan, 2023).tarafından Türkçe geçerlilik ve güvenilirliği yapılmış 12 maddelik e-Sağlık okuryazarlık ölçeği kullanılmıştır. Toplanan verilerde normal dağılım varsayımı sağlanmadığı için analizlerde Mann-Whitney U ve Kruskal-Wallis H testleri kullanılmıştır. Yapılan analizlerin Cronbach Alpha katsayısı değerleri İşlevsel, İnteraktif ve Eleştirel Faktör analizlerine göre sırası ile (0,74)-(0,84) ve (0,88) düzeyinde oldukça güvenilir olarak değerlendirilmiştir. Cinsiyete göre yapılan analizde işlevsel boyutta anlamlı fark saptanmış ($U=5032,500$; $p=0,001$) ve kadın öğrencilerin medyan puanının erkeklerden daha yüksek olduğu bulunmuştur. İnteraktif ($p=0,843$) ve eleştirel ($p=0,944$) boyutlarda anlamlı fark bulunmamıştır. Anne ve baba eğitim durumu, yaş değişkenlerine de bakıldığında boyutlarda anlamlı farklılık saptanmamıştır ($p>0,05$). Yine çalışmada gelir durumuna göre işlevsel boyutta anlamlı fark bulunmuş ($H=8,116$; $p=0,017$) ve geliri giderinden az olan öğrenciler ile diğer gruplar arasında fark olduğu belirlenmiştir ($p<0,05$). İnteraktif ve eleştirel boyutlarda anlamlı fark bulunmamıştır. Elde edilen bulgular sonucunda, Sivas Cumhuriyet Üniversitesi Eğitim Fakültesi öğrencilerinin Dijital sağlık okuryazarlığının işlevsel faktöründe cinsiyet ve gelir durumuna göre anlamlı farklılık bulunmaktadır. Eğitim fakültelerinde öğrencilere yönelik sağlık okuryazarlığı ile ilgili müfredata uygun derslerin eklenmesi, öğretmen adaylarının mesleki gelişimlerine katkı sağlayacağı düşünülmektedir.

Anahtar Kelimeler: E-sağlık okuryazarlığı, üniversite öğrencileri, dijital sağlık, sağlık eğitimi

EVALUATION OF E-HEALTH LITERACY AMONG UNIVERSITY STUDENTS: THE CASE OF TEACHER CANDIDATES AT SIVAS CUMHURİYET UNIVERSITY FACULTY OF EDUCATION

Abstract

This study aimed to determine the e-health literacy levels of university students and to examine the differences according to sociodemographic variables. With the widespread use of digital health resources today, the ability of individuals to use these resources correctly, reliably, and effectively is of great importance. This study was conducted with 300 students from the Faculty of Education during the spring semester of 2026, and quantitative data analysis methods were applied. 80.7% of the participants were female and 19.3% were male. Data collection in this study utilized a Personal Information Form and the e-HEALSE Health Literacy Scale (a 12-item scale developed by (Norman and Skinner, 2006) and validated and proven reliable in Turkish by (Şenyurt and Korkmaz Aslan, 2023). Since the assumption of normal distribution was not met in the collected data, Mann-Whitney U and Kruskal-Wallis H tests were used in the analyses. The Cronbach Alpha coefficient values of the analyses performed were evaluated as highly reliable at the levels of (0.74), (0.84) and (0.88) according to the Functional, Interactive and Critical Factor analyses, respectively. In the analysis according to gender, a significant difference was found in the functional dimension ($U=5032.500$; $p=0.001$) and it was found that the median score of female students was higher than that of male students. No significant difference

was found in the interactive ($p=0.843$) and critical ($p=0.944$) dimensions. No significant differences were found in the dimensions when considering parental education level and age variables ($p>0.05$). However, a significant difference was found in the functional dimension according to income level ($H=8.116$; $p=0.017$), and a difference was determined between students whose income was less than their expenses and other groups ($p<0.05$). No significant differences were found in the interactive and critical dimensions. As a result of the findings, there is a significant difference in the functional factor of digital health literacy among students of Sivas Cumhuriyet University Faculty of Education according to gender and income level. It is thought that adding courses on health literacy to the curriculum for students in faculties of education will contribute to the professional development of prospective teachers.

Keywords: E-health literacy, university students, digital health, health education

SOSYAL BİLİMLER ARAŞTIRMALARINDA DUYARLILIK KAVRAMININ İNCELENMESİ

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Özet

Güvenilirliğin farklı boyutlarından biri olan duyarlılık, ölçme araçlarında bulunması gereken temel niteliklerden biridir. Güvenilirlik; ölçme öncesi, ölçme süreci ve ölçme sonrası olmak üzere araştırmacının her aşamasında irdelenmesi gereken bir unsurdur. Duyarlılık bağlamındaki güvenilirlik incelemesi ise temelde ölçme işlemi gerçekleştirilmeden önce yürütülen bir güvenilirlik araştırmasıdır. Bu çalışmada sosyal bilimlerde araştırmalarında kullanılan ölçme araçlarındaki duyarlılık kaynaklı hatalar eleştirel bir perspektiften ele alınmakta ve söz konusu hatalara yönelik çözüm önerileri sunulmaktadır. Bireylerin duygu, düşünce, tutum ve bilgi gibi psikometrik özelliklerini belirlemek amacıyla geliştirilen ölçme araçları, sosyal bilimlerde yaygın biçimde ölçekler olarak adlandırılmaktadır. Değişen toplumsal tutumlar, teknolojik gelişmeler ve dinamik davranış modelleri ölçeklerin geçerlilik süresini kısaltmakta; bu durum ölçek geliştirmeyi münferit bir araştırma konusu olmaktan çıkararak her araştırmacının yetkinlik kazanması gereken bir alana dönüştürmektedir. Ölçme aracı geliştirme sürecinde yapılan en kritik hatalardan biri, duyarlılık ilkesinin ihmal edilmesidir. Ölçme araçlarında sıklıkla karşılaşılan temel sorunlar; maddelerin aşırı uzun tutulması, madde sayısının gereğinden fazla belirlenmesi ve tek bir madde içerisinde birden fazla olgunun sorgulanması olarak sıralanabilir. Literatürde madde sayısı arttıkça duyarlılığın ve dolayısıyla güvenilirliğin de artacağına dair yaygın fakat eksik bir kanaat mevcuttur. Oysa katılımcıda oluşan yorgunluk ve dikkatsizlik gibi etkenler ölçüm hatasına yol açarak duyarlılığı olumsuz yönde etkilemektedir. Duyarlılığın tesis edilebilmesi için ölçülmek istenen tutuma ilişkin literatürün nitel açıdan derinlemesine incelenmesi, alan uzmanlarının görüşlerine başvurulması, istatistiksel tekniklerle madde analizlerinin gerçekleştirilmesi ve pilot uygulama verileri ışığında madde sayısının optimum düzeye getirilmesi gerekmektedir. Araştırmacının doğrudan ölçülmek istenen fenomene odaklanması ise ölçme aracının duyarlılığını artıran temel faktör olarak öne çıkmaktadır.

Anahtar Kelimeler: Güvenilirlik, Duyarlılık, Ölçek, Madde Analizi

EXAMINING THE CONCEPT OF SENSITIVITY IN SOCIAL SCIENCES RESEARCH

Abstract

Sensitivity is a fundamental quality that measurement instruments must possess. Measurement quality should be examined at every stage of the research process: prior to measurement, during the measurement process, and at the post-measurement stage. Within this framework, the examination of sensitivity primarily involves considerations that arise before the measurement procedure is initiated. This paper critically examines sensitivity-related errors in measurement instruments used in social science research and proposes solutions to address these errors. Measurement instruments developed to assess psychometric characteristics — such as emotions, thoughts, attitudes, and knowledge — are commonly referred to as scales in the social sciences. Evolving societal attitudes, technological advancements, and dynamic behavioral patterns may limit the applicability of existing scales; this situation has transformed scale development from a standalone research topic into a core competency that every researcher is expected to master. One of the most critical errors committed in the scale development process is the neglect of the sensitivity principle. Fundamental problems frequently encountered in measurement instruments include excessively lengthy items, an unnecessarily high number of items, and the inclusion of multiple phenomena within a single item (double-barreled items). There exists a widespread yet incomplete assumption in the literature that as the number of items increases, so too does sensitivity and, consequently, reliability. However, factors such as participant fatigue and inattentiveness introduce measurement error, thereby adversely affecting sensitivity. To ensure adequate sensitivity, it is necessary to conduct an in-depth qualitative review of the relevant literature, consult field experts, perform

statistical item analyses, and optimize the number of items based on pilot study data. Ultimately, the researcher's conceptual focus on the phenomenon being measured stands out as the primary factor enhancing the sensitivity of the measurement instrument.

Keywords: Reliability, Sensitivity, Scale, Item Analysis, Double-Barreled Items

**THE ADAPTATION OF DIGITAL COMMUNICATION EMPATHY SCALE INTO TURKISH:
VALIDITY AND RELIABILITY STUDY**

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Abstract

Empathy in digital communication is the ability of individuals to understand, feel, and respond to the emotions and experiences of others when interacting through email, text messages, social media, or other online platforms. This concept is an extension of traditional principles of empathy and emotional intelligence to virtual environments. Physical cues such as tone of voice, body language, and facial expressions, which play a critical role in conveying emotions in face-to-face communication, are largely absent in digital platforms. This deficiency can lead to misunderstandings and conflicts among digital communicators. Therefore, empathy in digital communication requires correctly interpreting text-based emotional cues such as emojis, punctuation marks, and digital expressions. The aim of this research is to adapt the "Digital Communication Empathy Scale" (DCES), developed by Collins, Warburton, Bussey, and Sweller (2024) into Turkish. The original scale measures digital empathy using a six-factor structure: Emotion Match, Perceived Empathic Accuracy, Perspective-Taking, Sympathy, Personal Distress, and Empathic Anger. It has been reported that the internal consistency coefficients of the original form of the scale ranged from .83 to .95, and the results of the confirmatory factor analysis (RMSEA = .044, CFI = .936) indicated high construct validity. To ensure linguistic equivalence during the adaptation process, the scale was translated into Turkish by three language experts, and a common form was created from the synthesized text. The text, finalized with the input of a Turkish language expert, was back-translated into English by three different experts to confirm that there was no semantic deviation from the original form. The prepared form is planned to be administered to at least 360 undergraduate students, which is 10 times the number of items in the form. To determine the psychometric properties of the scale, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Cronbach's Alpha internal consistency coefficients, and test-retest correlation analyses will be conducted.

Keywords: Digital communication empathy, scale adaptation, psychometric properties, computer-mediated communication.

Kaynakça

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VERGİ KAYIP VE KAÇAĞI İLE MÜCADELEDE İHBAR VE İKRAMIYE MÜESSESESİ: TÜRKİYE DEĞERLENDİRMESİ

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Özet

Türk vergi hukukunda vergi kayıp ve kaçağı ile mücadele her zaman en önemli konuların başında gelmektedir. Başarıya ulaşmak için çeşitli yöntem ve araçlarla bu alanda etkinlik sağlanmaya çalışılmaktadır. Bu araç ve yöntemlerden olan vergi ihbar ve ikramiye müessesesi, vergi kanunlarına aykırı durumların bir ikramiye karşılığında idareye bildirilmesi esasına dayanmaktadır. Hukuki açıdan bakıldığında ise vergi ihbarı ve ikramiyesinin temel dayanağı, 31.12.1931 tarihli ve 1905 sayılı Kanun'dur. Ayrıca Vergi Usul Kanunu'nun (VUK) 331. maddesi ve Anayasa'nın 74. maddesindeki "*dilekçe hakkı*" bu müessesenin yasal çerçevesini oluşturmaktadır. Vergi ihbar ve ikramiyesi müessesesi ile vergi idaresinin denetim ve inceleme kapasitesini vatandaşların katılımıyla artırmak, vergi kayıp ve kaçağını azaltmak hedeflenmektedir. Bu bakımdan mücadelenin başarıya ulaşmasında vatandaşlar tarafından yapılacak ihbar önemli bir yer tutmaktadır. Yapılan ihbar karşılığında ihbar ikramiyesi kazanmanın belirli şartları bulunmaktadır. Öncelikle ihbar ikramiyesi, yalnızca devamlılık gösteren vergiler ve bunlara bağlı vergi ziyai cezaları üzerinden ödenmektedir. Bununla beraber bir kişinin ihbar ikramiyesine hak kazanabilmesi için, "*Yazılı Başvuru*", "*Somut Delil*", "*İllyet Bağı*", "*Zamanaşımı*" ve "*Kimlik Açıklığı*" şartlarını da sağlaması gerekmektedir. 1905 sayılı Kanun'un 6. maddesinde artan-azalan oranlı bir tarife öngörülmüş olsa da, yasadaki maktu tutarlar güncelliğini yitirdiği için uygulamada sabit %10 oranı uygulanmakta, yani %10'luk oranda ikramiye ödemesi yapılmaktadır. Çalışma ile Türkiye'de vergi kayıp ve kaçağı ile mücadelede vergi ihbar ve ikramiye müesseselerinin etkinliklerinin incelenmesi amaçlanmaktadır.

Anahtar Sözcükler: Vergi Kaybı, Vergi Kaçakçılığı, Vergi İhbarı ve İhbar İkramesi.

THE INSTITUTION OF WHISTLEBLOWING AND REWARDS IN THE FIGHT AGAINST TAX EVASION AND TAX LOSSES: AN ASSESSMENT FOR TÜRKİYE

Abstract

In Turkish tax law, combating tax evasion and tax avoidance has always been one of the most important issues. Various methods and tools are employed to ensure effectiveness in this area in order to achieve success. One such tool is the tax tip-off and reward scheme, which is based on the principle of reporting breaches of tax laws to the authorities in exchange for a reward. From a legal perspective, the primary legal basis for the tax tip-off and reward scheme is the Law No. 1905 dated 31 December 1931. Furthermore, Article 331 of the Tax Procedure Code (VUK) and the 'right to petition' under Article 74 of the Constitution form the legal framework for this scheme. The aim of the tax tip-off and reward scheme is to enhance the tax authority's inspection and investigation capacity through public participation, thereby reducing tax evasion and revenue loss. In this regard, tip-offs made by citizens play a significant role in the success of this effort. There are specific conditions for receiving a tip-off reward in return for a tip-off. Firstly, the reward is paid solely in respect of recurring taxes and the associated penalties for tax evasion. Furthermore, for an individual to be eligible for the reward, they must also meet the conditions of "*Written Application*", "*Concrete Evidence*", "*Causal Link*", "*Limitation Period*" and "*Disclosure of Identity*". Although Article 6 of Law No. 1905 provides for a sliding-scale tariff, as the fixed amounts specified in the law have become outdated, a fixed rate of 10% is applied in practice, meaning that the reward is paid at a rate of 10%. The aim of this study is to examine the effectiveness of tax reporting and reward schemes in the fight against tax evasion and revenue loss in Turkey.

Keywords: Tax Loss, Tax Evasion, Tax Whistleblowing and Whistleblower Rewards.

TIME SERIES TRENDS AND SIMPLE LINEAR REGRESSION ANALYSIS OF HEALTHCARE EXPENDITURES IN TÜRKİYE: 2010–2023**Dr. Mustafa Burak Karagöz**

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Abstract

In this study, healthcare expenditures in Türkiye are initially presented in nominal terms based on TurkStat (TÜİK) data. Subsequent analyses illustrate and interpret the real trends in a tabular format. Inflation data for the specified period were obtained from TurkStat to adjust the nominal figures, thereby attaining inflation-adjusted (real) values. A linear regression analysis was conducted on the TurkStat dataset using SPSS 22 to derive these real indicators.

While a country's healthcare expenditure serves as a critical parity reflecting the welfare level of its citizens, it also determines the overall level of national development. Resources allocated to healthcare are shaped by various factors, primarily demographic structure, technological advancements, healthcare financing models, and the societal disease burden. In this context, national health policies are of paramount importance to ensure that future expenditures remain financially sustainable. Consequently, healthcare spending must be evaluated systematically to establish a necessary strategic perspective.

Recently, healthcare expenditures in Türkiye have exhibited an upward trend, accompanied by an increasing share of both public and private sectors. Since 2010, the demand for healthcare in Türkiye has trended upwards due to an aging population and overall population growth. Furthermore, healthcare technologies have advanced annually. However, it is imperative to evaluate this growth in real terms by filtering out inflationary effects; such an approach provides a more accurate assessment of healthcare spending.

In conclusion, the study found that inflation-adjusted healthcare expenditures have increased steadily, identifying this as a significant burden on the healthcare system. Conversely, a consistent rise in healthcare spending is indicative of a developed nation. As a policy recommendation, decision-makers must focus on ensuring the sustainability of this upward trend.

Keywords: Health Expenditures, Simple Linear Regression, Real Health Expenditures

A THEORETICAL EXAMINATION OF SOCIAL CAPITAL IN THE FIELD OF REGIONAL SUSTAINABLE DEVELOPMENT

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Abstract

Social capital, in modern development literature, holds strategic importance as a whole encompassing trust, norms, and networks that go beyond material resources. This concept acts as a catalyst in increasing individual and societal well-being, becoming a cornerstone and common denominator of regional sustainable development. Numerous studies have been conducted on regional development and sustainability, and these concepts have been the subject of much research. As a result of this research and these studies, the following conclusions have been reached: Regional development aims to eliminate inter-regional inequalities by mobilizing local potential, while sustainable regional development aims to protect this process not only economically but also environmentally and socially in a long-term and lasting manner. In other words, sustainable regional development, within the context of social capital, aims to raise public awareness and ensure the permanence of investments/projects made by a conscious public in cooperation with civil society organizations, the private sector, local governments, and the state, within the framework of trust and accountability principles, while also considering the ecological environment. In this study, we will attempt to reveal the social, economic, and societal impacts of social capital in the field of regional sustainable development and what needs to be done to ensure lasting regional development for the entire society. This will be evaluated based on the existing literature. By examining approaches in the field of social capital, we will investigate how regional sustainable development can be sustained and how it can be sustainable in the social sphere. As a result of our study, we will demonstrate that the concept of social capital is more important than physical and human capital, which are necessary for a region's development. By addressing social capital from different perspectives, we will try to show how this abstract concept can contribute to lasting growth and prosperity through sustainable development strategies.

Keywords: Social Capital, Sustainable Regional Development, Trust, Community Approach, Institutional Synergy.

SOSYAL SERMAYENİN BÖLGESEL SÜRDÜRÜLEBİLİR KALKINMA ALANINDA TEORİK BİR İNCELEMESİ

Özet

Sosyal sermaye, modern kalkınma literatüründe maddi kaynakların ötesine geçen; güven, normlar ve ağlar bütünü olarak stratejik bir öneme sahiptir. Bu kavram, bireysel ve toplumsal refahın artırılmasında katalizör görevi üstlenerek bölgesel sürdürülebilir kalkınmanın temel taşlarından biri haline gelmiş ve ortak noktası olmuştur. Bölgesel Kalkınma ve Sürdürülebilirlik konusunda birçok çalışma yapılmış ve bu kavramlar birçok araştırmaya konu edilmiştir. Bu araştırma ve çalışmalar neticesinde şu sonuçlar elde edilmiştir. Bölgesel kalkınma, yerel potansiyelin harekete geçirilerek bölgeler arası eşitsizliklerin giderilmesini hedeflerken sürdürülebilir bölgesel kalkınma ise bu sürecin sadece ekonomik değil, çevresel ve sosyal boyutlarıyla uzun vadeli ve kalıcı olarak korunmasını amaçlamaktadır. Yani sürdürülebilir bölgesel kalkınma, sosyal sermaye bağlamında halkın bilinçlenmesini, bilinçli halkın sivil toplum kuruluşları, özel sektör, yerel yönetimler ve

devlet iş birliği içerisinde güven duygusu ve hesap verebilirlik ilkeleri kapsamında ekolojik çevreyi de dikkate alarak yapılan yatırım/projelerin kalıcılığını sağlamayı hedeflemektedir.

Bu çalışmamızda sosyal sermayenin bölgesel sürdürülebilir kalkınma alanında sosyal, ekonomik ve toplumsal etkilerini ve bu etkilerin toplumun tamamında kalıcı bölgesel kalkınma konularında neler yapılması gerektiğini ortaya koymaya çalışacağız. Mevcut literatür üzerinden değerlendirme yapılarak; sosyal sermaye alanında ki yaklaşımlar incelenerek bölgesel sürdürülebilir kalkınmanın nasıl kalıcılığı sağlayacağı ve toplumsal alanda sürdürülebilirliğini inceleyeceğiz. Çalışmamızın sonucunda ise sosyal sermaye kavramının bir bölgenin gelişmesi için gerekli olan fiziksel ve beşerî sermayenin de ötesinde önem taşıdığını bunu da sosyal sermayenin farklı boyutlarıyla ele alarak soyut bir kavramın yani sosyal sermaye kavramının sürdürülebilir kalkınma stratejileri ile nasıl büyüme ve refah düzeyine ulaşma noktasında kalıcı olduğunu ortaya koymaya çalışacağız.

Anahtar Kelimeler: Sosyal Sermaye, Sürdürülebilir Bölgesel Kalkınma, Güven, Toplulukçu Yaklaşım, Kurumsal Sinerji.

STRATEJİK KARAR ALMADA YAPAY ZEKÂ DESTEKLİ BÜTÇELEME: KAVRAMSAL BİR ÇERÇEVE VE UYGULAMA ÖNERİLERİ**Senem ŞEN**

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Özet:

İşletmelerin amaçlarına ulaşabilmeleri için kaynaklarını etkin ve verimli bir şekilde kullanmalarına olanak sağlayan stratejik karar alma süreçlerinde mevcut verilerle birlikte aynı zamanda çevresel değişimleri öngörmek, riskleri değerlendirmek ve alternatif senaryolar arasında en uygun seçimi yapmak da hayati önem taşımaktadır. Etkili stratejik kararlar, organizasyonun rekabet avantajını sürdürülebilir kılarken, yöneticilerin analitik düşünme ile sezgisel değerlendirmeleri dengeli bir şekilde kullanmasını zorunlu kılmaktadır. Bununla birlikte geleneksel bütçeleme süreçleri, günümüzün hızla değişen ve belirsizlik ortamında dünyasında, işletmelerin stratejik çevikliğini kısıtlayan ve stratejik hedeflerle rakamsal gerçekler arasında boşluklara neden olabilecek statik araçlar haline gelmiştir.

Bu çalışma, işletmelerin stratejik karar alma kalitesini artırmak amacıyla, yapay zekâ teknolojilerinin bütçeleme süreçlerine entegrasyonunu kavramsal bir çerçevede incelemeyi amaçlamaktadır. Çalışmada, makine öğrenmesi algoritmalarının öngörücü analiz yetenekleri, büyük veri işleme kapasitesi ve senaryo tabanlı modelleme avantajlarının, bütçe hazırlama süreçleriyle bütünleşmesi analiz edilmektedir. Bu kapsamda geleneksel yöntemlerin aksine, yapay zekâ destekli bütçelemenin sürekli tahminleme olanağı sunan ve stratejik önceliklerin veri odaklı biçimde desteklenmesi üzerindeki etkileri ele alınmaktadır.

Çalışmanın sonucunda, yapay zekânın bütçeleme süreçlerinin operasyonel verimliliğe sağladığı katkılarının yanı sıra yöneticilerin bilişsel yükünü azaltarak daha stratejik ve yenilikçi kararlar almalarına katkı sağlayan bir karar destek sistemi aracı olduğu ortaya konulmaktadır. Bu bağlamda çalışma, davranışsal bütçeleme ile algoritmik karar verme literatürünü bütünleştiren kavramsal bir bakış açısı sunarken, uygulayıcılar için de dijital dönüşüm yol haritası niteliğinde öneriler içermektedir.

Anahtar Kelimeler: Stratejik Karar Alma, Yapay Zekâ, Bütçeleme, Dijital Dönüşüm, Karar Destek Sistemleri

AI-SUPPORTED BUDGETING IN STRATEGIC DECISION-MAKING: CONCEPTUAL FRAMEWORK AND IMPLEMENTATION RECOMMENDATIONS**Abstract**

For businesses to achieve their goals, strategic decision-making processes, which enable them to use their resources effectively and efficiently, require not only the consideration of existing data but also the prediction of environmental changes, the assessment of risks, and the selection of the most appropriate scenario among alternative scenarios. Effective strategic decisions ensure the sustainability of an organization's competitive advantage, while necessitating managers to use analytical thinking and intuitive assessments in a balanced way. However, in today's rapidly changing and uncertain world, traditional budgeting processes have become static tools that restrict the strategic agility of businesses and can create gaps between strategic goals and numerical realities.

This study aims to examine the integration of artificial intelligence technologies into budgeting processes within a conceptual framework to enhance the quality of strategic decision-making in businesses. The study analyses how the predictive analytics capabilities of machine learning algorithms, their capacity to process big

data, and the advantages of scenario-based modelling can be integrated into budgeting processes. In this context, unlike traditional methods, the effects of AI-supported budgeting—offering continuous forecasting and enabling data-driven support for strategic priorities—are discussed.

The study concludes that artificial intelligence contributes to operational efficiency in budgeting processes and serves as a decision support system tool that reduces the cognitive burden on managers, enabling them to make more strategic and innovative decisions. In this context, the study offers a conceptual perspective integrating behavioural budgeting and algorithmic decision-making literature, while also providing recommendations that serve as a digital transformation roadmap for practitioners.

Keywords: Strategic Decision-Making, Artificial Intelligence, Budgeting, Digital Transformation, Decision Support Systems

DIŞA AÇIKLIK, AR-GE VE YENİLİK PERFORMANSI ARASINDAKİ ETKİLEŞİM: BALKAN ÜLKELERİ ÜZERİNE UYGULAMA**Türker ŞİMŞEK**

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Özet

Bu çalışma, Balkan ülkelerinde Ar-Ge harcamaları, dışa açıklık ve ekonomik büyümenin yenilik performansı üzerindeki etkilerini panel veri analizi çerçevesinde incelemeyi amaçlamaktadır. Analiz, 1996–2023 dönemini kapsayan yıllık veriler kullanılarak gerçekleştirilmiş olup, veri seti dengesiz panel yapıya sahiptir. Çalışmada yenilik performansı, patent başvuruları ile temsil edilmekte ve tüm değişkenler logaritmik formda modele dahil edilmektedir. Analiz sürecinde öncelikle yatay kesit bağımlılığı Pesaran CD testi ile incelenmiş ve değişkenler arasında güçlü bir bağımlılık yapısı olduğu tespit edilmiştir. Bu doğrultuda, durağanlık analizi Smith et al. (2004) bootstrap panel birim kök testi ile gerçekleştirilmiş ve değişkenlerin birinci farkta durağan olduğu belirlenmiştir. Pedroni eşbütünleşme testi sonuçları, değişkenler arasında uzun dönemli bir ilişkinin varlığını ortaya koymuştur. Model tahmini, yatay kesit bağımlılığı, heteroskedastisite ve otokorelasyona karşı dayanıklı standart hatalar üreten Driscoll–Kraay tahmincisi kullanılarak gerçekleştirilmiştir. Elde edilen bulgular, Ar-Ge harcamalarının yenilik performansı üzerinde pozitif ve istatistiksel olarak anlamlı bir etkiye sahip olduğunu göstermektedir. Buna karşılık, dışa açıklık değişkeninin etkisi negatif bulunmuş olup, bu durum özellikle teknoloji ithalatına dayalı ekonomilerde yerli inovasyon kapasitesinin zayıflayabileceğine işaret etmektedir. Ayrıca Ar-Ge harcamaları ile dışa açıklık arasındaki etkileşim teriminin negatif ve anlamlı olması, dışa açıklığın artmasıyla birlikte Ar-Ge'nin yenilik üzerindeki marjinal etkisinin azaldığını ortaya koymaktadır. Ekonomik büyümenin ise yenilik performansını destekleyen önemli bir unsur olduğu tespit edilmiştir. Sonuç olarak, bulgular yenilik sürecinin doğrusal olmayan ve etkileşimsel bir yapıya sahip olduğunu göstermekte ve politika yapıcılar açısından Ar-Ge yatırımları ile dışa açıklık politikalarının birlikte ve dengeli biçimde tasarlanması gerektiğine işaret etmektedir.

Anahtar Kelimeler: Yenilik Performansı, Ar-Ge Harcamaları, Dışa Açıklık, Balkan Ülkeleri**THE INTERACTION BETWEEN OPENNESS, R&D, AND INNOVATION PERFORMANCE: AN APPLICATION ON BALKAN COUNTRIES****Abstract**

This study investigates the effects of research and development (R&D) expenditures, trade openness, and economic growth on innovation performance in Balkan countries within a panel data framework. The analysis covers the period 1996-2023 using annual data and an unbalanced panel structure. Innovation performance is proxied by patent applications, and all variables are incorporated into the model in logarithmic form. The empirical strategy begins with testing cross-sectional dependence using the Pesaran CD test, which reveals significant interdependencies among countries. Accordingly, the stationarity properties of the variables are examined using the Smith et al. (2004) bootstrap panel unit root test, indicating that all variables become stationary after first differencing. The Pedroni cointegration test confirms the existence of a long-run

relationship among the variables The empirical model is estimated using the Driscoll-Kraay estimator, which provides robust standard errors against cross-sectional dependence, heteroskedasticity, and autocorrelation. The findings indicate that R&D expenditures have a positive and statistically significant effect on innovation performance. In contrast, trade openness is found to have a negative impact, suggesting that in economies relying heavily on imported technologies, increased openness may weaken domestic innovation capacity. Furthermore, the interaction term between R&D and trade openness is negative and significant, implying that the marginal effect of R&D on innovation diminishes as the level of openness increases. Economic growth, on the other hand, positively contributes to innovation performance. Overall, the results highlight the nonlinear and interaction-based nature of the innovation process. From a policy perspective, the findings suggest that R&D investments and trade policies should be designed in a complementary and balanced manner to enhance innovation performance in Balkan countries.

Keywords: Innovation Performance, R&D Expenditures, Trade Openness, Balkan Countries.

4749 SAYILI KANUNLA GETİRİLEN DÜZENLEMELERİN BÜTÇE DİSİPLİNİ VE BORÇ YÖNETİMİNE ETKİSİ ÜZERİNE BİR İNCELEME**Doç. Dr. Hayrettin TÜLEYKAN**

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Özet

Keynesyen iktisadın yükselişiyle birlikte borçlanma hem bir normal kamu geliri olarak görülmüş hem de bir maliye politikası aracı olarak kullanılmaya başlanmıştır. Bu durum bir çok gelişmiş ve gelişmekte olan ülkede daha çok borçlanma sürecinin yaşanmasını beraberinde getirmiştir. Artık günümüzde bir çok gelişmiş ülke ile birçok gelişmekte olan ülke çok borçlu ülke statüsünde yer almaktadır. Bu durum Türkiye içinde geçerli olmuş kamu borcu 2000’li yıllara gelindiğinde milli gelirine denk miktarlara çıkarak sürdürülemez boyutlara ulaşmıştır. Bu duruma gelinmesinde iktisadi literatürde yaşanan borçlanmaya anlayışıyla birlikte Türkiye’nin siyasi ve mali sisteminde yer alan yapısal düzensizlikler büyük rol oynamıştır. Kriz sonrası hazırlanan Güçlü Ekonomiye Geçir Programı ile bu yapısal bozukluklara karşı bir dizi düzenlemeler getirilmiştir. 2002 yılında çıkarılan 4749 sayılı “Kamu Finansmanı ve Borç Yönetiminin Düzenlenmesi Hakkında Kanun” borç yönetimini düzenlemeyi bütçe açığına ve borçlanmaya yol açan mali uygulamaları kaldırmayı hedeflemiştir.

Bu çalışmada Kanun öncesi mali sistemin borçlanma ve borç yönetimi yönünden etkinsizlik üreten uygulamaları değerlendirilerek Kanun’un getirdiği yenilikler borç yönetimi ve bütçe disiplini açısından değerlendirilecektir. Literatür taraması ve betimsel analiz teknikleri kullanılarak karar vericilere ve araştırmacılara önerilerde bulunulmuştur. 2002 yılından günümüze literatür incelendiğinde genel olarak Kanun’un mali disiplini güçlendirici önemli düzenlemeler getirdiği makro ekonomik görünümün iyileşmesinde önemli bir paya sahip olduğu görülmektedir. Bununla birlikte değişen ekonomik şartlar ve kamu maliyesi ihtiyaçları çerçevesinde düzenlemeye rağmen geniş borçlanma yetkisi, hazine garantileri ve risk yönetimi, borç yönetiminin para ve maliye politikaları ile koordinasyonu konularında yeni düzenlemelere ihtiyaç duyulmaktadır.

Anahtar kelimeler: Kamu Maliyesi, Kamu Borcu, Borç Yönetimi

A STUDY ON THE IMPACT OF THE REGULATIONS INTRODUCED BY LAW NO. 4749 ON BUDGET DISCIPLINE AND DEBT MANAGEMENT**Abstract**

With the rise of Keynesian economics, borrowing has been viewed both as a normal form of public revenue and as a tool of fiscal policy. This has led to increased borrowing in many developed and developing countries. Today, many developed and developing countries are considered highly indebted. This situation has also been true for Turkey, where public debt reached unsustainable levels by the 2000s, reaching amounts equivalent to national income. Structural irregularities in Turkey's political and financial systems, along with the prevailing understanding of borrowing in economic literature, played a significant role in reaching this point. The "Transition to a Strong Economy Program," prepared after the crisis, introduced a series of regulations to address these structural imbalances. The "Law on the Regulation of Public Finance and Debt Management," numbered 4749 and enacted in 2002, aimed to regulate debt management and eliminate fiscal practices that led to budget deficits and borrowing.

This study evaluates the inefficiencies in the pre-Law financial system regarding borrowing and debt management, and assesses the innovations introduced by the Law in terms of debt management and budget discipline. Using literature review and descriptive analysis techniques, recommendations are made to decision-makers and researchers. A review of the literature from 2002 to the present reveals that the Law has introduced significant regulations strengthening fiscal discipline and has played a major role in improving the

macroeconomic outlook. However, in light of changing economic conditions and public finance needs, new regulations are still needed regarding broad borrowing authority, treasury guarantees and risk management, and the coordination of debt management with monetary and fiscal policies.

Keywords: Public Finance, Public Debt, Debt Management

APPLICATION OF DYNAMIC PANEL DATA TO CARBON EMISSION PREDICTION

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Abstract

This study examines differences in per capita carbon emissions (CO₂_pc) across countries and their temporal inertia within a dynamic panel-data framework. The analysis is based on 257 observations from 37 countries and the period 2015–2021. In the model, the dependent variable is CO₂_pc, and a one-period lagged value (L1_CO₂_pc) is used to represent the dynamic structure. The explanatory variables are renewable energy, digitalization, per capita income (GDP), and the environmental patent indicator (ENV_PAT_TWO_plus). The theoretical framework is based on the Environmental Kuznets Curve, IPAT/STIRPAT, and the directed technical change literature; a dynamic panel approach that addresses endogeneity in estimation is preferred (Arellano & Bond, 1991; Blundell & Bond, 1998; Bond, 2002). The findings show that the lagged emission coefficient is positive and statistically significant in both the FE and Arellano-Bond estimates, suggesting a possible significant inertia in emissions. The renewable energy coefficient was negative but insignificant in the FE model, and negative and significant in the Arellano-Bond model. The digitalization coefficient was positive and significant in the FE model, but insignificant in the Arellano-Bond model. Income and environmental-patent variables produce limited statistical evidence in both models. Arellano-Bond AR(1)-AR(2) tests do not support the finding of second-order autocorrelation. The findings indicate that carbon-reduction policies should not be reduced solely to energy transition; they should be considered alongside digital infrastructure, energy efficiency, and green innovation tools.

Keywords: dynamic panel data, carbon emission, renewable energy, digitalization, environmental patent, Arellano-Bond.

DİNAMİK PANEL VERİLERİNİN KARBON SALINIMI TAHMİNİNE UYGULANMASI

Özet

Bu çalışma, kişi başı karbon emisyonlarının (CO₂_pc) ülkeler arasında farklılaşmasını ve zaman içindeki ataletini dinamik panel veri çerçevesinde incelemektedir. Analiz, 37 ülke ve 2015–2021 dönemine ait 257 gözleme dayanmaktadır. Modelde bağımlı değişken CO₂_pc olup, dinamik yapıyı temsil etmek üzere bir dönem gecikmeli değer (L1_CO₂_pc) kullanılmıştır. Açıklayıcı değişkenler yenilenebilir enerji (Renewable), dijitalleşme (Digital), kişi başı gelir (GDP) ve çevresel patent göstergesidir (ENV_PAT_TWO_plus). Kuramsal çerçeve Çevresel Kuznets Eğrisi, IPAT/STIRPAT ve yönlendirilmiş teknik değişim literatürüne dayandırılmış; tahminde içsellik sorununu dikkate alan dinamik panel yaklaşımı tercih edilmiştir (Arellano & Bond, 1991; Blundell & Bond, 1998; Bond, 2002). Bulgular, gecikmeli emisyon katsayısının FE ve Arellano-Bond tahminlerinde pozitif ve istatistiksel olarak anlamlı olduğunu göstermekte, emisyonlarda belirgin bir atalet olabileceğine işaret etmektedir. Yenilenebilir enerji katsayısı FE modelinde negatif ancak anlamsız, Arellano-Bond modelinde ise negatif ve anlamlı bulunmuştur. Dijitalleşme katsayısı FE modelinde pozitif ve anlamlı iken Arellano-Bond modelinde anlamlı değildir. Gelir ve çevresel patent değişkenleri her iki modelde de sınırlı istatistiksel kanıt üretmektedir. Arellano-Bond AR(1)-AR(2) testleri ikinci dereceden otokorelasyon bulgusunu desteklememektedir. Bulgular, karbon azaltım politikalarının yalnızca enerji dönüşümüne indirgenmemesi; dijital altyapı, enerji verimliliği ve yeşil inovasyon araçlarıyla birlikte değerlendirilmesi gerektiğine işaret etmektedir.

Anahtar Kelimeler: dinamik panel veri, karbon emisyonu, yenilenebilir enerji, dijitalleşme, çevresel patent, Arellano-Bond.

**THE RELATIONSHIP BETWEEN MIGRATION, REFUGEE STATUS, AND URBANIZATION
WITH THE PHENOMENON OF CRIME: A BIBLIOMETRIC ANALYSIS FOR THE 1923-2026
PERIOD**

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Abstract

This study aims to delineate the bibliometric characteristics of the academic literature produced in the field of migration in Türkiye. To this end, scholarly works published between 1923 and 2026 were analyzed using the bibliometric analysis method. The dataset of the research was compiled by scanning the Council of Higher Education (YÖK) National Thesis Center, which covers postgraduate theses published in Türkiye, and articles featured in national academic journals. During the data collection process, keywords such as "migration," "migrant," "refugee," "culture," "city," "urbanization," "asylum seeker," "temporary protection," and "slum formation" (gecekondulaşma) were identified within the context of their relationship to the phenomenon of crime; only academic studies that established a direct correlation between these concepts and crime were included in the research. A total of 148 works were examined within the scope of the study, consisting of 56 theses, 83 articles, and 9 books. An analysis of the theses by academic level revealed that 6 were doctoral dissertations and 50 were master's theses. Regarding the distribution by department, Sociology and Public Administration emerged as the leading fields with 11 studies each, followed by Social Sciences and Political Science and International Relations with 4 studies each. In terms of articles published in academic journals, the highest number of publications was identified in Akademik Bakış Açısı and the Journal of Police Studies (Polis Bilimleri Dergisi), with 4 studies each. Author-based analysis indicated that Mithat Arman Karasu was the most prolific contributor to the field with 6 articles and 1 book, while İ. Hamit Hancı stood out as a notable researcher with 3 articles. The chronological distribution of the studies indicates a significant increase particularly in the post-2003 period, whereas the literature remained quite limited prior to 2003, with no studies recorded within the framework of these concepts before 1967. The findings demonstrate that academic interest in the relationship between migration, refugee status, culture, urbanization, and crime has increased substantially over time, and the subject is increasingly being addressed within a more distinct interdisciplinary framework. This trend is evaluated to be closely associated with the rise in global migration movements and the heightened visibility of the social impacts of these movements.

Keywords: Migration, bibliometrics, refugee, literature analysis

**GÖRSEL TASARIMDA KARANLIK SANAT (DARK ART) İLLÜSTRASYONLARI DARK ART
ILLUSTRATIONS IN VISUAL DESIGN**

Özet

Karanlık sözcüğü temelde, isim olarak tanımlandığında herhangi bir ışığın olmaması durumu olarak ifade edilmektedir. Karanlığın mecazi tanımlarında ise, korku, dehşet, ürperti, endişe, sıkıntı, bilinmezlik, gizem, üzüntü gibi anlam içerikleri taşıdığı görülmektedir. Karanlık; geçmişten günümüze çeşitli sanat dalları ile bağ kurmuş, tasarım ve sanatın içeriklerinden, konularından biri olup; Dark Art'ı yani Karanlık Sanat'ı insanlarla buluşturmuştur. Dark Art yaratıcılığın ürkütücü, korkunç, tuhaf olarak tabir ettiğimiz yanını kullanan gerçeküstü atmosfere sahip bir akımdır. Fotoğrafçılık, resim, grafik tasarım, heykel, illüstrasyon, medya, sinema, müzik gibi çeşitli sanat türlerinde Karanlık Sanat kullanılmakta olup, hem dijital tekniklerle hem de

geleneksel tekniklerle yapılmaktadır. Sözü edilen yöntemlerden biri olan Dark Art illüstrasyonlar, sınırları zorlayan çalışmalarla günümüzde sıklıkla kullanılmaktadır. Yapılan illüstrasyonlar kapak tasarımlarında, afişlerde, concept art çalışmaları gibi görsel tasarımın yer aldığı her alanda kullanılmaktadır. Bu çalışma görsel tasarımda ürkütücü bir hareket olan Dark Art'ı yani Karanlık Sanat İllüstrasyonlarını ele alıp Sanatın korkunç ve karanlık temasının da var olduğunu göstermiştir. Bu amaç doğrultusunda makaleler, dergiler, filmler, video arşivleri, ve çeşitli görsel metinler incelenip değerlendirilerek birçok veri analiz edilmiştir. Bulgular, yapılmış olan illüstrasyonların; sanatın her zaman canlı, neşeli sahneleri olması gerektiği fikrini reddederek, zihnin karanlık temalarını keşfedip, bunu da yaratıcılığa dönüştürerek, karşı tarafın daha derin düşünmesini amaçladığını göstermektedir. Ayrıca çalışmada, bu illüstrasyonların hangi yöntemler ile oluşturulduğu da irdelenmiştir.

Anahtar Kelimeler: İllüstrasyon, Dark Art İllüstrasyon, Karanlık Sanat, Korku

DARK ART ILLUSTRATIONS IN VISUAL DESIGN

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Abstract

The word darkness is fundamentally defined as the state of the absence of any light when defined as a noun. In metaphorical definitions of darkness, it is seen to carry meanings such as fear, chills, anxiety, distress, the unknown, mystery, and sorrow. Darkness has established a connection with various branches of art from the past to the present, becoming one of the contents (subjects) of design and art, and has introduced Dark Art to audiences. Dark Art is a movement with a surreal atmosphere that utilizes the eerie, terrifying, and bizarre side of creativity. Dark Art is used in various art forms such as photography, painting, graphic design, sculpture, illustration, media, cinema, and music, and is produced using both digital and traditional techniques. Dark Art illustrations, one of these mentioned methods, are frequently used today with works that push the boundaries. These illustrations are utilized in every field where visual design is present, such as cover designs, posters, and concept art studies. This study focuses on Dark Art Illustrations, an eerie movement in visual design, and demonstrates that the terrifying and dark themes of art also exist. For this purpose, numerous data were analyzed by examining and evaluating articles, magazines, films, video archives, and various visual texts. The findings indicate that the produced illustrations aim to provoke deeper thought in the viewer by rejecting the idea that art must always depict vibrant and joyful scenes, instead exploring the dark themes of the mind and transforming them into creativity. Additionally, the methods by which these illustrations were created have also been examined.

Keywords: Illustration, Dark Art Illustration, Dark Art, Horror

İSTANBUL, LONDRA VE PARİS OPERALARININ DİJİTAL İLETİŞİM KANAL
GÖRSELLERİNDE YAPAY ZEKA KULLANIMI *

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ÖZET

İstanbul Devlet Opera ve Balesi (1959), **Londra Kraliyet Operası** (Royal Opera House, 1732) ve **Paris Ulusal Operası** (Opéra National de Paris, 1669) kurumlarının dijital iletişim stratejileri kapsamında kullandıkları **grafik tasarım** materyallerinde **yapay zekâ** (YZ) teknolojilerinin kullanım biçimlerinin karşılaştırmalı olarak incelenmesidir.

Opera kurumları, yüzyıllara dayanan köklü tarihleri, kurumsal kimlikleri ve simgesel mimari yapılarıyla bulundukları şehrin prestij unsurlarıdır.

Araştırma, opera binalarının yalnızca mimari birer anıt değil, bulundukları şehir için önemli kültürel ve turistik değer olması ve yeni medyadaki görsel temsillerine odaklanmaktadır.

Günümüzde sahne sanatlarının tanıtımı geleneksel yöntemlerden uzaklaşarak dijital platformlara taşınmıştır. Bu geçiş sürecinde, operanın sanatsal ve kurumsal duruşunu korurken, aynı zamanda hız ve yenilikçilik gerektiren yapay zekâ uygulamaları kullanan grafik tasarım araçlarından faydalanmak kültürel geçmiş ile yenilikçi bakışların beraber işlenmesinde uyumlu bir denge ihtiyacı oluşturmaktadır.

Kuruluşları 17. ve 18. yüzyıllara dayanan opera kurumları, yapay zekâ destekli görsel iletişim araçlarını, geleneksel kurumsal kimlikleri ve sanatsal duruşlarında uyarlamışlardır.

Kültür sanat kurumlarının kendilerini ve programlarını tanıtımları için kullanabileceği dijital iletişim olanakları çok geniş olmakla beraber bu araştırma operaların resmi web sitesi ve instagram uygulamasındaki kullanımları ile sınırlandırılmıştır.

Londra ve Paris operaları ile Türkiye'nin cumhuriyet dönemi mirası olan bir opera kurumunun bu teknolojik adaptasyon sürecindeki farklılıkları ve benzerlikleri ele alınmıştır.

Anahtar kelimeler: Yapay zekâ, opera, grafik tasarım, dijital tanıtım, görsel analiz

THE USE OF ARTIFICIAL INTELLIGENCE IN DIGITAL COMMUNICATION CHANNEL
VISUALS OF ISTANBUL, LONDON, AND PARIS OPERAS

Abstract

This study comparatively examines the use of **artificial intelligence** (AI) technologies in **graphic design** materials within the digital communication strategies of the **Istanbul State Opera and Ballet** (1959), the **Royal Opera House** (1732), and the **Opéra National de Paris** (1669).

Opera institutions, with their centuries-old histories, corporate identities, and iconic architectural structures, are prestigious elements of the cities in which they are located.

The research focuses on opera houses not only as architectural monuments but also as significant cultural and touristic assets for their cities, and their visual representations in new media.

Today, the promotion of performing arts has moved away from traditional methods to digital platforms. In this transition process, maintaining the artistic and institutional stance of opera while simultaneously utilizing graphic design tools that employ AI applications requiring speed and innovation creates a need for a harmonious balance in the integration of cultural heritage and innovative perspectives. Opera institutions, whose origins date back to the 17th and 18th centuries, have adapted AI-powered visual communication tools to their traditional corporate identities and artistic stances. While the digital communication opportunities that cultural and artistic institutions can use to promote themselves and their programs are vast, this research is limited to the use of official websites and the Instagram application by operas.

The differences and similarities in this technological adaptation process between the London and Paris operas and an opera institution from Turkey's Republican era legacy have been examined.

Keywords: Artificial intelligence, opera, graphic design, digital marketing, visual analysis

TYPOLOGICAL READABILITY AND SPATIAL MEMORY IN THE PROCESS OF ADAPTIVE REUSE: THE CASE OF THE ORHAN GAZİ BATH IN THE BURSA KHANS DISTRICT**Mehmet Fatih AYDIN**

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Abstract

This study addresses the Orhan Gazi Bath, located in the Bursa Khans District and originally built as a component of the Orhan Gazi Complex, through the concepts of typological readability and spatial memory within the framework of adaptive reuse. As the building is currently used for commercial purposes, it may at first appear to represent a positive example of reuse, since it has not been abandoned and remains integrated into the lively urban fabric of the Khans District. However, a closer examination of its present condition reveals that continuity of use does not always coincide with the quality of conservation, and that continued use does not automatically guarantee the preservation of the building's original spatial organization or its perceptibility as a bath structure. Over time, inserted mezzanines, partitioning interventions, commercially driven elements fixed to wall surfaces, non-original coverings, and various additions introduced to meet functional requirements have weakened the original plan scheme and made it more difficult to read the historical spatial relations between the hot, transitional, and service sections.

The study discusses whether the continued commercial use of the Orhan Gazi Bath can, by itself, be regarded as a conservation success, and argues that the success of adaptive reuse should not be assessed solely through economic vitality, intensity of use, or the fact that the building has not remained vacant. Instead, it proposes that the decisive criterion should be the extent to which the building's typological character, spatial integrity, and historical memory remain legible under its new function. Ultimately, the issue in adaptive reuse is not merely whether a building remains in use, but to what extent that use is able to keep its historical and typological layers visible.

Keywords: Adaptive Reuse; Typological Readability; Spatial Memory; Bursa Khans District; Orhan Gazi Bath.

ADAPTİF YENİDEN KULLANIM SÜRECİNDE TİPOLOJİK OKUNABİLİRLİK VE MEKÂNSAL BELLEK: BURSA HANLAR BÖLGESİ'NDEKİ ORHAN GAZİ HAMAMI ÖRNEĞİ**Özet**

Bu çalışma, Bursa Hanlar Bölgesi'nde yer alan ve Orhan Gazi Külliyesi'nin bir bileşeni olarak inşa edilen Orhan Gazi Hamamı'nı, adaptif yeniden kullanım sürecinde tipolojik okunabilirlik ve mekânsal bellek kavramları çerçevesinde ele almaktadır. Günümüzde ticari işlevle kullanılan yapı, ilk bakışta terk edilmemiş olması, ekonomik dolaşım içinde varlığını sürdürmesi ve Hanlar Bölgesi'nin canlı kentsel dokusuna eklemlenmiş görünmesi nedeniyle olumlu bir yeniden kullanım örneği olarak değerlendirilebilir. Ancak yapının mevcut durumu daha yakından incelendiğinde, bu sürekliliğin koruma niteliğiyle her zaman örtüşmediği, kullanımın devam ediyor olmasının yapının özgün mekânsal kurgusunu ve hamam yapısı olarak algılanabilirliğini otomatik olarak güvence altına almadığı anlaşılmaktadır. Zaman içinde eklenen asma katlar, bölücü müdahaleler, duvar yüzeylerine sabitlenen ticari elemanlar, muhdes kaplamalar ve işlevsel gereksinimlerle oluşmuş çeşitli eklentiler, yapının özgün plan şemasını zayıflatmış; sıcaklık, geçiş ve servis bölümleri arasındaki tarihsel mekânsal ilişkilerin okunmasını güçleştirmiştir. Bu durum, yapının yalnızca işlev değiştirmiş bir tarihî yapı olarak değil, kullanımın sürmesi ile mimari kimliğin korunması arasındaki gerilimi görünür kılan problemli fakat öğretici bir örnek olarak değerlendirilmesini gerekli kılmaktadır.

Çalışmada, Orhan Gazi Hamamı'nın ticari işlev altında yaşamaya devam etmesinin tek başına bir koruma başarısı olarak kabul edilip edilemeyeceği tartışılmakta; adaptif yeniden kullanımın başarısının yalnızca

ekonomik canlılık, kullanım yoğunluğu veya yapının boş kalmaması gibi ölçütlerle değerlendirilemeyeceği savunulmaktadır. Buna karşılık asıl belirleyici ölçütün, yeni işlev altında yapının tipolojik karakterinin, mekânsal bütünlüğünün ve tarihsel belleğinin ne ölçüde okunabilir kaldığı olduğu ileri sürülmektedir. Bu bağlamda çalışma, Orhan Gazi Hamamı örneği üzerinden, tarihî yapılarda işlevsel süreklilik ile bilinçli koruma arasındaki farkı tartışmakta ve ticari kullanımın bazı durumlarda yaşatma sağlarken, aynı anda özgün mimari kimliğin aşınmasına da yol açabileceğini göstermektedir. Sonuç olarak, adaptif yeniden kullanım süreçlerinde mesele yalnızca yapının kullanılıyor olması değil, bu kullanımın yapının tarihsel ve tipolojik anlam katmanlarını ne ölçüde görünür kılabilmesidir.

Anahtar Kelimeler: Adaptif Yeniden Kullanım; Tipolojik Okunabilirlik; Mekânsal Bellek; Bursa Hanlar Bölgesi; Orhan Gazi Hamamı.

SOSYAL AFİŞ TASARIMINDA ÜRETİCİ YAPAY ZEKA ARAÇLARININ KARŞILAŞTIRMALI ANALİZİ: "SAVAŞIN ÇOCUKLARI"

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Özet

Bu çalışma, 2026 yılı itibarıyla önde gelen üretici yapay zekâ platformlarının, özellikle Leonardo AI, DALL·E 3 ve Adobe Firefly gibi sistemlerin sosyal içerikli afiş tasarım süreçlerindeki performanslarını karşılaştırmalı olarak incelemeyi amaçlamaktadır. Günümüzde yapay zekâ tabanlı görsel üretim araçları yaratıcı endüstrilerde giderek daha yaygın kullanılmakta ve tasarım süreçlerini hızlandırarak yeni olanaklar sunmaktadır. Bu bağlamda araştırmanın temel odak noktası söz konusu sistemlerin hassas toplumsal konulara yaklaşımı tipografik doğruluk düzeyleri ve güvenlik temelli içerik sınırlamaları çerçevesinde değerlendirilmesidir.

Çalışma kapsamında farklı yapay zekâ modellerine aynı içerik briefleri verilmiş ve elde edilen çıktılar görsel kalite ile metin üretim doğruluğu açısından analiz edilmiştir. Özellikle sosyal sorumluluk temalı afişlerde mesajın doğru ve anlaşılır bir şekilde iletilmesi büyük önem taşımaktadır. Ancak elde edilen bulgular yapay zekâ modellerinin metin üretimi ve tipografi konusunda hâlâ tutarsızlıklar sergileyebildiğini göstermektedir. Harf hataları anlam kaymaları ve okunabilirlik sorunları bu sistemlerin önemli zayıf yönleri arasında yer almaktadır.

Bununla birlikte araştırma sonuçları yapay zekâ araçlarının görsel üretim konusunda önemli bir olgunluk seviyesine ulaştığını ortaya koymaktadır. Kompozisyon renk uyumu ve genel estetik açıdan başarılı çıktılar üretilebilmekte bu da tasarımcılar için güçlü bir destek aracı oluşturmaktadır. Ancak özellikle çocuk temsilleri şiddet içeren sahneler veya hassas toplumsal temalar söz konusu olduğunda sistemlerin uyguladığı güvenlik filtreleri üretim sürecini sınırlandırmakta ve bazı durumlarda yaratıcı ifadeyi kısıtlamaktadır.

Sonuç olarak bu çalışma yapay zekâ destekli tasarım araçlarının sunduğu fırsatları ve karşılaşılan sınırlamaları birlikte ele almakta ve bu teknolojilerin yaratıcı süreçlerde tamamlayıcı bir rol üstlendiğini göstermektedir. Ayrıca etik hassasiyet gerektiren konularda insan odaklı tasarım yaklaşımlarının hâlâ vazgeçilmez olduğu vurgulanmaktadır.

Keywords: Yapay Zekâ, Grafik Tasarım, Üretici Yapay Zekâ, Tipografik Doğruluk, İçerik Güvenliği, Sosyal Afiş Tasarımı

**COMPARATIVE ANALYSIS OF GENERATIVE AI TOOLS IN SOCIAL POSTER DESIGN:
"CHILDREN OF WAR"**

Abstract

This study aims to comparatively examine the performance of leading generative artificial intelligence platforms as of 2026, particularly Leonardo AI, DALL·E 3, and Adobe Firefly, in the process of designing socially oriented posters. Today, AI-based visual generation tools are increasingly used in creative industries, accelerating design processes and offering new possibilities. In this context, the main focus of the research is to evaluate these systems in terms of their approach to sensitive social issues, their level of typographic accuracy, and their safety-based content limitations.

Within the scope of the study, identical content briefs were provided to different AI models, and the resulting outputs were analyzed in terms of visual quality and textual accuracy. In social responsibility-themed posters, conveying the message clearly and accurately is of great importance. However, the findings indicate that AI models still exhibit inconsistencies in text generation and typography. Letter errors, semantic shifts, and readability issues remain significant weaknesses of these systems.

On the other hand, the results demonstrate that AI tools have reached a considerable level of maturity in visual production. Successful outputs can be achieved in terms of composition, color harmony, and overall aesthetics, making these tools powerful aids for designers. Nevertheless, when it comes to sensitive topics such as child representation, violent scenes, or socially delicate themes, the safety filters applied by these systems may limit the production process and, in some cases, restrict creative expression.

In conclusion, this study addresses both the opportunities and limitations of AI-supported design tools and shows that these technologies play a complementary role in creative processes. It also emphasizes that human-centered design approaches remain indispensable, especially in ethically sensitive contexts.

Keywords: Artificial Intelligence, Graphic Design, Generative AI, Typographic Accuracy, Content Safety, Social Poster Design

ALGORİTMALARIYLA ÜRETİLEN 3B KARAKTER TASARIMLARININ GÖRSEL İLETİŞİM TASARIMI İLKELERİ AÇISINDAN ANALİZİ

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Özet

Günümüzde yapay zeka teknolojilerinin görsel sanatlar ve tasarım disiplinlerindeki hızlı yükselişi, geleneksel üretim süreçlerini kökten değiştirirken estetik normların ve tasarım kuramlarının yeniden sorgulanmasına zemin hazırlamaktadır. Bu bağlamda hazırlanan çalışma, üretken yapay zeka algoritmaları aracılığıyla oluşturulan 3B karakter tasarımlarının, görsel iletişim tasarımı ilkeleri bağlamında ne ölçüde başarılı ve tutarlı olduğunu analiz etmeyi amaçlamaktadır. Araştırmanın kapsamını, Midjourney, Stable Diffusion ve benzeri güncel üretken yapay zeka araçları kullanılarak üretilen ve özellikle oyun ile animasyon endüstrisindeki görsel performans kriterleri dikkate alınarak seçilen 3B karakter örnekleri oluşturmaktadır. Söz konusu örnekler; denge, ritim, bütünlük, oran-orantı, vurgu ve zıtlık gibi temel görsel iletişim tasarımı prensipleri bağlamında analiz edilmiştir.

Metodolojik olarak nitel araştırma yönteminin kullanıldığı bu çalışmada, verilerin toplanması ve çözümlenmesi aşamasında betimsel analiz tekniğinden yararlanılmıştır. Örnekleme yöntemiyle belirlenen dijital karakterler, akademik literatürdeki temel tasarım kuralları çerçevesinde oluşturulan yapılandırılmış bir analiz aracılığıyla kapsamlı bir şekilde incelenmiştir. Yapılan incelemeler sonucunda elde edilen bulgular, yapay zeka algoritmalarının özellikle karmaşık doku üretimi ve form detaylandırmasında dikkate değer bir teknik yetkinlik sergilediğini ortaya koymaktadır. Ancak, vurgu ve tasarımda birlik gibi daha kavramsal derinlik gerektiren ilkelere sistemin zaman zaman tutarsızlıklar yaşadığı, anatomik oranlar ve görsel hiyerarşi noktalarında ise yetersiz sonuçlara ulaştığı gözlemlenmiştir. Ayrıca, karakterin tasarım sürecinde ve duygu aktarımının güçlendirilmesinde insan müdahalesinin, yani yetkin bir prompt mühendisliğinin ve tasarım bilgisinin belirleyici bir faktör olduğu tespit edilmiştir.

Sonuç olarak araştırma, yapay zekanın 3B karakter tasarım sürecinde oldukça güçlü bir yardımcı araç potansiyeli taşıdığını, fakat profesyonel bir tasarım süzgecinden geçirilmediği takdirde teknik imkanların anlamsal ve kuramsal eksikliklerle gölgelenebileceğini göstermektedir. Bu doğrultuda yapay zekanın tasarım disiplinindeki rolü, geleneksel ilkelerin teknolojik olanaklarla yeniden yorumlandığı hibrit bir üretim modeline doğru evrilmekte ve bu durum tasarımcıların kuramsal yetkinliklerini her zamankinden daha önemli bir noktaya taşımaktadır.

Anahtar Kelimeler: Yapay Zeka, 3B Karakter Tasarımı, Görsel İletişim Tasarımı, Görsel Sanatlar, Dijital Estetik.

ANALYSIS OF 3D CHARACTER DESIGNS GENERATED WITH ARTIFICIAL INTELLIGENCE ALGORITHMS FROM THE PERSPECTIVE OF VISUAL COMMUNICATION DESIGN PRINCIPLES

Abstract

The rapid rise of artificial intelligence technologies in visual arts and design disciplines today is fundamentally changing traditional production processes while paving the way for a re-evaluation of aesthetic norms and design theories. This study aims to analyze the extent to which 3D character designs created through generative

AI algorithms are successful and consistent within the framework of visual communication design principles. The scope of the research consists of 3D character samples produced using current generative AI tools such as Midjourney and Stable Diffusion, selected particularly considering visual performance criteria in the gaming and animation industries. These samples were analyzed within the context of fundamental visual communication design principles such as balance, rhythm, integrity, proportion, emphasis, and contrast.

Methodologically, this study employs a qualitative research method, utilizing descriptive analysis techniques in the data collection and analysis phases. The digital characters selected through sampling were comprehensively examined through a structured analysis based on fundamental design rules in academic literature. The findings reveal that AI algorithms demonstrate remarkable technical competence, particularly in complex texture generation and form detailing. However, it has been observed that the system occasionally exhibits inconsistencies in principles requiring greater conceptual depth, such as emphasis and unity in design, and achieves inadequate results in terms of anatomical proportions and visual hierarchy. Furthermore, it has been determined that human intervention—that is, competent prompt engineering and design knowledge—is a decisive factor in the character design process and in enhancing emotional expression.

In conclusion, the research shows that artificial intelligence has the potential to be a very powerful tool in the 3D character design process, but if it is not filtered through a professional design lens, its technical capabilities can be overshadowed by semantic and theoretical shortcomings. Accordingly, the role of artificial intelligence in the design discipline is evolving towards a hybrid production model where traditional principles are reinterpreted with technological possibilities, making the theoretical competencies of designers more important than ever.

Keywords: Artificial Intelligence, 3D Character Design, Visual Communication Design, Visual Arts, Digital Aesthetics.

SULU SOKAK'TA YENİ YAPILAR: TOKAT ŞEHİR MÜZESİ VE MÜZE KAFE¹

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Özet

Tarihi kentsel dokulara eklenen yeni yapılar, tarihi çevreleriyle uyumluluklarının değerlendirilmesini gerektiren tasarım zorlukları ortaya koymaktadır. Bu çalışmanın temel araştırma sorusu şudur: Yeni yapıların tarihi çevreleriyle kurduğu ilişki hangi kriterler çerçevesinde değerlendirilebilir? Bu soru, Tokat'ın tarihi kent merkezi olan Sulu Sokak bölgesinde inşa edilen kamusal yeni yapılar olan Tokat Şehir Müzesi ve Müze Kafe örneği üzerinden ele alınmaktadır.

İpek Yolu güzergâhı üzerinde konumlanan Tokat'ta, Sulu Sokak ve çevresindeki yapılar son yirmi yılda kapsamlı bir dönüşüm sürecine girmiş; Sulu Han, Arastalı Bedesten, Takyeciler Cami, Deveciler Hanı ve Yağıbasan Medresesi başta olmak üzere pek çok anıtsal yapı restore edilmiştir. 2008 yılında Demirciler Çarşısı'nın yıkılmasıyla ortaya çıkan boşluğa inşa edilen bu iki yeni yapı, söz konusu dönüşümün güncel ürünleri olarak öne çıkmaktadır.

Çalışma, bu yapıların tarihi çevreyle kurduğu ilişkiyi mekânsal kurgu, görsel ilişki, ölçek, malzeme, cephe dili ile renk ve doku olmak üzere beş temel kriter üzerinden analiz etmektedir. Değerlendirme kriterleri, başta Venedik Tüzüğü, Washington Tüzüğü, Burra Tüzüğü, Valletta İlkeleri ve ICOMOS belgeleri olmak üzere uluslararası koruma tüzükleri ile ulusal kaynaklardan derlenen ölçütler doğrultusunda oluşturulmuş ve alan verileriyle desteklenmiştir.

Bulgular, Tokat Şehir Müzesi ve Müze Kafe'nin kütsel ölçek bakımından tarihi çevreyle uyum sağladığını; malzeme seçimi, cephe dili ve renk-doku özellikleri açısından ise kısmi uyumluluk gösterdiğini ortaya koymaktadır. Mekânsal kurgu ve görsel ilişki açısından, yapıların ve bitişik meydanın konumlandırılması, tarihi dokuyla süreklilik kurmayı amaçlamaktadır; ancak binaların, cephe dilleri ve kütlelerinin alan içerisindeki yerleşimi diğer anıtsal yapılardan farklılaştırmaktadır.

Sonuç olarak çalışma, tarihi çevrelerdeki yeni yapıların uyumunun yalnızca biçimsel benzerlikler üzerinden değil, mekânsal, görsel ve malzeme temelli çok boyutlu ölçütler çerçevesinde değerlendirilmesi gerektiğini ortaya koymuştur. Tokat Şehir Müzesi ve Müze Kafe örneği, tarihi dokuyla kurulan ilişkinin farklı düzeylerde uyumluluk gösterebildiğini ve her tarihi çevrenin kendi özgün bağlamı içinde ele alınmasının önemini göstermektedir. Geliştirilen değerlendirme çerçevesi, benzer tarihi kentsel alanlarda yeni yapıların analizinde kullanılabilecek sistematik bir yaklaşım sunmaktadır.

Anahtar Kelimeler: Tarihi çevre, yeni yapı, kültürel miras, değerlendirme kriterleri, Sulu Sokak, Tokat

¹ Bu bildiri, Ahmet Can Durmazer'in Doç. Dr. Aygün Kalınbayrak Ercan danışmanlığında Tokat Gaziosmanpaşa Üniversitesi Lisansüstü Eğitim Enstitüsü'nde sürdürmekte olduğu yüksek lisans tez çalışması kapsamında ele alınmıştır.

NEW BUILDINGS IN SULU STREET: TOKAT CITY MUSEUM AND MUSEUM CAFE²**Abstract**

New buildings added to historic urban fabrics present design challenges that require the evaluation of their compatibility with the historic environment. The main research question of this study is: According to which criteria can the relationship between new buildings and their historic surroundings be evaluated? This question is examined through the case of the Tokat City Museum and Museum Cafe, two contemporary public buildings constructed in the Sulu Sokak district, the historic urban center of Tokat.

Located on the Silk Road route, Tokat has undergone a comprehensive transformation process over the last two decades, during which numerous monumental buildings in and around Sulu Sokak — including Sulu Han, Arastalı Bedesten, Takyeciler Cami, Deveciler Hanı, and Yağlıbasan Medresesi — have been restored. Built on the vacant site created by the demolition of the Demirciler Bazaar in 2008, these two new structures stand out as the current products of this transformation.

The study aims to analyze the relationship between these buildings and the historic environment through five main criteria: spatial configuration, visual relationship, scale, material, and façade language together with color and texture. The evaluation criteria were developed on the basis of principles derived from international conservation charters and documents, particularly the Venice Charter, the Washington Charter, the Burra Charter, the Valletta Principles, and ICOMOS documents, and were supported by field data.

The findings indicate that the Tokat City Museum and Museum Cafe are compatible with the historic environment in terms of overall scale, while demonstrating partial compatibility regarding material selection, façade language, and color-texture characteristics. In terms of spatial configuration and visual relationship, the positioning of the buildings and the adjacent square seeks to establish continuity with the historic fabric; however, their façade expressions and the placement of their masses within the site distinguish them from the surrounding monumental structures.

Consequently, the study demonstrates that the compatibility of new buildings in historic environments should be assessed not only through formal similarities but also through multidimensional criteria encompassing spatial, visual, and material aspects. The case of the Tokat City Museum and Museum Cafe reveals that the relationship between new interventions and historic fabric may exhibit varying degrees of compatibility and highlights the importance of evaluating each historic environment within its own unique context. The proposed evaluation framework offers a systematic approach that can be applied to the analysis of new buildings in similar historic urban settings.

Keywords: Historical environment, new building, cultural heritage, evaluation criteria, Sulu Sokak, Tokat

² This paper is prepared within the scope of the master's thesis currently being conducted by Ahmet Can Durmazer at the Graduate Education Institute of Tokat Gaziosmanpaşa University, under the supervision of Assoc. Prof. Dr. Aygün Kalınbayrak Ercan.

KIRSAL OKULLARDA GÖRSEL SANATLAR DESTEKLİ MATEMATİK ÖĞRETİMİ: YAPAY ZEKÂ ENTEGRASYONU ÜZERİNE LİTERATÜR TEMELLİ ÖNERİLER**Mahmut ÖĞ**Milli Eğitim Bakanlığı, Sınıf Öğretmeni, ORCID ID: <https://orcid.org/0009-0005-8173-507X>**Özet**

Bu çalışmanın amacı, kırsal okullarda ve özellikle birleştirilmiş sınıflarda matematik öğretimi desteklemek amacıyla görsel sanatlar ve yapay zekâ entegrasyonuna yönelik literatürde yer alan bulguları sistematik biçimde incelemektir. Çalışma, disiplinlerarası öğretim yaklaşımlarının öğrenme çıktıları üzerindeki etkisini ortaya koymayı hedeflemektedir. Bu kapsamda, 2000–2025 yılları arasında yayımlanan ulusal ve uluslararası çalışmalar analiz edilmiştir. Araştırmada doküman incelemesine dayalı nitel araştırma yöntemi kullanılmıştır.

İncelenen çalışmalar, görsel sanatların matematiksel kavramların somutlaştırılmasında önemli bir rol oynadığını ve öğrencilerin derse yönelik tutumlarını olumlu yönde etkilediğini göstermektedir. Yapay zekâ destekli uygulamaların ise bireyselleştirilmiş öğrenme süreçlerini desteklediği ve özellikle farklı seviyelerin bir arada bulunduğu birleştirilmiş sınıflarda öğretim sürecini kolaylaştırdığı görülmektedir.

Sonuç olarak, kırsal bölgelerde eğitimde fırsat eşitliğini artırmak amacıyla görsel sanatlar ve yapay zekâ temelli öğretim uygulamalarının yaygınlaştırılması önerilmektedir. Ayrıca öğretmenlerin bu teknolojileri etkin kullanabilmeleri için hizmet içi eğitim programlarının geliştirilmesi gerektiği vurgulanmaktadır.

Anahtar Kelimeler: Birleştirilmiş sınıflar, Görsel sanatlar, Matematik öğretimi, Yapay zekâ, Kırsal eğitim

TEACHING MATHEMATICS SUPPORTED BY VISUAL ARTS IN RURAL SCHOOLS: LITERATURE-BASED RECOMMENDATIONS ON ARTIFICIAL INTELLIGENCE INTEGRATION**Abstract**

The aim of this study is to systematically examine the findings in the literature regarding the integration of visual arts and artificial intelligence to support mathematics teaching in rural schools, especially in multigrade classrooms. The study aims to reveal the effects of interdisciplinary teaching approaches on learning outcomes. In this context, national and international studies published between 2000 and 2025 were analyzed. A qualitative research method based on document analysis was used in the study.

The reviewed studies indicate that visual arts play a significant role in concretizing mathematical concepts and positively affect students' attitudes toward the course. It is also observed that artificial intelligence-supported applications enhance individualized learning processes and facilitate the teaching process, particularly in multigrade classrooms where students of different levels are taught together.

As a result, it is recommended to expand the use of visual arts and artificial intelligence-based teaching practices in order to increase equality of opportunity in education in rural areas. Additionally, it is emphasized that in-service training programs should be developed to enable teachers to use these technologies effectively.

Keywords: Multigrade classrooms, Visual arts, Mathematics teaching, Artificial intelligence, Rural education

2000–2025 YILLARI ARASINDA GÖRSEL SANATLAR, MATEMATİK VE YAPAY ZEKÂ ENTEGRASYONU ÜZERİNE YAPILAN ÇALIŞMALARIN BİBLİYOMETRİK ANALİZİ**Mahmut ÖĞ**Milli Eğitim Bakanlığı, Sınıf Öğretmeni, ORCID ID: <https://orcid.org/0009-0005-8173-507X>**Özet**

Bu çalışmanın amacı, görsel sanatlar, matematik eğitimi ve yapay zekâ entegrasyonuna yönelik yapılan bilimsel çalışmaların bibliyometrik özelliklerini incelemektir. Araştırma, ilgili alanın gelişim sürecini, eğilimlerini ve öne çıkan araştırma temalarını belirlemeyi amaçlamaktadır.

Çalışmada 2000–2025 yılları arasında yayımlanan makaleler çeşitli akademik veri tabanlarından elde edilmiştir. Bibliyometrik analiz kapsamında yayın sayıları, atıf dağılımları, yazar iş birlikleri ve anahtar kelime yoğunlukları incelenmiştir.

Elde edilen bulgular, son yıllarda yapay zekâ destekli disiplinlerarası çalışmaların belirgin şekilde arttığını göstermektedir. Özellikle STEAM yaklaşımı çerçevesinde gerçekleştirilen çalışmaların ön plana çıktığı görülmektedir. Ayrıca görsel sanatlar ile matematik entegrasyonunun öğrencilerin üst düzey düşünme becerilerini desteklediği vurgulanmaktadır.

Sonuç olarak, alanın giderek disiplinlerarası bir yapıya evrildiği ve yapay zekânın bu süreçte önemli bir rol oynadığı ifade edilebilir. Gelecek araştırmalar için özellikle birleştirilmiş sınıflar ve kırsal eğitim bağlamında daha fazla uygulamalı çalışmaya ihtiyaç olduğu önerilmektedir.

Anahtar Kelimeler: Bibliyometrik analiz, Görsel sanatlar, Matematik eğitimi ,Yapay zekâ , STEAM

BIBLIOMETRIC ANALYSIS OF STUDIES ON THE INTEGRATION OF VISUAL ARTS, MATHEMATICS, AND ARTIFICIAL INTELLIGENCE BETWEEN 2000–2025**Abstract**

The aim of this study is to examine the bibliometric characteristics of scientific studies conducted on the integration of visual arts, mathematics education, and artificial intelligence. The research aims to identify the development process of the field, its trends, and prominent research themes.

In the study, articles published between 2000 and 2025 were obtained from various academic databases. Within the scope of bibliometric analysis, publication counts, citation distributions, author collaborations, and keyword densities were examined.

The findings reveal that interdisciplinary studies supported by artificial intelligence have increased significantly in recent years. In particular, studies conducted within the framework of the STEAM approach have come to the forefront. Additionally, it is emphasized that the integration of visual arts and mathematics supports students' higher-order thinking skills.

As a result, it can be stated that the field is increasingly evolving into an interdisciplinary structure and that artificial intelligence plays an important role in this process. For future research, it is recommended that more applied studies be conducted, especially in the context of multigrade classrooms and rural education.

Keywords: Bibliometric analysis, Visual arts, Mathematics education, Artificial intelligence, STEAM

ÖĞRETMEN ADAYLARININ MATEMATİK EĞİTİMİNDE ŞİFRELEME TABANLI ETKİNLİKLERE İLİŞKİN BAKIŞ AÇILARININ İNCELENMESİ

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Özet

Bu çalışmanın amacı, matematik eğitiminde şifreleme temelli etkinliklerin öğretmen adayları tarafından nasıl anlamlandırıldığını ve bu etkinliklerin matematiksel düşünme süreçlerine nasıl katkı sunduğunu incelemektir. Günümüzde matematik eğitimi, işlem becerilerinin ötesine geçerek; problem çözme, akıl yürütme, ilişki kurma, temsil kullanma ve matematiksel iletişim gibi üst düzey becerilerin desteklenmesini önceleyen bir anlayışa yönelmiştir. Nitekim Türkiye Yüzyılı Maarif Modeli ile de beceri temelli bir sürece geçilmiş, işlemsel yeterliklerin yanı sıra söz konusu üst düzey matematiksel becerilerin geliştirilmesi eğitim sürecinin merkezine alınmıştır. Bu doğrultuda şifreleme etkinlikleri, öğrencilerin örüntüleri fark etmelerine, semboller arasında bağ kurmalarına, kurallı düşünmelerine ve çözüm üretme süreçlerinde mantıksal akıl yürütme geliştirmelerine olanak sağlayan alternatif bir öğrenme ortamı sunmaktadır.

Araştırma, nitel araştırma yaklaşımı çerçevesinde tasarlanmıştır. Çalışma grubunu, matematik öğretmenliği programında öğrenim gören 13 öğretmen adayı oluşturmaktadır. Veriler, yarı yapılandırılmış görüşmeler ve etkinlik kağıtları yoluyla elde edilmiştir. Elde edilen bulgular içerik analizi ile çözümlenmiştir. Görüşmelerde öğretmen adaylarının şifreleme etkinliklerine ilişkin ilk izlenimleri, bu etkinliklerde öne çıkan matematiksel kavramlar, öğrencilerin katılım ve motivasyonuna ilişkin gözlemleri, öğretim sürecine dair değerlendirmeleri ve gelecekte bu tür etkinlikleri kullanmaya yönelik düşünceleri ele alınmıştır.

Araştırma sonucunda, şifreleme temelli etkinliklerin öğretmen adayları tarafından dikkat çekici, motive edici ve matematiksel düşünmeyi destekleyici uygulamalar olarak değerlendirildiği görülmektedir. Bunun yanında bu etkinliklerin, soyut matematiksel kavramların somutlaştırılmasına, öğrencilerin derse aktif katılım göstermesine katkı sunduğu anlaşılmaktadır. Sonuç olarak bu bulgular, şifreleme temelli öğretimin matematik eğitiminde hem alan bilgisiyle ilişkili öğrenmeleri destekleme hem de öğrencilerin aktif katılımını artırma açısından işlevsel bir yaklaşım olarak değerlendirilebileceğine işaret etmektedir.

Anahtar kelimeler: Matematik eğitimi, şifreleme temelli öğretim, öğretmen adayları, problem çözme, matematiksel akıl yürütme

AN EXAMINATION OF PRE-SERVICE TEACHERS' PERSPECTIVES ON ENCRYPTION-BASED ACTIVITIES IN MATHEMATICS EDUCATION**Abstract**

The purpose of this study is to examine how pre-service teachers interpret encryption-based activities in mathematics education and how these activities contribute to mathematical thinking processes. Contemporary mathematics education has moved beyond an exclusive focus on procedural skills and increasingly emphasizes the development of higher-order skills such as problem-solving, reasoning, mathematical connections, the use of representations, and mathematical communication. In line with the The Century of Türkiye Education Model, a shift has been made toward a competency-based process, placing the development of these higher-order mathematical skills—alongside procedural proficiency—at the center of the educational process. In this context, encryption-based activities provide an alternative learning environment that enables students to recognize patterns, establish connections between symbols, think systematically, and develop logical reasoning skills through problem-solving tasks.

The study was designed within the framework of a qualitative research approach. The study group consisted of 13 pre-service teachers enrolled in a mathematics teacher education program. Data were collected through semi-structured interviews and activity sheets and were analyzed using content analysis. The interviews focused on the pre-service teachers' initial impressions of encryption-based activities, the mathematical concepts that emerged in these activities, their observations regarding student participation and motivation, their evaluations instructional process, and their thoughts on using such activities in the future.

The findings indicate that encryption-based activities were perceived by pre-service teachers as engaging, motivating, and supportive of mathematical thinking. Furthermore, these activities were found to contribute to the concretization of abstract mathematical concepts and to encourage students' active participation in classroom activities. In conclusion, the findings suggest that encryption-based instruction may serve as a practical and effective pedagogical approach in mathematics education by supporting mathematical learning processes and enhancing student engagement.

Keywords: Mathematics education, encryption-based instruction, pre-service teachers, problem-solving, mathematical reasoning

VARIOUS TYPES OF CONTINUITY IN IDEAL TOPOLOGICAL SPACES

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Abstract

Continuity is a concept as old as general topology. Both notions were first introduced by Fréchet. In the following years, several variants such as θ -continuity, weak continuity, and faint continuity were defined. Interestingly, θ -continuity was defined before θ -open sets. This definition was given by Fomin in 1942. After Veličko introduced θ -open and θ -closed sets, it was observed that these concepts have certain connections with θ -continuity. The topology defined by θ -open sets, called θ -topology, was studied by Herrmann, Foroutan, Ganster, and Steiner. Weakly continuous functions were first mentioned by Levine in 1961. Kuratowski was the first to study the concept of ideals in general topology. In 1933, he defined the notion of a local function as a generalization of closure with respect to an ideal. Over the years, ideal topological spaces have become an interesting topic in areas such as topology and measure theory. One of the most comprehensive papers on local functions and ideal topological spaces was written by Janković and Hamlett in 1990. In 2013, Al-Omari and Noiri introduced the local closure function as a generalization of θ -closure in ideal topological spaces. In the most recent works of Al-Omari and Noiri, as well as Powar, Mishra, and Bhadauria, new variations of continuity in ideal topological spaces have also been defined. This presentation aims to examine the fundamental aspects of the types of continuity and their natural interpretations in ideal topological spaces as introduced in the 2023 paper by Njamcul and Pavlović.

Keywords: Ideal topology, weak continuity, θ -continuity.

THREADS OF INTELLIGENCE: DECIPHERING THE 'REAL DESIGNER' IN AI-GENERATED FASHION

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Abstract

The integration of Generative AI (GenAI) into fashion design has blurred the traditional boundaries of authorship and creative ownership. This study explores the "Who is the Real Designer?" paradox by examining how fashion professionals and students conceptualize the role of AI in the apparel design process. Using a mixed-methods concept mapping design, participants (n=XX) generated and sorted statements regarding creative agency, intellectual property, and the division of labor between human intuition and algorithmic generation. The multidimensional scaling and cluster analysis conducted in R revealed a conceptual framework consisting of key thematic regions, such as "The Curator's Agency," "Algorithmic Mimicry," "Technological Craftsmanship," and "The Human-in-the-Loop Necessity." The findings indicate a significant shift in professional identity, where the designer is transitioning from a "sole creator" to a "creative director of AI." This research provides a critical roadmap for understanding the evolution of originality in the digital era and offers implications for intellectual property rights and design education in the fashion industry.

Keywords: ai generated design, digital authorship, creative design, fashion design.

THE GHOST IN THE MACHINE: MAPPING THE 'DIGITAL CONSCIENCE' OF COUNSELOR
TRAINEES IN THE AGE OF AI

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Abstract

The rapid integration of Artificial Intelligence (AI) into mental health services necessitates a deep exploration of how future practitioners conceptualize ethical boundaries and "digital conscience." The purpose of this study was to examine how counseling trainees and professionals perceive the intersection of AI-assisted tools and ethical decision-making processes. Using a mixed-methods concept mapping design, participants generated, rated, and sorted statements regarding the integration of AI into therapeutic practices, specifically focusing on the concept of digital conscience. The analysis, conducted using R-based multidimensional scaling and hierarchical cluster analysis, is expected to yield a multi-region conceptual framework (e.g., Ethical Accountability, Human-Centric Boundaries, Therapeutic Presence in Digital Spaces, Data Integrity, and Algorithmic Bias Awareness). These regions capture the tension between the efficiency of AI and the preservation of the "human element" in counseling. Preliminary findings suggest that while participants acknowledge the clinical benefits of AI, they express significant concerns regarding the erosion of clinical intuition and the complexity of maintaining digital conscience. The implications of this study provide a roadmap for counselor educators to develop "AI Ethical Literacy" curricula, ensuring that the next generation of counselors can navigate technological advancements without compromising professional integrity.

Keywords: digital counselling, ethics in digital counselling, concept mapping, mixed method.

ÖĞRETMENLERİN YAPAY ZEKÂ KULLANIM KABULÜNDE KORKU VE KOMPLO İNANÇLARININ ROLÜ

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Özet

Eğitim teknolojileri alanındaki hızlı dönüşüm, yapay zekâ (YZ) araçlarının sınıf ortamına entegrasyonunu zorunlu kılmaktadır. Ancak öğretmenlerin bu teknolojileri benimseme süreçleri yalnızca teknik imkânlarla değil, aynı zamanda psikolojik ve bilişsel algılarla da şekillenmektedir. Bu çalışmanın temel amacı, öğretmenlerin yapay zekâ kullanım kabullerinde, bu teknolojiye yönelik duydukları korku ve geliştirdikleri komplo inançlarının yordayıcı rolünü incelemektir. Araştırma, nicel araştırma yöntemlerinden ilişkisel tarama modelinde tasarlanmıştır. Veriler; Türkiye'nin farklı illerinde ve branşlarında görev yapan öğretmenlerden, araştırmacılar tarafından geliştirilen demografik bilgi formu ve üç temel ölçek aracılığıyla toplanacaktır. Veri toplama sürecinde ilk olarak Öztürk (2025) tarafından geliştirilen “Yapay Zekâ Kullanım Kabulü Ölçeği” kullanılacaktır. İşletmelerin ve çalışanların dijital dönüşüm süreçlerindeki tutumlarını ölçmek amacıyla geliştirilen bu ölçek, 10 maddelik tek boyutlu bir yapıya sahiptir ve Cronbach Alpha iç tutarlık katsayısı .907 olarak raporlanmıştır. İkinci araç olarak, öğretmenlerin teknolojiye yönelik kaygılarını analiz etmek amacıyla Orhan, Emekli ve Şata (2026) tarafından geliştirilen “Yapay Zeka Korku Ölçeği (YAZEK)” kullanılacaktır. 20 maddeden oluşan bu ölçek; Teknofobi ve Dijital Güvenlik Korkusu olmak üzere iki alt boyuta sahiptir ve güvenirlik katsayıları .83 ile .93 arasında değişmektedir. Son olarak, yapay zekâyâ yönelik geliştirilen bilişsel bariyerleri ölçmek amacıyla Lin ve ark. (2025) tarafından geliştirilen ve Türkçe adaptasyonu yapılan “Yapay Zekâ Komplo İnançları Ölçeği Kısa Formu (YZKİÖ-5)” kullanılacaktır. Beş maddeden oluşan bu ölçek tek boyutlu bir yapıdadır ve iç tutarlık katsayısı .826 olarak belirlenmiştir. Toplanan verilerin analizinde betimsel istatistiklerin yanı sıra değişkenler arasındaki ilişkileri belirlemek amacıyla korelasyon ve çoklu regresyon analizleri kullanılacaktır. Araştırma sonucunda, yapay zekâyâ yönelik korku ve komplo inançlarının kullanım kabulü üzerinde anlamlı bir negatif etkisi olup olmadığı ve bu durumun demografik değişkenlere göre farklılaşıp farklılaşmadığı ortaya konacaktır. Çalışmanın bulgularının, öğretmen eğitiminde teknoloji kabulünü artıracak stratejilerin geliştirilmesine ve eğitim teknolojileri literatürüne katkı sağlaması hedeflenmektedir.

Anahtar Kelime: Öğretmen eğitimi, Teknofobi, Yapay zeka kullanım kabulü, Yapay zeka korkusu, Yapay zeka komplo inançları,

THE ROLE OF FEAR AND CONSPIRACY BELIEFS IN TEACHERS' ACCEPTANCE OF ARTIFICIAL INTELLIGENCE USE

Abstract

The rapid transformation in the field of educational technologies has made the integration of artificial intelligence (AI) tools into classroom environments inevitable. However, teachers' adoption processes regarding these technologies are shaped not only by technical opportunities but also by psychological and cognitive perceptions. The main aim of this study is to examine the predictive role of teachers' fear of AI and their conspiracy beliefs regarding AI in their acceptance of AI use. The study is designed within the relational survey model, one of the quantitative research methods. The data will be collected from teachers working in different provinces and subject areas in Türkiye through a demographic information form developed by the researchers and three main scales. First, the “Artificial Intelligence Usage Acceptance Scale,” developed by

Öztırak (2025), will be used. Developed to measure the attitudes of businesses and employees toward digital transformation processes, this scale has a one-dimensional structure consisting of 10 items, and its Cronbach's Alpha internal consistency coefficient was reported as .907. As the second instrument, the "Artificial Intelligence Fear Scale (AIFS)," developed by Orhan, Emekli, and Şata (2026), will be used to analyze teachers' anxieties toward technology. This 20-item scale has two sub-dimensions: Technophobia and Digital Security Fear, with reliability coefficients ranging between .83 and .93. Finally, in order to measure cognitive barriers developed toward AI, the "Artificial Intelligence Conspiracy Beliefs Scale Short Form (AICBS-5)," developed by Lin et al. (2025) and adapted into Turkish, will be used. This five-item scale has a one-dimensional structure, and its internal consistency coefficient was determined as .826. In the analysis of the collected data, descriptive statistics as well as correlation and multiple regression analyses will be used to determine the relationships among variables. As a result of the study, it will be revealed whether fear of AI and conspiracy beliefs have a significant negative effect on the acceptance of AI use and whether this situation differs according to demographic variables. The findings of the study are expected to contribute to the development of strategies to increase technology acceptance in teacher education and to the literature on educational technologies.

Keywords: Teacher education, Technophobia, Acceptance of artificial intelligence use, Fear of artificial intelligence, Artificial intelligence conspiracy beliefs.

GLOBAL CONSUMER PURCHASING PREFERENCES: DATA COLLECTION METHODS, STATISTICAL TECHNIQUES FOR ANALYSIS, SEGMENTATION AND PROFILING, AND ADVANCED ANALYTICS AND MACHINE LEARNING**Full-Professor PhD. Habil. Cristina Raluca Gh. Popescu¹**

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Abstract

Lately, the global consumer purchasing preferences are heavily influenced by a blend of economic caution, digital adoption, and a strong preference for domestically and ethically sourced products, with a major accent on sustainable development and sustainability. In the literature review section, the research displays the core drivers of diverse consumer preferences, mainly focusing on presenting the characteristics and importance of the following aspects: the cultural and regional variations; generational cohorts; socioeconomic factors; inclusion and diversity; behavioral tendencies; digital and physical shopping; and deep versus surface differences. In the methodology section, the paper points out the importance of analyzing the consumer purchasing preferences, describing the need for a systematic approach combining data collection from the use of different key methods, such as: firstly, the data collection methods centered on surveys and feedback, sales and transactional data, digital interaction data, and social listening; secondly, the statistical techniques for analysis focused on descriptive statistics, regression analysis, cluster analysis, conjoint analysis, chi-square test of independences, and time series analysis; thirdly, the segmentation and profiling based on behavioral, demographic, and psychographic segmentation; fourthly, the advanced analytics and machine learning keen on predictive analytics, sentiment analysis, and perceptual mapping; and, in the end, the key metrics for evaluation among which could be mentioned the conversion rate, customer lifetime value, retention rate, and average order value. The case study describes the key consumer purchasing preferences in 2025 and 2026 in several countries, namely: China, regarded as a high-volume cross-border and digital leader; United States of America, renown for the high purchasing power and brand loyalty; United Kingdom, occupying a top position for the high e-commerce penetration; India, known worldwide as a successfully emerging digital market; Germany, acknowledged globally for the sustainability and quality focus; Indonesia, preferred for the unique local/import blend; and, Iran, offering a contrast to Western markets, showing an increased differentiation in brand loyalty. The conclusions accentuate the importance of using several key methods in discovering the value consumers place on specific features, highlight the need to optimize product development and tailor marketing strategies, and emphasize that China, United Kingdom, and United States of America are on the top three positions in 2025 as cross-border purchasing markets.

Keywords: Business Process Management; Statistics; Mathematics; Consumer Analytics; Competitive Analysis; Sales Metrics; Purchasing Behavior; Statistical Analysis Tools; Sustainable Development; Sustainability.

BLOCKCHAIN-BASED INVENTORY MANAGEMENT SYSTEM WITH AI INTEGRATION

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Abstract

This paper proposes a blockchain-based inventory management system integrated with AI technologies. Blockchain ensures transparency, security, and immutability of inventory records. AI algorithms are used for demand forecasting and supply chain optimization. Blockchain enhances trust and accountability in inventory transactions. The integration of these technologies addresses challenges such as fraud, data tampering, and lack of transparency. The system architecture includes smart contracts, distributed ledgers, and AI modules. The results demonstrate improved security, efficiency, and reliability.

Keywords: Blockchain, AI, Smart Contracts, Inventory Management, Security

**MODERN ANTI-CRISIS CONCEPTS OF THE EUROPEAN UNION "RESILIENCE 1.0" AND
"RESILIENCE 2.0" AS STRATEGIC FORECASTING APPROACHES**

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Abstract

The scientific article is devoted to clarifying the content, features and comparative advantages of two modern concepts of the European Union "Resilience 1.0" and "Resilience 2.0", presented by the European Commission in 2021 and 2025. Both documents are strategic and anti-crisis in nature, and also have their own specifics.

The purpose of the study is to reveal the content and features of the European Union's strategic concepts regarding resilience and to establish the feasibility of their adaptation to modern and post-war conditions in Ukraine, in particular the reconstruction process.

The study used a comprehensive interdisciplinary approach, including institutional methodology, as well as holistic, statistical, and comparative methods.

The main results of the study concern a systematic assessment of the impact of two recent major crises on the European Union. Namely: the global crisis of the COVID-19 coronavirus pandemic, which became the impetus for the adoption of a strategic the EU concept "Resilience 1.0", as well as the security crisis caused by the full-scale Russian-Ukrainian military conflict, under the influence of which the EU strategic concept "Resilience 2.0" was approved. A comparison of the two mentioned European concepts showed that the management approach "Resilience 2.0", unlike the "Resilience 1.0" approach, is transformative, proactive and promising in nature, and is also focused on spatial, rather than administrative, functionalities.

It was proven that the application of the EU concepts on resilience is an advantage of the system of (supra)national public administration in the current turbulent world. It was found that ensuring resilience has become an integral direction of national security policy in the current era of the collapse of the old and the birth of a new world order. It is shown that, taking into account its war and post-war realities, the need to ensure comprehensive national security, as well as the European integration course, it seems important for Ukraine to borrow European management approaches, including approaches in the field of predictive strategizing.

In our opinion, further research can be carried out towards developing tools for adapting European concepts of resilience to the national context of Ukraine.

Keywords: long-term forecasting, systemic challenges, stress resistance, national security, European integration, post-war reconstruction.

DIGITAL WELLNESS AND NEURO-SOVEREIGNTY AI-MEDIATED TOOLS FOR MENTAL HEALTH RESILIENCE

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Abstract

In a hyper-connected world, mental health has become the most vulnerable human asset. This article examines the emergence of "Neuro-Sovereignty" the right of a human to control their own cognitive and emotional states in the face of algorithmic manipulation. The research evaluates AI-driven "Digital Wellness Protectors" that use real-time biometric feedback from wearables to detect early signs of burnout, anxiety, or digital addiction. By employing neuro-symbolic AI, these tools provide personalized "cognitive nudges" to encourage offline periods and mindfulness. The study demonstrates that such interventions can reduce stress-related productivity loss by 30%. The paper calls for a global "Digital Bill of Rights" that mandates AI systems to prioritize the psychological safety and neuro-sovereignty of users over engagement metrics.

Keywords: Neuro-Sovereignty, Digital Wellness, Mental Health AI, Biometric Feedback, Cognitive Nudges, Algorithmic Ethics.

NATIONAL BRANDING AS A TOOL FOR REGIONAL INTEGRATION AND ENHANCING THE INVESTMENT ATTRACTIVENESS OF CENTRAL ASIAN COUNTRIES

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Abstract

Introduction and Purpose: In the context of global competition for investment resources, the countries of Central Asia are modernizing their economic systems and developing national branding as a tool to strengthen international image and attract investments. Amid economic diversification, growth of the service sector, and development of creative industries, the integration of marketing, institutional, and cultural initiatives becomes a key factor in enhancing the international visibility of states. The objective of this study is to conduct a comparative-analytical review of national branding strategies in Central Asian countries and assess their potential for realizing the integration potential of creative industries and enhancing the region's investment attractiveness.

Materials and Methods: The study is based on the analysis of secondary data, including investment flow indicators, Greenfield investment activity, national branding initiatives, corporate cases, and cultural projects. The methodology involves comparative country analysis, assessment of key indicators, and synthesis of territorial marketing tools, such as PR strategies, infrastructure projects, digital investor services, and promotion of creative and cultural industries. A multi-criteria analytical approach was applied to evaluate the relationship between branding parameters, the development of creative industries, and investment outcomes.

Results: Countries implementing comprehensive national branding strategies, including support for creative industries, demonstrate higher levels of investment recognition and international economic engagement. Coordinated communication campaigns, export-oriented corporate actors, and cultural initiatives correlate with increased investor confidence and improved perceptions of economic stability.

Keywords: National Branding, Central Asia, Regional Integration, Investment Attractiveness, Creative Industries.

**EXPLORING THE INNOVATIVE HOUSING FINANCING STRATEGIES IN ECO FRIENDLY
REAL ESTATE DEVELOPMENT IN ABUJA, NIGERIA**

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Abstract

Eco-friendly building and green Infrastructure are gaining more recognition in building industry especially due to their available material and cost efficiency. Sustainable building help in reducing, minimizing energy and conserving the environment. The study is to explore innovative housing finance strategies and their role in promoting eco-friendly real estate development in Abuja, focusing on innovative financing strategy available, level of success associated with the innovative housing finance strategies, challenges associated with accessing innovative housing finance strategies and effect of innovative housing finance strategies on the eco- friendly real estate development. A quantitative survey design was employed, and data were collected through structured questionnaires administered to 350 real estate developers, property professionals and other stakeholders involved in housing development within Abuja out of which, 302 were returned, representing 86.3% response rate. The sample was selected using proportional sampling technique to ensure fairness and representativeness. The study applied both descriptive and inferential statistical, including mean scores, standard deviation, and regression analysis using Statistical Package for Social Science (SPSS). Findings indicate that Public-Private Partnerships (PPP), government incentives, and tax incentives are most available and frequently utilized, while microfinance faces challenges. High interest rates and collateral requirements hinder access to finance, impacting project success. Regression analysis shows a significant positive relationship between financing innovation and housing availability, emphasizing the critical role of financial mechanisms in sustainable urban development. Policies promoting innovative financing can enhance eco-friendly housing delivery, address urban housing shortages and foster environmental sustainability. There is a need to adopt eco-friendly building strategies model which will assist in reducing energy consumption and also provide a suitable shelter, environment for development of real estate and other infrastructure in the metropolitan cities.

Keywords: Eco-friendly real estate development, green infrastructure, innovative housing finance, Real estate development, residential property

**METHODOLOGICAL LIMITATIONS OF SOVIET-ERA HISTORIOGRAPHY IN STUDYING
KAZAKHSTAN'S COLONIAL ADMINISTRATIVE-TERRITORIAL STRUCTURE**

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Abstract

The article examines the methodological limitations of Soviet-era historiography in studying the colonial administrative-territorial transformation in the territory of Kazakhstan. This research lies at the intersection of historical studies, historical geography, and critical cartography. In particular, it is based on a comprehensive scholarly approach that analyzes the methodological and ideological frameworks of Soviet historiography, the representation of colonial administrative-territorial space through cartographic discourse, and the interpretation of historical-geographical data.

Contemporary academic literature lacks sufficient studies that systematically investigate the ideological nature of Soviet cartography and historical geography, or that reveal, through cartographic discourse, the colonial dimensions of administrative-territorial transformation in Kazakhstan. The mechanisms through which the Soviet cartographic language constructed the image of “socialist development” of space, blurred the colonial content of toponymic policies, and influenced historiographical interpretation remain insufficiently explored.

The aim of the study is to determine how ideological filters embedded in Soviet cartography and historical geography shaped the depiction and scholarly interpretation of the colonial administrative-territorial space of Kazakhstan and to identify the historiographical implications of this influence.

The research employs methods of critical cartography, discourse analysis, and historiographical comparison, which make it possible to examine comprehensively the ideological structure of Soviet cartographic materials and historical-geographical texts. The findings demonstrate that the Soviet cartographic language reconfigured administrative-territorial space in accordance with the ideology of “socialist development,” thereby systematically masking its colonial content. In addition, the study proposes methodological and substantive adjustments aimed at improving domestic historical-geographical research.

Keywords: Soviet cartography, historical geography, historiography, ideological discourse, colonial transformation, toponymic policy, border discourse, censorship, school atlas, methodology of critical cartography.

NAVIGATING TECHNO-STRESS IN THE DIGITAL AGE: UNDERSTANDING THE HUMAN COSTS OF TECHNOLOGICAL ADVANCEMENT; A REVIEW STUDY

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Abstract

The digital revolution has fundamentally transformed how we work, learn, and interact, yet this transformation comes with significant psychological costs. Techno-stress, first defined by Craig Brod in 1984, represents the negative psychological impact experienced when individuals struggle to adapt to rapidly evolving technological demands. This comprehensive review synthesizes current research on techno-stress to understand its prevalence, manifestations, and implications for mental health in contemporary society.

Drawing from interdisciplinary research, including contributions from Dr.ssa Marta Chiappetta and other leading scholars, this study examines techno-stress through three interconnected dimensions: psychological, physical, and emotional. The review identifies primary drivers including accelerating technological change, increasing system complexity, insufficient digital literacy training, technology-related job insecurity, and intensified workloads enabled by constant connectivity.

Our analysis reveals that techno-stress manifests across a spectrum of symptoms, from physical indicators such as chronic fatigue, tension headaches, and sleep disturbances, to psychological symptoms including heightened anxiety, irritability, reduced self-efficacy, and diminished job satisfaction. Paradoxically, techno-stress can manifest as either technophobia (resistance and avoidance) or techno-addiction (compulsive overuse and dependency).

The review explores evidence-based intervention strategies across individual, organizational, and policy levels. These include comprehensive digital literacy programs, adaptive training initiatives, supportive organizational cultures, and policies promoting healthy technology use. Particular attention is given to healthcare and educational settings, where technology integration is both essential and potentially overwhelming.

The findings underscore that addressing techno-stress requires a holistic approach that balances technological innovation with human wellbeing. For health professionals, educators, organizational leaders, and policymakers, understanding techno-stress is crucial for creating sustainable, human-centered approaches to digital transformation. As technology continues to evolve at unprecedented rates, developing strategies to mitigate techno-stress becomes essential for protecting individual mental health while maximizing the benefits of technological advancement in our increasingly connected world.

Keywords: Techno stress, Technology, Mental Health, Digital Adaptation, Public Health

DIGITAL DIVIDE, CASTE, AND THE REINFORCEMENT OF SOCIAL STRATIFICATION: A POLITICAL ECONOMY PERSPECTIVE ON CONTEMPORARY BANGLADESH**Md. Foyzal Ahmme, Rajiwan Anwar Ratul**

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Abstract

In the global story of digital change, technology is often seen as a great equalizer. However, in the Global South, especially in Bangladesh, digital infrastructures tend to reflect and worsen existing social and economic inequalities. This chapter closely looks at how the digital divide—defined through three connected aspects: access, literacy, and usage—acts as a way to strengthen caste-based and economic divisions in present-day Bangladesh. Using a political economy approach and mainly relying on secondary data from the Bangladesh Bureau of Statistics (BBS 2022/24), the International Telecommunication Union (ITU), and recent studies, this research reveals ongoing gaps that go beyond simple technology differences. Official data shows a clear divide between urban and rural areas and a significant gender gap. More importantly, it highlights the exclusion of groups that have historically faced marginalization and caste discrimination. The lack of "meaningful connectivity" among the rural poor, women, and socially excluded caste groups, such as Dalits and other ethnic minorities, directly results in unequal access to valuable digital job markets like gig work, freelancing, e-governance, and digital financial services. The study argues that these differences are not harmless or temporary; instead, they let already advantaged urban, upper-caste, and higher-income groups gather "digital capital." This boosts their economic mobility while keeping lower-caste and marginalized groups trapped in a cycle of exclusion. By using a descriptive-analytical method, this chapter shows a strong link between digital exclusion, caste invisibility, and the ongoing reproduction of historical income inequalities. The findings add to a deeper understanding of digital inequality in the Global South, moving beyond basic access metrics to a capability-based assessment that explicitly considers caste dynamics. The chapter ends with policy recommendations focusing on inclusive infrastructure, caste-sensitive digital literacy programs, and algorithmic accountability to promote digital justice.

Keywords: Digital Divide, Caste, Social Stratification, Bangladesh, Political Economy, Dalit Communities.

DETERMINANTS OF MEAT QUALITY IN AUBRAC CATTLE: EFFECTS OF REARING SYSTEM AND POST-MORTEM BIOCHEMICAL PROCESSES

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Abstract

Beef quality represents a multifactorial trait influenced by genetic background, production system, and post-mortem biochemical transformations. This study aims to evaluate the main factors affecting meat quality in Aubrac cattle, a breed well adapted to extensive and semi-extensive production systems and increasingly valued for its robustness and product quality. The research focuses on the influence of rearing conditions, including feeding regime and growth system, on carcass characteristics and meat quality attributes. Animals raised under different management systems were comparatively analyzed in terms of carcass yield, conformation, and fat deposition. Meat samples were further assessed for key quality parameters, including pH evolution, color stability, tenderness, intramuscular fat content, and water-holding capacity. Special emphasis was placed on post-mortem biochemical processes, particularly the rate of glycolysis and its impact on ultimate pH, as well as proteolytic activity associated with meat tenderization. Variations in these processes were examined in relation to pre-slaughter handling and muscle energy reserves, highlighting their role in determining final product quality. The results indicate that Aubrac cattle raised in extensive systems can produce meat with favorable sensory and technological properties, provided that critical factors such as nutrition and post-slaughter handling are appropriately managed. These findings contribute to a better understanding of quality variability in beef production and support the valorization of the Aubrac breed within sustainable meat production systems.

Keywords: Aubrac cattle, meat quality, carcass traits, beef production

INNOVATIVE SENSOR-BASED APPROACHES FOR ETHOLOGICAL ASSESSMENT AND WELFARE MONITORING IN DAIRY CATTLE

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Abstract

Recent developments in livestock monitoring have increasingly emphasized the need for objective, continuous, and non-invasive methods to assess animal behavior and welfare. This study explores the application of emerging sensor technologies as tools for ethological investigation in dairy cattle, with a focus on capturing fine-scale behavioral patterns under commercial farming conditions. Data collection was conducted using a combination of wearable devices, including accelerometers, rumination sensors, and proximity loggers, alongside environmental monitoring systems. These technologies enabled detailed quantification of core behavioral activities such as feeding, rumination, resting, locomotion, and social interactions, providing a comprehensive behavioral profile at both individual and group levels. The study adopts an ethological framework to interpret behavioral variation in relation to environmental conditions, housing systems, and management practices. Particular attention is given to identifying early behavioral indicators of welfare impairment, such as alterations in lying time, reduced rumination, or changes in social spacing. The integration of multi-sensor data allows for a more nuanced understanding of behavioral rhythms and their sensitivity to external stressors. The findings highlight the potential of sensor-based methodologies to complement traditional observational approaches, offering scalable and reproducible tools for welfare assessment. This approach contributes to the advancement of precision livestock systems while maintaining a strong ethological foundation.

Keywords: ethology, dairy cattle, animal welfare, behavioral monitoring, rumination, livestock systems

**SENSOR-DRIVEN ARTIFICIAL INTELLIGENCE APPROACHES FOR FINE-SCALE
BEHAVIORAL MONITORING IN WILD BOAR (SUS SCROFA)**

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Abstract

The integration of artificial intelligence (AI) with advanced bio-logging technologies is increasingly reshaping the methodological landscape of wildlife ecology. In this context, the present study examines the potential of multi-sensor platforms coupled with data-driven analytical models to characterize behavioral dynamics in wild boar (*Sus scrofa*) under free-ranging conditions. Data acquisition relied on GPS-enabled collars, tri-axial accelerometers, and complementary environmental sensors, allowing for the generation of high-frequency, multi-dimensional datasets capturing both movement trajectories and activity signatures. Analytically, the study combines supervised learning frameworks with exploratory, unsupervised techniques to derive a robust classification of behavioral states, including foraging, resting, displacement, and social interactions. Particular emphasis was placed on sensor fusion strategies, which proved essential in reducing classification ambiguity and enhancing model reliability across variable environmental contexts. Beyond state classification, anomaly detection algorithms were implemented to identify departures from baseline behavioral patterns, offering a preliminary proxy for physiological stress, habitat disturbance, or disease onset. The findings indicate that AI-assisted sensor integration can yield ecologically meaningful interpretations of behavioral plasticity in wild boar populations, while maintaining a non-invasive monitoring protocol. Such approaches hold practical relevance for adaptive wildlife management, especially in regions where human-wildlife interactions are intensifying, and provide a scalable framework for long-term ecological surveillance.

Keywords: artificial intelligence, bio-logging, wild boar (*Sus scrofa*), behavioral ecology, machine learning

**INTEGRATING ARTIFICIAL INTELLIGENCE AND MULTI-SENSOR DATA FOR BEHAVIORAL
PATTERN RECOGNITION IN ROE DEER (CAPREOLUS CAPREOLUS)**

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Abstract

Recent advances in artificial intelligence (AI) have facilitated a shift from descriptive to predictive frameworks in the study of wildlife behavior, particularly when coupled with high-resolution sensor data. This paper proposes an integrative approach for the assessment of behavioral patterns in roe deer (*Capreolus capreolus*), leveraging multi-modal sensor inputs and computational modeling techniques to capture fine-scale ecological processes. Empirical data were obtained through GPS telemetry, tri-axial accelerometry, and in situ environmental sensing, enabling the reconstruction of both spatial movement patterns and activity budgets. The analytical pipeline incorporates machine learning and deep learning architectures, including sequence-aware models, to classify behavioral states such as feeding, vigilance, resting, and locomotion, while also identifying temporal dependencies and circadian structuring of activity. A central component of the study involves examining behavioral variability in relation to environmental gradients and anthropogenic pressures. The results suggest that AI-based frameworks are particularly effective in detecting subtle behavioral shifts that may not be readily observable through conventional field methods. These findings underscore the potential of intelligent sensor systems to support evidence-based conservation strategies and to refine our understanding of species–environment interactions in dynamic landscapes.

Keywords: artificial intelligence, behavioral analysis, bio-logging, deep learning, GPS tracking, wildlife ecology

EFFECT OF SUPPLEMENTATION WITH AQUEOUS EXTRACTS OF MEDICINAL PLANTS IN THE CALF DIET ON DIGESTIVE HEALTH

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Abstract

Aqueous extracts of medicinal plants, obtained by ultrasound-assisted infusion, are increasingly used in animal nutrition to support health, digestion, and development. In calves, the administration of plant extracts may positively influence growth performance, immune function, and overall health status. The present study aimed to evaluate the effects of supplementing calf diets with aqueous extracts of medicinal plants, obtained using green chemistry methods, on digestive health, behavior, and growth performance, as well as on palatability. The study was conducted on a group of 30 calves over four weeks. The supplements were administered daily as infusions obtained by ultrasound-assisted extraction, concurrently with milk, twice a day (morning and evening). Monitoring included assessment of digestive health (by determining the incidence of diarrhea episodes), behavioral observations, and evaluation of overall health status and development. The results demonstrated an approximately 35% reduction in diarrhea episodes in supplemented calves. Additionally, the animals exhibited more active behavior and signs suggesting improved digestive efficiency, without negative effects on body development. These findings suggest that the use of medicinal plants in the form of aqueous extracts may represent a safe and effective strategy for improving calf health and development, with potential positive implications for productive performance and subsequent dairy product quality.

Keywords: calves, aqueous extracts, digestive health, green chemistry, animal welfare.

IMPORTANCE OF BOVINE COLOSTRUM IN ENSURING PASSIVE IMMUNITY IN NEWBORN CALVES

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Abstract

Newborn calves have an insufficiently developed immune system because transplacental transfer of immunoglobulins does not occur in cattle. Under these conditions, bovine colostrum represents the main source of passive immunity. The quality of colostrum, the timing of administration, and the volume ingested are determining factors for ensuring adequate immunological protection and reducing the risk of morbidity in the neonatal period. Colostrum was collected immediately postpartum from cows in the second and third lactation, observing the hygiene standards specific to milking. Samples were analyzed in the first hours after collection. Quality assessment was carried out by determining the Brix value using a refractometer, an indirect method based on the estimation of total dry matter correlated with the level of immunoglobulin G (IgG). In addition, a colostrometer was used, which estimates the IgG concentration based on the density of colostrum. The IgG concentration was expressed in g/L. Good quality colostrum is characterized by a minimum IgG content of 50 g/L, corresponding to values ≥ 22 –23% Brix. Administering colostrum in the first hours after calving favors optimal absorption of IgG, while delaying administration significantly reduces the availability of immunoglobulins to the calf. The optimal volume administered was approximately 4 L in the first 2 hours of life. Refractometry has proven to be a reliable and easily applicable method in farm conditions. Correct management of colostrum is essential for reducing neonatal morbidity and mortality and for supporting subsequent zootechnical performances.

Keywords: colostrum, passive immunity, IgG, refractometer, colostrometer, newborn calves.

INCIDENCE OF PHYTOPATHOGENIC FUNGI AND MYCOTOXINS IN TWO CEREAL PRODUCTION SYSTEMS (SUSTAINABLE VS. CONVENTIONAL): IMPLICATIONS FOR FOOD SECURITY AND RURAL DEVELOPMENT

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Abstract

Contamination of cereals with phytopathogenic fungi and mycotoxins remains a major concern for food safety, livestock health, and farm economic performance. The level of fungal infestation is influenced by climatic conditions, soil management, and plant protection strategies. This study was conducted in two commercial cereal farms (wheat and maize) during the 2024 growing season, representing two production systems: a sustainable system applying crop rotation and integrated plant protection, and a conventional system using standard management practices. Soil and grain samples were analyzed for the presence of fungi from the genera *Fusarium*, *Aspergillus*, and *Penicillium*, as well as for levels of deoxynivalenol (DON), zearalenone (ZEN), and aflatoxin B₁ (AFB₁). In the sustainable system, *Fusarium spp.* was detected in 21% of maize samples and 16% of wheat samples, with an average DON level of 260 µg/kg. In the conventional system, incidence was higher (28% in maize and 19% in wheat), with an average DON concentration of 340 µg/kg. AFB₁ exceeded the regulatory limit in only 2% of samples in the sustainable system and 4% in the conventional system. Adoption of crop rotation and integrated plant protection reduced overall mycotoxin levels by approximately 30% compared to conventional management. The study highlights the relationship between agroecological practices, phytosanitary monitoring, and sustainable soil management in maintaining cereal quality and ensuring the safety of the food supply chain. These findings underline the importance of integrating sustainable practices into cereal production to support both rural development and long-term food security.

Keywords: aflatoxin B₁, deoxynivalenol, fungi, sustainable agriculture, wheat and maize production

INNOVATION AND SUSTAINABILITY IN AGRI-FOOD SYSTEMS: INTEGRATING MODERN TECHNOLOGIES INTO RURAL DEVELOPMENT

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Abstract

Rapid transformations in agriculture are driven by climate change pressures, increasing global food demand, and the urgent need for a more efficient and responsible use of natural resources. Modern agri-food systems must simultaneously respond to challenges related to productivity, environmental protection, food safety, and the socio-economic development of rural areas. In this context, disciplines such as agricultural biotechnology, biosystems engineering, agroecology, farm mechanization, renewable energy systems, and intelligent water management play a key role in supporting the transition toward sustainable agriculture. The aim of this paper is to analyze how the integration of advanced technologies - including GIS-based monitoring, precision agriculture tools, automation of farming operations, organic production practices, and integrated plant protection strategies - contributes to enhancing the resilience of agroecosystems and improving both crop and livestock productivity. The study also explores the links between technological innovation, agricultural economics, biodiversity conservation, and the reduction of macro- and micro-pollutants in soil and water. By addressing these interconnected domains, the paper emphasizes the importance of aligning technological progress with sustainable resource management and rural development policies. It underlines the role of research, education, and innovation in shaping agricultural systems capable of ensuring long-term food security, environmental balance, and economic viability for rural communities.

Keywords: biosystems engineering, food security, innovation, rural development, sustainable agriculture.

DEVELOPMENT OF FUNCTIONAL FOODS USING MILLETS: CURRENT TRENDS AND INNOVATIONS

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Abstract

Millets are ancient grains widely consumed worldwide for their superior nutritional properties and potential in functional food production. Millets are a great source of dietary fibre, minerals, proteins, and possess variety of bioactive components like phenolic acids, flavonoids and others and are now recognised as "Nutri-cereals" with many health benefits. This article discusses millet-based functional food development, highlighting trends, recent technological advancements and its applications in overcoming nutritional demands. This review covers the development of a range of millet-based functional foods including bakery products, snacks, breakfast cereals, fermented millets and gluten-free products. The study also discusses modern processing technologies like fermentation, germination, extrusion, and biofortification that are used to improve the nutritional and functional traits of millet-based functional foods. The review also explores the health-promoting effects of millets, especially in the management of lifestyle diseases like diabetes, obesity and heart diseases. However, there are challenges in their processing, consumer acceptance and the presence of anti-nutritional factors, limiting their widespread use. In conclusion, millets offer a sustainable and potentially valuable ingredient in the development of functional foods of the future, ensuring nutritional security as well as ecological sustainability.

Keywords: Millets, Functional foods, Nutraceuticals, Bioactive compounds, Dietary fiber, Gluten-free products, Fermentation, Extrusion technology, Sustainable nutrition, Lifestyle diseases

MORPHOMETRIC AND HISTOLOGICAL ANALYSIS OF THE HEART IN CHICK EMBRYOS

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Abstract

The heart is the first organ to develop in vertebrates. Since embryonic heart development in chicks is quite similar to that in humans, chick embryos are considered a reliable animal model for studying the anatomical and histological development of the heart. The aim of this study is to examine the histomorphometric development of the chick heart on days 10, 13, 16, and 21 of incubation. As material, a total of 24 hearts from Babcock White Leghorn chicks were used, six from each of the determined embryonic days. Embryonic hearts were weighed using a precision balance, and their diameters were measured with a digital caliper. Paraffin blocks were prepared from the hearts, which were taken to histological tissue processing for microscopic examination. Sections taken from these blocks using a microtome and were stained using Crossmon's triple staining method. The images from the sections obtained with a camera-attached microscope were transferred to the ImageJ analysis program. Histomorphometric measurements of the heart wall and aorta were performed. Additionally, heart volume was calculated using the Cavalieri method. During incubation, a gradual increase in heart volume was observed. The right atrial wall was found to be thicker than the left atrial wall on days 10 and 13 while the left atrial wall became thicker than the right atrial wall on days 16 and 21. Throughout the subsequent embryonic days, the left ventricular wall was observed to be thicker than the right ventricle. Except for days 16 and 21, the ventricular wall layer thicknesses on the right side of the heart were measured to be thicker than those on the left. The diameter, wall diameter, and lumen area of the aorta were determined to increase significantly towards the end of incubation. The lumen diameter of the aorta increased until day 16 of incubation, but decreased on the day of incubation. In conclusion, we believe that these data will form the basis for information obtained with imaging systems applied in the clinical field, may be accepted as reference values for clinical sciences, and may assist physicians in diagnosing heart diseases.

Keywords: Chick embryo, Heart, Histomorphometric analysis.

EARLY SURGICAL REPAIR OF PENILE FRACTURE: A SINGLE-CENTER EXPERIENCE

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Abstract

Penile fracture is a rare urological emergency that most commonly occurs due to a tear in the tunica albuginea during sexual intercourse. This study aimed to evaluate the clinical characteristics, timing of surgery and postoperative outcomes of patients who underwent penile fracture repair at a single centre. A retrospective analysis was conducted on 36 patients who underwent surgical repair for penile fracture. Demographic data, clinical presentation, length of hospital stay, timing of surgery and postoperative outcomes were evaluated. The mean age was 43 years. The mean time from symptom onset to surgical intervention was 5 hours. Urethral injury was identified in 5 patients (13.9%). Postoperative complications were observed in only 1 patient (2.7%). Our findings indicate that early surgical repair is associated with excellent outcomes and low complication rates. In patients with penile fracture, rapid diagnosis and timely intervention are of vital importance to minimise morbidity and preserve functional outcomes.

Keywords: Penis; Rupture; Penile Disease; Injuries and Wounds; Urologic Surgical Procedures, Male

FREQUENCY AND CLINICAL CORRELATES OF ILIAC ENTHESITIS IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

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Background: Iliac enthesitis is a potentially relevant but underrecognized manifestation in axial spondyloarthritis (axSpA). We aimed to determine its frequency and associated clinical factors in patients with axSpA.

Methods: This cross-sectional study included 194 patients with axSpA, classified as non-radiographic axSpA (nr-axSpA) or radiographic axSpA (r-axSpA). Iliac enthesitis was assessed as present/absent and, when present, as unilateral or bilateral. Demographic features, smoking, HLA-B27 positivity, inflammatory back pain according to ASAS, arthritis, peripheral enthesitis, uveitis, CRP, ASDAS-CRP, BASDAI, BASFI, BASMI, patient and physician global scores, pain VAS, and SAIE grade were compared between patients with and without iliac enthesitis. For SAIE grade, the higher value between the right and left sides was accepted as the patient-level grade.

Results: Iliac enthesitis was present in 46/194 patients (23.7%) and absent in 148/194 (76.3%). Among affected patients, 7 (15.2%) had unilateral and 39 (84.8%) had bilateral involvement. Iliac enthesitis was detected in 19.6% of nr-axSpA patients and 27.8% of r-axSpA patients, without a significant difference ($p=0.237$). Patients with iliac enthesitis were older than those without iliac enthesitis (45.3 ± 9.4 vs 37.4 ± 11.3 years, $p<0.001$). CRP [7.3 ($3.4-12.8$) vs 3.9 ($2.9-8.2$) mg/L, $p=0.023$], ASDAS-CRP [3.0 ($2.6-3.8$) vs 2.7 ($2.2-3.2$), $p=0.006$], BASDAI [5.3 ($3.7-7.1$) vs 4.0 ($3.4-5.6$), $p=0.020$], BASMI [2.0 ($1.4-3.2$) vs 1.6 ($1.0-2.4$), $p=0.033$], and SAIE grade [2 ($2-3$) vs 2 ($1-3$), $p=0.006$] were significantly higher in patients with iliac enthesitis. Other variables were similar between groups (summarized in Table 1).

Conclusion: Iliac enthesitis was present in nearly one-quarter of axSpA patients and was predominantly bilateral. Its presence was associated with older age, higher inflammatory burden, higher disease activity, reduced spinal mobility, and higher SAIE grade.

Keywords: axial spondyloarthritis; iliac enthesitis; disease activity; BASMI; CRP

Table 1. Comparison of axSpA patients with and without iliac enthesitis

Variable	Overall axSpA	Iliac enthesitis (+)	Iliac enthesitis (-)	p value
Age, years	39.3 ± 11.4	45.3 ± 9.4	37.4 ± 11.3	<0.001
Radiographic axSpA, n/N (%)	97/194 (50.0)	27/46 (58.7)	70/148 (47.3)	0.237
Male sex, n/N (%)	104/194 (53.6)	27/46 (58.7)	77/148 (52.0)	0.533
Female sex, n/N (%)	90/194 (46.4)	19/46 (41.3)	71/148 (48.0)	0.533
BMI, kg/m ²	28.0 ± 5.6	29.3 ± 6.1	27.5 ± 5.3	0.094
Current smoking, n/N (%)	69/185 (37.3)	19/45 (42.2)	50/140 (35.7)	0.543
Inflammatory back pain according to ASAS, n/N (%)	131/187 (70.1)	32/46 (69.6)	99/141 (70.2)	1.000
Arthritis, n/N (%)	5/188 (2.7)	2/46 (4.3)	3/142 (2.1)	0.597
Uveitis, n/N (%)	8/188 (4.3)	1/46 (2.2)	7/142 (4.9)	0.682
HLA-B27 positivity, n/N (%)	64/162 (39.5)	19/40 (47.5)	45/122 (36.9)	0.315
CRP, mg/L	4.3 (3.1–8.7)	7.3 (3.4–12.8)	3.9 (2.9–8.2)	0.023
ASDAS-CRP	2.8 (2.2–3.4)	3.0 (2.6–3.8)	2.7 (2.2–3.2)	0.006
BASDAI	4.1 (3.4–6.1)	5.3 (3.7–7.1)	4.0 (3.4–5.6)	0.020
BASFI	2.6 (1.2–4.5)	2.7 (1.0–6.0)	2.6 (1.3–4.2)	0.615
BASMI	1.8 (1.0–2.6)	2.0 (1.4–3.2)	1.6 (1.0–2.4)	0.033
Patient global score	6.0 (5.0–8.0)	7.0 (5.0–8.0)	6.0 (4.0–8.0)	0.130
Physician global score	5.0 (3.0–6.0)	5.0 (4.0–6.0)	5.0 (3.0–6.0)	0.223
Pain VAS	6.0 (5.0–8.0)	7.0 (5.0–8.0)	6.0 (4.0–8.0)	0.147
SAIE grade*	2 (1–3)	2 (2–3)	2 (1–3)	0.006

Continuous variables are presented as mean ± SD or median (IQR), as appropriate; categorical variables are presented as n/N (%).

*For SAIE grading, the higher value between the right and left sides was considered the patient-level grade.

SPİNAL KİTLE OPERASYONLARINDA NIRS MONİTÖRİZASYONU İLE SPİNAL PERFÜZYONUN DEĞERLENDİRİLMESİ: İKİ VAKALIK ÖN GÖZLEM

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Özet

Spinal tümör cerrahilerinde mekanik manipülasyon, vasküler hasar ve intraoperatif hipotansiyon gibi nedenlerle spinal perfüzyonun bozulması ve iskemi gelişme riski bulunmaktadır (1). Bu çalışmada, spinal cerrahi uygulanan iki olguda spinal kord ve paraspinal kas perfüzyonunun değerlendirilmesinde gerçek zamanlı ve non-invaziv bir yöntem olan near-infrared spektroskopisi (NIRS) monitörizasyonunun kullanımını sunmayı amaçladık. Her iki olguda standart anestezi monitörizasyonuna ek olarak lezyon seviyesindeki spinal kaslara ve lomber bölgeye bilateral NIRS probaları yerleştirilerek başlangıç bölgesel oksijen saturasyonu (rSO₂) değerleri kaydedildi. Anestezi indüksiyonu propofol, fentanil ve rokuronyum ile sağlandıktan sonra hastalar supin pozisyonunda entübe edilerek prone pozisyonuna alındı. Anestezi idamesi BIS monitörizasyonu eşliğinde sevofluran ve remifentanil infüzyonu ile sürdürüldü. İntraoperatif süreçte ortalama arter basıncı stabil seyretti, belirgin kan kaybı veya transfüzyon gereksinimi gözlenmedi. NIRS ölçümleri FiO₂ %50 olacak şekilde standart ventilasyon koşullarında gerçekleştirildi. İlk olguda T4 seviyesinde intradural ekstrapedüller yerleşimli tümör nedeniyle yapılan cerrahi sonrası torakal rSO₂ değerleri 84/82'den 93/92'ye yükselirken, ikinci olguda L1-L2 seviyesindeki tümör rezeksiyonu sonrası lomber rSO₂ değerleri 73/74'ten 81/84'e yükseldi. Her iki olguda da postoperatif dönemde %15-20'nin üzerinde artış gözlemlendi. Bu bulgular, tümörün oluşturduğu mekanik basının ortadan kalkmasıyla lokal perfüzyonun düzeldiğini düşündürmektedir. Literatürde de NIRS monitörizasyonunun spinal perfüzyonun dolaylı değerlendirilmesine katkı sağladığı bildirilmiştir (2). Sonuç olarak, NIRS monitörizasyonu güvenli, non-invaziv ve uygulanabilir bir yöntem olup, özellikle yüksek riskli spinal cerrahilerde intraoperatif perfüzyon değişikliklerinin erken tanınmasında değerli bir araç olabilir.

Anahtar Kelime: NIRS, spinal perfüzyon, spinal cerrahi, spinal kitle

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2-Rashnavadi, Tahereh, et al. "Monitoring spinal cord hemodynamics and tissue oxygenation: a review of the literature with special focus on the near-infrared spectroscopy technique." *Spinal Cord* 57.8 (2019): 617-625.

EVALUATION OF SPINAL CORD PERFUSION USING NIRS MONITORING DURING SPINAL TUMOR SURGERY: A PRELIMINARY TWO-CASE REPORT**Abstract**

Spinal tumor surgeries carry a risk of impaired spinal perfusion and subsequent ischemia due to factors such as mechanical manipulation, vascular injury, and intraoperative hypotension (1). In this study, we aimed to present the use of near-infrared spectroscopy (NIRS) monitoring, a real-time and non-invasive method, for the evaluation of spinal cord and paraspinal muscle perfusion in two patients undergoing spinal surgery. In both cases, in addition to standard anesthesia monitoring, bilateral NIRS probes were placed over the paraspinal muscles at the lesion level and the lumbar region, and baseline regional oxygen saturation (rSO₂) values were recorded. Following induction of anesthesia with propofol, fentanyl, and rocuronium, the patients were intubated in the supine position and then positioned prone. Anesthesia was maintained with sevoflurane and remifentanyl infusion under bispectral index (BIS) monitoring. During the intraoperative period, mean arterial pressure remained stable, and no significant blood loss or need for transfusion was observed. NIRS measurements were performed under standardized ventilation conditions with a fraction of inspired oxygen (FiO₂) of 50%. In the first case, following resection of an intradural extramedullary tumor at the T4 level, thoracic rSO₂ values increased from 84/82 to 93/92. In the second case, after tumor resection at the L1–L2 level, lumbar rSO₂ values increased from 73/74 to 81/84. In both cases, a postoperative increase of more than 15–20% was observed. These findings suggest that the removal of tumor-related mechanical compression leads to an improvement in local perfusion. Consistent with our findings, previous studies have reported that NIRS monitoring contributes to the indirect assessment of spinal perfusion (2). In conclusion, NIRS monitoring is a safe, non-invasive, and feasible technique, and it may serve as a valuable tool for the early detection of intraoperative perfusion changes, particularly in high-risk spinal surgeries.

Keyword: Near-Infrared Spectroscopy (NIRS), Spinal perfusion, Spinal surgery, Spinal tumor

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**EVALUATION OF INTRAPLATELET ATP LEVELS AND BIOCHEMICAL PARAMETERS
ACCORDING TO SYNTAX SCORE IN PATIENTS WITH CORONARY ARTERY DISEASE**

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Abstract

Objective: This study aimed to evaluate the relationship between SYNTAX score and platelet aggregation, dense granule ATP secretion, and biochemical parameters in patients with coronary artery disease (CAD).

Methods: A total of 40 patients diagnosed with CAD were included in the study. Patients were categorized according to SYNTAX score as low (<23; n=32) and intermediate-high (≥23; n=8). ADP-mediated platelet aggregation and ATP secretion were measured using the Chronolog 700 aggregation system. Biochemical parameters were analyzed according to SYNTAX score groups.

Results: No significant differences were observed between SYNTAX score groups in terms of ADP-mediated platelet aggregation parameters or ATP secretion levels (p>0.05). Platelet count was significantly higher in the low SYNTAX group (p=0.027). Although plateletcrit (PCT) and LDL levels were higher in the low SYNTAX group, these differences did not reach statistical significance (p>0.05). Total cholesterol was significantly

higher in the low SYNTAX group ($p=0.023$), whereas serum sodium levels were significantly elevated in the intermediate-high SYNTAX group ($p=0.042$).

Conclusion: In our study population, coronary lesion complexity (SYNTAX score) was not associated with platelet aggregation or ATP secretion, but was related to platelet count and certain biochemical parameters. These findings suggest that, in CAD, platelet consumption and metabolic processes rather than platelet function may be more determinant according to SYNTAX score. Further studies involving larger patient populations are needed to validate these findings.

Keywords: Coronary Artery Disease (CAD), platelet ATP levels, SYNTAX score, ADP induced platelet function

COMPARISON OF PLATELET INDICES, CRP, AND TROPONIN T LEVELS ACCORDING TO
RS3742106 GENE VARIANTS IN PATIENTS WITH MYOCARDIAL INFARCTION

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Abstract

This study aimed to compare cardiac injury, inflammatory, and platelet activation markers according to rs3742106 genotypes in 105 patients with myocardial infarction and 104 healthy controls. Troponin T, C-reactive protein (CRP), platelet count (PLT), mean platelet volume (MPV), and plateletcrit (PCT) levels were evaluated in the AA, AC, and CC genotype groups.

Genomic DNA was isolated using the PureLink™ Genomic DNA Mini Kit. Genotyping was subsequently performed by Real-time PCR on the Roche LightCycler 2.0 system using a master mix supplied by OctoBio. Serum CRP and Troponin T levels were measured using the Roche Cobas 8000 analyzer (Roche Diagnostics GmbH, Mannheim, Germany), and biochemical and hemogram data were retrieved from electronic medical records.

No significant difference was observed between the patient and control groups in terms of genotype and allele frequency distribution ($p>0.05$). Troponin T levels were significantly higher in myocardial infarction patients than in controls across all rs3742106 genotypes, with significant differences observed in AA ($p=0.011$), AC ($p=0.001$), and CC carriers ($p=0.020$). CRP levels were significantly elevated in the patient group compared with controls among AA and AC genotype carriers ($p=0.041$ and $p=0.002$, respectively), whereas no significant difference was observed in the CC genotype group. PLT and PCT values were significantly lower in patients with the AA genotype compared with controls (PLT: $p=0.020$; PCT: $p=0.012$); however, no statistically

significant differences were detected in the AC and CC groups. MPV values showed no significant differences between patients and controls in any genotype subgroup ($p>0.05$).

These findings suggest that the rs3742106 genotype may influence inflammatory response and platelet indices in myocardial infarction, whereas elevated Troponin T levels appear to be associated with myocardial injury independently of genotype.

Keywords: Myocardial Infarction, rs3742106, gene variants, platelet indices, CRP, troponin T levels

MARESINS MITIGATED LIVER AND BRAIN INJURY IN AN EXPERIMENTAL SEPSIS MODEL

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Abstract

Sepsis is a life-threatening organ dysfunction with high mortality rates caused by a dysregulated host response to infection. Oxidative stress and dysregulated inflammation play a crucial role in the initiation and progression of sepsis damage. Due to the lack of a specific antisepsis treatment, developing treatments that improve the clinical outcome of sepsis is a global priority. The aim of this study is to investigate the effects of certain maresin molecules (Maresin-1, Maresin-2 and MCTR3) on liver and brain injuries in a lipopolysaccharide (LPS)-induced sepsis rat model. For this purpose, six groups of eight rats were formed: Control, LPS, LPS+Maresin-1, LPS+Maresin-2, LPS+MCTR3, and LPS+ Indomethacin. An experimental sepsis was induced by injecting i.p. 1 mg/kg LPS. Maresin molecules were administered i.p. 200 ng/rat, and indomethacin as a reference substance was administered i.p. 5 mg/kg. Blood and tissue (liver and brain) samples were taken 24 hours after the injections, and the possible therapeutic effects of maresins were investigated by biochemical, molecular and histological analyses. Serum albumin, lipid profile (total cholesterol, LDL-c, HDL-c, triglyceride), ALT and AST activities, TNF- α , Interleukin-6, Interleukin-10 and C-reactive protein levels as well as plasma lactate levels were measured. Malondialdehyde, nitric oxide and reduced glutathione levels were measured in tissue samples. TNF- α , Interleukin-6 and Interleukin-10 mRNA expressions were also analyzed by RT-PCR, and CD36 or iNOS protein expressions were analyzed by Western-Blot method. Liver and brain sections were histologically evaluated by Hematoxylin-Eosin staining. According to the findings, LPS triggered oxidative stress, inflammation and liver/brain injuries in rats, causing significant structural changes associated with damage in the tissues. Maresins showed no toxic effects and generally mitigated the destructive effects of LPS, showing beneficial effects in favor of the tissues. Our findings support that maresin-1, maresin-2 and MCTR3 may be useful as a therapeutic approach in pathologies associated with liver or brain in experimental sepsis.

This study was supported by the Scientific Research Projects Commission of the Eskisehir Osmangazi University (Project #TSA-2022-2365).

Keywords: inflammation, lipopolysaccharide, maresins, sepsis

SURGICAL MANAGEMENT OF ODONTOGENIC CYSTS IN DIFFERENT ANATOMICAL LOCALIZATIONS: A REPORT OF TWO CASES

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Abstract

Odontogenic cysts are common lesions of the jaw bones. Radicular cysts develop secondary to chronic periapical inflammation, whereas dentigerous cysts arise from the follicular tissues surrounding the crowns of impacted teeth. This study presents the surgical management of two odontogenic cysts with different anatomical localizations. Case 1; A patient presented with swelling in the anterior mandible. Panoramic radiography revealed a large radiolucent lesion in the symphysis-parasymphysis region. Following a sulcular incision, a mucoperiosteal flap was elevated. The cyst was carefully separated from the bony walls, total enucleation was performed, and the surgical site was closed primarily. Histopathological examination confirmed the diagnosis of a radicular cyst. Case 2; A large radiolucent lesion associated with the impacted maxillary right third molar was detected in the right posterior maxilla. Radiological evaluation demonstrated perforation of the nasal floor. Following a sulcular incision, bone removal was carried out to obtain surgical access. The cyst was totally enucleated together with the impacted tooth. The defect area was supported with Bichat fat pad tissue and closed primarily. Histopathological examination confirmed the diagnosis of a dentigerous cyst. No postoperative infection, nerve injury, or major complications were observed in either case. In appropriately selected cases, total enucleation is an effective treatment modality

Keywords: Odontogenic cyst, Radicular cyst, Dentigerous cyst, Enucleation, Bichat fat pad tissue

A REVIEW ON LIVING LABS IN SUSTAINABILITY AREAS

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Abstract

Nowadays, supporting individuals who generate new ideas at the local, national, and global levels, and creating suitable environments for them, are among the primary goals of national development strategies of the countries. Living labs, which bring creative people together, provide the environment for these gatherings. Living Labs (LLs) are platforms that enable research to be developed in partnership with real-world stakeholders. Stakeholders in Living Labs can include universities, institutes, public institutions, and entrepreneurs. The aim is to enable organizations to test their innovative approaches by incorporating customer or citizen interactions. Life labs allow users not only to experience a new product but also to participate interactively in the process in the real world. This collaborative production practice also creates potential for public institutions. For elected mayors, establishing living labs within their own organizations plays an effective role in generating and implementing new ideas, and in ensuring that these ideas are adopted by citizens. Sustainability is an area open to innovation, where municipalities and other public institutions produce projects as much as the private sector. The foundations of a sustainable future depend on broad communities and citizens who have adopted sustainable living habits. The aim of this study is to examine the sustainability projects of Living Labs developed by municipalities, using a literature-based approach and web browsing method.

Keywords: Living lab, sustainability, municipalities, participation.

WASTE ENTREPRENEURSHIP, CIRCULAR ECONOMY AND INNOVATION

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Abstract

Waste management is one of the most challenging areas of urban systems. In this sector, which requires continuous effort, recycling and upcycling are critically important for a sustainable future. Ensuring the continuity of recycling and the circular economy in waste management is possible with citizens who are aware of this issue. In most developed countries today, citizens are separating their waste and integrating into a system that is close to zero waste. The circular economy has created new job sectors. These circular jobs are primarily essential in repair, renewable energy, waste and resource management, and other jobs that contribute to the circular economy. Businesses that contribute to the circular economy have innovation and entrepreneurship aspects. Waste entrepreneurship, which is among the foundations of the circular economy, is open to innovation as a sector that creates formal and informal employment opportunities. This sector, referred to as "treasure extraction from waste," has begun to create its own internal dynamics. The facilities provided by municipalities for waste sorting are making these processes easily applicable habits for citizens. In addition, in developing and underdeveloped countries, waste collection, an informal branch of recycling, has become a defined occupation for immigrants and the poorest citizens. In addition to informal recycling enthusiasts, there are entrepreneurs from both the public and private sectors who are institutionalizing waste collection and investing in this field. The aim of this study is to examine the contributions of waste entrepreneurship to the circular economy and to investigate innovative approaches in this area. This approach will involve a literature-based study and secondary data research.

Keywords: Waste management, sustainability, circular economy, waste entrepreneurship, innovation.

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Özet

Tüm dünyayı etkileyen kaynak kıtlığı ve iklim krizi nedeniyle pek çok endüstride çevresel sürdürülebilirlik odaklı stratejik dönüşümler zorunlu olmaktadır. İlgili dönüşümde temel bileşenlerden birisi olan yeşil liderlik; çevresel hedef odaklı, paydaş katılımına önem veren, ekolojik ayak izi konusunda hassasiyet gösteren bir yönetim anlayışını temsil etmektedir. Havacılık sektöründe yüksek karbon emisyonu ve yoğun çevresel etki sebebiyle küresel bir baskı oluşmakla birlikte sürdürülebilirlik konusu tercih değil zorunluluk haline gelmiştir. Bu çalışmada, havacılık yönetiminde yeşil liderliğin önemi, temel ilkeleri ve sektör üzerindeki stratejik etkileri kavramsal açıdan ele alınmıştır. Gerçekleştirilen literatür taraması sonucunda, havacılık sektöründe yeşil liderlik odaklı çalışmaların oldukça sınırlı sayıda olduğu görülmüş, konunun henüz gelişim aşamasında olduğu saptanmıştır. Havalimanları, tedarikçiler, havayolu işletmeleri gibi çok katmanlı bir paydaş yapısına sahip olan sektörde çevresel performansın artırılması önemli bir durum olarak değerlendirilmektedir. Çalışma sonucuna göre yeşil liderlik uygulamalarının hem çalışanların çevreye dair tutumlarını teşvik etmekte olduğu hem de operasyonel performansı iyileştirerek sürdürülebilir kalkınma amaçlarına ulaşma noktasında köprü görevi aldığı çıkarılmıştır. Ayrıca hızlı bir değişime sahip olan havacılık sektöründe yeşil liderlik gibi kurumsal uygulamalarla süreçlerin desteklenmesi önem arz etmektedir. Havacılık sektörüne getirilen yeni düzenlemeler çerçevesinde sıfır emisyonun da öneminin ön plana çıkması neticesinde çevre odaklı yönetim süreçlerinin önemi artmaktadır. Bu bağlamda yeşil liderlik uygulamalarının havacılık sektörü açısından bir zorunluluğa dönüşme yolunda olduğu ifade edilebilmektedir. Bu çalışmayla havacılık literatüründeki ilgili boşluğun doldurulması amaçlanmış olup gelecek çalışmalara uygulama temelli bir zemin sunulmaktadır.

Anahtar Kelimeler: Yeşil liderlik, Stratejik yönetim, Havacılık yönetimi

GREEN LEADERSHIP IN AVIATION MANAGEMENT**Abstract**

Due to the global impact of resource scarcity and climate change, strategic transformations focused on environmental sustainability are imperative for numerous industries. In the context of the aforementioned transformation, green leadership constitutes a fundamental element. This leadership style is characterised by its emphasis on environmental targets, fostering stakeholder participation, and demonstrating environmental responsibility, as evidenced by its commitment to minimising its ecological footprint. In the aviation industry, elevated carbon emissions and substantial environmental impact have given rise to a global imperative for sustainability, transcending mere preference and becoming an obligatory component of strategic decision-making. In the present study, the significance of green leadership in the context of aviation management, its fundamental principles, and the strategic impacts it exerts on the sector have been examined from a conceptual standpoint. A thorough review of the extant literature reveals that there is a paucity of research in the field of aviation that is oriented towards green leadership. It is evident that this subject is still in its infancy and requires further development. In the aviation sector, which is characterised by a multifaceted supply chain comprising airports, suppliers and airline operators, enhancing environmental performance is of paramount importance. The findings of the study indicate that the implementation of green leadership practices has a dual impact. Firstly, it has been observed to encourage employees to adopt a more environmentally conscious attitude.

Secondly, it has been found to enhance operational performance, thereby facilitating the achievement of sustainable development goals. This dual impact of green leadership practices is significant in terms of achieving a balance between environmental sustainability and operational efficiency in business. Moreover, in view of the rapid transformation evident in the aviation sector, there is an increasing emphasis on the adoption of corporate practices that promote green leadership. Such initiatives are of paramount importance in ensuring the effective management of processes. In the context of the recent regulatory changes that have been implemented within the aviation sector, and with the increasing emphasis on zero-emission practices, there is a growing recognition of the significance of environmental management systems. In this context, it can be posited that green leadership practices are evolving into an imperative within the aviation sector. The objective of the present study is to address a significant lacuna in the aviation literature by providing a theoretical foundation for future research that is grounded in application.

Keywords: Green leadership, Strategic management, Aviation management

BULANIK ORTAMDA OPERASYONEL RİSK YÖNETİMİ**Elif ÜZEL**

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Özet

Risk kavramı, belirli bir zaman diliminde istenmeyen, olumsuz veya tehlikeli durumlar ile karşılaşma olasılığını ifade etmektedir (Milan, 2000). İnsanların yer aldığı tüm faaliyetlerde tehlikeli durumlarla karşılaşma olasılığı bulunmaktadır, böylece riskin varlığından söz edilebilmektedir. Bu durumda riskin sıfır olması mümkün değildir (GAIN, 2002). Ancak riski oluşturan unsurlar tespit edilerek yönetilmesi önemlidir. Havacılıkta proaktif risk yönetimi, kazalar meydana gelmeden önlenmesi amacıyla havayolu seyahatinin daha emniyetli bir ortam haline getirilmesi kritik önem taşımaktadır (Southern Wings, 2025). Havacılık işletmeleri açısından risk yönetimi, uçuş ve yer operasyonlarını, teknik açıdan kaynaklanan tüm risklerin, yüksek emniyet elde edebilmek için getirilen usul, esas ve kurallara uygun bir şekilde yönetilmesini ifade etmektedir (Oktaysoy, Topçuoğlu, & Kaygın, 2022). Sivil havacılık sektöründe temel amaç hava taşımacılığında oluşabilecek risklerin en aza indirilmesidir (Gerede, 2006). Operasyonel risk yönetimi her havacılık kuruluşu için hayati önem taşımaktadır. Bu kapsamda mevcut çalışmada bulanık ortamda operasyonel risk yönetimine yönelik kavramsal bir çerçeve sunulmaktadır. Havacılık sektöründe kararların dinamik ve bulanık ortamlarda alınması nedeniyle risklerin en düşük seviyeye çekilebilmesi dikkat edilmesi gereken noktalar arasındadır. Aksi taktirde oluşabilecek riskler nedeniyle kaza kırım yaşanması kaçınılmazdır. Özellikle subjektifliğin en düşük seviyede yer alması ve mümkün olduğu ölçüde objektif kriterlerin bulunması gerekir. Bu bağlamda bu çalışmada kriterlerin risk yönetim süreçlerine olası etkisi faktörler aracılığıyla belirtilmektedir.

Anahtar Kelimeler: Operasyonel Risk Yönetimi, Bulanık Ortam, Havacılık Emniyeti, Çok Kriterli Karar Verme

OPERATIONAL RISK MANAGEMENT IN A FUZZY ENVIRONMENT**Abstract**

The term 'risk' is employed to denote the probability of encountering undesirable, adverse, or hazardous circumstances within a specified timeframe (Milan, 2000). It is an irrefutable fact that human beings are exposed to a range of hazardous scenarios in all areas of human activity. Consequently, the existence of risk is a valid postulation. In such circumstances, it is not possible to eliminate risk entirely (GAIN, 2002). It is imperative that the elements constituting the risk are identified and managed effectively. Proactive risk management in the aviation sector is of critical importance in ensuring the safety of air travel (Southern Wings, 2025). This is particularly relevant in the context of preventing accidents before they occur. In the context of aviation enterprises, risk management encompasses the implementation of procedures, regulations and principles aimed at the effective management of all technical risks, with the overarching objective of ensuring the highest standards of safety (Oktaysoy, Topçuoğlu & Kaygın, 2022). In the domain of civil aviation, the fundamental objective is to minimise the potential risks associated with air transportation (Gerede, 2006). The management of operational risk is of paramount importance to all aviation establishments. The present study proposes a conceptual framework for operational risk management in a dynamic environment. In the aviation industry, it is imperative to acknowledge the dynamic and uncertain nature of decision-making processes, which invariably leads to the minimisation of risk. This aspect warrants meticulous attention. It is inevitable that accidents will occur due to the potential risks involved. It is imperative that objectivity is prioritised to the

greatest extent possible, with the objective standards that are available being applied to the greatest extent possible. In this study, the potential impact of the aforementioned criteria on risk management processes is examined through the lens of the relevant factors.

Keywords: Operational Risk Management, Fuzzy Environment, Aviation Safety, Multi-Criteria Decision-Making (MCDM)

THE 'COOLCATION' POTENTIAL OF HIGHLAND TOURISM IN TÜRKİYE

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Abstract

The transformative impact of global climate change on tourism mobility is conceptualized in the literature as "Coolcation." This trend, grounded in the motivation to avoid rising ambient temperatures and heatwaves, is substantiated by concrete market data. An examination of Google Trends data reveals a 300% increase in searches for "cooler holidays," while a 27% growth was recorded in reservations for Scandinavia—a region offering cool climate characteristics—during the 2023–2024 period. Furthermore, the fact that Scandinavian destinations surpassed Turkey in the German source market in 2023 to become the third most popular destination is evaluated as a significant indicator.

Projections indicate that a 3–4°C increase in global average temperatures could lead to contractions of up to 10% in tourism demand within Southern Europe and the Mediterranean basin. Although Turkey is located in the Mediterranean basin, a region primarily affected by climate change, it possesses the potential to transform this threat into a strategic advantage through its topographic diversity. The focal point of this transformation process is Highland Tourism. The "natural air conditioning" effect, low humidity, and sense of spaciousness offered by high-altitude areas are capable of responding to international Coolcation demand.

In this context, the aim of this study is to analyze the demand shift indicated by statistical data and to develop a strategic model proposal that integrates Turkey's highland tourism potential with the Coolcation trend. The study examines how Turkey's highlands can be branded not merely as geomorphological elevations, but as competitive destination alternatives providing thermal comfort against increasing heat stress. The integration of highland tourism into this global trend is evaluated as a sustainable opportunity that will both compensate for the projected market loss in the Mediterranean basin and optimize the seasonal and geographical distribution of tourism activities.

Keywords: Coolcation, Climate Change, Highland Tourism, Alternative Tourism.

**ASTROTOURISM WITHIN THE FRAMEWORK OF SPECIAL INTEREST TOURISM: AN
ANALYSIS ON THE POTENTIAL AREAS OF SİNOP PROVINCE**

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Abstract

Astrotourism, emerging as a result of the growing interest in special interest tourism, is a nature-based, sustainable tourism niche focused on the observation of celestial bodies and astronomical events—phenomena that are becoming increasingly difficult to view due to rising global light pollution. Although the practice of skygazing traces its roots back to Antiquity, in the modern era, it has evolved into an organized collaborative movement integrated with the awareness of "dark sky preservation." In this context, the first official global designation occurred in 2001, when the city of Flagstaff, Arizona (USA), was certified as an "International Dark Sky Place" (City of Flagstaff, 2024). Subsequently, in 2007, the Natural Bridges National Monument in Utah became the first recipient of the "Dark Sky Park" title (Murphy, 2023).

As of 2025, there are more than 250 certified areas worldwide, all designated by DarkSky International. These designated areas provide significant long-term sustainable benefits, particularly regarding the tourism revenues generated for their respective regions. Examining the specific case of Turkey, although no officially designated "Dark Sky Parks" exist yet, public awareness and interest levels are gaining momentum through events such as the TÜBİTAK Sky Observation Festivals (TÜBİTAK, 2025). Given Turkey's diverse topography, vast rural geography, and growing public interest, the country presents a significant opportunity for the development of astrotourism.

In light of this information, the aim of this study is to analyze the current status of astrotourism as an emerging trend, to present global examples, and to evaluate the feasibility of Sinop province within this context, based on the development of the sector in Turkey. The research methodology is based on document analysis and literature review; accordingly, existing academic data and dark sky criteria were systematically examined. The study considers the region's light pollution maps, geographical location, lack of heavy industrialization, and the observational advantages it offers. Consequently, the study assesses the suitability of transforming pristine areas identified as most appropriate for astrotourism—such as İnceburun and Akgöl Nature Park—into sustainable astrotourism destinations.

Keywords: Astrotourism, Dark Sky Parks, Sinop, Sustainable Tourism.

**DIGITAL TRANSFORMATION AND SUSTAINABLE LOGISTICS MANAGEMENT IN THE
EAST–WEST TRANSPORT CORRIDOR: EVIDENCE FROM AZERBAIJAN**

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Abstract

The East–West Transport Corridor has become a strategically important component of global logistics networks, enhancing trade connectivity between Asia and Europe. Azerbaijan’s geographical position provides a significant advantage, enabling the country to function as a key transit hub within this corridor.

This study examines the impact of digital transformation on logistics management and performance in Azerbaijan. It focuses on the application of advanced technologies, including big data analytics, artificial intelligence, blockchain, and the Internet of Things, which facilitate real-time data exchange, automation, and improved coordination across supply chains.

The research adopts a qualitative and analytical approach based on secondary data from international organizations and policy reports, complemented by a simplified empirical framework assessing the relationship between digitalization, infrastructure, institutional coordination, and logistics performance.

The findings indicate that digital transformation contributes to reduced transit times, lower operational costs, and enhanced transparency. Additionally, digital solutions support environmental sustainability through optimized routing and reduced emissions. However, several challenges persist, including limited system integration, regulatory inconsistencies, and shortages in digital skills.

The study concludes that while digitalization significantly improves logistics efficiency, its effectiveness depends on institutional coordination and system-level integration. Strengthening governance frameworks, enhancing regional cooperation, and investing in digital capabilities are essential for improving Azerbaijan’s competitiveness and ensuring the sustainable development of the East–West Transport Corridor.

Keywords: Digital transformation; logistics management; East–West Corridor; Azerbaijan; sustainability; supply chain; smart transport; innovation

GOLF TURİZMİ, SU STRESİ VE SÜRDÜRÜLEBİLİRLİK: BELEK DESTİNASYONU ÜZERİNE BİR İNCELEME**Melahat AVŞAR**

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Özet

İklim değişikliği başta olmak üzere birçok faktör doğal su kaynakları üzerinde etkili olmaktadır. Turizmin ekonomik getirisi yüksektir fakat Türkiye her geçen gün su stresi ile karşı karşıya kalan bir ülkedir. Bu doğrultuda turizm endüstrisinde su tüketiminin ciddi derecede yüksek olduğu ve golf turizminin de özelliği gereği suya bağımlı olan bir turizm türü olduğu dikkate alındığında golf turizminin merkezi olan Belek destinasyonunun sürdürülebilirlik kapsamında incelenmesi önem arz etmektedir. Çalışmada nitel araştırma yöntemi benimsenmiş olup, akademik yayınlar, Antalya İl Kültür ve Turizm Müdürlüğü verileri ve Belek destinasyonu golf turizmi ile ilgili veriler incelenmiştir. Ayrıca Dünya Bankası'ndan elde edilen Türkiye'nin 2002-2022 yılları arasındaki su stresi düzeyi verileri incelenmiştir. Araştırma sonunda su stresi ile ilgili veriler yıllara göre incelendiğinde genel olarak sürekli artış olduğu ve özellikle 2016 yılından sonra %40'ın üzerinde artışın olmasından dolayı Türkiye'nin su stresi yaşayan ülkeler grubunda olduğu sonucuna ulaşılmıştır. Bu doğrultuda Belek destinasyonu için golf turizminin sürdürülebilirliği kapsamında geleceğe yönelik öneriler sunulmuştur.

Anahtar kelimeler: Golf turizmi, su stresi, sürdürülebilirlik, Belek.

GOLF TOURISM, WATER STRESS AND SUSTAINABILITY: A STUDY OF THE BELEK DESTINATION**Abstract**

Many factors, primarily climate change, affect natural water resources. Tourism has a high economic return, but Türkiye is increasingly facing water stress. Considering the significantly high-water consumption in the tourism industry and the fact that golf tourism is inherently water-dependent, examining the Belek destination, a center for golf tourism, within the context of sustainability is of great importance. This study adopts a qualitative research method, examining academic publications, data from the Antalya Provincial Directorate of Culture and Tourism, and data related to golf tourism in the Belek destination. In addition, data on Türkiye's water stress levels between 2002 and 2022, obtained from the World Bank, were examined. The research concluded that when water stress data was examined over the years, there was a general and continuous increase, and especially after 2016, the increase exceeded 40%, placing Türkiye's in the group of countries experiencing water stress. Accordingly, future recommendations are presented for the sustainability of golf tourism in the Belek destination.

Keywords: Golf tourism, water stress, sustainability, Belek.

THE GUT-BRAIN-SKIN AXIS IN ACNE: IMPACT OF POLENODERM

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Abstract

Background It is increasingly believed that the interaction between skin microbes and host immunity plays an important role in acne. Acne also has close connections with the gastrointestinal tract, and many argue that the gut microbiota could be involved in the pathogenic process of acne. The emotions of stress, have been hypothesized to aggravate acne by altering the gut microbiota. The presence of a gut-brain-skin axis that connects gut microbes, oral probiotics, and diet, currently an area of intense scrutiny, to acne severity. This study concentrates on the skin and gut microbes in acne, the role that the gut-brain-skin axis plays in the immunobiology of acne, and newly emerging microbiome-based therapies that can be applied to treat acne.

Objective The purpose of this study was to compare the diversity of the skin microbiota in acne patients before and after taking Polenoderm.

Materials and methods A longitudinal cohort study was performed on 20 participants with moderate to severe facial acne with no recent use of oral and topical antibiotics/retinoids.

Results Hence, it is crucial to understand Polenoderm impact on the acne skin microbiota which is thought to be perturbed, our study provides insight into the skin microbiota in acne and how it is modulated by Polenoderm and diet.

Conclusion Acne also has close connections with the gastrointestinal tract, and many argue that the gut microbiota could be involved in the pathogenic process of acne. As understanding of the microbiome in healthy skin and the pathophysiology of acne continues to develop, new therapeutic targets are arising.

Keywords: acne, gut-brain-skin axis microbiota, Polenoderm, diet

Green synthesis inspired by the circular economy of high-surface-area ZnO nanoparticles using *Argania spinosa* cake extract: Box–Behnken design optimization, integration into ternary chitosan–Ghassoul clay nanocomposite beads for the photocatalytic degradation of Basic Yellow 28 dye, and reuse of regenerated forms for the sequential and efficient photoreduction of Cu²⁺ ions with outstanding kinetics, high reusability, and dual environmental remediation functionality.

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Abstract

This study presents a breakthrough circular economy-driven strategy for the green synthesis of ZnO nanoparticles using *Argania spinosa* press-cake, an abundant Moroccan agro-waste. A key innovation lies in the optimization of BET surface area (201.09 m²/g) via Box–Behnken design, enabling precise control of structural properties. The optimized ZnO was subsequently engineered into binary (CS@ZnO) and ternary (CS@ZnO@Ghassoul clay) nanocomposite beads, leading to significant enhancement in performance.

The ternary nanocomposite reached a high BET surface area of 398.23 m²/g, corresponding to an increase of approximately 98% compared to pristine ZnO, and exhibited excellent photocatalytic activity, achieving 97.87% degradation of Basic Yellow 28 within 40 min, with a marked improvement in reaction kinetics ($k_{app} = 0.1071 \text{ min}^{-1}$, compared to 0.00271 min^{-1} for ZnO).

A major advancement of this work is the regeneration-enabled dual functionality. After dye degradation, the regenerated ternary nanocomposite retained a high surface area (309.66 m²/g) and demonstrated near-complete Cu²⁺ photoreduction (99.5% in 110 min, $k_{app} = 0.02614 \text{ min}^{-1}$), while the binary system achieved 92.01% removal ($k_{app} = 0.01505 \text{ min}^{-1}$). This highlights a unique sequential treatment capability, combining organic dye degradation and heavy metal removal within a single reusable material.

DFT analysis revealed a low energy gap (2.05 eV), high electrophilicity (4.59 eV), and strong charge transfer capacity ($\Delta N_{max} = 2.92$), supporting the observed high reactivity. Application to real textile wastewater confirmed practical relevance, with 79.3% COD, 67.0% BODs, and 59.9% dye removal.

Overall, this work establishes a next-generation, scalable, and sustainable nanocomposite platform, integrating green synthesis, statistical optimization of BET surface area, and multifunctional regeneration, delivering a high-performance photocatalyst for complex wastewater remediation.

Keywords: *Argania spinosa* press-cake extract; Basic Yellow 28; BET surface area; Cu²⁺ photoreduction; Green synthesis; Zinc oxide nanoparticles.

Title: ECOLOGICAL EVALUATION OF GURARA WATERFALLS FOR BIOPHILIC ECO-RESORT DEVELOPMENT IN NIGER STATE, NIGERIA

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Abstract

Natural landscapes of ecological and scenic significance remain underutilized resources for restorative built environments, particularly in developing contexts where the integration of tourism, ecology, and design is still emerging. Gurara Waterfalls in Niger State, Nigeria, represents one such resource, characterized by notable hydrological, ecological, and cultural attributes. This study evaluates the potential for applying biophilic design principles as a framework for developing architecture that is restorative, ecologically responsive, and contextually grounded within its natural setting.

Drawing on Kellert and Calabrese's biophilic design framework, encompassing direct experience of nature, indirect experience of nature, and the experience of space and place, the study examines the site's natural affordances, including water features, riparian vegetation, topographic variation, and ambient sensory conditions. A qualitative methodology is adopted, integrating site analysis, precedent review of biophilic resort environments, and an evaluation matrix based on established biophilic indicators to guide interpretation.

Findings indicate that Gurara Waterfalls possesses significant biophilic potential across multiple sensory and spatial dimensions, making it highly suitable for sensitive design intervention. Design strategies guided by biophilic principles can enhance visitor wellbeing, support ecological conservation, and promote sustainable tourism development while maintaining environmental integrity. The study contributes to interdisciplinary discourse by demonstrating the relevance of biophilic design as an effective approach to eco-resort development in ecologically sensitive landscapes within sub-Saharan Africa.

Keywords: Biophilic design; Eco-tourism; Gurara Waterfalls; Landscape ecology; Sustainable development; Nigeria.

**HARNESSING LACTIC ACID BACTERIA ISOLATED FROM DAIRY PRODUCTS FOR
SUSTAINABLE BIOCONTROL STRATEGIES IN FOOD SAFETY**

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Abstract

The growing demand for natural and sustainable alternatives to synthetic chemical preservatives has significantly increased interest in lactic acid bacteria (LAB) as effective biocontrol agents within the agro-food sector. This study investigates the antimicrobial activity and technological potential of LAB strains isolated from traditional Algerian dairy products.

A collection of LAB isolates was characterized through both phenotypic and molecular identification methods. Their antibacterial activity was assessed against major foodborne pathogens using agar diffusion and co-culture assays. Furthermore, the detection of genes encoding bacteriocins and other antimicrobial metabolites was performed to elucidate the underlying mechanisms responsible for their inhibitory effects.

The findings revealed that several LAB strains exhibited pronounced antimicrobial activity, mainly associated with the production of organic acids, hydrogen peroxide, and bacteriocin-like compounds. In addition, these strains demonstrated desirable technological traits, including efficient acidification capacity and resilience to various environmental stresses, reinforcing their suitability for food preservation applications.

Conducted at the Research Center in Agro-Food Technology (CRTAA), Algeria, this study emphasizes the strategic value of harnessing indigenous microbial resources as natural preservative agents. The results support ongoing efforts to develop safer, more sustainable food systems, in line with global initiatives aimed at reducing synthetic additives and promoting functional and clean-label foods.

Keys words: Lactic acid bacteria, Biocontrol, Food safety, Dairy products, Bacteriocins

ASSESSMENT OF GROUNDWATER STORAGE TRENDS IN THE JEL AQUIFER (GUERCIF BASIN, MOROCCO) USING GRACE DATA AND INNOVATIVE TREND ANALYSIS**Aynaou Anass¹, Khattach Driss², Nouayti Nordine¹, El Gout Radia², Adghiss Yassine², Ziani Soufian²**¹Environmental Management and Civil Engineering Team, Applied Sciences Laboratory, National School of Applied Sciences, Abdelmalek Essaadi University, Al Hoceima, 32002, Morocco.²Laboratory of Applied Geosciences, Faculty of Sciences, Mohammed Premier University, Oujda 60000, Morocco.**Abstract**

This study provides an in-depth examination of groundwater storage (GWS) dynamics within the Jel aquifer, located in the Guercif Basin of northeastern Morocco, over an extended period from 2002 to 2023. In response to intensifying water stress exacerbated by climate variability and the growing demand for irrigation, this research integrates satellite data from the GRACE (Gravity Recovery and Climate Experiment) mission with the Innovative Trend Analysis (ITA) statistical method. The primary objective is to quantify terrestrial water storage (TWS) anomalies while accounting for soil moisture and precipitation variations to isolate the specific groundwater signal. The methodology relies on processing GRACE data coupled with FLDAS models, effectively overcoming the lack of continuous in situ piezometric data in this semi-arid region. The findings highlight a critical decline in groundwater resources, with 40% of monitoring sites exhibiting significant downward trends and 60% of the areas identified as being in a state of severe depletion. Although the overall maximum loss rate was estimated at 0.20 cm/year, the application of the ITA method identified complex and non monotonic trends, particularly in monthly precipitation, which traditional Mann-Kendall tests had failed to detect. The temporal analysis reveals three distinct phases: a moderate decline between 2002 and 2008 (-0.36 cm/year), a brief recovery period between 2008 and 2013 (+0.45 cm/year) following surplus rainfall episodes, and finally, a phase of accelerated depletion from 2013 to 2023 (-1.02 cm/year). A robust correlation ($r > 0.75$) between precipitation deficits and TWS anomalies underscores the profound impact of recurrent droughts on natural recharge. In conclusion, these results demonstrate the unsustainable nature of current exploitation patterns and emphasize the urgent need for implementing adaptive water management strategies, such as artificial aquifer recharge or strict regulation of agricultural pumping, to safeguard water security in semi-arid Mediterranean regions.

Keywords: Groundwater, GRACE Mission, Innovative Trend Analysis (ITA), Guercif Basin, Climate Change.

PHYTOCHEMICAL SCREENING, EXTRACTION PROFILING, AND ANTIOXIDANT EVALUATION OF PHALERIA MACROCARPA (MAHKOTA DEWA) TWIGS

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ORCID ID: 0009-0003-8907-5526**Abstract**

Phaleria macrocarpa, commonly known as Mahkota Dewa or God's Crown, is a medicinal plant with extensive ethnopharmacological applications including anti-inflammatory, anticancer, and antidiabetic properties. This study investigated the phytochemical potential and antioxidant activity of *P. macrocarpa* twigs through solvent-based extraction and bioanalytical assays.

Twigs were processed using cold maceration with three solvents of varying polarity: hexane, ethyl acetate, and methanol. Crude extract yields were quantified, with methanol demonstrating the highest extraction efficiency (7.61%), followed by ethyl acetate (1.40%) and hexane (0.82%). Quantitative phytochemical analysis assessed total phenolic content (TPC) and total antioxidant capacity (TAOC) using gallic acid and ascorbic acid as standard references, respectively, with absorbance measured at 750 nm and 695 nm using a microplate reader.

Results revealed that ethyl acetate extract exhibited superior antioxidant activity with the highest TPC ($192.40 \pm 21.83 \mu\text{g/mL}$) and TAOC ($124.00 \pm 30.58 \mu\text{g/mL}$) compared to hexane extract. This indicates that semi-polar solvents are more effective in extracting phenolic and antioxidant compounds from *P. macrocarpa* twigs, demonstrating better solubility and bioactive compound presence in semi-polar solvent systems.

The findings confirm that *P. macrocarpa* twigs represent a promising source of natural antioxidants, with ethyl acetate proving most efficient for extracting phenolic compounds. The study supports the therapeutic value of this underutilized botanical species and highlights its potential for developing natural antioxidant formulations. Further research is recommended to isolate and characterize specific bioactive compounds and validate their pharmacological activities for nutraceutical applications.

Keywords: *Phaleria macrocarpa*, Mahkota Dewa, antioxidant activity, total phenolic content, total antioxidant capacity, cold maceration, medicinal plant, phytochemical screening, solvent extraction

MICROBIAL MEDIATION OF NUTRIENT CYCLING IN LIVESTOCK AGROECOSYSTEMS: ENVIRONMENTAL IMPLICATIONS, TRADE-OFFS, AND MANAGEMENT STRATEGIES

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Abstract

The nutrient cycling in agroecosystems with livestock is mainly through microbial communities participating in the transformation and movement of nitrogen, phosphorus and carbon among the soil, manure and gut compartments. Such processes at the same time contribute to the agricultural productivity, as well as create environmental externalities such as greenhouse gas emissions, nitrate leaching, and interference with aquatic ecosystem which present major challenges to sustainable livestock management. It summarizes existing knowledge about: (i) how gut and soil microbiomes transform and release nutrients; (ii) the key pathways of greenhouse gases production, with a special focus on enteric methanogenesis and soil nitrification/denitrification; (iii) how the management of manure affects soil health, carbon cycle, and water quality; and (iv) the trade-offs involved in the management of manure between productivity and environmental care. The meta-analyses show that moderate grazing enriches the topsoil organic carbon (by 5.2%) and soil nitrogen (by 11.3%) whereas intensive practices can decrease the soil organic carbon and enzyme activity more than 10% and 31%, respectively. Biochar and superphosphate amendments to manure are reported to decrease up to 44% and 38% N₂O and ammonia emissions respectively. New technologies metagenomics, stable isotope probing, IoT-based sensors, and artificial intelligence are enhancing significantly the ability to monitor and control such processes in microbes. There are still critical knowledge gaps in understanding how the rare and unculturable taxa of microbes' function, how data on microbial diversity can be translated into predictions at ecosystem scales and how these systems will respond to future climate change scenarios. These gaps can be filled in by long-term and interdisciplinary research and policy frameworks that can encourage climate-sensitive livestock management.

Keywords: Nutrient cycling; Livestock systems; Soil microbiology; Greenhouse gas emissions; Manure management; Environmental sustainability; Metagenomics

**STRUCTURAL INHERITANCE AND OROGENIC EVOLUTION OF THE OUZELLARH
(HIGH ATLAS, MOROCCO)****Abdelfattah ABOULFARAJ^{1*}, Abdelhalim TABIT¹, Abdelmalek GOUMIH²**¹GRNT Laboratory, (Geosciences, Geotourism, Natural Hazards and Remote Sensing), Department of Geology, Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakesh, MOROCCO.²Department of Geology, Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakesh, MOROCCO.**Abstract**

This research maps tectonic fractures in the Zat area of the Western High Atlas using optical data (Landsat 8 OLI and ASTER DEM). These images have been treated and enhanced using an appropriate method (filters, ACP) in order to construct a lineament map. It was confirmed in a fully new structural map based on a combination of pre-existing geological data and field information. The described lineaments include four primary directional ranges, N-S, NW-SE, E-W, and NE-SW, with a prevalence of the NE-SW directional family of Atlasic compression. They represent a greater agreement with the faults that are previously acknowledged. Except for the directional range from E-W to NNE-SSW, which contains lineaments connected with Ediacaran dykes. Furthermore, the E-W directional family, which is part of the prior range, might be related with normal faults formed perpendicular to N-S accidents during the opening of the Paleozoic basin. The lineament density grows proportionately from the Phanerozoic cover to the Precambrian substratum due to the development of terrain stiffness and fracturing rate. With the exception of the Precambrian nuclei (Ourika and Afra), were distinguished by a significant decline in density. This shows that these nuclei exercised local lithological control over fracturing during the orogenic compressions that occurred during geological eras. In the context of prospecting and identifying mineralised fractures, as well as the investigation of subsurface flows, this work offers an intriguing structural map. Furthermore, as part of sustainable development, it investigated a major geological hazard that is very sensitive to the ground movements that characterize the area.

keywords: Remote sensing, lineament, tectonics, Ediacaran, Hercynian, Atlasic, Precambrian block.

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ENGINEERING INTELLIGENT EDGE SYSTEMS FOR REAL-TIME AI APPLICATIONS

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Abstract

Intelligent edge systems represent a transformative convergence of artificial intelligence (AI) and edge computing, designed to process data closer to its source while delivering real-time responsiveness, enhanced security, and operational efficiency. By embedding AI capabilities directly into edge devices, such as sensors, gateways, embedded controllers, and smart endpoints, these systems reduce dependence on centralized cloud infrastructures and enable low-latency decision-making in time-critical environments. This architectural shift is particularly significant as distributed computing paradigms continue to expand across industries, driven by the exponential growth of Internet of Things (IoT) devices and data-intensive applications. Real-time AI applications, including autonomous vehicles, industrial IoT automation, smart healthcare monitoring, intelligent transportation systems, and smart grids, require rapid inference, minimal communication delays, and reliable system autonomy. Traditional cloud-based models often struggle with latency constraints, bandwidth saturation, intermittent connectivity, and privacy risks arising from transmitting sensitive data to remote servers. Intelligent edge systems address these limitations by enabling localized processing, thereby reducing network congestion, improving resilience, and strengthening data protection through on-device analytics. This paper explores the core architectural frameworks underpinning intelligent edge deployments, alongside enabling technologies such as lightweight AI models, hardware accelerators (e.g., GPUs and NPUs), and adaptive software frameworks. It also examines optimization techniques, including model compression, quantization, and federated learning, that tailor AI workloads to resource-constrained environments. Key engineering challenges such as scalability, energy efficiency, heterogeneous device management, and context-aware adaptability are critically discussed. Ultimately, the study highlights emerging innovations that aim to overcome current bottlenecks and support the evolution of scalable, secure, and high-performance real-time AI systems at the edge.

Keyword: Artificial Intelligence, Edge Computing, Real-Time Systems, Resource-Constrained Optimization.

FIRST-ORDER DIRICHLET-TO-NEUMANN APPROXIMATION FOR A THIN LAYER IN COUPLE STRESS ELASTICITY WITH VOIDS: ASYMPTOTIC ANALYSIS AND STABILITY

Athmane Abdallaoui¹¹Ecole Normale Supérieure de Bou Saada, Département de Mathématique, Bou Saada, Algeria.¹ORCID ID: <https://orcid.org/0000-0003-1118-0361>**Abstract**

Objectives: This study addresses the numerical challenges arising in transmission problems involving a very thin porous layer of thickness $\varepsilon \rightarrow 0$. The goal is to replace this thin layer with an equivalent Dirichlet-to-Neumann (DtN) condition, thereby reducing the original problem to a fixed domain and avoiding excessively fine meshes and high computational costs. The DtN operator is essential because it maps the displacement, rotation, and microdilatation fields on the interface to the corresponding tractions, moments, and equilibrated forces, thus capturing the complete mechanical behavior of the layer without explicitly solving the fields inside it.

Methods: The total domain is $\Omega_\varepsilon = \Omega^- \cup \Omega_\varepsilon^+$, where $\Omega^- = (-1, 0) \times \mathbb{R}$ is the fixed lower elastic domain, and $\Omega_\varepsilon^+ = (0, \varepsilon) \times \mathbb{R}$ is the thin upper porous layer of thickness ε . The interface between them is $\Gamma = \{0\} \times \mathbb{R}$. The lower boundary $\Gamma_D = \{-1\} \times \mathbb{R}$ is subject to Dirichlet conditions (zero displacement, rotation, and microdilatation), while the upper boundary $\Gamma_N = \{\varepsilon\} \times \mathbb{R}$ satisfies Neumann conditions (zero tractions). The system describes three fields: the displacement vector $u = (u_1, u_2)$, the scalar rotation θ , and the scalar microdilatation φ (void volume fraction). The equilibrium equations incorporate asymmetric stresses, couple stresses, and void effects according to the theory of couple stress elasticity with voids [1,2]. Transmission conditions ensure the continuity of all fields and stresses across Γ . The DtN (impedance) operator is defined by: $T_\varepsilon(u^-, \theta^-, \varphi^-) = (\sigma^+(u^+, \theta^+, \varphi^+)|_\Gamma n, (a^+ + b^+) \partial_2 \theta^+|_\Gamma, c^+ \partial_2 \varphi^+|_\Gamma)$. It condenses the entire thin layer Ω_ε^+ into a single boundary condition on Γ , eliminating the need to mesh the layer. Without this operator, numerical methods would require elements of size $O(\varepsilon)$ within the layer, leading to prohibitive computational costs as $\varepsilon \rightarrow 0$. Two complementary asymptotic approaches are employed to approximate the DtN operator. (i) Taylor expansion: stresses and rotations are expanded across the layer thickness to first order in ε [3]. (ii) Scaling and asymptotic expansion: a dilation $x_2 \rightarrow x_2/\varepsilon$ maps Ω_ε^+ onto a fixed domain, and the solution is expanded in powers of ε [4,5]. Variational formulations and stability estimates are derived using Korn-type inequalities [6].

Results: A first-order approximation of the DtN operator is obtained on the fixed domain Ω^- . This operator takes the form $T_\varepsilon = \varepsilon T_*$, where $T_* = (T_{11}, T_{12}, T_{13}, T_{14})$ is expressed explicitly in terms of the material constants $(\mu^+, \lambda^+, \alpha^+, \gamma^+, \zeta^+, \nu^+, \beta^+, \delta^+)$. The four components are:

$$T_{11} = [4\mu^+(\mu^+ + \lambda^+)/(\lambda^+ + 2\mu^+)] \partial_1^2 v_1 + [2\mu^+\gamma^+/(2\mu^+ + \lambda^+)] \partial_1 \varphi$$

$$T_{12} = [4\mu^+\alpha^+/(2\mu^+ + \lambda^+)] \partial_1^2 v_2 - [4\mu^+\alpha^+/(2\mu^+ + \lambda^+)] \partial_1 \theta$$

$$T_{13} = (\nu^+ + \beta^+) \partial_1^2 \theta + [4\mu^+\alpha^+/(2\mu^+ + \lambda^+)] \partial_1 v_2 - [4\mu^+\alpha^+/(2\mu^+ + \lambda^+)] \theta$$

$$T_{14} = \delta^+ \partial_1^2 \varphi - [2\mu^+\gamma^+/(2\mu^+ + \lambda^+)] \partial_1 v_1 - [\zeta^+(2\mu^+ + \lambda^+) - \gamma^{+2}/(2\mu^+ + \lambda^+)] \varphi$$

The main theoretical result establishes an error estimate of order $C \varepsilon^2$ in the H^1 -norm between the solution of the original transmission problem and that of the approximate impedance problem. This estimate quantifies the accuracy of the proposed approximation.

Conclusions: The thin porous layer can be effectively replaced by a first-order approximate Dirichlet-to-Neumann operator, leading to DtN boundary condition with a rigorous error estimate of order ε^2 . This approach provides a powerful and practical tool for modeling granular materials, composites, and coated structures where couple-stress and void effects are significant, while avoiding extremely fine meshes [7].

Keywords: Couple stress elasticity with voids, Dirichlet-to-Neumann operator, impedance boundary condition, asymptotic expansion

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PREDICTIVE MODELING OF FINANCIAL INCLUSION IN NIGERIA: A MACHINE LEARNING APPROACH TO EVALUATING FINTECH ADOPTION**Victor AKOH**

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Abstract

Financial inclusion remains a critical challenge in Nigeria, with a significant portion of the adult population lacking access to formal financial services. This research utilizes Artificial Intelligence (AI) and machine learning algorithms to identify the key socioeconomic determinants of financial inclusion within the country. This study applies predictive modeling techniques, including Random Forest and Logistic Regression, to determine which factors, such as education level, geographic location, and mobile phone ownership, most accurately predict an individual's likelihood of using formal banking or mobile money services. The analysis focuses on the performance of these AI models in identifying patterns that traditional statistical methods might overlook. By evaluating the models' precision and recall, the research highlights how financial technology (fintech) companies and policymakers can use predictive analytics to target underserved populations more effectively. Preliminary findings suggest that mobile technology remains the strongest catalyst for inclusion, but structural barriers in rural areas continue to hinder progress. The study concludes with recommendations for integrating AI-driven credit scoring and personalized financial tools to bridge the gap for the unbanked. This research provides a practical framework for leveraging existing data to drive evidence-based policy in Nigeria's digital economy. This study demonstrates the power of AI in addressing regional socioeconomic disparities through data-driven insights.

Keywords: Artificial Intelligence, Financial Inclusion, Nigeria, Machine Learning, Fintech.

INTELLIGENT STOCK MAINTENANCE SYSTEM USING MACHINE LEARNING FOR
DEMAND PREDICTION AND INVENTORY OPTIMIZATION

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Abstract:

Efficient inventory management is a critical challenge in retail and supply chain operations, often leading to overstocking, stock shortages, and increased operational costs. This paper proposes an intelligent stock maintenance system that leverages machine learning techniques to predict product demand and optimize inventory levels. The system utilizes historical sales data, seasonal trends, and customer purchasing patterns to generate accurate demand forecasts. Based on these predictions, it provides automated recommendations for restocking, thereby reducing manual effort and improving decision-making efficiency.

Furthermore, the system incorporates real-time monitoring of stock levels along with product expiry tracking, ensuring timely alerts for replenishment and minimizing wastage, particularly for perishable goods. A lightweight and efficient machine learning model is integrated with a user-friendly interface, enabling easy adoption by small and medium-scale enterprises without requiring advanced technical expertise.

The proposed system is evaluated using sample datasets, demonstrating improved forecasting accuracy, better inventory turnover, and reduced storage costs when compared to traditional inventory management approaches. By integrating predictive analytics with real-time monitoring, the system enhances overall operational efficiency and reliability.

This study highlights the potential of combining machine learning and data analytics to develop scalable, cost-effective, and intelligent solutions for modern inventory management challenges.

Keywords: Machine Learning, Inventory Management, Demand Prediction, Stock Optimization, Data Analytics

AI-DRIVEN DESIGN AND OPTIMIZATION OF NANOSTRUCTURED SEMICONDUCTOR DEVICES FOR ENERGY-EFFICIENT INTELLIGENT SYSTEMS**Syed Alamdar Ul Hasnain Naqvi**

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Abstract

As semiconductor devices become smaller, they face challenges from short-channel effects, high power consumption and thermal instability, which in turn limit the efficiency of current smart systems. In this context, this paper presents an artificial intelligence (AI)-based approach to design and optimize nanoscale semiconductor devices for improved energy efficiency and computing power in future applications.

The framework combines innovative nanomaterials, such as graphene and Transition Metal Dichalcogenides (TMDs), with a supervised machine learning algorithm to fine-tune key device parameters such as channel length, doping levels, and interfaces. A supervised machine learning model, based on artificial neural networks (ANNs), is trained to predict the intricate relationships between device parameters and electrical performance characteristics, thereby facilitating the fast search of optimal device design points without the need to build physical prototypes.

The approach is tested for design of nanoscale transistors for low-power edge computing and Internet of Things (IoT) devices, for which power consumption is a major concern. Through computer simulations, it was found that the AI-based approach offers substantial enhancements in carrier mobility, leakage current, and an estimated power consumption in comparison to conventional devices. Additionally, the framework is applied to nano-enabled photovoltaic devices, showing the potential for improved energy harvesting efficiency through material and device design optimization.

This research offers a scalable and cost-efficient design approach that integrates nanoscience and artificial intelligence in order to disrupt conventional semiconductor scaling. The approach not only speeds up device design, but also facilitates adaptive, high-performance and energy-efficient electronic systems. The results demonstrate the role of AI-enabled nanoelectronics in revolutionizing sustainable and smart technologies.

Keywords: Nanoscience, Semiconductor Devices, Artificial Intelligence, Transition Metal Dichalcogenides, Nanoelectronics, Energy-Efficient Systems,

ASSESSMENT OF MORPHOMETRIC TRAITS IN THE PINE PROCESSIONARY MOTH
(*THAUMETOPOEA PITYOCAMPA*) IN TLEMCEN, ALGERIA

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ABSTRACT

The pine processionary (*Thaumetopoea pityocampa*) is the most important defoliator of coniferous forest of the Mediterranean basin. The pine processionary also caused real public health problems. The urticat property is the origin of its health problems. It is still the subject of several studies to this day in order to develop friendly Control strategies that respect the environment. The study carried out about the characterization of the pine processionary populations in two stations of pine forests located at the area of the Tlemcen. The caterpillars were collected in January 2016 in the Tlemcen region. Measurements were performed on L5 larvae and male and female nymphs. The statistical analyses were carried out using the SAS 9 software. The results obtained show that the females have an average length of 11.51 ± 1.07 mm and an average width of 7.87 ± 0.33 mm. Males have an average length and width of 11.51 ± 1.07 mm and 6.48 ± 0.29 mm, respectively. The length and width of the head capsule is 43.28 ± 6.63 mm and 4.50 ± 1.35 mm respectively. The GLM procedure of the SAS.9software allowed us to observe that the Sebdou station is more attacked by this insect compared to the Ghazaouet station despite that there is a similarity between the biometric characters of the pine plants. Our statistical analyses have also shown that trees with the longest needles are the most resistant against insect attack.

Keywords: *Thaumetopoea pityocampa*, *Pinus halepensis*, Tlemcen, biometrics.

**EXPLAINABLE ARTIFICIAL INTELLIGENCE FOR NATURAL LANGUAGE PROCESSING:
METHODS, CHALLENGES, AND APPLICATIONS****MSc. Anxhela Dema**

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Abstract

Explainable Artificial Intelligence (XAI) has become an essential area of research in Natural Language Processing (NLP), particularly as modern language models grow increasingly complex and difficult to interpret. Although machine learning and deep learning models—especially transformer-based architectures—have achieved strong performance in tasks such as sentiment analysis, text classification, and question answering, their decision-making processes often remain unclear. This lack of transparency limits trust, accountability, and safe deployment in real-world applications.

This study provides a systematic overview of Explainable AI techniques applied to NLP, focusing on their methods, challenges, and practical applications. Key approaches such as model-agnostic techniques (LIME and SHAP) and model-specific methods (attention-based explanations in transformer models) are examined and compared. These techniques aim to make NLP models more interpretable by identifying which words or features contribute most to a given prediction.

In addition to the literature review, a simple experimental analysis is conducted using traditional machine learning models for text classification. The models are trained on standard datasets and their predictions are explained using XAI methods to demonstrate how interpretability can be achieved in practice. The findings show that while complex models often provide higher accuracy, explainability techniques significantly improve understanding of model behavior without substantially reducing performance.

However, several challenges remain, including the stability of explanations, computational cost, and the difficulty of evaluating interpretability in a standardized way. The study also highlights important application areas such as healthcare, finance, and education, where explainable NLP systems are crucial for supporting human decision-making.

Overall, this work emphasizes the importance of combining high-performing NLP models with explainability techniques to build more transparent, trustworthy, and ethically responsible artificial intelligence systems.

Keywords: Explainable Artificial Intelligence (XAI), Natural Language Processing, Machine Learning, Model Interpretability, SHAP, LIME

DEMOCRATIZATION OF BIG DATA: BRIDGING THE GAP OF INDONESIAN MSMEs**Az Zahra Noor Syawali Cahyadi¹, Balqis Zulaikha²**

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in Indonesia's economy, contributing significantly to GDP and employment. However, the rapid development of digital technology has created a gap between large data-driven corporations and MSMEs that still rely on conventional decision-making. This study aims to examine the role of big data democratization in bridging this gap and enhancing the competitiveness of MSMEs in Indonesia. The research adopts a qualitative approach through literature review and analysis of current digital transformation practices. The findings indicate that the integration of big data, supported by technologies such as machine learning and digital platforms, enables MSMEs to access market insights, improve decision-making, and increase operational efficiency. In addition, government initiatives and infrastructure development, such as digital ecosystems and internet expansion, provide significant opportunities for inclusive economic growth. However, challenges remain, including data fragmentation, low digital literacy, and cybersecurity risks. Therefore, strengthening data integration, improving digital skills, and ensuring data security are essential to support sustainable MSME development in the digital era.

Keywords: big data, MSMEs, digital transformation, data democratization, Indonesia, digital economy

FONKSİYONEL SAĞLIK ÖRÜNTÜLERİ MODELİ DOĞRULTUSUNDA PANKREAS KANSERİ HASTALARINDA HEMŞİRELİK YAKLAŞIMI VE KANITA DAYALI ÖNERİLER**Semiha AKIN EROĞLU**

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Özet

Pankreas kanseri, agresif seyri ve yüksek mortalite oranı nedeniyle hemşirelik bakımında kapsamlı, sistematik ve kanıta dayalı yaklaşımları zorunlu kılmaktadır. Marjory Gordon tarafından geliştirilen Fonksiyonel Sağlık Örüntüleri Modeli, hemşirelik sürecinde veri toplama, tanılama ve bakım planlaması için bütüncül bir çerçeve sunar. Bu model, hastanın gereksinimlerini sağlık algısı ve yönetimi, beslenme-metabolik durum, boşaltım, aktivite-egzersiz, uyku-dinlenme, bilişsel algılama, kendini algılama, rol-ilişki, cinsellik-üreme, baş etme-stres toleransı ve inanç-değerler olarak 11 fonksiyonel alanda değerlendirir. Pankreas kanseri hastalarında en sık şiddetli ağrı, anoreksi, kilo kaybı, yorgunluk, uyku bozuklukları, anksiyete ve stres düzeyinde artış gibi sorunlarla karşılaşmaktadır. Kanıta dayalı hemşirelik girişimleri; farmakolojik ve nonfarmakolojik ağrı yönetimi, enteral veya parenteral beslenme desteği, uyku hijyeni uygulamaları, psikososyal destek ve stres ile baş etme stratejilerinin öğretilmesini içermektedir. Cerrahi veya kemoterapi sürecinde yara bakımı, enfeksiyon kontrolü ve komplikasyonların önlenmesi kritik öneme sahiptir. Hemşirelik bakımında NANDA-I tanıları, NIC girişimleri ve NOC sonuçları kullanılarak bireyselleştirilmiş planlar oluşturulmalıdır. Bu yaklaşım, hastanın yaşam kalitesini artırmayı, semptom yönetimini optimize etmeyi ve palyatif bakım sürecini desteklemeyi hedeflemektedir. Sonuç olarak, Fonksiyonel Sağlık Örüntüleri Modeli, pankreas kanseri hastalarında hemşirelik bakımının sistematik, bütüncül ve kanıta dayalı şekilde yürütülmesine önemli katkılar sağlamaktadır.

Bu bildiride, pankreas kanser hastalarında Fonksiyonel Sağlık Örüntüleri Modeli doğrultusunda hemşirelik süreci adımlarının ve bakım uygulamalarının ele alınması amaçlanmaktadır.

Anahtar Kelimeler: Fonksiyonel sağlık örüntüleri modeli, pankreas kanseri, hemşirelik, kanıta dayalı öneriler

NURSING APPROACH AND EVIDENCE-BASED RECOMMENDATIONS FOR PATIENTS WITH PANCREATIC CANCER IN LINE WITH THE FUNCTIONAL HEALTH PATTERNS MODEL**Abstract**

Pancreatic cancer, due to its aggressive course and high mortality rate, necessitates comprehensive, systematic, and evidence-based approaches in nursing care. The Functional Health Patterns Model developed by Marjory Gordon provides a holistic framework for data collection, diagnosis, and care planning in the nursing process. This model evaluates patient needs across eleven functional areas: health perception and management, nutritional-metabolic status, elimination, activity-exercise, sleep-rest, cognitive-perceptual, self-perception, role-relationship, sexuality-reproductive, coping-stress tolerance, and value-belief patterns. Common problems encountered in patients with pancreatic cancer include severe pain, anorexia, weight loss, fatigue, sleep disturbances, anxiety, and increased stress levels. Evidence-based nursing interventions include pharmacological and non-pharmacological pain management, enteral or parenteral nutritional support, sleep hygiene practices, psychosocial support, and teaching stress management strategies. During surgical or chemotherapy processes, wound care, infection control, and prevention of complications are of critical importance. Nursing care should incorporate individualized plans using NANDA-I diagnoses, NIC interventions, and NOC outcomes. This approach aims to improve patients' quality of life, optimize symptom

management, and support the palliative care process. In conclusion, the Functional Health Patterns Model makes a significant contribution to the systematic, holistic, and evidence-based implementation of nursing care in patients with pancreatic cancer.

Keywords: Functional health patterns model, pancreatic cancer, nursing, evidence-based recommendations

ROMATOİD ARTRİT HASTALARI İÇİN KANITA DAYALI KLİNİK TEDAVİ VE BAKIM ÖNERİLERİ

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Özet

Romatoid artrit (RA) sinovyal inflamasyon ile karakterize, genellikle el ve ayakların küçük eklemlerini simetrik olarak tutan, poliartriküler şişlik ve ağrıya yol açan otoimmün bir hastalıktır. Hastalık, eklem içi ve eklem dışı bulgularla seyredebilir. RA'nın ilaç tedavisi ile tamamen ortadan kaldırılması mümkün değildir; bu nedenle tedavi, hastaların yaşam kalitesini artırmaya yönelik semptomatik yaklaşımları da içermelidir. Tedavinin temel hedefleri eklem hasarını ve sakatlığı önlemek, hastalığa bağlı sistemik belirtileri kontrol altına almak, tam remisyon sağlamak veya en azından 6 ay içinde hastalık aktivitesini belirgin şekilde azaltmaktır. Bu nedenle erken tanı ve tedavi kritik öneme sahiptir. Tedavi planı; hastalık aktivitesi, eşlik eden komorbiditeler ve hasta tercihleri doğrultusunda şekillendirilmelidir. Amerikan Romatoloji Koleji (ACR) ve Avrupa Romatoloji Dernekleri Birliği (EULAR) tarafından geliştirilen derecelendirme sistemine göre tedavi önerileri güçlü, orta ve koşullu olarak sınıflandırılmaktadır. Hastalığın progresyonunu yavaşlatmak amacıyla hastalığı modifiye eden antiromatizmal ilaçlar (DMARD) kullanılmaktadır. Semptomların başlangıcından itibaren ilk 3 ay içinde DMARD tedavisine başlanması güçlü bir öneri olarak vurgulanmaktadır. Farmakolojik tedavinin yanı sıra, RA hastalarında işlevselliği artırmak ve yorgunluğu azaltmak için egzersiz ve fizik tedavi yüksek öneri gücüne sahip yaklaşımlar arasında yer almaktadır. ACR (2024) tarafından eklem koruma teknikleri, ergonomik düzenlemeler, Akdeniz tarzı beslenme, uyku hijyeni, psikososyal müdahaleler (örneğin bilişsel davranışçı terapi, stres yönetimi) ve öz-yönetim programlarının uygulanması önerilmektedir. Ayrıca eklem stresini ve inflamasyonu azaltmak için kilo yönetimi güçlü öneriler arasındadır.

EULAR (2018), kronik inflamatuvar artrit hastalarında hemşirelik bakımına ilişkin üç temel ilke (1.Romatoloji hemşireleri sağlık ekibinin ayrılmaz bir parçasıdır; 2.Romatoloji hemşireleri kanıta dayalı bakım sağlar; 3.Hemşirelik uygulamaları hasta ile ortak karar almaya dayanır) ve sekiz öneri geliştirmiştir. RA hastalarında hemşirelik bakımının odak noktaları; tanılama, semptom kontrolü, eğitim ve psikososyal destek olmalıdır. Hastaların hastalığa ve tedaviye uyumunun sağlanması, zorluklarla baş edebilmesi ve semptomların yönetilmesinde hemşirelerin rolü kritik öneme sahiptir. Bu bildiride, romatoid artritli bireyler için güncel kanıta dayalı tedavi ve hemşirelik bakımı uygulamalarının ele alınması amaçlanmaktadır.

Anahtar Kelimeler: Romatoid artrit, kanıt, tedavi, bakım, öneri

EVIDENCE-BASED TREATMENT AND CARE RECOMMENDATIONS FOR PATIENTS WITH RHEUMATOID ARTHRITIS

Abstract

Rheumatoid arthritis (RA) is an autoimmune disease characterized by synovial inflammation, typically affecting the small joints of the hands and feet symmetrically, and causing polyarticular swelling and pain. The disease may present with both articular and extra-articular manifestations. Complete eradication of RA through

pharmacological treatment is not possible; therefore, therapy should also include symptomatic approaches aimed at improving patients' quality of life. The primary goals of treatment are to prevent joint damage and disability, control systemic manifestations, achieve complete remission, or at least significantly reduce disease activity within approximately six months. Early diagnosis and treatment are therefore of critical importance.

Treatment strategies should be individualized based on disease activity, comorbidities, and patient preferences. According to the grading systems developed by the American College of Rheumatology (ACR) and the European League Against Rheumatism (EULAR), treatment recommendations are classified as strong, moderate, or conditional. Disease-modifying antirheumatic drugs (DMARDs) are used to slow disease progression, and initiation of DMARD therapy within three months of symptom onset is strongly recommended.

In addition to pharmacological therapy, exercise and physical therapy are strongly recommended to improve functionality and reduce fatigue in RA patients. The ACR (2024) also recommends joint protection techniques, ergonomic adaptations, adherence to a Mediterranean diet, sleep hygiene, psychosocial interventions (such as cognitive behavioral therapy and stress management), and self-management programs. Weight management is strongly advised to reduce joint stress and inflammation.

EULAR (2018) has outlined three overarching principles for nursing care in chronic inflammatory arthritis: (1) Rheumatology nurses are integral members of the healthcare team; (2) Rheumatology nurses provide evidence-based care; and (3) Nursing practice is based on shared decision-making with the patient. Additionally, eight specific recommendations have been developed. Nursing care for RA patients should focus on assessment, symptom control, education, and psychosocial support. Nurses play a crucial role in promoting treatment adherence, helping patients cope with challenges, and managing symptoms effectively.

This paper aims to highlight current evidence-based treatment and nursing care practices for individuals with rheumatoid arthritis.

Keywords: Rheumatoid arthritis, evidence, treatment, care, recommendation

DİYABET HASTALARINDA FİZİKSEL AKTİVİTENİN HbA1c ÜZERİNE ETKİSİ

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Abstract

Diyabetes mellitus (DM), hiperglisemi ile karakterize olup, uzun dönem komplikasyonların önlenmesinde glisemik kontrolün sağlanması temel tedavi hedefidir. Bu bağlamda, glisemik kontrolün en güvenilir göstergelerinden biri olan HbA1c düzeylerinin azaltılması büyük öneme sahiptir. Son yıllarda yapılan çalışmalar, farmakolojik tedavilere ek olarak yaşam tarzı müdahalelerinin, özellikle fiziksel aktivitenin, HbA1c düzeyleri üzerindeki etkisini ortaya koymaktadır. Güncel sistematik derleme ve meta-analiz bulguları, düzenli fiziksel aktivitenin HbA1c düzeylerinde istatistiksel olarak anlamlı bir azalma sağladığı yönündedir. Haftalık fiziksel aktivite süresi, sıklığı ve yoğunluğu bu etkinin önemli belirleyici unsurlarıdır. Özellikle haftada en az 150 dakika orta şiddette aerobik egzersiz veya buna eşdeğer fiziksel aktivite, glisemik kontrol üzerinde klinik açıdan anlamlı iyileşme sağlamaktadır. Ayrıca, aerobik ve direnç egzersizlerinin kombine şekilde uygulanmasının HbA1c düzeylerini düşürme de daha etkili olduğu da bildirilmektedir. Yüksek yoğunluklu interval antrenmanların (HIIT) ise daha kısa sürede belirgin iyileşme sağladığı düşünülse de hasta uyumu ve güvenlik açısından kişiselleştirilmesi gerekliliği bulunmaktadır. Ek olarak, fiziksel aktivitenin sürekliliği ile HbA1c düzeylerindeki azalma arasında pozitif bir ilişki olduğu vurgulanmıştır. Düzenli ve denetimli egzersiz programlarının düzensiz uygulamalara göre daha etkili sonuçlar verdiği görülmektedir. Günümüz şartlarında ön plana çıkan dijital sağlık teknolojileri ile desteklenen fiziksel aktivite programlarının da hasta uyumuna katkı sağlayarak glisemik kontrolü iyileştirdiği gösterilmiştir. Sonuç olarak, haftalık düzenli fiziksel aktivite, diyabet yönetiminde HbA1c düzeylerinin azaltılmasında etkili, güvenilir ve tamamlayıcı bir yaklaşımdır. Bireye özgü egzersiz programlarının planlanması ve devamlılığın sağlanması, optimal glisemik kontrol açısından kritik öneme sahiptir.

Keywords: Diyabetes mellitus, fiziksel aktivite, HbA1c, egzersiz, glisemik kontrol

THE EFFECT OF PHYSICAL ACTIVITY ON HbA1c IN DIABETIC PATIENTS

Abstract

Diabetes mellitus (DM) is characterized by hyperglycemia, and achieving glycemic control is a fundamental treatment goal in preventing long-term complications. In this context, reducing HbA1c levels, one of the most reliable indicators of glycemic control, is of great importance. Recent studies have revealed the effect of lifestyle interventions, especially physical activity, on HbA1c levels in addition to pharmacological treatments. Current systematic review and meta-analysis findings indicate that regular physical activity provides a statistically significant reduction in HbA1c levels. The duration, frequency, and intensity of weekly physical activity are important determinants of this effect. In particular, at least 150 minutes of moderate-intensity aerobic exercise or equivalent physical activity per week provides clinically significant improvement in glycemic control. Furthermore, it has been reported that combining aerobic and resistance exercises is even more effective in lowering HbA1c levels. While high-intensity interval training (HIIT) is thought to provide significant improvement in a shorter time, it requires personalization in terms of patient compliance and safety. In addition, a positive correlation has been highlighted between the continuity of physical activity and the reduction in HbA1c levels. Regular and supervised exercise programs have been shown to yield more effective results than irregular ones. Physical activity programs supported by digital health technologies, which are

prominent today, have also been shown to improve glycemic control by contributing to patient compliance. In conclusion, regular weekly physical activity is an effective, reliable, and complementary approach to reducing HbA1c levels in diabetes management. Planning and maintaining individualized exercise programs is critically important for optimal glycemic control.

Keywords: Diabetes mellitus, physical activity, HbA1c, exercise, glycemic control

AMELİYATHANE HEMŞİRELİĞİNDE YAPAY ZEKÂ KULLANIMI

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Özet

Ameliyathane; cerrahlar, anesteziistler, hemşireler ve diğer sağlık profesyonelleri arasında kesintisiz koordinasyon gerektiren, hasta güvenliğinin doğrudan etkilendiği yüksek riskli ve karmaşık bir sağlık bakım ortamıdır. Cerrahi süreçlerde meydana gelebilecek intraoperatif hatalar, iletişim aksaklıkları ve karar verme sürecindeki gecikmeler, hasta sonuçlarını olumsuz yönde etkileyebilmektedir. Yapay zekâ teknolojilerindeki gelişmeler, sağlık hizmetlerinin birçok alanında olduğu gibi ameliyathane hemşireliği uygulamalarında da önemli değişimlere yol açmaktadır. Cerrahi süreçlerin karmaşık yapısı, hasta güvenliğinin ön planda tutulması ve bakım kalitesinin artırılması gerekliliği yapay zekâ destekli sistemlerin kullanımını giderek daha önemli hale getirmiştir. Bu derleme, ameliyathane hemşireliğinde yapay zekâ kullanım alanlarını ve hemşirelik bakımına etkilerini incelemek amacıyla hazırlanmıştır. Yapay zekâ; klinik karar destek sistemleri, erken uyarı mekanizmaları ve robotik uygulamalar aracılığıyla hemşirelik bakımını desteklemektedir. Ayrıca yapay zekâ destekli uygulamaların ağrı kontrolünü iyileştirdiği, komplikasyonların erken saptanmasını kolaylaştırdığı, hasta güvenliğini artırdığı ve bakım süreçlerini daha bireyselleştirilmiş hale getirdiği bildirilmektedir. Sonuç olarak yapay zekâ, ameliyathane hemşireliğinde bakım kalitesini artıran, hasta güvenliğini destekleyen ve hemşirelik uygulamalarını güçlendiren önemli bir destek aracı olarak değerlendirilmektedir.

Anahtar Kelimeler: Ameliyathane hemşireliği, hasta güvenliği, perioperatif bakım, yapay zekâ.

THE USE OF ARTIFICIAL INTELLIGENCE IN OPERATING ROOM NURSING

Abstract

The operating room is a high-risk and complex healthcare environment requiring seamless coordination among surgeons, anesthesiologists, nurses, and other healthcare professionals, directly impacting patient safety. Intraoperative errors, communication breakdowns, and delays in decision-making during surgical procedures can negatively affect patient outcomes. Advances in artificial intelligence technologies are leading to significant changes in operating room nursing practices, as in many areas of healthcare. The complex nature of surgical processes, the need to prioritize patient safety, and the necessity of improving the quality of care have made the use of AI-supported systems increasingly important. This review was prepared to examine the areas of AI application in operating room nursing and its effects on nursing care. Artificial intelligence supports nursing care through clinical decision support systems, early warning mechanisms, and robotic applications. Furthermore, AI-supported applications are reported to improve pain control, facilitate early detection of complications, increase patient safety, and make care processes more individualized. In conclusion, artificial intelligence is considered an important supporting tool in operating room nursing, enhancing the quality of care, promoting patient safety, and strengthening nursing practices.

Keywords: Artificial intelligence, operating room nursing, patient safety, perioperative care.

TOPLUMUN SAĞLIK HİZMETLERİNDE YAPAY ZEKÂYA YÖNELİK SOSYAL ALGISI VE BELİRLEYECİLERİ: TÜRKİYE’ DE KESİTSEL BİR ARAŞTIRMA

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Özet

Bu çalışma, Türkiye genelinde toplumun sağlık hizmetlerinde yapay zekâya (YZ) yönelik sosyal algısını ve bu algıyı etkileyen belirleyicileri incelemek amacıyla gerçekleştirilmiş kesitsel bir araştırmadır. Araştırma verileri çevrim içi anket yöntemiyle toplanmış olup toplam 237 katılımcı analize dâhil edilmiştir.

Katılımcıların %69,6’sı kadın olup yaş ortalaması 31,9’dur. Katılımcıların %11’i lise ve altı, %46,8’i lisans mezunudur. Katılımcıların %64,6’sı günde 3 saat üzerinde internet kullanım süresinin olduğunu, %84’ü YZ araçlarını kullandığını belirtirken, en çok ChatGPT benzeri metin üretim araçları (%65,8) ve Sağlık uygulamaları (eNabız, MHRS vb.) (%23,2)’ni kullandığını belirtmiştir. Katılımcıların YZ’ye yönelik güven düzeyinin sınırlı olduğu, %52,7’sinin kararsız ve %17,7’sinin güvensiz olduğu görülmüştür. Katılımcıların %56,9’u YZ’nin hekimlere yardımcı olabileceğini düşünürken, %38,4’ü hata riskini azaltabileceğine inanmaktadır. Genel YZ algı puanı olumlu düzeydedir ($\bar{X}=73,51\pm19,63$). Cinsiyete göre yapılan analizde, kadınların YZ algı puanlarının ($\bar{X}=75,82\pm17,32$) erkeklere ($\bar{X}=68,21\pm23,38$) kıyasla anlamlı düzeyde daha yüksek olduğu belirlenmiştir ($t=2,481$; $p=0,015$). Eğitim düzeyine göre yapılan tek yönlü varyans analizi (ANOVA) sonucunda gruplar arasında anlamlı fark bulunmuştur ($F(3,233)=5,282$; $p=0,002$). Post-hoc analizler (Games-Howell), bu farkın lise ve altı grup ile lisans ($p=0,015$) ve lisansüstü ($p=0,043$) grupları arasında olduğunu göstermiştir. Katılımcıların gelir düzeylerine göre YZ’ye yönelik genel algı puanları arasındaki farkı belirlemek amacıyla yapılan ANOVA analiz sonucunda ise gruplar arasında istatistiksel olarak anlamlı bir fark bulunmamıştır [$F(3,233)=1,238$; $p>0,05$]. Çalışmada kullanılan Sağlık Hizmetlerinde Yapay Zekânın Sosyal Algısı Ölçeğinin güvenilirliği yüksek bulunmuştur (Cronbach $\alpha=0,967$).

Sonuç olarak, toplumun YZ’ye yönelik algısı genel olarak olumlu olmakla birlikte, güven düzeyinin sınırlı olduğu ve algının özellikle eğitim düzeyi ve cinsiyete göre farklılaştığı görülmektedir. Buna karşın gelir düzeyinin anlamlı bir belirleyici olmadığı anlaşılmaktadır. Bu bulgular, YZ’nin sağlık hizmetlerine entegrasyonunda toplumsal güvenin artırılmasına yönelik stratejilerin önemine işaret etmektedir.

Anahtar Kelimeler: Yapay Zekâ, Sağlık Hizmetleri, Sosyal Algı, Tutum

SOCIAL PERCEPTION of ARTIFICIAL INTELLIGENCE in HEALTHCARE SERVICES and ITS DETERMINANTS: A CROSS-SECTIONAL STUDY IN TÜRKİYE

Abstract

This study aimed to examine the social perception of artificial intelligence (AI) in healthcare services and its determining factors among the general population in Türkiye using a cross-sectional design. Data were collected through an online survey, and a total of 237 participants were included in the analysis.

Of the participants, 69.6% were female, with a mean age of 31.9 years. Regarding educational level, 11% had a high school education or below, while 46.8% held a bachelor’s degree. Most participants (64.6%) reported using the internet for more than 3 hours per day, and 84% indicated that they use AI tools. The most used tools were text-generation systems such as ChatGPT (65.8%) and healthcare applications (e.g., e-Nabız, MHRS) (23.2%).

Participants’ level of trust in AI was found to be limited, with 52.7% reporting uncertainty and 17.7% expressing distrust. While 56.9% believed that AI could assist physicians, only 38.4% thought it could reduce medical errors. The overall AI perception score was positive ($\bar{x}=73.51\pm19.63$). Independent samples t-test

results showed that females had significantly higher AI perception scores than males (75.82 ± 17.32 vs. 68.21 ± 23.38 ; $t=2.481$, $p=0.015$). One-way ANOVA indicated a significant difference across education levels ($F(3.233)=5.282$, $p=0.002$), and Games-Howell post-hoc analysis revealed that this difference was primarily between the high school or below group and the bachelor's ($p=0.015$) and postgraduate groups ($p=0.043$). In contrast, no significant differences were found based on income level ($F(3.233)=1.238$, $p>0.05$). The reliability of the scale used in the study was high (Cronbach's $\alpha=0.967$).

In conclusion, although the overall perception of AI in healthcare is positive, the level of trust remains limited, and perceptions vary significantly by gender and education level. Income level, however, does not appear to be a significant determinant. These findings highlight the importance of developing strategies to enhance public trust in the integration of AI into healthcare systems.

Keywords: Artificial Intelligence, Healthcare Services, Social Perception, Attitude

ORGANIZATIONAL CULTURE THE ROLE OF LEADERSHIP IN HEALTHCARE INSTITUTIONS**Gülersin HONÇA**

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Abstract

Organizational culture is “a system of norms, behaviors, values, beliefs, and habits that guide the conduct of people in an organization.” Culture provides people with an intuitive sense of what is expected of them and how they should behave. In other words, organizational culture consists of the dominant values and beliefs that shape the thoughts and behaviors of an organization’s members.

According to Schwartz and Stanley, organizational culture is a set of shared beliefs and expectations among the members of the organization, enabling the formation of norms that significantly shape the behavior of groups and individuals within the organization. In such a structure, where human behavior plays a most significant and influential role, leadership becomes crucial. The purpose of this study is to examine the role of the leader in terms of organizational culture.

The leader is the person who influences and encourages the employees to realize the organizational goals at a certain time and under certain conditions, helps them, shares his/her experiences and knowledge, and ensures that the employees are satisfied in the process. Therefore, leadership in organizations plays an important role in terms of achieving organizational goals, motivating employees and ensuring sustainable success. Leaders are not only people who organize managerial processes, but also actors who shape organizational culture, set vision and directly affect employee performance. Effective leadership increases employee engagement and has positive effects on job satisfaction and productivity. Especially in today's fast-changing and competitive business environment, leaders' ability to adapt to change, innovative thinking and strategic decision-making skills come to the fore. In addition, the leader's communication and empathy skills and ethical values contribute to the strengthening of intra-organizational relations. In this context, the leader is important not only for managerial success, but also for the development of employees and the long-term success of the organization. In this way, the leader who has developed herself contributes to the differentiation and sustainable success of both employees and the organization by shaping the organizational culture as per her aims.

However, leadership in healthcare organizations is less straightforward than in other organizational sectors. One of the most important reasons for this is that many professionals with different areas of expertise (such as doctors, nurses, education officers, technicians and administrative staff) work together. This requires leaders to balance different expectations and perspectives. In addition, busy work schedules, critical decision-making processes, and the emphasis on patient safety add to the responsibilities of leaders.

In conclusion, leadership in organizations is a fundamental element that directs employee behaviors, shapes organizational culture and supports sustainable success. For this reason, in order for organizations to have an efficient structure, it is of great importance for leaders to be well-equipped individuals who have developed themselves in terms of both managerial and social skills and to be role models for employees.

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SAĞLIK KURUMLARI ÖRGÜT KÜLTÜRÜNDE LİDERİN ROLÜ

Özet

Örgüt kültürü, “bir örgütteki insanların davranışlarını yönlendiren normlar, davranışlar, değerler, inançlar ve alışkanlıklar sistemidir” Kültür, insanlara yapılması gerekenlerin neler olduğu ve nasıl davranmaları gerektiği konusunda duygu ve sezgi kazandırır. Diğer bir deyişle örgüt kültürü, örgüt üyelerinin düşünce ve davranışlarını şekillendiren baskın değer ve inançlardır.

Schwartz ve Stanley’e göre ise örgüt kültürü, örgütteki grup ve bireylerin davranışlarını önemli ölçüde şekillendiren normların oluşmasını sağlayan ve örgüt üyelerince paylaşılan inançlar ve beklentiler bütünüdür. Bu denli insan davranışlarının önemli ve etkili olduğu yapıda liderlik önemlidir. Yapılan bu çalışmanın amacı da örgüt kültüründe liderin rolünü incelemektir.

Lider belli bir zaman durum ve şartlarda kurumun hedefini gerçekleştirmek üzere çalışanları etkileyen teşvik eden onlara yardım eden tecrübelerini ve bilgilerini aktaran bunu yaparken de çalışanların memnun olmasını sağlayan kişi olarak tanımlanmıştır. Bu nedenle; örgütlerde liderlik, kurumsal hedeflerin gerçekleştirilmesi, çalışanların motive edilmesi ve sürdürülebilir başarı sağlanması açısından önemli bir rol oynamaktadır. Liderler, yalnızca yönetsel süreçleri organize eden kişiler değil, aynı zamanda örgüt kültürünü şekillendiren, vizyon belirleyen ve çalışanların performansını doğrudan etkileyen aktörlerdir. Etkili liderlik, çalışan bağlılığını artırırken, iş tatmini ve verimlilik üzerinde de olumlu sonuçlar doğurmaktadır. Özellikle günümüzün hızlı değişen ve rekabetçi iş ortamında, liderlerin değişime uyum sağlama, yenilikçi düşünme ve stratejik karar alma becerileri ön plana çıkmaktadır. Bununla birlikte, liderin iletişim becerileri, empati yeteneği ve etik değerleri, örgüt içi ilişkilerin güçlenmesine katkı sağlamaktadır. Bu bağlamda, örgütlerde liderin önemi, sadece yönetsel başarı ile sınırlı kalmayıp, aynı zamanda çalışanların gelişimi ve örgütün uzun vadeli başarısı açısından da belirleyici bir unsur olarak değerlendirilmektedir. Bu sayede kendini geliştirmiş olan lider örgüt kültürünü hedeflediği gibi şekillendirerek hem çalışanların hem de örgütün farklılaşmasına ve sürdürülebilir başarı elde etmesine katkı sağlar.

Ancak sağlık kurumlarında liderlik, diğer sektörlere kıyasla daha kompleks bir yapı göstermektedir. Bunun en önemli nedenlerinden biri, farklı uzmanlık alanlarına sahip çok sayıda profesyonelin (doktorlar, hemşireler, eğitim görevlileri, teknikerler ve idari personel gibi) bir arada çalışmasıdır. Bu durum, liderlerin farklı beklenti ve bakış açılarını dengelemesini zorunlu kılar. Ayrıca yoğun iş temposu, kritik karar alma süreçleri ve hasta güvenliğinin ön planda olması, liderler üzerindeki sorumluluğu daha da artırmaktadır.

Sonuç olarak, örgütlerde liderlik; çalışan davranışlarını yönlendiren, örgütsel kültürü şekillendiren ve sürdürülebilir başarıyı destekleyen temel bir unsurdur. Bu nedenle örgütlerin verimli bir yapıya sahip olabilmesi için liderlerin hem yönetsel hem de sosyal beceriler açısından kendilerini geliştirmiş donanımlı bireyler olmaları ayrıca ve çalışanlara rol model olmaları büyük önem taşımaktadır.

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THE EPISTEMOLOGICAL TENSION IN STANFORD'S NEW INDUCTIVE ARGUMENT AND
THE DEFENCE OF SCIENTIFIC REALISM**Fadime ERCIYES**PhD Candidate, Mugla Sıtkı Kocman University, Faculty of Literature, Department of Philosophy, Muğla-Turkey
(Fadime Erciyes) ORCID: 0000-0002-2045-411X**Abstract**

This study examines the implications of Kyle Stanford's unconceived alternatives argument for scientific realism. As an extension of the historical problems of underdetermination and pessimistic induction, the argument suggests that scientists systematically overlook plausible alternatives to existing theories due to cognitive limitations. This, in turn, undermines the reliability of the choice of theory. In the literature, this argument is regarded as a formidable anti-realist challenge, capable of undermining confidence in the truth of scientific theories among realists. This study presents a critical analysis based on the premise that Stanford's argument is strengthened by his rejection of Thomas Kuhn's thesis of incommensurability. By rejecting incommensurability, Stanford enables a direct comparison between past and present theories, thereby demonstrating the severity of the unconceived alternatives argument. However, this study argues that this rejection creates insurmountable epistemological tensions within Stanford's argument. Specifically, if old and new theories can be directly compared, and if flawed theories are replaced by superior ones, then this implies that science is progressively approximating the truth. Consequently, rather than refuting scientific realism, Stanford's argument paradoxically strengthens it. Furthermore, from a Kuhnian perspective, the failure to conceive of alternatives cannot be explained solely by the cognitive inadequacies of theorists. It is a natural consequence of the conceptual frameworks and paradigms that guide scientific research. Within this framework, the study argues that the problem of unconceived alternatives does not result in the comprehensive indeterminacy it suggests. The findings demonstrate that the continuity of scientific theories cannot be disregarded. This indicates that scientific progress and the choice of theory are not entirely unreliable.

Keywords: Scientific Realism, Scientific Antirealism, Underdetermination, Stanford's New Induction, Theory of Unconceived Alternatives

STANFORD'UN YENİ TÜMEVARIM ARGÜMANINDAKİ EPİSTEMOLOJİK GERİLİM VE
BİLİMSEL REALİZMİN SAVUNUSU**Özet**

Bu çalışma, Kyle Stanford tarafından ortaya konan düşünülmeyen alternatif teoriler argümanının bilimsel realizm açısından doğurduğu sonuçları ele almaktadır. Eksik belirlenim ve kötümser tümevarım problemlerinin tarihsel bir uzantısı olan bu argüman, bilim insanlarının mevcut teorilere alternatif olabilecek makul olasılıkları bilişsel sınırları nedeniyle sistematik biçimde gözden kaçırdığını ve bunun da teori seçiminin güvenilirliğini zayıflattığını ileri sürmektedir. Literatürde, bu argüman bilimsel teorilerin doğruluğuna yönelik realist güveni sarsabilecek güçlü bir antirealist meydan okuma olarak değerlendirilmiştir. Bu çalışmada, Stanford'un argümanının gücünü Thomas Kuhn'un eş ölçülemezlik tezini reddetmesinden aldığı tespiti üzerinden eleştirel bir analiz sunulmaktadır. Stanford, geçmişteki ve günümüzdeki teoriler arasında doğrudan bir karşılaştırma yapabilmek ve düşünülmeyen alternatif teoriler argümanının ciddiyetini kanıtlamak amacıyla eş ölçülemezliği reddeder. Ancak çalışmamız, bu reddin Stanford'un kendi argümanı içinde aşılmaz bir epistemolojik gerilim yarattığını ileri sürmektedir. Şöyle ki, eğer eski ve yeni teoriler doğrudan karşılaştırılabilir ve hatalı teorilerin yerini daha iyi olanlar alıyorsa, bu durum bilimin doğruya giderek daha fazla yaklaştığı anlamına gelir. Dolayısıyla Stanford'un argümanı, bilimsel realizmi çürütmek yerine paradoksal bir biçimde onu daha da güçlendirmektedir. Ayrıca, Kuhn'cu perspektiften bakıldığında, alternatiflerin düşünülmemesi yalnızca teorisyenlerin bilişsel yetersizliğiyle açıklanamaz. Bu durum, araştırmaları yönlendiren kavramsal çerçevenin ve paradigmların doğal bir sonucudur. Bu çerçevede çalışma,

düşünülmeyen alternatif teoriler probleminin öne sürdüğü ölçüde kapsamlı bir belirsizlik yaratmadığını savunmaktadır. Elde edilen bulgular, bilimsel teoriler arasındaki sürekliliklerin göz ardı edilemeyeceğini göstererek, bilimsel ilerlemenin ve teori seçiminin tamamen güvenilmez olmadığına işaret etmektedir

Anahtar Kelimeler: Bilimsel Realizm, Bilimsel Antirealizm, Eksik Belirlenim, Stanford'un Yeni Tümevarımı, Düşünülmeyen Alternatif Teoriler

MİTOLOJİDEN GÖK BİLİMİNE- BOĞA (TAURUS) TAKIMYILDIZININ HİKÂYESİ

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Özet

Gök kürenin ayrıldığı seksen sekiz alandan her birine takımyıldız denir. Diğer yandan takımyıldız deyince, dünyadan bakıldığında birbirleriyle ilişkiliymiş gibi görünen ne var ki aslında biri diğerinden farklı uzaklıklarda olan yıldız kümeleri akla gelir. Antik astronomlar, takımyıldızların izdüşümlerinin meydana getirdikleri şekilleri, mitoslara konu olan kahraman ve hayvanlara benzetmişlerdir. Eski Yunanlı ve Romalı gök bilimciler de bu takımyıldızları adlandırırken mitolojik hikâyelerden esinlenmişlerdir. Bu takımyıldızlardan on ikisi Zodyak olarak bilinen grupta bulunurlar. Zodyak Takımyıldızları veya Zodyak Burçlar Kuşağı diye adlandırılan bu kümede yer alan yıldızlar Koç (Aries), Boğa (Taurus), İkizler (Gemini), Yengeç (Cancer), Aslan (Leo), Başak (Virgo), Terazî (Libra), Akrep (Scorpius), Yay (Sagittarius), Oğlak (Capricorn), Kova (Aquarius) ve Balık'tır (Pisces).

Biz, bu bildiride, kuzey yarıkürede yer alan (Taurus) takımyıldızının mitolojik öyküsünü Eski Yunanlı ve Romalı yazınbilim ustalarından seçtiğimiz örneklerle aktarmak istiyoruz.

Anahtar Sözcükler: Boğa (Taurus), Takımyıldız, Mitos, Diodoros, Vergilius.

FROM MYTHOLOGY TO ASTRONOMY- THE STORY OF THE TAURUS CONSTELLATION

Abstract

The sky is divided into eighty- eight zones known as constellations. Moreover when we say constellations, we think about star clusters. Early astronomers likened the shapes of the constellations to mythological heroes, heroines and animals. Besides the astronomers in Ancient Greece and Rome were inspired by myth while naming these constellations. The twelve of these constellations are in the group known as the Zodiac. The stars in this group called Zodiac Constellations or Zodiac Zone are Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Capricorn, Aquarius and Pisces.

Our aim in this paper is to study the myth of the constellation Taurus as was related by Ancient Greek and Roman poets and authors.

Key Words: Taurus, Cluster, Myth, Diodorus, Virgil.

FÂRÂBÎ'DEKİ 'FAAL AKIL'DAN 'YAPAY AKIL'A KARŞILAŞTIRMALI BİR SORUŞTURMA

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Özet

Bu çalışma, İslam felsefesinin kurucu düşünürlerinden Fârâbî'nin tüm felsefi sisteminde merkezi bir role sahip olan "Faal Akıl" (el-Aklü'l-Faal) kavramı ile modern çağın teknolojisi "Yapay Zeka" (Yapay Akıl) arasında ontolojik, epistemolojik ve etik düzlemlerde karşılaştırmalı bir inceleme sunmayı amaçlamaktadır. Günümüzde yapay zeka sistemleri, devasa veri setlerini işleme ve algoritmik kararlar alma kapasitesiyle insan aklının analitik işlevlerini taklit etme, hatta aşma iddiası taşımaktadır. Ancak rasyonalitenin salt hesaplanabilirlik indirgenmesi, bilginin doğası ve ahlaki sorumluluk bağlamında ciddi felsefi krizler yaratmaktadır.

Araştırmanın temel tartışma alanı, bilginin kaynağı ve niteliği üzerine düşünülmüştür. Fârâbî sisteminde Faal Akıl; ontolojik olarak aşkın, insan aklını bilkuvve (potansiyel) durumdan bilfiil (aktif) duruma geçiren, kusursuz bir ilkedir. Yalnızca formların ve bilginin değil, aynı zamanda düzenin, iyiliğin ve erdemin de kaynağı olarak teori ile pratiğin zorunlu birliğini temsil eder. Buna karşılık Yapay Akıl; insanlığın yığılmış (ve çoğu zaman yanlış) ampirik verilerinden beslenen, istatistiksel optimizasyon odaklı, içkin ve ahlaki bir fail olmaktan uzak sentetik bir yapıdır.

Çalışmada, yapay zekanın 'enformasyon' işleme kapasitesinin, Fârâbî'nin kavramsallaştırdığı biçimiyle "hikmet" ve "erdem" üretilip üretilmeyeceği sorgulanmaktadır. Algoritmaların araçsal rasyonalitesinin, ahlaki bir amaca (telos) yönelme yetisinden yoksun oluşu eleştirel bir analize tabi tutulmaktadır. Sonuç olarak bu bildiri, modern sentetik sistemlerin işlevsel olarak Faal Akılın alternatifi olamayacağını; ancak Fârâbî'nin "bilgi-erdem bütünlüğü" ilkesinin, güncel yapay zeka etiği tartışmalarının ve algoritmik karar mekanizmalarının inşasında ufuk açıcı normatif bir çerçeve sunabileceğini öne sürmektedir.

Anahtar Kelimeler: Fârâbî, Faal Akıl, Yapay Zeka, Yapay Zeka Etiği, Erdem Ahlakı.

A COMPARATIVE INQUIRY FROM AL-FARABI'S 'ACTIVE INTELLECT' TO 'ARTIFICIAL INTELLECT'

Abstract

This study aims to present a comparative analysis on ontological, epistemological, and ethical levels between the concept of the "Active Intellect", which plays a central role in the entire philosophical system of Al-Farabi, one of the founding thinkers of Islamic philosophy, and "Artificial Intelligence" (Artificial Intellect), the technology of the modern age. Today, artificial intelligence systems claim to imitate, and even surpass, the analytical functions of the human mind with their capacity to process massive datasets and make algorithmic decisions. However, the reduction of rationality to mere calculability creates severe philosophical crises in the context of the nature of knowledge and moral responsibility.

The main discussion area of the research is centered on the source and nature of knowledge. In Al-Farabi's system, the Active Intellect is an ontologically transcendent and perfect principle that brings the human intellect from a state of potentiality to actuality. It represents the necessary unity of theory and practice, being the source not only of forms and knowledge but also of order, goodness, and virtue. In contrast, Artificial Intellect is a synthetic structure fed by humanity's accumulated (and often biased) empirical data, focused on statistical optimization, immanent, and far from being a moral agent.

The study questions whether the 'information' processing capacity of artificial intelligence can produce "wisdom" and "virtue" as conceptualized by Al-Farabi. The instrumental rationality of algorithms and their lack of the ability to orient towards a moral purpose (telos) are subjected to a critical analysis. Consequently,

this paper argues that modern synthetic systems cannot functionally be an alternative to the Active Intellect; however, Al-Farabi's principle of the "unity of knowledge and virtue" can offer an illuminating normative framework in the construction of algorithmic decision-making mechanisms and current artificial intelligence ethics debates.

Keywords: Al-Farabi, Active Intellect, Artificial Intelligence, Artificial Intelligence Ethics, Virtue Ethics.

MELANCHOLIC IDENTITY IN JHUMPA LAHIRI'S "A TEMPORARY MATTER"

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Abstract

The 20th century and now the 21st must be understood through the lens of trauma. No other period in human history has generated such massive, widespread destruction combined with such global awareness of human beings' ability to annihilate one another. The word trauma, as a psychological matter, means that something or an experience cannot be fully absorbed by the mind. However, in the contemporary period, trauma became a social issue used for describing loss, survival and brokenness. Therefore, the main question of the period in which we are living is how people survive after destruction. In that sense, Jhumpa Lahiri's short story "A Temporary Matter" (1998) opens a discourse on how loss and survival after disappointment the main themes of our current lives are. Lahiri describes partners Shukumar and Shoba as survivors in a dark, silent household saturated with memories as they mourn to accept that by the loss of their inborn child, they are trying to reconstruct their identity. As the story presents their debates over reparation, it suggests that the 21st century witnessed the rise of a memory-based identity, shaped by the burden of remembered loss and inherited suffering. A glimpse into the lives of Shukumar and Shoba shows how they are dispossessed from their previous selves. Their identities are formed not only by who they are in the present but by the traumatic experience of the loss of their child. Through the psychoanalytic exploration of mourning and melancholia and the theory of narrative identity formation, this study discusses that we now understand identity as something deeply tied to trauma, memory and loss.

Keywords: Identity, Jhumpa Lahiri, Loss, Memory, Trauma.

THE EFFECT OF STORYTELLING TECHNIQUES ON STORY WRITING SKILLS ¹

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Abstract

The aim of this study is to examine the effect of storytelling techniques on the story writing skills of middle school students. Writing is an important language skill that enables students to express their thoughts and feelings in written form. Storytelling, on the other hand, is considered an effective method that supports students' imagination, helps them construct a plot, and contributes to language development. In this context, the study aims to reveal the effect of storytelling techniques on students' story writing skills.

The study was conducted using a quasi-experimental research design. The study group consists of 6th grade students studying at a middle school located in Yerköy district of Yozgat province. In the study, there are two groups: an experimental group and a control group. The experimental group consists of 19 students and the control group consists of 19 students, making a total of 38 students.

At the beginning of the study, students in both groups were asked to write a story. Afterwards, various activities based on storytelling techniques were applied to the students in the experimental group. These activities aimed to improve students' ability to construct plots, create characters, and use elements such as setting and time in their stories. In the control group, the existing teaching process continued without any additional intervention. At the end of the implementation process, students in both groups were asked to write a story again, and the obtained data were comparatively analyzed.

It is expected that the activities based on storytelling techniques will contribute to the development of students' story writing skills. Therefore, the study is expected to provide contributions to the use of storytelling methods in improving writing skills in Turkish language education.

Keywords: storytelling, writing skills, story writing, Turkish education, middle school students

¹This abstract is derived from the master's thesis entitled "The Effect of Storytelling Techniques on Story Writing Skills," being conducted by Melike Yılmaz Türkoğlu under the supervision of Prof. Dr. Remzi Can.

FARABİ DÜŞÜNCESİNDE SİSTEMATİK BÜTÜNLÜK: METAFİZİKTEN ETİĞE SUDUR TEORİSİNİN KURAMSAL MERKEZİYETİ

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Özet

Büyük filozofların felsefi sistemleri, Platon'un "İdea"sı, Plotinus'un "Bir"i, Descartes'ın "Cogito"sı veya Hegel'in "Geist"i gibi merkezi bir kavram etrafında şekillenen bir düşünce örgüsü oluşturur. Farabi'nin tüm felsefesini belirleyen temel açıklayıcı kuram ise "Sudur" (feyz) teorisidir. Filozofun düşünce sistemi içindeki tüm kavramların açıklayıcı anahtarı olan bu teori, hiyerarşinin tepesinde yer alan "Zorunlu Varlık"tan taşan feyzi merkeze alır. Aristotelesçi, Yeni-Platoncu ve Plotinusçu öğeleri özgün bir sentezde birleştiren Farabi, Sudur'u; Tanrı'nın sıfatlarından Tanrı-evren ilişkisine, yaratma sürecinden Tanrı-insan münasebetine kadar tüm felsefi sorunları açıklayan bir "metafiziksel sistem" olarak geliştirmiştir.

Farabi'nin felsefi sistemi, "Bir" olan mutlak varlıktan çokluğun nasıl türediğini açıklayan Sudur Teorisi etrafında örülmüş, son derece tutarlı ve bütüncül bir yapıdır. Bu çalışmada, Sudur kavramının sadece bir yaratılış modeli değil; aynı zamanda varlık, bilgi, siyaset, etik ve ruh anlayışını şekillendiren "kuramsal bir çekirdek" olduğu savunulmaktadır.

Bu sistemik bütünlük içinde Sudur; bilgi teorisinde Faal Akıl ile kurulan "ittisal" aracılığıyla aklın yetkinleşmesini; siyaset felsefesinde ise ilahi feyzin peygamber-filozofun/imamın zihnine akmasıyla vahyin ve toplumsal yasaların oluşumunu temellendirir. Etik düzlemde bireyin ilahi cömertliğe (cûd) uyum sağlayarak mutluluğa ulaşmasını sağlayan bu yapı, ruhun aslı kaynağına dönerek ölümsüzlük kazanmasını da açıklar. Kötülük sorunu ise bu hiyerarşik akışın maddeyle karşılaştığı noktadaki varlık eksikliği olarak tutarlı bir şekilde sistemde yerini bulur. Bu çalışma, Farabi'nin temel eserlerinden hareketle, Sudur Teorisinin metafizikten kozmolojiye, siyasetten etiğe kadar tüm disiplinleri nasıl birbirine bağlayan "ontolojik bir birlik" görevi gördüğünü ve nasıl sarsılmaz bir felsefi sistem inşa ettiğini irdelemeyi amaçlamaktadır.

Anahtar Kavramlar: Sudur Teorisi, Ontolojik Hiyerarşi, Sistematik Bütünlük, İttisal, Farabi

THE THEORETICAL CORE OF AL-FARABI'S SYSTEM: EMANATION THEORY FROM METAPHYSICS TO ETHICS

Abstract

The philosophical systems of major philosophers often form a conceptual fabric woven around a central principle, such as Plato's "Idea," Plotinus's "The One," Descartes's "Cogito," or Hegel's "Geist." For Al-Farabi, the fundamental explanatory theory that defines his entire philosophy is the "Theory of Emanation" (Sudur/Fayz). Serving as the master key to every concept within his thought, this theory centers on the overflow of divine grace from the "Necessary Being" at the pinnacle of the cosmic hierarchy. By synthesizing Aristotelian, Neoplatonic, and Plotinian elements into an original framework, Al-Farabi developed Emanation as a "metaphysical system" that accounts for all philosophical inquiries—from divine attributes and the God-universe relationship to the process of creation and the link between the Divine and humanity. Al-Farabi's system is an exceptionally consistent and holistic structure, constructed around how multiplicity emerges from the absolute "One." This study argues that the concept of Emanation is not merely a model of creation but a "theoretical core" that shapes his understanding of existence, epistemology, politics, ethics, and the soul. Within this systemic unity, Emanation grounds epistemology through the concept of "conjunction" (*ittisal*) with the Active Intellect, leading to the perfection of the human mind. In political philosophy, it provides the foundation for revelation and social law, as divine grace flows into the mind of the prophet-philosopher or the Imam. On an ethical level, this structure enables the individual to achieve happiness by aligning with divine generosity.

(*jud*), while explaining how the soul attains immortality by returning to its primordial source. Even the problem of evil is consistently integrated into the system as a privation of being at the point where this hierarchical flow encounters matter. Drawing upon Al-Farabi's primary works, this study aims to examine how the Theory of Emanation serves as an "ontological bond" connecting disciplines from metaphysics to cosmology, and politics to ethics, thereby constructing an unshakable philosophical system.

Keywords: Emanation Theory (Sudur), Systematic Unity, ontological Hierarchy, conjunction (ittisal)

THE INFLUENCE ANALYSIS OF THE SUCTION FILTER CLOGGING ON THE PARAMETERS OF AN AXIAL FAN

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Abstract

Evaluating the performance of an industrial system is a crucial element in managing a complex industrial system, as they continuously strive for greater competitiveness. Operational reliability is inextricably linked to this system performance. A wide range of tools has become available both in design (to strengthen the system and maximize the performance/cost ratio) and in operation (to maintain its quality of service and consequently control the risks that may affect its operation).

The present work focuses on the analysis of the operation of an axial fan with respect to the singular pressure losses (ΔP) that can be generated. In this context and in order to ensure proper functioning, it is necessary to know everything about the system (fan) in question. To do this, we analyzed the influence of the clogging of the filter installed on the suction line on the performance of the fan by evaluating the differential pressure measured at the ends of the filter.

The results obtained clearly show the impact of filter clogging on the different parameters of the machine, namely: the filter surface area, the flow rate, the fan vibration and the rotation speed.

The experiments carried out showed that the singular pressure losses at the level of the suction filter are inversely proportional to the filter surface area of the filter. Also, ΔP increases with increasing fan rotation speed and discharge flow rate as well. On the other hand, pressure losses have no influence on fan vibration for low flow rates.

In conclusion, the tests carried out in this study have proven the importance of installing a filter on both the suction and discharge lines to protect the fan from impurities present in the aspirated fluid, including by improving its performance, provided that a robust preventive maintenance plan is put in place.

Keywords: Singular pressure losses, Axial fan, Filter, Differential pressure.

ACOUSTIC INTEGRITY VS. TROPICAL VENTILATION: ASSESSING BUILDING ENVELOPE PERFORMANCE FOR NOISE MITIGATION IN DAY SECONDARY SCHOOLS OF MINNA, NIGERIA

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Abstract

In the fast-expanding landscape of Minna, Niger State, the proximity of educational facilities to high-noise transmission has created a discord between acoustic comfort and the requirements for natural ventilation. This paper assesses the effectiveness of various building envelope components specifically wall density, window configurations, and roofing systems in reducing sound transmission within the tropical climate of Minna. Utilizing a mixed-methods approach, the study employs architectural case studies of three-day secondary schools, an observational checklist of envelope perforations, and survey questionnaires across different material assemblies (e.g., sandcrete blocks vs. corrugated iron sheets). Preliminary analysis suggests that while "open-window" policies are essential for thermal regulation, they result in an average noise ingress of 65–72dB(A), far exceeding NESREA standards. Furthermore, the prevalence of lightweight zinc roofing acts as a secondary noise generator during peak precipitation. The paper proposes an "Integrated Envelope Framework" that employs acoustic louvers and high-mass partitions to harmonize thermal and auditory requirements, providing a good model for school design in Northern Nigeria.

Keywords: Noise Mitigation, Building Envelope, Acoustic Comfort, Minna schools, Tropical Architecture.

HYBRID INTELLIGENT DIAGNOSIS OF ELECTRICAL FAULTS IN MATRIX CONVERTER-FED DFIG WIND ENERGY SYSTEMS USING ARTIFICIAL NEURAL NETWORKS AND FUZZY LOGIC

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Abstract

The growing demand for clean and sustainable energy has significantly increased the deployment of wind energy conversion systems based on Doubly Fed Induction Generators (DFIGs). These systems are widely preferred because of their variable-speed operation, high efficiency, and flexible active and reactive power control. However, electrical faults occurring in the generator windings, power converter stages, or associated control units can severely affect system reliability, energy production, and operational safety. Therefore, the development of intelligent and accurate fault diagnosis techniques has become essential for ensuring continuous and efficient system performance. This paper proposes a hybrid intelligent diagnostic approach for electrical fault detection and classification in matrix converter-fed DFIG wind energy systems using Artificial Neural Networks (ANNs) and Fuzzy Logic. Matrix converters offer several technical advantages such as direct AC-AC power conversion, bidirectional power flow capability, compact structure, and elimination of bulky DC-link capacitors. Nevertheless, their complex switching behavior and sensitivity to abnormal operating conditions require advanced monitoring strategies. In the proposed method, key electrical and mechanical signals including stator currents, rotor currents, voltages, electromagnetic torque, and rotor speed are extracted under healthy and faulty conditions. The ANN model is employed for learning complex nonlinear fault patterns and performing rapid classification, while the fuzzy logic system enhances decision-making under uncertainty and noisy measurements. The combination of both techniques improves diagnostic precision, robustness, and adaptability under varying wind speeds and load disturbances. Simulation results demonstrate that the proposed hybrid method accurately identifies multiple fault categories and severity levels with fast response time and high reliability. Compared with conventional techniques, the developed strategy provides superior fault recognition capability and stronger tolerance to parameter variations. This research offers an effective solution for condition monitoring, predictive maintenance, and reliability enhancement of modern DFIG-based wind power systems.

Keywords: Doubly Fed Induction Generator (DFIG); Wind Energy Conversion System; Matrix Converter; Artificial Neural Network (ANN); Fuzzy Logic; Hybrid Intelligent Diagnosis; Electrical Fault Detection; Condition Monitoring; Predictive Maintenance; Renewable Energy Systems.

SLIDING MODE CONTROL USING FUZZY LOGIC SPEED REGULATOR FOR ASYNCHRONOUS MACHINE

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Abstract

Variable-speed drive systems constitute a multidisciplinary domain within electrical engineering, integrating expertise from various fields, including power electronics and control theory. Asynchronous motors are progressively utilized in diverse applications, encompassing industrial, residential, and further sectors. Recent advancements in power electronics and microcomputing have enabled the implementation of a more robust control method, including sliding mode control and fuzzy logic.

This study presents an examination of the modeling of an Asynchronous motor Controller utilizing sliding mode control with type 1 fuzzy logic. Fuzzy sliding mode control facilitates the utilization of robustness and rapidity. Each control approach will be examined individually, and ultimately, the two methods will be integrated to create a resilient hybrid control system. Simulation outcomes are provided to illustrate the efficacy of these control methodologies.

Keywords: Asynchronous machine, sliding mode control, fuzzy logic.

Figures and Illustrations

The figure shows the block diagram of the sliding mode control using fuzzy logic speed regulator of Asynchronous machine, created using Simulink in MATLAB.

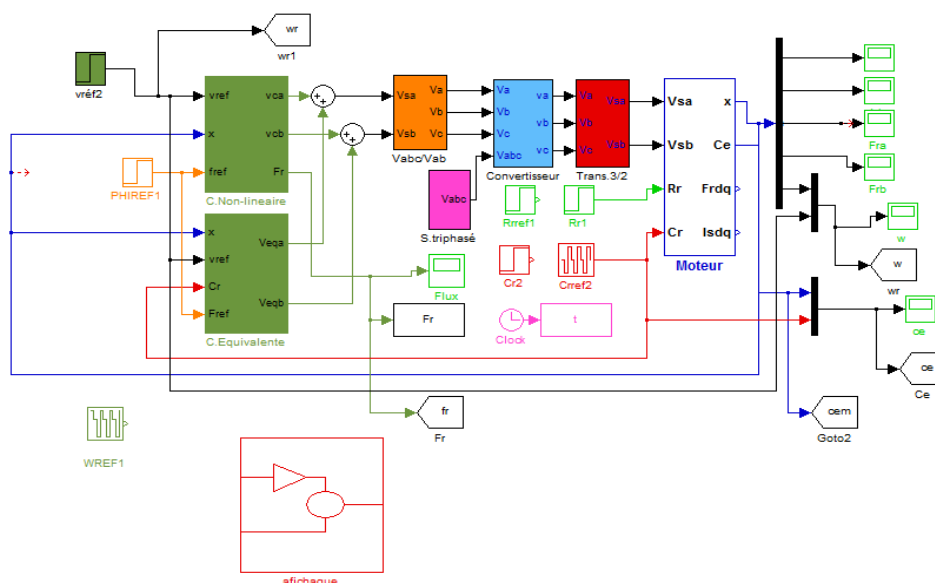


Figure 1: Simulation block for sliding mode control of asynchronous machine

HIGH-GAIN AND WIDEBAND COMPACT MICROSTRIP PATCH ANTENNA FOR 28 GHZ 5G MILLIMETER-WAVE APPLICATIONS**Amal NEJJARI; Anouar ES-SALEH; Sara SAID; Ahmed FAIZE;**

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Abstract:

My study presents a compact and low-profile rectangular microstrip patch antenna designed for 28 GHz millimeter-wave 5G applications. While several review studies, such as the recent overview in IJETA (2023), summarize the challenges and design approaches of mmWave microstrip antennas, practical compact implementations achieving high gain and wide bandwidth within reduced dimensions remain a critical research focus.

The proposed antenna is designed and optimized exclusively using CST Studio Suite. It is implemented on a Rogers RT/Duroid 5880 substrate ($\epsilon_r = 2.2$, $h = 0.787$ mm) with an overall compact size of $6 \times 6 \times 0.0175$ mm³. An inset-fed configuration ensures proper impedance matching, while a rectangular slit etched near the patch edge enables resonance tuning and structural miniaturization.

Simulations were carried out entirely in CST Studio Suite to refine performance and demonstrate excellent impedance matching with $S_{11} \approx -18.22$ dB and an impedance bandwidth of approximately 2.74 GHz, effectively covering the FCC 26.53–29.27 GHz band. The antenna achieves a stable realized gain above 7.12 dBi with a radiation efficiency of about 85.4%.

Compared to recent mmWave patch antennas reported in the literature (2023–2025), which often involve larger geometries, stacked layers, or more complex structures to enhance bandwidth and gain, the proposed design provides a competitive balance between compactness, bandwidth, efficiency, and structural simplicity.

The proposed antenna therefore represents a practical and integrable solution for 5G handheld devices and compact millimeter-wave array systems.

Recent Publications:

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A DELIBERATE HUMOUR: THE MASKS OF THE OPPRESSED TRUTH

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Abstract

The mask has been recognized as an essential accessory for both ritualistic and artist purposes. Its qualities, which highlight the fictional over the real, contributed to its artistic use, which has been common, since the beginning of theatre. The mask had established types for tragedy, satirical plays, and comedy, where the caricatured-grotesque character was emphasized. The era of the “corona mask”, social distancing, and restrictions of freedom of speech, bring forth various connotations. One of them is the mask of “madness” in Arab culture. This is not a material mask that covers the nose and mouth to protect against a mysterious virus, but a mask-like figure through which one can express the forbidden, and protest against “political” and institutional “viruses” in a familiar, humoristic, carnivalesque atmosphere that brings people together. The figure of the “fool-wise” in ancient Arab culture is a clear representation of the dialectic of “truth and falsehood”. In the face of the silence of common sense and its obedience, this figure is forced to wear the mask of a fool in order to express her truth. Through the voice of madness that emerges as an authentic protest from the throat of an inconsequential, marginal, funny and ridiculous actor, the “fool-wise” ensures protection against any harm, while finding a way to convey his message in a play titled “reality of Tyranny”. This article discusses this figure and the nature of the mask it wears, its various reflections in ancient Arab culture, and its development in the Arab popular comedy and satirical theatre in the twentieth century.

Keywords: Carnival, Clown, Comedy, humour, karakoz, Laughter, Mask, The Tragic Fool, Zanni.

**SONGS OF THE SEA, STORIES OF MIGRATION: MEDITERRANEAN FOLKLORE IN
AMERICAN DIASPORIC IDENTITY**

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Abstract

Mediterranean diasporic communities in the United States occupy a distinctive yet underexplored position within scholarship on immigrant identity formation. While significant attention has been given to Latin American, East Asian, and South Asian diasporas, migrants from North Africa, the Levant, and the Maghreb remain marginalized in cultural and folkloristic studies. This article addresses that gap by examining how folkloric elements such as oral narratives, maritime songs, proverbs, ritual performances, and food traditions function as a key medium for constructing, preserving, and renegotiating diasporic identity. The study integrates folklore studies, diaspora theory, and Mediterranean cultural anthropology, fields often treated in isolation. Using a mixed-methods approach, it combines survey data from 50 Mediterranean-origin immigrants and their U.S.-born descendants across five metropolitan areas with 20 in-depth interviews and ethnographic fieldwork conducted in community, religious, and domestic settings. Quantitative measures assess identity, folklore participation, and generational change, while qualitative data are analyzed through thematic coding. Findings indicate that maritime narratives and sea-crossing imagery are central to cultural memory, frequently symbolizing migration, loss, and belonging. Three key outcomes emerge: folklore operates as a transgenerational link across diaspora communities; the American multicultural context both challenges and revitalizes folkloric expression; and second- and third-generation individuals actively reinterpret traditions through hybrid cultural forms. This research contributes empirically grounded insights into diaspora, memory, and intangible heritage, offering implications for multicultural education, community preservation, and broader discussions of cultural identity in migratory contexts.

Keywords: Mediterranean diaspora, cultural identity, maritime narratives, intangible heritage, American multiculturalism, oral tradition.

INCLUSIVITY AND RESILIENCE IN SCIENCE EDUCATION: A TECHNOLOGY
INTEGRATION FRAMEWORK FOR COLLEGES OF EDUCATION IN NORTH-CENTRAL
NIGERIA

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Abstract

The integration of technology in science education is critical for promoting inclusive and resilient learning environments, particularly in developing contexts such as Nigerian Colleges of Education. Anchored on the Technological, Pedagogical, and Content Knowledge (TPACK) framework, this study examines how digital tools and technology-enhanced pedagogies can improve access, participation, and learning outcomes among diverse groups of pre-service science teachers. A descriptive survey research design was adopted, involving science educators and students from selected Colleges of Education in North-Central Nigeria. The study focuses on the use of assistive technologies to support learners with diverse needs and the deployment of cloud-based learning management systems to sustain academic activities during disruptions. Findings indicate that tools such as virtual laboratories, multimedia simulations, and mobile learning platforms significantly enhance students' conceptual understanding, engagement, and adaptability. However, challenges including inadequate infrastructure, limited digital competence among lecturers, and weak institutional support persist. Despite these constraints, effective technology integration promotes inclusivity and strengthens educational resilience. The study concludes that sustained investment in digital infrastructure, continuous professional development, and supportive institutional policies is essential. It recommends a structured framework for embedding technology into science teacher education programmes to ensure equitable, flexible, and future-ready learning systems.

Keywords: Science Education, Technology Integration, Inclusivity, Resilience, TPACK, Nigerian Colleges of Education.

PERCEIVED COMPLEXITIES IN TEACHING ABSTRACT CHEMISTRY CONCEPTS; A STUDY AMONG SECONDARY SCHOOL TEACHERS IN INDIA**Faseela T,**

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Abstract

The curriculum for the 21st century must be futuristic, flexible and dynamic in order to produce learners with creative and critical thinking. Unfortunately, students are facing some sort of difficulties in learning the abstract concepts in chemistry. The complexity of chemistry arises from its abstract nature and heavy reliance on visualizing molecular structures, mathematical concepts, concepts of chemical bonding etc. posing significant challenges for students. Aim of this study is to reveal ‘the perceived complexities faced by secondary teachers in teaching the abstract concepts of chemistry. Population of this study is taken as secondary school teachers; purposive sampling techniques is used by selecting 39 chemistry teachers from secondary schools. Design of this study is quantitative survey design using questionnaire. Analysis has been done using percentage analysis and uncertainty and also based on selected themes. The analysis of the results highlights the difficulties and alternative conceptions made by the teachers for teaching abstract concepts in chemistry. Most of the teachers (N = 24) reported that they sometimes face difficulty in teaching abstract chemistry concepts, and 27 teachers reported occasional difficulty in linking the abstract concepts to the real life examples. 82.1% felt that the time allotted in the curriculum for abstract concepts is insufficient and poorly distributed. The Statistical analysis showed a significant gender association (uncertainty coefficient = 0.192, $p < .05$): female teachers more often reported difficulty linking abstract concepts to real life examples, Use of Teaching and Learning Materials for teaching Abstract Chemistry Concepts reveal a diverse and resourceful range of teaching strategies employed by educators to address the challenges of teaching abstract chemistry concepts. Teachers employ a rich blend of strategies to effectively teach complex and abstract chemistry concepts, emphasizing visualization, contextualization, and active engagement. Besides the study also gives forward some suggestions and techniques for improving the teaching of abstract concepts in chemistry, such as integrating information and communication technologies (ICT), diversifying the teaching tools used, and considering students’ pre-existing conceptions. This can help teachers, curriculum developers, and textbook authors make the subject easier for students and address their misconceptions.

Keywords: Chemistry Teaching, Abstract Concepts, Complex concepts, Secondary School Teachers, Complexities in Teaching.

**GLOBAL RESEARCH TRENDS ON PODCASTS IN LANGUAGE EDUCATION: A
BIBLIOMETRIC ANALYSIS (2007–2025)****Mohd Shahbaz Khan**

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Abstract

Podcasts have emerged as a significant digital resource in language teaching, providing flexible, mobile, and learner-centric opportunities for enhancing language proficiency. Despite the proliferation of research on podcasts in language acquisition, the overarching philosophical framework and evolution of this domain remain ambiguous. This study provides a bibliometric analysis of international research on podcasts in language instruction as indexed in Scopus. Data were obtained with the query: TITLE-ABS-KEY(("podcast*" OR "podcasting") AND ("language learning" OR "language teaching" OR "language education" OR "second language acquisition" OR "foreign language learning" OR "EFL" OR "ESL")). One hundred sixty-four documents released from 2007 to 2025 were examined utilizing bibliometric indicators and science mapping methodologies. The results indicate a moderate growth period from 2007 to 2018, succeeded by swift expansion post-2019. The annual publication output peaked in 2025 with 23 papers, following 2024's 20 articles, signifying a growing scholarly interest in digital and AI-enhanced pedagogies. China (36 publications), the United States (27), Iran (23), Turkey (17), and Japan (16) were the most prolific nations, indicating substantial contributions from Asia and North America. Prominent institutions comprised Islamic Azad University, Qassim University, and the University of Economics Bratislava. Notable prolific authors comprised Chalak A, Tabrizi HH, Chan WM, and Friginal E. Significant fundamental research was conducted by Rosell-Aguilar, O'Bryan, Lord, and Abdous. Thematic analysis identified prominent study domains including listening comprehension, pronunciation, speaking proficiency, learner autonomy, motivation, mobile-assisted language learning, and EFL/ESL pedagogy. Recent research increasingly emphasizes artificial intelligence, student-produced podcasts, multilingual instruction, and teacher professional development. Podcast research has transitioned from ancillary listening aids to creative pedagogical frameworks that facilitate interactive, personalized, and accessible language acquisition.

Keywords: Podcasts; Podcasting; Language Education; Language Learning; Language Teaching; Second Language Acquisition; EFL; ESL; Bibliometric Analysis

**EXPLORING THE PERCEPTION AND USE OF VIRTUAL LABORATORIES DURING
TEACHING PRACTICE: A MIXED-METHOD STUDY OF PROSPECTIVE TEACHERS**

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Abstract

Practical work in science education plays a significant role as it develops practical skills in scientific process among the students as well as helps in conceptual understanding but the lack of infrastructure and non-functional physical laboratories hinders this practical work, here comes the role of innovative technologies like virtual laboratories which can overcome all these challenges and can promote quality science education among the 21st century learners. These technologies should be used in innovative ways integrated with the pedagogies by the prospective teachers. Therefore, this study explores how empowered we are making our prospective teachers and to what extent they are able to use these cutting-edge technologies during their teaching practices.

A mixed-method research approach was employed to obtain both quantitative and qualitative insights into participants' experiences. The sample comprised 64 prospective teachers from two central universities of Delhi engaged in teaching practice who were approached just after teaching practice of four months to present the real scenario in a real classroom setting. Data were collected through a structured questionnaire containing both closed-ended and open-ended items.

The findings reveal that the prospective teachers have a positive attitude about the integration of virtual laboratories (VLs) in science education but various factors they are encountering which hinders its widespread adoption. Limited access to digital devices, unstable internet connectivity, lack of adequate training, and insufficient institutional support restricted effective implementation.

The study concludes that virtual laboratories hold significant potential for enriching science teaching when integrated pedagogically with conventional laboratory methods. Teacher education institutions should therefore provide systematic training, technical support, and access to appropriate digital resources to prepare future teachers for technology-enhanced science instruction. The findings contribute to the growing discourse on innovative practices in teacher preparation and highlight the role of virtual laboratories in bridging gaps in practical science education.

Keywords: Virtual Laboratories; Teaching Practice; Prospective Teachers; Science Education; Teacher Education

**BRIDGING THE GAP BETWEEN POLICY AND PRACTICE: INSTITUTIONAL READINESS
FOR AI INTEGRATION IN STEM EDUCATION IN INDIA**

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Abstract

In recent years, Artificial Intelligence (AI) has gained significant attention in the field of education, particularly in relation to STEM learning and interdisciplinary approaches. In India, policy initiatives such as the National Education Policy 2020 have strongly emphasized the integration of emerging technologies, including AI, to transform teaching–learning processes. However, despite these progressive policy directions, a clear gap can be observed between what is envisioned at the policy level and what is actually implemented within educational institutions. This study attempts to explore this gap by examining the concept of institutional readiness for AI integration in STEM education. The paper adopts a systematic literature review approach, guided by the PRISMA framework, to analyse recent studies published between 2015 and 2026. The review focuses on identifying key dimensions such as technological infrastructure, teacher preparedness, pedagogical practices, institutional leadership, and ethical considerations. The findings suggest that while there is a growing awareness about the potential of AI in education, institutions are still not fully prepared to integrate it effectively. Challenges such as limited training opportunities, lack of clear institutional strategies, and insufficient alignment between policy and practice continue to hinder meaningful implementation. At the same time, the study highlights the importance of contextualising AI integration within the Indian educational landscape. Based on these insights, the paper proposes a multi-dimensional framework for institutional readiness that aims to bridge the gap between policy and practice while supporting interdisciplinary learning and innovation in STEM education. The study offers useful directions for policymakers, teacher educators, and institutions working towards effective and responsible integration of AI in education.

Keywords: Artificial Intelligence, STEM Education, Institutional Readiness, Policy-Practice Gap, Interdisciplinary Learning, India

THE EFFECTIVENESS OF USING A VIDEO-BASED PLATFORM TO IMPROVE STUDENT ENGAGEMENT IN LEARNING ENGLISH AMONG COMMUNITY COLLEGE STUDENTS

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Abstract

Student engagement remains a critical challenge in English language learning, particularly among community college students who often demonstrate low participation, limited motivation, and passive learning behaviors. This study examines the effectiveness of a video-based platform in enhancing student engagement across behavioral, cognitive, and affective dimensions.

A convergent mixed-method design was employed, involving 60 community college students who participated in an eight-week intervention using Flipgrid. Quantitative data were collected through pre- and post-engagement questionnaires and analyzed using paired-sample t-tests, while qualitative insights were obtained from semi-structured interviews. The results revealed statistically significant improvements in all dimensions of engagement ($p < 0.001$), indicating increased participation, deeper cognitive involvement, and more positive emotional responses toward learning.

Qualitative findings further demonstrated that the platform's asynchronous and interactive features promoted peer collaboration, reduced learning anxiety, and enhanced students' motivation to engage consistently in learning activities. These findings highlight the role of flexible, technology-mediated environments in addressing engagement-related challenges in language learning contexts.

This study contributes to the growing body of research on technology-enhanced learning by shifting the focus from performance outcomes to student engagement, particularly within underrepresented community college settings. The findings suggest that video-based platforms can serve as effective pedagogical tools for fostering meaningful and sustained engagement. Implications are discussed in relation to instructional design and the integration of digital tools in English language education.

Keywords: student engagement, video-based platform, English language learning, community college students, technology-enhanced learning

ASSESSING PROFESSIONAL INFORMATION LITERACY SKILLS AMONG FACULTY IN
VELLALAR COLLEGE FOR WOMEN, ERODE, TAMIL NADU

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Abstract:

This study examines the professional information literacy skills of faculty members at Vellalar College for Women, Erode, Tamil Nadu. Information literacy is essential for effective teaching, research, and lifelong learning in higher education. The study aims to assess faculty competence in identifying, accessing, evaluating, and using information resources in academic contexts. A structured questionnaire and interviews were employed to collect data from faculty across various departments. The findings reveal varying levels of proficiency, with strengths in basic information retrieval and challenges in advanced digital research tools and critical evaluation of sources. Factors such as training, access to digital resources, and institutional support significantly influence skill levels. The study highlights the need for continuous professional development programs to enhance information literacy competencies. Strengthening these skills will contribute to improved academic performance, research productivity, and overall educational quality within the institution.

Keywords: Information Literacy, Faculty Competency, Higher Education, Digital Literacy, Academic Research, Professional Development

BETWEEN ROOTS AND ROUTES: LABOUR MIGRATION, CULTURAL RESILIENCE, AND ENVIRONMENTAL SUSTAINABILITY IN THE KYRGYZ REPUBLIC

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Abstract

The intersection of human mobility, cultural continuity, and environmental sustainability represents one of the defining governance challenges of the twenty-first century. In the Kyrgyz Republic - a landlocked Central Asian nation whose nomadic heritage is inseparable from its high-altitude ecosystems - decades of mass labour emigration have generated a paradox: the same outmigration that sustains household incomes through remittances simultaneously depletes the human and cultural capital upon which long-term ecological stewardship depends. This article presents findings from a doctoral study examining the multidimensional impact of external labour migration on Kyrgyz society, economy, and environment, with particular attention to the pathways through which migration governance can be reoriented toward cultural and environmental sustainability goals.

In 2024, inward remittances reached \$3 billion USD - exceeding 30% of GDP - yet over 93% of these flows originate from a single source country, Russia, creating both macroeconomic fragility and a cultural pull that has progressively detached Kyrgyz labour migrants from their indigenous land-based traditions. Drawing on quantitative analysis of migration and remittance data from the National Statistical Committee and the National Bank of the Kyrgyz Republic, a comparative review of international migration governance frameworks, and original survey research capturing migrant attitudes toward return and reintegration, the study maps the cultural and ecological costs of unmanaged outmigration alongside the transformative potential of well-governed return.

Three core arguments are advanced. First, migrants are cultural and ecological intermediaries: they carry indigenous environmental knowledge abroad and return - when conditions allow - with exposure to international sustainability practices, creating a bidirectional channel for ecological learning. Second, remittances, currently flowing predominantly into consumption, can be redirected toward environmentally and culturally generative investment through targeted institutional design, including co-investment programmes, green financing instruments, and community ecotourism ventures. Third, sustainable reintegration - supporting returnees as entrepreneurs, land stewards, and community leaders - is not merely an economic goal but a prerequisite for cultural continuity and environmental resilience in rural Kyrgyzstan.

The article concludes with eight policy recommendations for aligning Kyrgyzstan's migration governance with the principles of cultural preservation and ecological sustainability, offering a transferable framework for other remittance-dependent societies navigating the same tensions between global economic integration and local ecological identity.

Keywords: labour migration, remittances, cultural sustainability, environmental governance, reintegration, nomadic heritage, Kyrgyzstan, ecotourism, Central Asia

AN EFFICIENT LED DRIVER TOPOLOGY WITH REDUCED HARMONICS USING BOOST PFC AND LLC RESONANT CONVERTER**Buket Meryem EKER**

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Abstract

In LED lighting system design, increasing energy efficiency and reducing harmonics in the grid are crucial requirements. With the advancement of LED technology and the widespread adoption of LED conversion projects in recent years, the need for high-efficiency and long-lasting LED drivers is steadily increasing. Traditional LED driver topologies face problems that negatively impact efficiency due to low power factor, high total harmonic distortion (THD), and switching losses. This study proposes an LED driver structure based on an LLC resonant converter fed by a Boost power factor correction (PFC) converter to achieve high efficiency and a high-power factor. In the proposed system, the Boost PFC converter on the input side ensures that the current drawn from the grid is close to a sinusoidal form, thus improving the power factor. Furthermore, this structure reduces input current harmonics, improving grid quality. The LLC resonant converter used on the output side of the circuit operates at a high frequency, providing smooth switching and thus reducing switching losses, thereby increasing system efficiency. Within the scope of this study, the resonant tank parameters, switching frequency, and selection of circuit elements of the system were analytically examined, and design criteria were determined. The proposed LED driver topology was modelled in the MATLAB/Simulink environment, and performance analyses were carried out under different load conditions. The simulation results show that the proposed structure can provide high power factor, low harmonic content, and high efficiency values. This study demonstrates that the combination of Boost PFC and LLC resonant converters offers an effective and efficient solution for high-efficiency LED lighting applications.

Key words: LED driver, LLC resonant converter, Boost PFC, power factor correction, power electronics

**FORMULATION AND EVALUATION OF A BIODEGRADABLE WINDSHIELD WASHER
ANTIFREEZE**

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Abstract

This project aims to develop an environmentally friendly, safe, and cost-effective alternative to conventional alcohol-based windshield washer antifreezes widely used in the automotive sector. Traditional formulations commonly contain volatile and flammable alcohols, which pose potential risks to human health, environmental safety, and vehicle fire hazards. In response to these concerns, this study focuses on the formulation of an alternative windshield washer antifreeze based on low-volatility, high flash point, and biodegradable components.

Within the scope of the project, natural and recyclable raw materials such as glycerin, glycol derivatives, and environmentally friendly auxiliary additives will be systematically investigated. Instead of using standard commercial additive packages, raw material selection, formulation design, and ratio optimization will be carried out through structured R&D activities. The developed formulations will be evaluated in terms of freeze point depression capability, cleaning performance, and compatibility with automotive systems.

The physicochemical properties of the selected raw materials and formulations, including appearance, density, freezing point, flash point and pH, will be experimentally analyzed in accordance with relevant ASTM standards. Based on the test results, the formulations will be optimized and comparatively assessed against commercially available products.

The outcomes of this project are expected to provide a locally developed, alcohol-free windshield washer antifreeze formulation with improved safety and environmental performance, while maintaining the functional requirements of conventional products. The project also aims to contribute to sustainable product development and reduce dependency on imported chemical additives.

Keywords: Windshield washer fluid, freezing point, biodegradable

DEEP REINFORCEMENT LEARNING–BASED VOLTAGE CONTROL IN A DISTRIBUTION NETWORK**Muhammed Sait AYDIN**

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Abstract

Voltage control in distribution networks has become a regulatory requirement, driven by the extensive rollout and integration of new generation and demand-side technologies such as photovoltaic (PV) systems, electric vehicles (EVs), and heat pumps. The coincidence of low demand and high power harnessing from PV systems, combined with the uncontrolled uptake of EV charging, renders voltage violations increasingly pervasive on low-voltage (LV) networks. Although some rule-based control algorithms have been proposed to effectively manage these voltage violations, their effectiveness is inherently limited by their inability to cater for unforeseen operating conditions. In recent years, reinforcement learning (RL)-based methods have attracted growing interest, largely attributed to their adaptive nature and capacity to leverage operational experience without requiring explicit system modelling or predefined control logic. This study compares the performance of a rule-based approach and a proximal policy optimisation (PPO)-based RL method tailored for capacitor bank control in a low-voltage distribution network. The RL agent is trained under varying load and generation profiles to ensure adequate exposure to diverse operating conditions, harvesting the benefit of accumulated interaction with the network environment. The network is modelled as a synthetic LV feeder, representative of typical urban distribution infrastructure. Results demonstrate that the RL-based method renders comparable voltage regulation performance to the rule-based approach, while exhibiting superior adaptability under high-penetration scenarios. It is also important to highlight that the proposed method operates without explicit knowledge of network parameters, which further contributes to its practical applicability. These findings highlight the potential of RL-driven control strategies to effectively manage voltage constraints in modern distribution networks.

Keywords: Reinforcement learning; Voltage control; Low-voltage distribution network; Distribution automation; Capacitor control

A NATURAL LANGUAGE PROCESSING-BASED ANALYSIS OF PROMPT ENGINEERING DISCOURSE ON THE X PLATFORM

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Abstract

This study aims to analyze user discourse on “prompt engineering” on the X platform (formerly known as Twitter) by employing Natural Language Processing (NLP) techniques. With the rapid advancement and widespread adoption of large language models, prompt engineering has emerged as a crucial skill that enables users to generate more accurate and effective outputs from artificial intelligence systems. In this context, a dataset consisting of 1,153 tweets collected between January 1, 2024, and January 1, 2026, was analyzed.

Following data collection, preprocessing techniques such as text cleaning and normalization were applied to prepare the dataset for analysis. Subsequently, topic modeling was performed using the BERTopic method to identify the main discussion themes, while sentiment analysis was conducted using VADER and RoBERTa algorithms to evaluate users’ attitudes. The findings indicate that discussions are concentrated around specific technical topics and have significantly increased, particularly in the last quarter of 2025.

According to the sentiment analysis results, the overall perception of prompt engineering is predominantly positive (66.7%). In particular, techniques such as “zero-shot” and “reasoning” are evaluated more positively by users. These results suggest that prompt engineering is not only a technical tool but also an emerging area of expertise in the digital ecosystem.

This study contributes to the literature by providing insights into the societal perception of artificial intelligence concepts through the analysis of social media data.

Keywords: Prompt engineering, natural language processing, X platform, sentiment analysis, topic modeling

SECURITY IN E-GOVERNMENT SYSTEMS: PRACTICES IN TURKEY AND WORLDWIDE

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Abstract

The rapid digitalization of public services has positioned e-government systems as a core pillar of modern public administration, raising critical concerns regarding their security. The existing literature predominantly addresses technical safeguards, infrastructure resilience, and cyber threats, often overlooking the governance dimensions that shape these security frameworks. This study reconceptualizes e-government security as a function of state capacity and digital governance models rather than solely a technical challenge. Using a qualitative and comparative approach, the research examines Türkiye's e-government security practices alongside those of the United States, Germany, Estonia, and Japan, representing varying governance structures and levels of digital maturity. The analysis is structured around four key dimensions: security approach (reactive vs. preventive), authentication mechanisms, data management and infrastructure security, and governance structures. Findings indicate that strong centralization, robust authentication systems, and a pronounced focus on data sovereignty characterize Türkiye's model. While these features enhance operational efficiency and rapid incident response, the system remains predominantly reactive and state-centric, with limited transparency and user-centric security practices. In contrast, countries such as Estonia demonstrate the effectiveness of preventive, transparent, and distributed security models that promote resilience and citizen trust. This study contributes to the literature by framing e-government security within a governance perspective. It provides policy recommendations for Türkiye, including adopting preventive security strategies, increasing transparency, adopting hybrid architectural models, and implementing multi-stakeholder governance mechanisms.

Keywords: E-Government Security, Cybersecurity Governance, Digital Governance, Data Sovereignty, Authentication Mechanisms, Comparative Analysis

OCCUPATIONAL HEALTH AND SAFETY IN RAPID PROTOTYPING PROCESSES USING THE FUSED DEPOSITION MODELING (FDM) METHOD**Asst. Prof. Dr. Ahmet EŞİYOK**

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Abstract

Fused Deposition Modeling (FDM) is the most widely adopted additive manufacturing technology across the globe; valued for its accessibility, low cost, and versatility in rapid prototyping. Despite its proliferation in educational use, industrial applications, and domestic environments; the occupational health and safety implications of FDM operations still remain inadequately understood and managed. This report presents a comprehensive analysis of occupational health and safety hazards inherent to FDM processes, focusing on emissions of ultrafine particles and volatile organic compounds during thermoplastic extrusion. Drawing upon the recent toxicological and exposure assessment studies, this review identifies that acrylonitrile butadiene styrene filaments emit styrene—a Group 2B carcinogen—along with substantial ultrafine particle concentrations, while polylactic acid emits methyl methacrylate and other compounds of toxicological concern. Quantitative risk assessment models estimate excess lung cancer risk at significant levels under the certain exposure scenarios. Beyond the airborne contaminants; additional hazards include thermal risks from heated components, mechanical pinch points, and the ergonomic stressors. This report proposes a hierarchical framework of control measures; emphasizing engineering controls such as enclosure, local exhaust ventilation, and HEPA/carbon filtration as primary interventions. The study is concluded with the recommendations for practitioners and identifies the critical gaps which require further research.

Keywords: Additive Manufacturing, Fused Deposition Modeling, Occupational Health and Safety, Rapid Prototyping, Ultrafine Particles.

ERGİTMELİ YIĞMA MODELLEME (FDM) METODUYLA YAPILAN HIZLI PROTOTİPLEME İŞLEMLERİNDE İŞ SAĞLIĞI VE GÜVENLİĞİ**Özet**

Ergitme Yöntemiyle Katmanlı Üretim (FDM); yüksek erişilebilirliğe sahip oluşu, düşük maliyetli bir yöntem oluşu ve hızlı prototiplemedeki çok yönlülüğü nedeniyle dünya çapında en yaygın olarak kullanılan hızlı prototipleme teknolojisidir. Eğitim alanında, endüstriyel uygulamalarda ve ev ortamlarında oldukça yaygınlaşmasına rağmen, FDM işlemlerinin iş sağlığı ve güvenliği üzerindeki etkileri yeterince anlaşılmamış ve yönetilmemiştir. Bu bildiri, termoplastik ekstrüzyon işlemi sırasında ultra ince parçacıkların ve uçucu organik bileşiklerin emisyonlarına odaklanarak, FDM işlemlerinde ortaya çıkan iş sağlığı ve güvenliği tehlikelerinin kapsamlı bir analizini sunmaktadır. Son toksikolojik ve maruziyet değerlendirme çalışmalarından yararlanan bu inceleme, akrilonitril bütadien stiren (ABS) filamentlerinin önemli miktarda ultra ince parçacık konsantrasyonlarıyla birlikte stiren (Grup 2B kanserojen madde) yaydığını, polilaktik asidin ise metil metakrilat ve toksikolojik açıdan endişe verici diğer bileşikler yaydığını ortaya koymaktadır. Kantitatif risk değerlendirme modelleri, belirli maruziyet senaryoları altında önemli düzeylerde akciğer kanseri riski oluştuğunu tahmin etmektedir. Havada mevcut olan kirleticilerin ötesinde, ek tehlikeler arasında ısıtılmış bileşenlerden kaynaklanan termal riskler, mekanik sıkışma noktaları ve ergonomik stres faktörleri yer almaktadır. Bu bildiri, kontrol önlemlerinin hiyerarşik bir çerçevesini önermekte ve birincil müdahale tedbirleri olarak kapalı alan oluşturma, yerel egzoz havalandırması ve HEPA/karbon filtreleme gibi mühendislik kontrollerine vurgu yapmaktadır. Çalışma, uygulayıcılar için iş sağlığı ve güvenliğine yönelik önerilerle sonuçlanmakta ve daha fazla araştırma gerektiren kritik boşlukları belirlemektedir.

Anahtar Kelimeler: Eklemeli İmalat, Ergitmeli Yığma Modelleme, Hızlı Prototipleme, İş Sağlığı ve Güvenliği, Ultra İnce Partiküller.

**A CRITICAL OCCUPATIONAL ACCIDENT IN GEOTHERMAL PRODUCTION TESTING:
ROOT CAUSE ANALYSIS AND PREVENTIVE MEASURES**

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Abstract

Renewable energy resources play a significant role in meeting Türkiye's increasing energy demand. Among these, geothermal energy holds a strategic position as a domestic resource. Türkiye ranks among the leading countries worldwide with an installed geothermal capacity of approximately 1700 MWe, highlighting the importance of conducting geothermal operations in a safe and efficient manner.

This study presents a technical investigation of a work accident that occurred during production testing in a geothermal well, along with a root cause analysis. The incident occurred during the retrieval of a "dummy" tool that had been run into the well under flowing conditions. At approximately 428 m depth, the flange connection above the Annular Blowout Preventer (BOP) (well control equipment) failed. As a result, the equipment was rapidly ejected to the surface, causing severe damage to wellhead equipment.

At the time of the incident, the well was under approximately 80 bar pressure and 236°C temperature. These high-energy conditions increased flow velocity and generated significant dynamic loads on the equipment, leading to the sudden loss of mechanical integrity in weakened connections.

The analysis indicates that the accident was not caused by a single factor but rather by a combination of contributing elements, including unexpected flow acceleration, upward acceleration of the dummy tool, and, most critically, thread deformation in the flange stud connection points.

This study highlights the importance of equipment suitability, installation inspections, and pressure testing, and concludes that a proactive safety approach is critical for preventing similar accidents.

Keywords: Renewable energy, geothermal, production testing, work accident, root cause analysis, measure.

ENDÜSTRİYEL ÜRETİM SİSTEMLERİNDE YAPAY ZEKA TABANLI DURUŞ SINIFLANDIRMA VE ÖNGÖRÜCÜ BAKIM YAKLAŞIMI

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Özet

Bu çalışma, endüstriyel üretim hatlarında plansız duruşların önlenmesi ve süreç verimliliğinin artırılması amacıyla yapay zeka temelli hibrit bir sınıflandırma modeli geliştirmektedir. Araştırmanın uygulama safhası, orman ürünleri sektöründe faaliyet gösteren küresel ölçekli bir Orta Yoğunlukta Lif Levha (MDF) üretim tesisinin saha operasyonlarından elde edilen veriler üzerinden yürütülmüştür. Geleneksel analiz yöntemlerinde karşılaşılan manuel veri giriş hatalarını ve etiketleme belirsizliklerini minimize edebilmek adına; tesis içi sensörlerden gelen yapılandırılmış sayısal veriler ile operatörlerin sisteme serbest metin olarak aktardığı öznel açıklamalar eş zamanlı olarak analiz edilmiştir.

Operatörlerin manuel bildirimlerini anlamlandırmak amacıyla metin ön işleme süreçleri kurgulanmış ve bu veriler XGBoost ile Random Forest algoritmalarının güçlü yönlerini birleştiren bir Topluluk Öğrenme mimarisine entegre edilmiştir. 7473 satırlık gerçek saha verisi üzerinde gerçekleştirilen deneysel uygulamalar sonucunda model, %92,91 gibi yüksek bir doğruluk performansı ortaya koymuştur. Çalışmadan elde edilen bulgular, geliştirilen sistemin sadece duruş kök nedenlerini hızla tespit etmekle kalmadığını, aynı zamanda bakım stratejileri için sürdürülebilir bir dijital altyapı ve karar destek mekanizması sunduğunu kanıtlamaktadır. Bu yönüyle çalışma, Endüstri 4.0 dönüşümünü hedefleyen akıllı üretim tesisleri için uygulanabilir, ölçeklenebilir ve somut bir rehber niteliği taşımaktadır.

Anahtar Kelimeler: Endüstri 4.0, Makine Öğrenmesi, Duruş Sınıflandırma, XGBoost, Topluluk Öğrenmesi, MDF Üretimi

Not: Bu çalışma 2025-BAP-100-064 nolu proje kapsamında gerçekleştirilmiştir.

AI-BASED DOWNTIME CLASSIFICATION AND PREDICTIVE MAINTENANCE APPROACH IN INDUSTRIAL PRODUCTION SYSTEMS

Abstract

This research introduces an AI-driven hybrid classification framework designed to categorize machine downtimes and enhance operational reliability within complex industrial manufacturing environments. The empirical phase of the study was conducted using large-scale operational datasets sourced from the production lines of a global leader in the forest products industry, specifically focusing on Medium-Density Fiberboard (MDF) manufacturing processes. To overcome the limitations of conventional labeling methods and minimize

errors inherent in manual data entry, the model integrates structured sensor telemetry with subjective, free-text descriptions recorded by line operators.

The methodology utilizes an Ensemble Learning architecture, synthesizing the predictive strengths of XGBoost and Random Forest algorithms to interpret heterogeneous data patterns. Experimental evaluations performed on a dataset comprising 7,473 rows of real-world field data yielded a classification accuracy of 92.91% and an F1-Score of 92.66%. Beyond technical metrics, the findings demonstrate that the proposed system functions as a strategic decision-support mechanism, enabling enterprises to identify root causes of failures rapidly and establish a data-centric infrastructure for continuous improvement. This study provides a scalable and robust roadmap for smart manufacturing facilities aiming to integrate advanced machine learning techniques into their digital transformation journey.

Keywords: Industry 4.0, Machine Learning, Downtime Classification, Ensemble Learning, XGBoost, MDF Manufacturing

Note: This study was carried out within the scope of project number 2025-BAP-100-064.

ÖĞRETMEN ADAYLARININ DİJİTAL VATANDAŞLIK YETKİNLİKLERİ VE EĞİTİM 5.0 DİJİTAL ÖĞRENME TEKNOLOJİLERİNE YÖNELİK ÖZ-YETERLİKLERİNİN BAZI DEĞİŞKENLER AÇISINDAN İNCELENMESİ**Dr. Öğr. Üyesi Hüseyin ÇEVİK**

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Özet

Bu araştırmanın amacı, öğretmen adaylarının dijital vatandaşlık yetkinlikleri ile Eğitim 5.0 bağlamında dijital öğrenme teknolojilerine yönelik öz-yeterliklerinin; cinsiyet, sınıf düzeyi, internette geçirilen süre, internet kullanım amacı, teknolojiye erişim durumu, sosyal medya kullanım sıklığı ve yeniliklere açıklık durumu değişkenlerine göre anlamlı farklılık gösterip göstermediğini incelemektir. Araştırma, nicel araştırma yöntemlerinden tarama modeli kapsamında karşılaştırmalı desenle yürütülmüştür. Çalışma grubunu, 2025–2026 eğitim-öğretim yılında Batı Karadeniz Bölgesi’ndeki üniversitelerde öğrenim gören 255 öğretmen adayı oluşturmaktadır. Veri toplama sürecinde “Dijital Vatandaşlık Ölçeği” ile “Eğitim 5.0 Dijital Öğrenme Teknolojileri Öz-Yeterlik Ölçeği” kullanılmıştır. Verilerin analizinde bağımsız örneklem t-testi ve tek yönlü varyans analizi (ANOVA) uygulanmıştır. Araştırma bulgularına göre, dijital vatandaşlık yetkinliği puanları cinsiyete göre anlamlı farklılık göstermezken, Eğitim 5.0 dijital öğrenme teknolojilerine yönelik öz-yeterlik puanlarının erkek öğretmen adayları lehine anlamlı biçimde farklılaştığı belirlenmiştir. Ayrıca sınıf düzeyi, internette geçirilen süre ve internet kullanım amacı değişkenlerine göre her iki değişkende de anlamlı farklılık saptanmamıştır. Buna karşılık teknolojiye erişim durumu, sosyal medya kullanım sıklığı ve yeniliklere açıklık durumu değişkenlerine göre hem dijital vatandaşlık yetkinliği hem de Eğitim 5.0 dijital öğrenme teknolojilerine yönelik öz-yeterlik puanlarında anlamlı farklılıklar belirlenmiştir. Sonuç olarak, öğretmen adaylarının dijital yeterliklerinin özellikle teknolojiye erişim, sosyal medya kullanım yoğunluğu ve yeniliklere açıklık gibi dijital deneyim ve tutum değişkenleriyle daha yakından ilişkili olduğu söylenebilir.

Anahtar Kelimeler: Dijital Vatandaşlık, Eğitim 5.0, Dijital Öğrenme Teknolojileri, Öz-Yeterlik, Öğretmen Adayları

AN INVESTIGATION OF PRE-SERVICE TEACHERS’ DIGITAL CITIZENSHIP COMPETENCIES AND SELF-EFFICACY REGARDING EDUCATION 5.0 DIGITAL LEARNING TECHNOLOGIES IN TERMS OF CERTAIN VARIABLES**Abstract**

The aim of this study is to examine whether pre-service teachers’ digital citizenship competencies and their self-efficacy regarding digital learning technologies in the context of Education 5.0 differ significantly according to gender, grade level, time spent on the internet, purpose of internet use, access to technology, frequency of social media use, and openness to innovation. The study was conducted using a quantitative survey design with a comparative approach. The study group consisted of 255 pre-service teachers studying at universities in the Western Black Sea Region during the 2025–2026 academic year. Data were collected through the “Digital Citizenship Scale” and the “Education 5.0 Digital Learning Technologies Self-Efficacy Scale.” Independent samples t-test and one-way ANOVA were used for data analysis. The findings showed that digital citizenship scores did not differ significantly by gender, whereas self-efficacy regarding Education 5.0 digital learning technologies differed significantly in favor of male participants. In addition, no significant differences were found in either variable in terms of grade level, time spent on the internet, or purpose of

internet use. However, significant differences were identified in both digital citizenship and Education 5.0 self-efficacy scores according to access to technology, frequency of social media use, and openness to innovation. Overall, the findings suggest that pre-service teachers' digital competencies are more closely associated with digital experience and attitude-related variables such as access to technology, intensity of social media use, and openness to innovation.

Keywords: Digital Citizenship, Education 5.0, Digital Learning Technologies, Self-Efficacy, Pre-Service Teachers

ÜNİVERSİTE ÖĞRENCİLERİNİN ÖĞRENCİ KATILIMI, DERSE İLGİ VE AKADEMİK ÖZYETERLİK DÜZEYLERİNİN İNCELENMESİ**Dr. Öğr. Üyesi, Hüseyin ÇEVİK**

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Özet

Bu araştırmanın amacı, üniversite öğrencilerinin öğrenci katılımı, derse ilgi ve akademik özyeterlik düzeylerini belirlemek, bu değişkenler arasındaki ilişkileri incelemek ve öğrenci katılımı ile derse ilgi düzeylerinin akademik özyeterliği yordama düzeyini ortaya koymaktır. Araştırma, nicel araştırma yöntemlerinden ilişkisel tarama modeli ile yürütülmüştür. Araştırmanın çalışma grubunu, 2025–2026 eğitim-öğretim yılında üniversitelerde öğrenim gören 254 üniversite öğrencisi oluşturmaktadır. Veri toplama sürecinde Öğrenci Katılım Ölçeği, Derse İlgi Ölçeği ve Akademik Özyeterlik Ölçeği kullanılmıştır. Elde edilen bulgular, öğrencilerin öğrenci katılımı, derse ilgi ve akademik özyeterlik düzeylerinin genel olarak orta ve orta üzeri düzeyde olduğunu göstermektedir. Korelasyon analizi sonuçları, öğrenci katılımı, derse ilgi ve akademik özyeterlik arasında pozitif yönde, yüksek düzeyde ve anlamlı ilişkiler bulunduğunu ortaya koymuştur. Regresyon analizi sonuçları ise öğrenci katılımı ve derse ilgi düzeylerinin akademik özyeterliği anlamlı düzeyde yordadığını göstermiştir. Ayrıca, derse ilginin akademik özyeterlik üzerindeki yordayıcı etkisinin öğrenci katılımına göre daha güçlü olduğu belirlenmiştir. Elde edilen sonuçlar, üniversite öğrencilerinin akademik özyeterliklerinin geliştirilmesinde öğrencilerin derse ilgilerini artıran ve derse katılımlarını destekleyen öğretim uygulamalarının önemli olduğunu göstermektedir. Bu doğrultuda, yükseköğretim kurumlarında öğrencilerin hem derse ilgilerini hem de öğrenci katılımlarını destekleyecek öğrenme ortamlarının oluşturulması önerilmektedir.

Anahtar kelimeler: Öğrenci katılımı, derse ilgi, akademik özyeterlik, üniversite öğrencileri, ilişkisel tarama modeli.

AN EXAMINATION OF UNIVERSITY STUDENTS' STUDENT ENGAGEMENT, COURSE INTEREST, AND ACADEMIC SELF-EFFICACY LEVELS**Abstract**

The aim of this study is to determine university students' levels of student engagement, course interest, and academic self-efficacy, to examine the relationships among these variables, and to reveal the extent to which student engagement and course interest predict academic self-efficacy. The study was conducted using the relational survey model, one of the quantitative research methods. The study group consisted of 254 university students studying at universities during the 2025–2026 academic year. The Student Engagement Scale, the Course Interest Scale, and the Academic Self-Efficacy Scale were used in the data collection process. The findings revealed that students' levels of student engagement, course interest, and academic self-efficacy were generally at moderate and above-moderate levels. The results of the correlation analysis indicated positive, high-level, and significant relationships among student engagement, course interest, and academic self-efficacy. The results of the regression analysis showed that student engagement and course interest significantly predicted academic self-efficacy. In addition, course interest was found to have a stronger predictive effect on academic self-efficacy than student engagement. The findings suggest that instructional practices that increase students' interest in courses and support their engagement are important for improving university students' academic self-efficacy. In line with these findings, it is recommended that higher education institutions create learning environments that support both students' course interest and student engagement.

Keywords: Student engagement, course interest, academic self-efficacy, university students, relational survey model.

**AN EXAMINATION OF LEARNING PROCESSES DESIGNED BY ASSOCIATING THE TOPIC
OF FRACTIONS WITH MUSIC**

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Abstract

This study aims to examine how the relationship between music and fractions is constructed by pre-service teachers within the scope of interdisciplinary mathematics teaching. In particular, it investigates the extent to which the learning processes designed by elementary mathematics pre-service teachers, by associating music with the topic of fractions, align with the learning outcomes of the Turkey Century Education Model. The research was conducted using the case study design, one of the qualitative research approaches. The study group consists of 11 elementary mathematics pre-service teachers studying in the 2nd and 3rd grades at a state university in the Marmara region, and the participants were determined through purposive sampling. The data source of the research consists of the lesson scenarios prepared by the pre-service teachers. The data were analyzed through document analysis, and the content analysis approach was used. Within the scope of the study, pre-service teachers were asked to develop lesson scenarios in line with the learning outcomes of “being able to represent fractions corresponding to real-life situations in different ways” and “being able to make inferences for comparing fractions expressed in different representations” at the 5th-grade level. The analysis results showed that the majority of the pre-service teachers were able to address different representations of fractions within real-life contexts; however, they were insufficient in reflecting the other process components of this learning outcome in their scenarios. In addition, it was determined that the learning outcome of making inferences for comparing fractions was included in a limited number of scenarios, and that this use remained at a superficial level. Overall, the findings indicate that pre-service teachers have not developed a sufficiently deep understanding of the structure of the learning outcomes and how to integrate these outcomes into instructional processes. This situation reveals the necessity of addressing learning outcomes in teacher education with a focus on practical implementation.

Keywords: Interdisciplinary mathematics teaching, Turkey Century Education Model.

**CHALLENGES FACED BY DIFFERENT TEACHER PROFILES IN IMPLEMENTING THE
TÜRKİYE CENTURY MAARİF MODEL**

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Abstract

In reflecting the holistic educational approach targeted by the Türkiye Century Maarif Model into classroom environments, the difficulties experienced by different teacher profiles in adapting to the model play a decisive role. The aim of this study is to identify the challenges faced by teachers from different subject areas while implementing the Türkiye Century Maarif Model by evaluating these issues from multiple perspectives. This research is a qualitative study conducted in accordance with the case study design. The study group consists of seven teachers working in an Anatolian High School affiliated with the Ministry of National Education in Bursa. The data were collected through semi-structured oral interviews. The data were analyzed using content analysis. According to the findings of the analysis, it was observed that there are significant similarities and differences in participants' perceptions, experiences, and practices related to the research topic. The analysis results revealed the difficulties encountered by participants during the implementation process, the strategies they employed, and the meanings they attributed to this process. In the initial stage of analysis, it was determined that the expressions derived from the data were largely concentrated around practice-based experiences, and that participants frequently referred to both their individual competencies and contextual conditions. However, in some participant statements, situations such as uncertainty, indecisiveness, and inability to maintain continuity in practice were found to be prominent. This indicates that the research topic has a multidimensional and dynamic structure for the participants.

Keywords: Teacher profiles, Teacher opinions, Türkiye Century Maarif Model

AKILLI AKREDİTASYON: EĞİTİMDE KALİTE STANDARTLARININ YAPAY ZEKÂ İLE İZLENMESİ VE BELGELENMESİ

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Özet

Bu çalışma, yükseköğretimde kalite güvencesi ve akreditasyon süreçlerinin yapay zekâ (YZ) teknolojileriyle nasıl dönüştüğünü ele almaktadır. Özellikle geleneksel, evrak ve rapor temelli denetim anlayışından veri odaklı, anlık izleme ve kurumsal öğrenmeyi destekleyen daha dinamik bir yapıya geçişe odaklanmaktadır. Çalışmanın temel amacı, mevcut kalite güvencesi sistemlerinin sınırlarını ortaya koymak ve veriyi eş zamanlı izleyen, yorumlayan ve performansı anlık olarak analiz edebilen YZ destekli “akıllı akreditasyon” sistemlerinin kurumsal düzeyde nasıl kullanılabileceğini incelemektir. Bu kapsamda ESG standartları, YÖKAK çerçevesi ve PUKÖ döngüsü, yapay zekâ yönetişimine ilişkin ISO/IEC 42001 ve ISO/IEC 5338 standartlarıyla birlikte analitik bir çerçevede ele alınmıştır. Yöntem olarak narratif literatür incelemesi benimsenmiştir. Bu doğrultuda akademik çalışmalar, uluslararası standartlar, YÖKAK raporları ve ulusal strateji belgeleri nitel içerik analizi ile değerlendirilmiştir. Elde edilen bulgular, Türkiye’deki üniversitelerin PUKÖ döngüsünün “Planla” ve “Uygula” aşamalarında görece güçlü bir performans sergilediğini; ancak “Kontrol Et” ve “Önlem Al” aşamalarında veri temelli izleme ve geri bildirim mekanizmalarının sistematik olarak işletilemediğini ortaya koymaktadır. Bu noktada yapay zekâ ve eğitimde veri madenciliği uygulamalarının, hem öğrenci kazanımlarını daha detaylı izleme hem de kurumsal performansı daha dinamik hâle getirme potansiyeli taşıdığı görülmektedir. Sonuç olarak, yapay zekâ destekli akıllı akreditasyon sistemlerinin benimsenmesi, kalite süreçlerindeki bürokratik yükü azaltırken, şeffaflık, hesap verebilirlik ve uluslararası rekabet gücünü artıran önemli bir fırsat sunmaktadır. Bu çalışma kapsamında “akıllı akreditasyon”, veri odaklı, sürekli izleme ve yapay zekâ destekli karar mekanizmalarını entegre eden yeni nesil kalite güvencesi yaklaşımı olarak tanımlanmaktadır.

Anahtar Kelimeler: Yükseköğretim, Kalite Güvencesi, Akıllı Akreditasyon, Yapay Zekâ, PUKÖ Döngüsü, Eğitim Analitiği

SMART ACCREDITATION: AI-DRIVEN MONITORING AND DOCUMENTATION OF QUALITY STANDARDS IN EDUCATION

Abstract

This study examines how quality assurance and accreditation processes in higher education are being transformed through artificial intelligence (AI) technologies. In particular, it focuses on the transition from traditional document- and report-based evaluation approaches to more dynamic, data-driven systems that support real-time monitoring and institutional learning. The main objective of the study is to identify the limitations of existing quality assurance systems and to explore how AI-supported “smart accreditation” systems—capable of simultaneously monitoring, interpreting, and analyzing performance data—can be utilized at the institutional level. Within this scope, ESG standards, the framework established by the Turkish

Higher Education Quality Council (THEQC), and the PDCA (Plan-Do-Check-Act) cycle are examined together with international standards related to AI governance, including ISO/IEC 42001 and ISO/IEC 5338, within an analytical framework. A narrative literature review method is adopted in this study. Accordingly, academic studies, international standards, THEQC reports, and national strategy documents are analyzed through qualitative content analysis. The findings reveal that universities in Türkiye demonstrate relatively strong performance in the “Plan” and “Do” phases of the PDCA cycle; however, data-driven monitoring and feedback mechanisms in the “Check” and “Act” stages are not systematically implemented. In this context, AI and educational data mining applications have the potential to address these gaps by enabling more detailed tracking of student learning outcomes and by making institutional performance more dynamic. In conclusion, the adoption of AI-supported smart accreditation systems presents a significant opportunity to reduce bureaucratic workload while enhancing transparency, accountability, and international competitiveness in higher education. Within the scope of this study, “smart accreditation” is defined as a next-generation quality assurance approach that integrates data-driven processes, continuous monitoring, and AI-supported decision-making mechanisms.

Keywords: Higher Education, Quality Assurance, Smart Accreditation, Artificial Intelligence, PDCA cycle, Learning Analytics

EXPLORING CLIMATE LITERACY AMONG EIGHT GRADERS

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Abstract

As climate-related environmental problems become more widespread, individuals need to acquire basic climate knowledge and develop environmental awareness. For this reason, determining students' levels of climate literacy is important for evaluating the effectiveness of climate education and shaping future pedagogical strategies. This study aims to determine the level of climate literacy among eighth-grade students, whether it differs according to gender, and the role of climate literacy in predicting their science achievement. The data were collected from 149 eighth-grade students (70 females, 79 males) from Türkiye. The mean age of participants was 13.77 (SD= .48). The Climate Literacy Scale, with three dimensions, namely climate concept, climate awareness, and climate consciousness, was used. The reliability coefficients for the factors were calculated as .917, .899, and .923, respectively. The means of the dimensions ranged from moderate to high, with the values of 3.85 for climate concept, 3.89 for climatic awareness, and 3.01 for climatic consciousness. Participants' climate literacy did not differ significantly in terms of gender [Pillai's Trace = .036, $F(3,144) = 1.791$, $p > .05$, $\eta^2 = .036$]. Finally, as a result of the multiple regression analysis performed to determine the role of climate literacy in students' science achievement, it was found that only the dimension of climate awareness significantly predicted students' achievement: $R = .456$, $R^2 = .208$, *Adjusted* $R^2 = .190$, $F(3, 132) = 11.524$, $p < .05$. These results indicate that fostering climate awareness is essential for enhancing science performance. Therefore, educational strategies should prioritize activities raising students' awareness within the science curriculum to support both environmental consciousness and academic success.

Keywords: Climate literacy, environment education, science education, elementary school students.

AI-BASED INTERVENTIONS FOR REDUCING INEQUALITY OF OPPORTUNITY IN
PRESCHOOL EDUCATION: A PERSPECTIVE FROM TÜRKİYE

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Abstract

This paper examines the potential role of artificial intelligence-based interventions in reducing inequality of opportunity in preschool education within the context of Türkiye. Early childhood is a critical period in which the foundations of cognitive, social, emotional, and language development are established. Therefore, inequalities emerging during this stage may have long-lasting effects on children's subsequent educational trajectories. In Türkiye, access to preschool education, service quality, socio-economic conditions, regional disparities, parental education, and digital infrastructure are among the key determinants of inequality of opportunity.

The study discusses the possible contributions of AI-supported systems in areas such as early risk detection, personalized learning, developmental monitoring, strengthening family involvement, and providing decision support in educational administration. However, the use of artificial intelligence in preschool education is not approached merely as a technological solution. Risks and limitations related to digital inequality, algorithmic bias, data security, children's rights, and ethical governance are also considered.

The paper argues that AI-based interventions cannot eliminate inequality of opportunity on their own. Nevertheless, when designed in line with the principles of public responsibility, inclusiveness, accessibility, and quality assurance, they may serve as a supportive tool for promoting equity in early childhood education. In this regard, the study aims to offer an evaluative perspective and policy-oriented recommendations for developing more equitable, data-informed, and child-centered preschool education policies in Türkiye.

Keywords: Preschool education, inequality of opportunity, artificial intelligence, early childhood, educational administration, Türkiye.

OKUL ÖNCESİ EĞİTİMDE FIRSAT EŞİTSİZLİĞİNİN AZALTILMASINDA YAPAY ZEKÂ
TEMELLİ MÜDAHALELER VE TÜRKİYE PERSPEKTİFİ

Özet

Bu bildiri, okul öncesi eğitimde fırsat eşitsizliğinin azaltılmasında yapay zekâ temelli müdahalelerin olası rolünü Türkiye bağlamında ele almaktadır. Erken çocukluk dönemi, bireyin bilişsel, sosyal, duygusal ve dil gelişiminin temellerinin atıldığı kritik bir evre olduğundan, bu dönemde ortaya çıkan eşitsizlikler eğitim yaşamının sonraki aşamalarında kalıcı sonuçlar doğurabilmektedir. Türkiye’de okul öncesi eğitime erişim, hizmetin niteliği, sosyo-ekonomik koşullar, bölgesel farklılıklar, ebeveyn eğitimi ve dijital altyapı gibi değişkenler fırsat eşitsizliğinin temel belirleyicileri arasında yer almaktadır.

Çalışmada, yapay zekâ destekli sistemlerin erken risk tespiti, bireyselleştirilmiş öğrenme, gelişimsel izleme, aile katılımının güçlendirilmesi ve eğitim yönetiminde karar desteği sağlama gibi alanlarda sunabileceği katkılar tartışılmaktadır. Yapay zekânın okul öncesi eğitimde kullanımı yalnızca teknolojik bir çözüm olarak değerlendirilmemekte; dijital eşitsizlik, algoritmik önyargı, veri güvenliği, çocuk hakları ve etik yönetim gibi riskler de dikkate alınmaktadır.

Bildiri, yapay zekâ temelli müdahalelerin fırsat eşitsizliğini tek başına ortadan kaldıramayacağını; ancak kamusal sorumluluk, kapsayıcılık, erişilebilirlik ve nitelik güvencesi ilkeleriyle planlandığında destekleyici bir araç olarak önemli katkılar sunabileceğini ileri sürmektedir. Bu çerçevede çalışma, Türkiye’de okul öncesi eğitim politikalarının daha adil, veri temelli ve çocuk odaklı biçimde geliştirilmesine yönelik değerlendirme ve öneriler sunmayı amaçlamaktadır.

Anahtar Kelimeler: Okul öncesi eğitim, fırsat eşitsizliği, yapay zekâ, erken çocukluk, eğitim yönetimi, Türkiye.

THERMOELECTRIC AND HYDROGEN STORAGE PROPERTIES OF Rb/Cs-Based SbPbH₆ DOUBLE PEROVSKITES: A FIRST-PRINCIPLES STUDY**Aman Kumar**

Department of Physics, KVSCOS, Swami Vivekanand Subharti University, Meerut-250005, India.

Abstract

In this work, a comprehensive first-principles investigation of the structural, electronic, optical, and hydrogen storage properties of hydride double perovskites $A_2\text{SbPbH}_4$ ($A = \text{Rb}, \text{Cs}$) has been carried out. The optimized lattice parameters are found to be 8.24 Å for $\text{Rb}_2\text{SbPbH}_4$ and 8.50 Å for $\text{Cs}_2\text{SbPbH}_4$. Both compounds satisfy the Born mechanical stability criteria and exhibit negative formation energies, confirming their thermodynamic and mechanical stability. Electronic band structure analysis reveals a metallic nature for both materials, indicating their suitability for various electronic and conductive applications. The optical response demonstrates strong absorption across a wide energy range, highlighting their potential for optoelectronic and photovoltaic applications. Furthermore, the calculated optical properties suggest excellent light-harvesting capability, making these materials promising candidates for next-generation photonic devices. The estimated hydrogen storage capacities are 1.20 wt% for $\text{Rb}_2\text{SbPbH}_4$ and 1.01 wt% for $\text{Cs}_2\text{SbPbH}_4$, indicating moderate potential for hydrogen storage applications. However, the calculated thermoelectric performance is relatively poor, with ZT values below 0.5 for $\text{Cs}_2\text{SbPbH}_4$ and approximately 0.1 for $\text{Rb}_2\text{SbPbH}_4$, which are significantly lower than the benchmark value ($\text{ZT} > 1$) required for efficient thermoelectric materials. These findings suggest that while $\text{Rb}_2\text{SbPbH}_4$ and $\text{Cs}_2\text{SbPbH}_4$ are not suitable for thermoelectric applications, they exhibit significant promise for optoelectronic devices and hydrogen storage technologies.

Keyword: Hydride double perovskites, Optical aspects, electronic properties, Hydrogen storage.

ON THE CAUCHY PROBLEM FOR THE KELLER-SEGEL SYSTEM WITH FRACTIONAL
DIFFUSION IN BESOV-MORREY SPACES

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Abstract

We study the Cauchy problem for a class of Keller–Segel systems with fractional diffusion, which arise in the modeling of chemotactic aggregation phenomena. Such systems play a fundamental role in describing the collective behavior of biological populations under the influence of chemical signaling. By combining the smoothing properties of the associated fractional heat semigroup with refined techniques from Littlewood–Paley theory, we establish the global existence and uniqueness of mild solutions for small initial data in critical homogeneous variable exponent Besov–Morrey spaces. These functional spaces provide a flexible and robust framework that captures spatial heterogeneity and nonstandard growth conditions, making them particularly suitable for modeling complex and realistic diffusion processes. Our results extend and refine several existing works by identifying a broader class of admissible initial data that ensures global well-posedness. In addition, the analysis contributes to a deeper understanding of nonlinear drift–diffusion systems in advanced function space settings, with potential relevance to sustainability-related models involving diffusion, aggregation, and transport phenomena.

Keywords: Keller–Segel systems; fractional diffusion; global well-posedness; Besov–Morrey spaces; Littlewood–Paley theory

QUANTIFYING THE IMPACT OF FAMILY PLANNING ON POPULATION GROWTH: A COMPARTMENTAL MODEL WITH BASIC REPRODUCTIVE NUMBER ANALYSIS**Agbo Christiana Ene**

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Rapid population growth, particularly in developing countries, poses significant socioeconomic challenges. While family planning (FP) interventions are known to reduce fertility rates and improve reproductive health, quantifying their long-term impact on population dynamics remains a critical gap. Traditional demographic methods often lack the precision needed to evaluate intervention effectiveness over time. This study develops and analyzes a mathematical model to simulate the impact of family planning interventions specifically reproductive health education and contraceptive use on population growth dynamics. A compartmental model was formulated dividing the population into six groups: Susceptible (S), Informed (T), Sexually Corrupted (I), Contraceptive Users (F), Non-Users (N), and General Population (P). A system of ordinary differential equations described transitions between compartments, influenced by parameters such as contact rate, education rate, and contraceptive adoption rates. The model was analyzed for uniqueness and existence of solution, equilibrium points, and stability. The basic reproductive number (R_0) was derived using the Next Generation Matrix approach. Numerical simulations were conducted in R programming over a 200-day period using parameter values from existing literature. The analysis confirmed that all solutions remain positive and biologically feasible. The equilibrium is locally asymptotically stable when $R_0 < 1$. The findings highlight that sustained family planning interventions combining reproductive health education and improved contraceptive access can reduce R_0 below the critical threshold of one, thereby controlling population growth. This mathematical model provides a predictive, data-driven tool for policymakers and public health planners to evaluate FP program effectiveness and design targeted demographic strategies.

Keywords: Family planning(FP), population growth, mathematical modeling, compartmental model, basic reproduction number, contraceptive use, reproductive health.

**A ONE-DIMENSIONAL VISCOELASTIC FRACTIONAL PARTIAL DIFFERENTIAL EQUATION
MODEL FOR BLOOD FLOW IN A COMPLIANT ARTERY USING THE FRACTIONAL
REDUCED DIFFERENTIAL TRANSFORM METHOD****Dr. Akogwu Blessing Omojo**

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Abstract

This study presents a comprehensive one-dimensional viscoelastic fractional-order model for blood flow in a compliant artery. The Caputo fractional derivative is incorporated into the governing equations to effectively capture the hereditary and memory-dependent rheological behavior of blood, together with the elastic response of the arterial wall. In contrast to classical integer-order formulations, the proposed fractional model provides a more physiologically realistic and flexible representation of arterial hemodynamics. Approximate analytical solutions are obtained using the Fractional Reduced Differential Transform Method (FRDTM), which offers an efficient and rapidly convergent computational framework. To ensure the reliability of the obtained solutions, the Fractional Variational Iteration Method (FVIM) is employed for validation and comparison. Numerical simulations are carried out for a range of fractional orders and at multiple axial locations along the artery, allowing for detailed analysis of spatial and parametric variations in flow behavior. The results demonstrate excellent agreement between FRDTM and FVIM, confirming the accuracy, convergence, and stability of the proposed methods. Furthermore, the study reveals that the fractional order significantly influences arterial distensibility, pressure wave propagation, velocity distribution, and overall flow dynamics. These findings emphasize the importance of incorporating fractional calculus into cardiovascular modeling, providing deeper insight into complex biological processes. The developed model offers a robust and reliable framework that can be extended to patient-specific analyses and may contribute to improved diagnosis, prediction, and optimization of clinical interventions in cardiovascular research and biomedical engineering applications.

Keywords: Fractional calculus; Viscoelastic blood flow; Compliant artery; Caputo derivative; FRDTM; FVIM.

MODELING THE SPREAD AND CONTROL DYNAMICS OF BOKO HARAM INSURGENCY IN BORNO STATE, NORTHERN NIGERIA: A MATHEMATICAL APPROACH**Kabiru Musa^{a*}, Durojaye Mary Oziohu^b and Ayinde Muhammed Abdullahi^{c*}**^aDepartment of Mathematics, Baze University, Abuja, Nigeria^bDepartment of Mathematics, University of Abuja, FCT, Nigeria^cDepartment of Mathematics, University of Abuja, FCT, NigeriaOrcid ID: <https://orcid.org/0000-0002-1216-4358>**Abstract**

The Boko Haram insurgency has remained one of the most severe security challenges confronting Borno State and Northern Nigeria, resulting in widespread loss of lives, displacement of populations and destruction of socio-economic infrastructure. Understanding the transmission and control mechanisms of the insurgency is essential for developing effective and sustainable counter-terrorism strategies. This study presents a mathematical model for analyzing the spread and control dynamics of Boko Haram insurgency in Borno State using a system of nonlinear ordinary differential equations. The model extends an existing framework by incorporating additional compartments that capture critical control and social factors, including informers, reintegrated individuals, victims, sympathizers and security agents, thereby providing a more comprehensive representation of insurgency dynamics. Theoretical analysis of the model is conducted to establish the existence and uniqueness of solutions, as well as the positivity and boundedness of solutions within a feasible region. The Boko Haram-free equilibrium point is determined and the basic reproduction number will be calculated using the next-generation matrix approach. Both local and global stability analyses of the Boko Haram-free equilibrium will be carry out to identify conditions under which the insurgency can be effectively eliminated. Numerical simulations of the model will be perform using MATLAB R2024a to illustrate the analytical results and examine the impact of key parameters on the spread and control of the insurgency. The results indicate that effective integration of military intervention, intelligence gathering, rehabilitation, reintegration and community-based strategies significantly reduces the persistence of insurgent activities. The study demonstrates that mathematical modeling provides valuable insights into the complex dynamics of terrorism and offers a quantitative framework to guide policymakers and security agencies in designing evidence-based and sustainable counter-insurgency strategies for Borno State and similar conflict-affected regions.

Keywords: Boko Haram Insurgency, Borno State, Mathematical Modeling, Nonlinear Ordinary differential Equations, Basic Reproduction Number, Stability analysis, Counter-terrorism Strategies, Numerical Simulation

AN OPTIMIZED EXPONENTIAL RATIO-TYPE ESTIMATOR TO ENHANCE PRECISION IN
POST-STRATIFIED SAMPLING

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Abstract

This paper explores the potential of post-stratification in improving population variance estimation and introduces a modified estimator aimed to enhance statistical precision. By incorporating insights from two supplementary variables, the proposed estimator is rigorously developed, and its performance is assessed through bias and mean square error (MSE) analyses. An optimization framework is further formulated to minimize mean square error (MSE) of the suggested estimator under a budgetary constraint and obtain optimal values of characterizing scalars for minimum mean square error (MSE) using the Lagrange multipliers method and the Genetic algorithm. The results of this study are validated using real-world data, showcasing the estimator's superior accuracy and efficiency. A thorough comparison with existing MSE estimation methods, theoretically and empirically, confirms that the proposed estimator outperforms traditional approaches. This work advances the sampling field and establishes a new benchmark for MSE estimation in sampled populations, offering promising implications for more reliable and robust analysis in various applied fields.

Keywords: Post-stratification, Optimal Allocation, Genetic Algorithm, Lagrange Multiplier Method.

APPLICATION OF GEOMETRIC AVERAGE MODEL FOR IDENTIFYING HIGH MINERALIZATION ZONES USING GAMMA-RAY SPECTROMETRY DATA IN THE BOKE BAUXITE DISTRICT, REPUBLIC OF GUINEA

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Abstract

The identification and delineation of zones with high mineralization potential are critical for discovering valuable mineral deposits. Various methodologies have been employed to pinpoint areas subjected to alteration processes, including the analysis of airborne gamma-ray spectrometry data, which has consistently produced accurate and reliable results.

In this study, gamma-ray spectrometry was utilized for the first time in the Boke region of north-western Republic of Guinea, a renowned global bauxite district. Data were systematically collected, processed, and mapped to produce concentration maps for potassium (K), thorium (eTh), and uranium (eU). The generation of abundance ratios and the F parameter facilitated the identification of regions with elevated potassium concentrations, which serve as indicators of potential alteration zones associated with bauxite mineralization.

The analytical results from the K/eU and K/eTh ratios, along with the F parameter and potassium concentration map, were integrated using geometric average model. This model synthesized the resulting informative maps into a comprehensive mineral prospectivity map, which is instrumental for guiding mineral exploration. The study identified three high-prospectivity areas: the Ordovician at Pita, the Silurian at Telimele, and the Devonian at Faro. Preliminary prospecting in these delineated regions suggests the presence of significant potential, warranting further advanced exploration.

Keywords: Gamma-Ray Spectrometry; Bauxite Mineralization; Potassium Concentration; Geometric average Model; Mineral Prospectivity Map

EFFECT OF AG IONS WORK FUNCTION ON TIN OXIDE NANOSTRUCTURES FOR ELECTROCHEMICAL ETHANOL GAS SENSING APPLICATION

Nishu Rani¹, Prof. Vijay Kumar¹, Prof. Sunil Kumar¹¹Department of Physics, Indira Gandhi University, Rewari-Haryana, India**Abstract**

In this work, Ag doped into tin oxide nanostructures at distinct concentrations (0, 2, and 4%) were synthesized via solution combustion technique. The phase, crystalline structure, morphology and composition of synthesized Ag doped SnO₂ nanostructures were thoroughly examined by XRD and SEM respectively. These findings demonstrated that the X-ray diffraction examinations of Ag doped SnO₂ nanostructures were polycrystalline in nature with rutile tetragonal structure. The height of the diffraction peaks reduced as the amounts of doping increased and widened as a result of the Ag ions being substituted into the lattice. As the doping concentration increased, the average grain size reduces. SEM images confirm that resultant samples have spherical shape and no change in morphology with the addition of Ag dopant ions. Additionally, examining the optical characteristics revealed that the optical band gap shrinks from 3.04 eV to 2.78 eV with a rise in the concentration of dopant ion. FTIR spectra confirm the presence of various functional groups like O-H, Sn-OH and O-Sn-O. CV analysis reveals that, Ag-doped SnO₂ nanostructures showed improved ethanol sensing capabilities and a greater response when the ethanol concentration was increased from 10 mM to 50 mM at ambient temperature. The increment in peak current was also noted with the scan rate ranging from 25 mV/s to 500 mV/s. The higher work function of Ag as compared to SnO₂ and spillover effect may be responsible for the improved sensing characteristics of the Ag-doped SnO₂ composite sensing materials as compared to pure SnO₂. This study's goal was to look into the impact of varying Ag doping concentrations on the optical, structural, and ethanol sensing characteristics of SnO₂ nanostructures.

Keywords: ethanol sensing, work function, spillover effect

ANALYSIS OF MILD SOLUTIONS AND CONTROLLABILITY FOR MULTI-TERM HILFER FRACTIONAL DIFFERENTIAL INCLUSIONS

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Abstract

This paper investigates mild solutions and approximate controllability for multi-term Hilfer fractional differential systems with multivalued maps in Banach spaces. Using different Hilfer orders, the model captures multiple memory effects. An equivalent integral form is obtained via resolvent operators, and existence results follow from fixed point methods. Approximate controllability is achieved through suitable control construction and operator analysis. Examples illustrate the results. The mathematical model under consideration is given by:

$$\left\{ \begin{array}{l} {}^H D_{0+}^{1+\delta, \gamma} y(\rho) + \sum_{k=1}^m C_k {}^H D_{0+}^{\beta_k, \gamma} y(\rho) \in Ay(\rho) + Eu(\rho) + G(\rho, y(\rho)) \\ \quad + f\left(\rho, y(\rho), \int_0^\rho h(\rho, s, y(s)) ds\right), \quad \rho \in J' = (0, \ell] \\ (I_{0+}^{2-\nu} y)(0) = y_0, \quad (I_{0+}^{2-\nu} y)'(0) = y_1, \end{array} \right.$$

Where $1/2 < \delta \leq \beta_m \leq \dots \leq \beta_1 < 1$. The operators ${}^H D_{0+}^{1+\delta, \gamma}$ and ${}^H D_{0+}^{\beta_k, \gamma}$ denote the Hilfer fractional derivative of order $1 + \delta$ and β_k , with type γ . While, $I_{0+}^{2-\nu}(\cdot)$ represents the Riemann-Liouville fractional integrals of order $2 - \nu$, where $\nu = \delta + \gamma - \gamma\delta + 1$. $A: D(A) \subseteq Y \rightarrow Y$ be a closed linear operator on a Banach space Y endowed with the norm $\|\cdot\|$. Let $J = [0, \ell]$ be the time interval. The control function u takes values in $L^2((0, b], U)$, with U as another Banach space, $E: U \rightarrow Y$ is a bounded linear operator. The functions $f: J \times Y \times Y \rightarrow Y$, $h: J \times J \times Y \rightarrow Y$, and $G: J \times Y \rightarrow 2^Y \setminus \{\emptyset\}$ are some appropriate functions that will be defined later.

Keywords: Fractional Differential Equations, C_0 -semigroup, Mild Solutions, Controllability, Multi- Valued Map

**INTEGRATING GIS TECHNOLOGIES FOR SUSTAINABLE FOREST MONITORING AND
MANAGEMENT IN THE ROMANIAN CARPATHIANS**

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Abstract

Forests of the Romanian Carpathians are among Europe’s most significant forest ecosystems, with high biodiversity and important ecological functions. Sustainable management of these forests requires accurate spatial information and continuous monitoring, which can be effectively supported by GIS and remote sensing technologies. This paper emphasises the role of GIS-based approaches in forest mapping, monitoring, and management, using the Carpathian region of Romania as a case-study area.

Spatial data derived from satellite imagery, digital elevation models, and forest inventory records were used to analyse forest cover, species distribution, and structural characteristics, and to detect disturbances such as deforestation and forest fragmentation. Multitemporal analyses and vegetation indices proved effective in identifying spatial and temporal forest dynamics.

The results highlight the value of GIS in supporting forest management planning and conservation strategies in mountainous environments. The study confirms that GIS-based methods enhance decision-making processes and contribute to sustainable forest management in the Romanian Carpathians under increasing environmental and anthropogenic pressures.

VERBAL AGGRESSION AND THE MEDIATORY ROLE OF FAMILY SOCIAL SUPPORT ON SOCIAL WITHDRAWAL AMONGST UNDERGRADUATE STUDENTS OF OLABISI ONABANJO UNIVERSITY STUDENTS, AGO-IWOYE, NIGERIA**Ekong Akpan ESSIEN**¹Department of Psychology, Faculty of Social Sciences, Olabisi Onabanjo University, Ago-Iwoye, Nigeria.**Abstract**

This study was conducted to examine the influence of verbal aggression on social withdrawal among undergraduate students of Olabisi Onabanjo University, Ago-Iwoye, Nigeria with a particular focus on the mediating role of family social support. The research was driven by increasing concerns about emotional disengagement and psychological distress among university students who experience verbal aggression in academic and social settings. The problem identified is the underexplored connection between these variables within the Nigerian context, particularly in relation to the buffering effects of family support. This study aimed to bridge this gap by investigating how family social support might mitigate the adverse effects of verbal aggression, thereby improving psychological and social outcomes for students. The study adopted a descriptive correlational survey design involving 250 undergraduate students selected through simple random sampling. Standardised instruments were used for data collection, including the Verbal Aggressiveness Scale, the family subscale of the Multidimensional Scale of Perceived Social Support (MSPSS), and the Social Avoidance and Distress Scale (SADS). Data were analysed using multiple regression, factor-based mediation analysis, and an independent samples t-test to assess the relationships between variables and determine the mediating effect of family support. The results indicated that verbal aggression significantly predicted social withdrawal ($\beta = 0.214, p \leq 0.05$), and family social support had a significant negative influence on social withdrawal ($\beta = -0.188, p \leq 0.05$). Mediation analysis revealed that family social support partially mediated the relationship between verbal aggression and social withdrawal. Additionally, significant gender differences were observed, with female students reporting higher levels of social withdrawal in response to verbal aggression ($t = -2.145, p \leq 0.05$). The findings underscore the detrimental impact of verbal aggression on student social functioning and highlight the protective role of family support in mitigating these effects. It is recommended that university administrators, counsellors, and stakeholders implement structured interventions to address verbal hostility and enhance psychosocial support systems on campus. Programs that foster family involvement and student resilience are vital to reducing emotional withdrawal and promoting mental well-being among undergraduates.

Keywords: Verbal Aggression, Family Social Support, Social Withdrawal, Undergraduate Students, Mediation, Nigeria

TEACHER TRAINERS' PERSPECTIVES ON ACTION RESEARCH IN TEACHER TRAINING
CENTERS IN CAMBODIA

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Abstract

Action research is generally appreciated as an effective pathway for fostering teaching practices and corresponding continuous professional development among teacher educators. This study aims to examine teacher trainers' perspectives on action research in Teacher Training Centers in Cambodia that focus on the level of conception and the challenges they had through implementation. This study used a quantitative research design. Data were collected from 74 teacher trainers by using a structured questionnaire designed to examine their understanding, perceptions, and practices relevant to action research. Descriptive statistics, including percentages, frequencies, means, and standard deviations, were used to analyze the data and summarize the findings. The results show that most of teacher trainers possess a basic knowledge of action research and how it processes like identifying classroom problems, planning interventions, and reflecting on results. In spite of this overall familiarity, a remarkable proportion of teacher trainers provided difficulties in certain aspects in implementing action research. In specific, they were weak of designing an appropriate research methodology such as selecting suitable research designs, data collection techniques, and data analysis methods. These results suggest that the gaps of foundational knowledge of action research may hinder productive implementation. To issue these challenges, teacher trainers recommended more workshops and practical training sessions focused on strengthening research design and methodological skills. In conclusion, this research highlights the significance of targeted capacity-building initiatives to strengthen teacher trainers' action research competencies in Cambodia. Enhancing these skills is crucial for teaching practices improvement and supporting ongoing educational development.

Keyword: Teacher Trainers, Perspectives, Action Research, and Teacher Training Centers

A MODELING-BASED TEACHING AND LEARNING SEQUENCE IMPROVES STUDENTS' CONCEPTUAL UNDERSTANDING OF BIODIVERSITY

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Abstract

Biodiversity is a complex and multidimensional concept that is often reduced to species richness in educational contexts, overlooking key components such as functional diversity, evenness, interactions, and spatial-temporal patterns. This study investigates the impact of a modeling-based teaching and learning sequence (MBTLS) on 17–18-year-old students' conceptual understanding of biodiversity in Argentina, while also analyzing students' and teachers' modeling-based discourse. Using qualitative content analysis, the findings show that hands-on modeling activities, conducted in both field and classroom settings, help students move beyond a species-centered perspective toward a more integrative understanding of biodiversity. Although species remained the dominant focus, functional and genetic diversity gained importance throughout the sequence. Pre- and post-test results indicate significant improvements, particularly in understanding functional richness and evenness. However, limited student engagement in predictive modeling and the strong role of teachers in modifying models highlight challenges in fostering iterative modeling practices. Overall, the study emphasizes the need to update curricula and teacher training to better integrate modeling approaches and contemporary biodiversity concepts.

Keywords: Biodiversity education · Teaching methods · Modeling-based teaching and learning Functional diversity · Conceptual understanding

TOWARDS ENHANCED ENVIRONMENTAL PROTECTION LEGISLATION IN MOROCCO

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Abstract

This paper explores the evolution and current state of environmental protection legislation in Morocco, with a focus on the need for its further enhancement. Over the past two decades, Morocco has made significant progress in developing a comprehensive legal framework aimed at preserving natural resources and promoting sustainable development. However, despite these advancements, several gaps remain in terms of coherence, enforcement, and overall effectiveness.

The study analyzes the main legal instruments governing environmental protection in Morocco and identifies key challenges that limit their impact, including institutional fragmentation, insufficient regulatory enforcement, and limited integration of environmental concerns into sectoral policies. It also highlights the growing importance of aligning national legislation with international environmental standards and commitments.

By adopting a critical approach, this paper argues that enhancing environmental protection legislation in Morocco requires not only legal reforms but also stronger implementation mechanisms, improved governance structures, and increased stakeholder participation. The paper concludes by proposing strategic recommendations to support a more effective and integrated environmental legal framework capable of addressing current and future ecological challenges.

THE IMPLEMENTATION OF THE RESPONSIVE EVALUATION MODEL IN CHRISTIAN RELIGIOUS EDUCATION PROGRAMS: A THEOLOGICAL -PEDAGOGICAL ANALYSIS

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Abstract

The responsive evaluation model has been widely implemented in various educational programs; however, there has been no theological-pedagogical study examining its relevance within the context of Christian Religious Education (CRE). This gap has resulted in CRE program administrators not fully utilizing this model as an alternative approach to evaluation that is contextual and participatory. This study aims to analyze the implementation of the responsive evaluation model in CRE programs from theological and pedagogical perspectives. The research employs a qualitative method with a library research approach. The literature sources were purposively selected to include theories of the responsive evaluation model, as well as relevant theological and educational literature. Data were analyzed using thematic analysis. The findings reveal that the responsive evaluation model can be applied in CRE programs based on the principles of flexibility, contextuality, dialogue, and collaboration. The effectiveness of this evaluation model requires the active involvement of all stakeholders. Theologically, these principles are aligned with theological values such as communal deliberation within the faith community, accountability in ministry, and sensitivity to the congregational context. This study contributes a new conceptual framework for the development of evaluation practices in Christian Religious Education.

Keywords: responsive evaluation, Christian Religious Education, theological-pedagogical analysis

MAHATMA GANDHI'S VISION OF HOLISTIC EDUCATION: THEORY AND PRACTICE**Dr. ATHOI KAMEI**

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Abstract

The educational philosophy of Mahatma Gandhi represents a radical departure from colonial models of learning by emphasizing the harmonious development of the human personality—body, mind and spirit. Popularly articulated through the concept of Nai Talim (Basic Education). Gandhi's vision integrates intellectual growth with manual labour, moral discipline and social responsibility. His emphasised-on learning through practicality like craft and manual work, experiential learning, vocational training and skill-based education are essential for addressing contemporary issues such as youth unemployment and the need for practical competencies. Gandhi's advocacy for mother-tongue instruction aligns with current educational policies promoting multilingualism, cultural rootedness under New Education Policy in India, 2020. This paper examines the theoretical foundations of Gandhian holistic education, including its ethical, economic and cultural dimensions and evaluates its practical application in educational institutions. By situating Gandhi's ideas within the broader discourse of alternative and indigenous education systems, the study highlights their continuing relevance in addressing contemporary challenges such as value erosion, unemployment and alienation in modern schooling. The paper argues that Gandhi's model, though rooted in the socio-political context of colonial India, offers a sustainable and human-cantered approach to education in the 21st century.

Keywords: Gandhian Education, Nai Talim, Holistic Learning, Basic Education, Value-Based Education, Self-Reliance

THE INTEGRATION OF FORMAL, NON-FORMAL AND INFORMAL EDUCATION AS A MECHANISM FOR THE EDUCATIONAL INCLUSION OF ROMA PUPILS: THE EXPERIENCE OF BLAGOEVGRAD MUNICIPALITY

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Abstract

This article examines the mechanism through which the integration of formal, non-formal and informal education functions as an instrument for the educational inclusion of Roma pupils in Blagoevgrad Municipality. Drawing on in-depth interviews conducted with representatives of the municipal administration, experts from the local government, staff and educators of the Community Centre for Support of At-Risk Groups, and on documentary analysis of the applicable strategic documents, the article analyses the specific governance model of Blagoevgrad — a municipality in which no segregated schools exist and approximately 60 children of Roma origin are annually distributed evenly across the ten schools admitting first-graders. The analysis reveals that the sustainability of the model rests on the coordinated interaction of the three forms of education, on the institutionalised financing of mediator activity from the municipal budget, and on a realistic, gradual approach to building trust with Roma families. The article introduces the working concept of ‘institutionalised trust’ as a key explanatory factor for the sustainability of inclusive educational practices, formulates a theoretical and practical contribution to the literature on educational inclusion, and proposes recommendations for scaling the model.

Keywords: formal education, non-formal education, informal education, educational integration, Roma pupils, desegregation, educational mediator, institutionalised trust

**CHARACTERIZATION OF GREEN-SYNTHESIZED COPPER NANOPARTICLES USING KALE
(*Brassica oleracea* L. var. *Acephala*) EXTRACT AND INVESTIGATION OF THEIR
ELECTROSTATIC INTERACTIONS WITH DNA**

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Abstract

Advances in nanotechnology have significantly increased the use of metallic nanoparticles in biomedical applications. Copper nanoparticles (CuNPs) have attracted considerable attention due to their high electrical conductivity, catalytic activity, antimicrobial properties, and low cost. However, the oxidation-prone nature of copper makes the synthesis of stable nanoparticles challenging. Therefore, environmentally friendly and biocompatible green synthesis approaches have become increasingly important.

In this study, copper nanoparticles were synthesized via a green route using kale (*Brassica oleracea* L. var. *Acephala*) extract, a widely consumed vegetable in the Black Sea region of Türkiye. The phytochemical content of kale, rich in phenolic compounds, flavonoids, and ascorbic acid, facilitated both the reduction of Cu²⁺ ions and the stabilization of the nanoparticle surface.

The synthesized nanoparticles were characterized by FT-IR, SEM, and EDX techniques. FT-IR results confirmed the presence of plant-derived functional groups on the nanoparticle surface, SEM images revealed the morphological features of the nanoparticles, and EDX analysis verified the successful formation of copper-based nanostructures.

The interactions of CuNPs with DNA were investigated by UV–Vis absorption titration, competitive fluorescence spectroscopy, and agarose gel electrophoresis. The obtained results demonstrated that the nanoparticles interact with DNA predominantly through an electrostatic binding mode.

These findings indicate that the green-synthesized CuNPs possess promising potential for future applications in biomolecular targeting, gene delivery, and drug carrier systems. Moreover, this study contributes to sustainable nanomaterial production using local biological resources and highlights the biomedical relevance of plant-mediated copper nanoparticles.

Keywords: Nanoparticles, gene delivery, drug delivery, DNA binding.

BAZI TESCİLLİ EKMEKLİK BUĞDAY (*Triticum aestivum* sp.) GENOTİPLERİNDE *VRN* GENLERİNİN KÖK AÇILARINA ETKİSİ

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Özet

Dünyada en fazla ekim alanına sahip buğdayın üretimini etkileyen stres faktörlerinin başında kuraklık gelmektedir. Buğday üretiminin ülke ihtiyaçlarını karşılayabilmesi için kuraklığa toleranslı çeşitler geliştirilmesi buğday ıslah programları için önemli bir hedeftir. Kuraklığa tolerans çalışmalarında en bakir alanlardan biri kök mimarisi çalışmalarıdır. Bitki kök mimarisinin abiyotik stres koşulları altında bitki performansı üzerinde önemli bir etkisi bulunmaktadır. Kök özelliklerini etkileyen lokusların tane verimini ve agronomik performansı etkilediği kanıtlanırsa da, tahıllarda kök büyümesinin genetik kontrolü hakkında bilgi sınırlıdır. Ancak, son yapılan çalışmalarda hem kök büyümesinde hem de çiçeklenmede etkili olan vernalizasyon allellerinin (*Vrn*) durumları, buğdayda kök özelliklerini (özellikle kök büyüme açısı) belirlemede önemli rol oynadığını ortaya koymaktadır. Ancak kök özelliklerini arazi şartlarında belirlemek zordur, özel ekipmanlara ve uzman işgücüne ihtiyaç duyulmaktadır. Bu nedenle kök özellikleri için pratik fenotipleme yöntemlerinin eksikliği ıslah programları için önemli bir darboğazdır.

Bu çalışmada, bazı vernalizasyon genlerinin 21 adet tescilli ekmeklik buğday genotipinde kök açıları üzerindeki etkileri incelenmiştir. Genotipler PCR analizleri ile *Vrn* genleri açısından moleküler olarak taranmış ve *Vrn* gen kombinasyonları belirlenmiştir. Genotiplere ait tohumlar 3D yazıcı teknolojisi kullanılarak üretilen ve patenti alınan kök açısı ölçüm ekipmanına ekilerek 25 °C'ye ayarlanmış büyüme kabinde çimlendirilmiş ve erken dönemdeki (ekimden yaklaşık bir hafta sonra) kök açıları belirlenmiştir. Genotiplerin kök açıları 55°-130° arasında değişmiştir. Dominant *Vrn-D1* allelini taşıyan genotipler ile resesif *vrn-B1* alleli ile birlikte bulunan gen kombinasyonları genellikle daha dar kök açılara sahiptir. En dar kök açısı ile ilişkili allel kombinasyonu *Vrn-A1a x vrn-B1 x Vrn-D1* olarak bulunmuştur ve iki genotip (Altındane ve Tahirova-2000) bu grupta yer almaktadır. Sahip olduğu *Vrn* kombinasyonları nedeniyle bazı genotiplerin verim veya stress koşullarına dayanıklılık gibi konularda potansiyelleri olduğu düşünülmektedir. Sonuç olarak, pratik bir kök fenotipleme yöntemi kullanarak buğdayda kök açıları ve *Vrn* allel kombinasyonlarının ilişkileri ortaya konmuştur. Böylece kuraklık temelli araştırmalar başta olmak üzere bazı araştırmalarda genetik materyal olarak kullanılabilecek genotipler belirlenmiştir.

Anahtar Kelimeler: Ekmeklik buğday, *Vrn* genleri, Kök fenotipleme, kuraklık

EFFECT OF *VRN* GENES ON ROOT ANGLES IN SOME MODERN BREAD WHEAT (*Triticum aestivum* L.) GENOTYPES

Abstract

One of the main stress factors affecting the production of wheat, which has the largest cultivation area in the world, is drought. In order for wheat production to meet national demands, the development of drought-tolerant varieties is an important objective for wheat breeding programs. One of the least explored areas in drought tolerance studies is root architecture. Plant root architecture has a significant effect on plant performance under abiotic stress conditions. Although it has been proven that loci affecting root traits influence grain yield and agronomic performance, knowledge about the genetic control of root growth in cereals is still limited. However, recent studies have revealed that the status of vernalization alleles (*Vrn*), which are effective in both root growth and flowering, plays an important role in determining root traits in wheat, particularly root growth angle. However, determining root traits under field conditions is difficult and requires specialized equipment and skilled labor. Therefore, the lack of practical phenotyping methods for root traits is an important issue for breeding programs.

In this study, the effects of certain vernalization genes on root angles were investigated in 21 modern bread wheat genotypes. The genotypes were molecularly screened for *Vrn* genes using PZR analysis, and *Vrn* gene combinations were determined. Seeds of the genotypes were sown in a patented root angle measurement device produced using 3D printing technology, germinated in a growth chamber set at 25 °C, and root angles were determined at an early stage (approximately one week after sowing). The root angles of the genotypes ranged from 55° to 130°. Genotypes carrying the dominant *Vrn-D1* allele, together with gene combinations including the recessive *vrn-B1* allele, generally exhibited narrower root angles. The allele combination associated with the narrowest root angle was identified as *Vrn-A1a* × *vrn-B1* × *Vrn-D1*, and two genotypes (Altındane and Tahirova-2000) were included in this group. Due to their *Vrn* combinations, some genotypes are considered to have potential in terms of yield or tolerance to stress conditions. In conclusion, by using a practical root phenotyping method, the relationships between root angles and *Vrn* allele combinations in wheat were revealed. Thus, genotypes that can be used as genetic material in various studies, particularly drought-related research, have been identified.

Keywords: Bread wheat, *Vrn* genes, Root phenotyping, Drought

**MORPHOLOGY AND ANATOMY OF THE ENDEMIC SPECIES *GALANTHUS BURSANUS*
(AMARYLLIDACEAE)****Muhammet Eray YİĞİT¹**¹Master's Student, Bursa Uludağ University, Institute of Science, Department of Biology, Division of Botany, Bursa-Türkiye, (Responsible Author) ORCID: 0009-0006-2909-3281**Ceren AKTÜRK²**²Assist. Prof. Dr., Biruni University, Faculty of Pharmacy, Department of Pharmaceutical Botany, İstanbul-Türkiye, ORCID: 0000-0003-0927-7308**Özer YILMAZ³**³Prof. Dr., Bursa Uludağ University, Faculty of Science and Letters, Department of Botany, Bursa-Türkiye, ORCID: 0000-0003-1498-5827**Abstract**

The genus *Galanthus*, belonging to the family Amaryllidaceae, comprises species that are significant in terms of biodiversity and pharmacology. It is generally distributed across Europe, Anatolia, and the Near East. Türkiye, which is rich in *Galanthus* taxa, is also home to endemic species of this genus. In this study, the morphology and anatomical characteristics of the species *Galanthus bursanus*, which is endemic to Bursa, were examined. Some of the plant specimens collected from the field were preserved as herbarium specimens, and morphological examinations were conducted using a stereomicroscope. The specimens collected for anatomical studies were preserved in 70% alcohol, and hand-cut sections were prepared. The sections were mounted as permanent slides, examined under a light microscope, and photographed. According to data obtained from morphological analyses, the bulbs of this species measure an average of 2.73×1.75 cm, are oval-shaped, and whitish in color. The leaves measure $2-7.9 \times 0.1-0.2$ cm, and the perigon consists of six segments; there are distinct morphological differences between the outer and inner tepals. Anatomical studies have shown that the leaf epidermis is single-layered and typically square in shape, though it is sometimes rectangular. Stomata are generally located at the epidermal level, though they are rarely found below it. The cross-section of the stem shows a single-layered epidermis, and the vascular bundles are scattered. In the vascular region, the parenchyma cells are generally oval to elliptical and exhibit a heterogeneous structure in terms of cell size. In the cross-section of the root, dense hairs are observed on the outermost layer, along with parenchyma cells that are mostly oval and densely arranged.

Keywords: *Galanthus bursanus*, endemic, Turkish flora, biodiversity.

BAĞCILIKTA HASSAS TARIM TEKNOLOJİLERİNİN KULLANIMI**Zir. Müh. Kanivar SÖNMEZ**Tarım ve Orman Bakanlığı / Derik İlçe Tarım ve Orman Müdürlüğü
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Zirai üretimdeki ürün çeşitliliği, yetiştiricilik sahalarının çok değişik olması ve tarımın yoğun emekle yapılmasından dolayı zirai faaliyetler sırasında birçok meseleyle yüzyüze kalınmaktadır. Zirai üretim ve yetiştiricilik esnasında ekonomik kriz, hastalık, zararlı, kuraklık, sel, dolu gibi farklı zorluk ve belirsizlikle mücadele edilmektedir. Teknolojinin sunduğu teknik imkanlar, birçok zirai işlemin kolaylaştırılmasını, mevcut bazı meselelere alternatif çözümler sunmasını ve bilhassa üretim ve uygulamaların doğru ve zamanında yapılmasını sağlaması ile, zirai üretimin faydalı, verimli ve nitelikli yapılmasına mühim katkılar sağlamaktadır. Bu çalışmanın esas amacı, bağcılıkta hassas tarım teknolojilerinin kullanımını ve bu teknolojilerin üretim verimliliği ile ürün kalitesi üzerindeki etkilerini kapsamlı biçimde incelemektir. Günümüzde hızla gelişen dijital tarım uygulamaları, bağ alanlarının daha doğru, veriye dayalı ve sürdürülebilir bir şekilde yönetilmesine imkân tanımaktadır. Bu bağlamda çalışmada öncelikle hassas tarım kavramı tarif edilecek ve bağcılıkta kullanılan temel teknolojiler teferruatıyla ele alınacaktır. Araştırma kapsamında bilhassa drone sistemleri, uzaktan algılama yöntemleri, toprak ve bitki sensörleri ile Coğrafi Bilgi Sistemleri gibi teknolojilerin bağ yönetimindeki rolü incelenecektir. Bu teknolojiler sayesinde üreticiler, bağ içindeki farklılıkları daha net bir şekilde gözlemleyebilmekte ve buna bağlı olarak sulama, gübreleme ve ilaçlama gibi uygulamaları daha isabetli şekilde gerçekleştirebilmektedir. Ayrıca söz konusu sistemlerin, su kaynaklarının verimli kullanımı, gübreleme süreçlerinin optimize edilmesi ve hastalıkların erken aşamada tespit edilmesi gibi kritik alanlardaki katkıları da değerlendirilecektir. Çalışmada yöntem olarak literatür taraması tercih edilmekte olup, güncel ilmi araştırmalar ve akademik çalışmalar ışığında hassas tarım uygulamalarının bağcılıktaki yararı ortaya konulacaktır. Bunun yanı sıra Türkiye’de bu teknolojilerin kullanım seviyesi, yaygınlığı ve gelecekteki potansiyeli de incelenecektir. Sonuç bölümünde ise hassas tarım teknolojilerinin bağcılıkta sürdürülebilir üretim maliyetlerin azaltılması ve verim artışı açısından sağladığı katkılar bütüncül bir bakış açısıyla değerlendirilecektir.

Anahtar Kelimeler: Hassas Tarım, Bağcılık, Uzaktan Algılama, Coğrafi Bilgi Sistemleri**USE OF PRECISION AGRICULTURE TECHNOLOGIES IN VITICULTURE****Abstract**

Due to the diversity of crops in agricultural production, the wide variation in cultivation areas, and the labor-intensive nature of farming, numerous challenges are encountered during agricultural activities. During production and cultivation, various difficulties and uncertainties such as economic crises, diseases, pests, drought, floods, and hail must be addressed. The technical capabilities offered by technology significantly contribute to making agricultural production more efficient, effective, and high-quality by facilitating many agricultural operations, providing alternative solutions to existing problems, and ensuring that production and practices are carried out accurately and on time. The main objective of this study is to comprehensively examine the use of precision agriculture technologies in viticulture and their effects on production efficiency and product quality. Today, rapidly developing digital agriculture applications enable vineyard areas to be managed more accurately, based on data, and in a sustainable manner. In this context, the study first defines the concept of precision agriculture and then discusses in detail the main technologies used in viticulture.

Within the scope of the research, particular attention is given to examining the role of technologies such as drone systems, remote sensing methods, soil and plant sensors, and Geographic Information Systems in vineyard management. Through these technologies, producers can more clearly observe variations within vineyards and, accordingly, perform practices such as irrigation, fertilization, and pesticide application more accurately. In addition, the contributions of these systems in critical areas such as efficient use of water resources, optimization of fertilization processes, and early detection of diseases are also evaluated. The study adopts a literature review method, and in light of current scientific research and academic studies, it aims to reveal the benefits of precision agriculture applications in viticulture. Furthermore, the level of use, prevalence, and future potential of these technologies in Türkiye are also examined. In the conclusion, the contributions of precision agriculture technologies to sustainable production in viticulture, cost reduction, and increased productivity are evaluated from a holistic perspective.

Keywords: Precision Agriculture, Viticulture, Remote Sensing, Geographic Information Systems

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İklim unsuru, atmosfer, karalar, kar ve buz, okyanuslar ve diğer su kütleleriyle canlıları kapsayan karmaşık ve etkileşimli bir sistemdir. Bu sistem, zaman içinde, kendi iç dinamiklerinin etkisi altında veya dış etmenlerdeki değişikliklere bağlı olarak yavaş yavaş değişim gösterir. Dış zorlamalar, volkanik patlamalar ve güneşle ilgili değişkenlikler gibi tabii olaylar ile atmosferin bileşimindeki insan kaynaklı değişiklikleri içerir. Bu çalışmanın amacı, iklim değişikliği olgusunun bağcılık faaliyetleri üzerindeki etkilerini çok yönlü ve sistematik bir biçimde incelemektir. Son yıllarda küresel ölçekte gözlemlenen sıcaklık artışları, düzensiz yağış rejimleri ve kuraklık gibi iklimsel değişkenler, zirai üretim süreçlerini doğrudan etkilemekte; bu hal bilhassa bağcılık sektöründe verim, kalite ve hastalık dinamikleri açısından değişimlere değişimlere yol açmaktadır. Çalışmada evvela iklim değişikliği kavramı ele alınarak zirai üretim üzerindeki genel etkileri açıklanacaktır. Devamında, bağcılık özelinde artan sıcaklıkların üzümün fenolojik gelişim devrelerine, şeker ve asit dengesi üzerine etkilerine ve hasat zamanındaki değişimlere olan yansımaları teferruatlı olarak irdelenecektir. Ayrıca kuraklık ve su stresi gibi unsurların bağ verimliliği üzerindeki etkileri değerlendirilerek üretim süreçlerinde oluşan değişimler ortaya konulacaktır. Bunun yanı sıra, artan sıcaklıkların bitki hastalıkları ve zararlı popülasyonları üzerindeki etkileri analiz edilerek, bağ sağlığı açısından oluşabilecek riskler ele alınacaktır. Araştırma yöntemi olarak literatür taraması tercih edilmekte olup, ulusal ve uluslararası akademik çalışmalar incelenerek Türkiye bağcılığına yönelik çıkarımlar yapılacaktır. Sonuç olarak bu çalışmada, iklim değişikliğinin bağcılık üzerindeki olumsuz etkilerinin ortaya konulması ve bu etkilerin azaltılmasına yönelik uyum stratejilerinin geliştirilmesi amaçlanmaktadır. Elde edilecek bulguların, sürdürülebilir bağcılık uygulamalarına katkı sağlaması ve gelecekteki üretim planlamalarına ışık tutması beklenmektedir.

Anahtar Kelimeler: İklim değişikliği, Bağcılık, Kuraklık, Fenoloji**IMPACTS OF CLIMATE CHANGE ON VITICULTURE****Abstract**

Climate is a complex and interactive system that includes the atmosphere, land, snow and ice, oceans, other bodies of water, and living organisms. This system changes gradually over time under the influence of its internal dynamics or due to variations in external factors. External forcings include natural events such as volcanic eruptions and solar variability, as well as human-induced changes in the composition of the atmosphere. The aim of this study is to examine the effects of climate change on viticulture activities in a comprehensive and systematic manner. In recent years, climatic variables such as globally observed temperature increases, irregular precipitation regimes, and drought have directly affected agricultural production processes; this situation has led to changes particularly in terms of yield, quality, and disease dynamics in the viticulture sector. In the study, the concept of climate change is first addressed, and its general effects on agricultural production are explained. Subsequently, in the context of viticulture, the impacts of increasing temperatures on the phenological development stages of grapes, on sugar–acid balance, and on changes in harvest timing are examined in detail. In addition, the effects of factors such as drought and water stress on vineyard productivity are evaluated, and the resulting changes in production processes are presented. Furthermore, the effects of rising temperatures on plant diseases and pest populations are analyzed, and

potential risks to vineyard health are discussed. The study employs a literature review method, examining national and international academic studies to derive implications for viticulture in Türkiye. In conclusion, this study aims to reveal the negative impacts of climate change on viticulture and to develop adaptation strategies to mitigate these effects. The findings are expected to contribute to sustainable viticulture practices and to guide future production planning.

Keywords: Climate Change, Viticulture, Drought, Phenology

STRUCTURAL, MORPHOLOGICAL AND OPTICAL PROPERTIES OF STRONTIUM HEXAFERRITES $\text{SrFe}_{12-x}\text{Al}_x\text{O}_{19}$ ($x = 1, 1.5, 2$, and 2.5) SYNTHESIZED VIA SOL–GEL AUTO-COMBUSTION**Z. Rachyq^{a,*}, Z. Yamkane^a, M. Sadik^a, R. Moubah^a, M. Abdellaoui^{b,c}, M. El Achaby^d**^a LPMAT, Faculty of Sciences Ain-Chock, Hassan II University of Casablanca, BP 5366, Maarif, Casablanca, Morocco^b Laboratory of Condensed Matter and Interdisciplinary Sciences (LaMCScl), Faculty of Sciences, Mohammed V University in Rabat, Ibn Battouta Avenue, Rabat, P.O.Box 1014, Morocco^c National Center for Scientific and Technical Research (NCSTR), Rabat, Morocco^d Department of Materials Science, Energy and Nanoengineering (MSN), Mohammed VI Polytechnic University (UM6P), Ben Guerir, Morocco.**Abstract**

In this work, we report on the synthesis and systematic investigation of the structural, morphological and optical properties of aluminum-substituted strontium hexaferrites $\text{SrFe}_{12-x}\text{Al}_x\text{O}_{19}$ ($x = 1, 1.5, 2.0$, and 2.5), prepared via the sol–gel auto-combustion route. X-ray diffraction (XRD) analysis, complemented by Rietveld refinement, confirms the formation of a single-phase hexagonal M-type structure (space group $P6_3/mmc$, JCPDS card no. 96-100-6003), with a systematic contraction of the lattice parameters upon increasing Al content. Williamson–Hall analysis indicates a concurrent reduction in crystallite size and microstrain, reflecting the influence of Al substitution on the microstructural features. Scanning electron microscopy (SEM) observations reveal well-defined hexagonal platelet-like grains, with a progressive decrease in grain size as a function of Al concentration, while energy-dispersive X-ray spectroscopy (EDS) confirms the compositional homogeneity of the samples. In addition, the optical properties were investigated using UV–Vis absorption spectroscopy in the wavelength range of 200–1000 nm. The results reveal a slight decrease in the optical band gap energy from 4.19 eV to 4.08 eV with increasing Al doping, which may be attributed to modifications in the electronic band structure of the material.

Keywords: $\text{SrFe}_{12-x}\text{Al}_x\text{O}_{19}$, Structural analysis, Morphological analysis, M-type hexaferrites, Sol–gel auto-combustion, Optical band gap, Aluminum doping.

ACTIVATION STRATEGIES TO DECORATE POROUS CARBONS FROM CRUSTACEAN SHELL

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Abstract

The seafood industry discards significant quantities of crustacean wastes annually, presenting both environmental challenge and resource opportunity. This work explores the next strategies in porous carbons manufacture from crustacean wastes for water pollutants removal. Possible chemical activation methods by sodium hydroxide, potassium hydroxide, zinc chloride and phosphoric acid were discussed to shed insights into the textural formation that enhances the pore volume and surface area of adsorbent. Recent studies were captured and analyzed, and the areas to be further explored, *i.e.*, recovery of activators to be used in subsequent activation, regeneration strategies to reclaim the performance of spent adsorbent and column adsorption to mimic industrial setting were also highlighted. Finally, this work offers practical solutions for resource recovery and wastewater treatment, contributing to environmental conservation and circular waste management practices.

Keywords: Activation strategies; porous adsorbent; resource recovery; regeneration; wastewater treatment.

MICROPLASTICS IN FOOD SYSTEMS: DIETARY EXPOSURE AND EMERGING HEALTH RISKS IN NORTH AFRICA

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Abstract

The increasing use of plastic materials in food production and packaging has led to the widespread presence of microplastics (MPs) in everyday diets. These particles have been detected in a variety of commonly consumed products, including bottled water, seafood, salt, and ultra-processed foods, raising concerns about their potential impact on human health.

In low- and middle-income countries, particularly in North Africa, rapid changes in dietary patterns and growing dependence on packaged foods may contribute to increased exposure, while monitoring and regulatory frameworks remain limited. This situation highlights a structural gap between evolving food systems and public health protection.

This study aims to explore dietary exposure to microplastics in the North African context by synthesizing recent scientific literature (2020–2024) and examining major food sources of contamination. A qualitative analytical approach was used to identify key exposure pathways and emerging health concerns.

The findings indicate that dietary exposure to microplastics is diffuse but potentially significant, with major contributions from bottled water, seafood, and industrially processed foods. Although human evidence remains limited, experimental studies suggest possible biological effects, including inflammation, endocrine disruption, and alterations in gut microbiota.

These results underline the need for increased awareness and integrated strategies to address this emerging risk. Strengthening regulatory frameworks, improving monitoring systems, and promoting safer food environments are essential steps, particularly in vulnerable regions.

Keywords: Microplastics; Dietary exposure; Environmental health; Food systems; North Africa; Endocrine disruption; Sustainability; Food packaging

EFFECT OF SHOE BASE CONTACT AREA ON HEEL PRESSURE AND FOOT PAIN IN PROLONGED STANDING OCCUPATIONS: A BIOMECHANICAL AND ERGONOMIC STUDY

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Abstract

Prolonged standing in the hospitality industry is associated with a high prevalence of foot pain, yet the role of the shoe base contact area remains understudied. This study investigated the effect of heel contact area on plantar pressure distribution and foot pain among 176 hotel hostesses. Plantar pressure was calculated from footprint images using ImageJ, and pain was assessed via Visual Analogue Scale (VAS). Multiple linear regression revealed that heel contact area was the dominant predictor of heel pressure ($\beta = -1,421 \text{ Pa/cm}^2$, $p < 0.0001$), with body weight having an 11-times smaller effect. Sole material (PVC, EVA, mixed) showed no significant effect ($p = 0.889$). Heel pressure correlated strongly with heel pain ($r = 0.862$). A redesigned shoe with enlarged heel area ($\approx 24 \text{ cm}^2$ increase) predicted a 29% reduction in heel pressure ($p < 0.0001$), bringing all values below the 65 kPa clinical pain threshold. These findings demonstrate that increasing heel contact area is an effective, low-cost design strategy to reduce occupational foot pain.

Keywords: Footwear biomechanics, Heel contact area. Plantar pressure, Prolonged standing, Occupational foot pain

ASSESSMENT OF COASTAL WATER QUALITY USING SATELLITE DATA FOR STRATEGIC PLANNING OF SEAWATER DESALINATION FACILITIES

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Abstract

Water scarcity is an increasingly critical challenge in arid and semi-arid regions such as Morocco, where climate change, population growth, and prolonged droughts are intensifying pressure on conventional water resources. In this context, seawater desalination has emerged as a strategic solution to ensure water security. This study proposes an integrated approach based on satellite remote sensing, Geographic Information Systems (GIS), and spatial analysis to assess coastal water quality and support the strategic planning of desalination facilities. Satellite data, including Sentinel-2 and Landsat imagery, are used to derive spatial distributions of turbidity and salinity indicators, providing a cost-effective and large-scale alternative to conventional field measurements. Previous studies conducted in Morocco have demonstrated the reliability of remote sensing techniques for monitoring coastal water quality and spatiotemporal variability, highlighting their relevance for environmental assessment and decision-making. The methodology integrates satellite-derived parameters with additional spatial criteria, such as coastal characteristics, land use, and infrastructure accessibility, within a GIS-based framework. Furthermore, machine learning techniques are applied to classify coastal zones according to their suitability for desalination plant implementation. The findings of this study contribute to sustainable coastal planning in Morocco by improving desalination site selection and reducing environmental impacts. It also highlights the growing role of Earth observation technologies in enhancing water resource management in water-stressed regions.

Keywords: Remote sensing Coastal, water quality, Desalination, Machine learning, Morocco

RECENT ADVANCED IN BIO-BASED MATERIALS SURFACE FUNCTIONALIZATION FOR THE REMOVAL OF HEAVY METALS AND DYES AND FROM WASTEWATER

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Abstract

Natural, biodegradable, and water-soluble biopolymers are attracting increasing interest in the field of wastewater treatment. This study presents a bibliographic review focused on the use of bio-based materials for the removal of dyes and heavy metals in aqueous media. Different material forms, such as hydrogels, films, and beads, are analyzed according to their adsorption performance. The main parameters influencing this process are examined, including initial concentration, contact time, pH, and adsorbent dosage. The interaction mechanisms between these materials and pollutants, including electrostatic and physicochemical interactions, are discussed based on the existing literature. This synthesis highlights the promising potential of bio-based materials as ecological and cost-effective solutions for the treatment of contaminated water, while emphasizing current challenges and future perspectives.

Keywords: Biopolymers, Adsorption, Wastewater treatment, Dyes removal, Hydrogels, Eco-friendly materials.

PREDICTIVE MODELING OF CONVERSION AND SUSTAINABILITY METRICS IN CATALYTIC REACTIONS USING DEEP LEARNING AND FEEDFORWARD NETWORKS**Rafael Alexandre Pinho LOPES**

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Abstract

The search for chemical routes demands intensive laboratory tests to evaluate variables such as temperature, reagent concentrations, and catalysts. Classical empirical approaches, such as OFAT (One Factor at a Time) and DOE (Design of Experiments), work well in simple scenarios but fail in high-dimensional spaces due to the large number of parameters. In this context, machine learning (ML), with an emphasis on Deep Learning (DL), emerges as a solution to analyse non-linearities and suggest more efficient and accurate experimental conditions for chemical routes. This study applies DL to the optimisation of chemical reactions in a continuous stirred-tank reactor (CSTR), combining fundamental theory with computational simulations. The main objective is to employ DL to enhance yield, sustainability, and economic viability in reaction processes. The model considers the conversion of the main reagent, molar balances for components in each tank, and heterogeneous catalytic reaction kinetics following the Langmuir-Hinshelwood mechanism for the reaction $A + B \rightarrow P$, with adsorption on active sites and thermal dependencies via Arrhenius and van't Hoff. The energy balance includes reaction terms, heat exchange with the wall, and losses to the environment through convection and radiation. Synthesis parameter data will be generated by varying temperature, initial reagent concentrations, catalyst, and reaction time, with Gaussian noise added to simulate experimental uncertainties. Initially around 200 samples, expanding to 10,000, divided into training (70%), validation (15%), and testing (15%). DL models predict conversion and yield, evaluated by error metrics such as mean absolute error. Initial results show feedforward networks approximating kinetics with precision, while CNNs extract multidimensional patterns. In the future, validation with real experimental data and integration of active learning for autonomous experiments are planned, overcoming traditional limitations.

Keywords: Deep Learning, CSTR Reactor, Chemistry Optimization, Langmuir-Hinshelwood.

ROUTE FOR CAOS AND CONTROL BY PYRAGAS IN A TREE VARIABLE CHEMICAL REACTION

Gabrielle Oliveira da SilvaUNESP, Institute of Chemistry, <https://orcid.org/0009-0008-7549-6668>**Prof. Dr. Henrique Antonio Mendonça Faria**UNESP, Institute of Chemistry, <https://orcid.org/0000-0001-6976-6897>**Prof. Dr. Fábio Roberto Chavarette**UNESP, Institute of Chemistry, <https://orcid.org/0000-0002-1203-7586>**Abstract**

This work analyses the nonlinear dynamic behaviour of a three-dimensional chemical model that describes the temporal evolution of the concentrations of three intermediate species coupled by autocatalytic mechanisms, cross-interactions, and Michaelis–Menten saturation terms. Initially, the transition between dynamic regimes was investigated by varying a kinetic parameter associated with the system's positive feedback. The system's dynamics are qualitatively characterized using a bifurcation diagram, constructed from the local maxima of the trajectories, and quantitatively by calculating the highest Lyapunov exponent. The results show a classic route to chaos by period doubling, culminating in a chaotic regime characterized by extreme sensitivity to initial conditions. Subsequently, the time-delayed feedback control method proposed by Pyragas (TDAS) is applied to suppress the chaotic behavior. The control was implemented non-invasively in one of the system variables, stabilizing an unstable periodic orbit embedded in the chaotic attractor. Numerical simulations demonstrate that the method is effective in regularizing dynamics, making behavior predictable during control operation without permanently modifying the system structure. From an industrial perspective, the results obtained are particularly relevant for chemical and biochemical processes operating under strong nonlinearity, such as continuous reactors, complex catalytic systems, and reaction networks with autocatalytic steps. Identifying chaotic regimes and their transition routes allows for the avoidance of undesirable operating conditions, increasing process stability, reproducibility, and safety. Furthermore, the application of nonlinear control strategies enables the maintenance of regular, small-amplitude oscillatory regimes, which can result in greater operational efficiency, better product quality control, and reduced losses associated with unpredictable fluctuations. Thus, this study contributes to the design and operation of more robust, predictable, and energy-efficient industrial processes.

NUTRITIONAL AND TOXICOLOGICAL ASSESSMENT OF DRIED FRUITS USING ATOMIC ABSORPTION SPECTROMETRY, MOROCCO

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Abstract

The consumption of dried fruit is increasing due to its nutritional properties and health benefits. Fruits can contain and accumulate heavy metals, depending on where they are grown and the natural properties of the plants, and thus contribute to the dietary intake of metals in humans. In recent years, nuts have attracted increasing public attention as an important source of certain essential elements, and information on the element content of edible nuts is useful to consumers. Determining the elemental distribution in nuts is necessary not only to assess the total dietary intake of essential elements, but also to detect heavy metal contamination in food. In this study, we assessed the levels of essential elements such as Cu, Fe and Zn, and toxic elements such as Pb and Cd in a total of five samples of different nuts, which are widely consumed in Morocco. These elements were determined in samples mineralised with HNO₃, using atomic absorption spectrophotometry (AAS) as the analytical technique. The reliability of the procedure was verified using aqueous standard solutions for calibration. In loose dried fruit, concentrations ranged from 0.09 to 0.81 mg/g for copper, from 0.24 to 0.94 mg/g for iron, from 0.35 to 0.2 mg/g for zinc, from 0.01 to 0.04 mg/kg for cadmium, and from 0.002 to 0.006 mg/kg for lead. In packaged dried fruit, levels ranged from 0.03 to 0.14 mg/g for Cu, 0.26 to 0.71 mg/g for Fe, 0.25 to 0.91 mg/g for Zn, 0.02 to 0.04 mg/kg for Cd, and 0.005 to 0.009 mg/kg for Pb. Statistical analysis shows a significant difference between loose dried fruit and packaged dried fruit at the threshold ($P < 0.005$).

Keywords: Heavy metals; Dried fruit; Atomic absorption spectrophotometry

EXTRACT PLANT AS CORROSION INHIBITOR FOR CARBON STEEL IN HYDROCHLORIC ACID MEDIUM**Selmaoui Abdelmoula**

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Abstract

Corrosion is a pervasive issue that significantly compromises the integrity and longevity of metallic materials, especially when they are exposed to aggressive environments such as those containing hydrochloric acid. To mitigate the damaging effects of corrosion, a variety of preventive and control strategies have been developed. Among these, the use of corrosion inhibitors has proven to be one of the most effective methods. Inhibitors function by forming a protective film on the metal surface, thereby reducing or completely halting the electrochemical reactions responsible for corrosion. Traditionally, many of these inhibitors have been synthetic compounds, some of which are effective but often pose environmental and health concerns due to their toxicity and the presence of heavy metals.

In recent years, there has been a growing interest in the use of natural, plant-based extracts as corrosion inhibitors. These natural substances offer a promising alternative, particularly in industries where sustainability and environmental impact are key concerns. Plant extracts are rich in organic compounds such as alkaloids, tannins, flavonoids, and other polyphenols, which have been found to absorb effectively on metal surfaces and inhibit corrosion. Their biodegradable nature ensures they break down harmlessly in the environment, and their non-toxic composition makes them safe for use in a wide range of applications, including those involving human exposure or ecological sensitivity.

Moreover, plant-derived inhibitors are often sourced from agricultural by-products or common vegetation, making them a cost-effective solution. Their renewable nature adds to their appeal as industries increasingly seek to adopt greener practices. As a result, extensive research is now being directed toward identifying, characterizing, and optimizing plant extracts for corrosion inhibition. The development and utilization of such eco-friendly inhibitors not only address corrosion-related challenges but also align with global efforts to minimize environmental degradation and promote sustainable industrial practices.

Keywords: corrosion-inhibitor, plant extract, carbon steel

**EFFECTIVENESS OF SHELL-WASTE-DERIVED NPS IN MITIGATING CARBON STEEL
DEGRADATION IN WASTE SOYBEAN OIL**

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Abstract

In recent years, the use of biodiesel as a sustainable alternative to conventional fossil fuels has increased considerably. Nevertheless, serious concerns persist regarding its potential to accelerate metal corrosion. This issue mainly arises from the presence of impurities particularly water which can promote the formation of acidic environments within fuel tanks, ultimately leading to the degradation of metals employed in fuel storage and transportation systems.

The present study aims to investigate the corrosion behavior of carbon steel in biodiesel produced from waste soybean oil using a homogeneous catalyst. The metal's electrochemical performance was evaluated through open circuit potential (OCP), electrochemical impedance spectroscopy (EIS), and polarization curve measurements conducted at room temperature during storage. Furthermore, spectroscopic analyses namely FTIR, GC-MS, and UV-Vis spectroscopy were employed to monitor compositional changes in the biodiesel before and after exposure. The surface morphology and elemental composition of the corroded metal were characterized by SEM/EDX and UV-Vis-NIR absorption analysis. Additionally, the potential inhibitory effect of the Nps-Derived on biodiesel-induced corrosion was examined through weight loss measurements over a 30-day period and complementary electrochemical techniques.

Keywords: Biodiesel, carbon steel, corrosion, inhibitor, shell biowaste

SURFACE CHARACTERIZATION OF Ni-Cr DENTAL ALLOYS PROTECTED BY NATURAL PLANT EXTRACTS IN SIMULATED SALIVA

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Abstract

This study focuses on the surface modification of nickel-chromium (Ni-Cr) dental alloys through the application of natural plant extracts acting as eco-friendly corrosion inhibitors. The investigation prioritizes the physical and chemical state of the alloy surface after exposure to a simulated oral environment.

The surface morphology was evaluated using Scanning Electron Microscopy (SEM), which demonstrated a clear reduction in corrosive attack and surface roughness in the presence of the extracts. Energy-Dispersive X-ray Spectroscopy (EDS) was utilized to determine the elemental composition of the surface layer, confirming the adsorption of organic molecules from the plant extracts onto the metallic substrate. Furthermore, X-ray Diffraction (XRD) analysis was performed to examine the structural state of the alloy surface following the inhibition process.

The integration of spectroscopic and chromatographic data (FTIR, HPLC-MS) identifies the specific functional groups responsible for the interaction at the metal/electrolyte interface. The results indicate that the plant extracts effectively cover the active sites of the alloy, significantly limiting the release of metallic ions. These findings highlight the role of natural compounds in altering the surface properties of Ni-Cr alloys to enhance their corrosion resistance under physiological conditions

Keywords: Dental alloy corrosion, Surface Characterization, Plant extract, Adsorption, Scanning Electron Microscopy.

INFLUENCE OF SOIL AND CLIMATIC FACTORS ON THE CHEMICAL PROFILE AND
ANTIOXIDANT PROPERTIES OF SIMONASEULI WINE

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Abstract

Simonaseuli is a rare Georgian grape variety which, according to recent studies, has antioxidant properties comparable to the main Georgian red grape variety, Saperavi.

The aim of our research is to determine the influence of soil and climatic factors on the main chemical profile and antioxidant activity of Simonaseuli wine.

The study is based on field and laboratory data, including agrochemical soil analysis (phosphorus, nitrogen, potassium), as well as soil moisture levels and precipitation dynamics for the years 2024–2025. The second part of the research focuses on studying the chemical characteristics of Simonaseuli wine produced using wild yeast fermentation. The following parameters were determined: alcohol content, titratable and volatile acidity, residual sugars, and certain bioactive components such as total phenols, flavonoids, anthocyanins (pH differential method), and antioxidant activity (uDPPH method).

The results show a significant influence of soil mineral composition and climatic factors on the wine. The experiment demonstrates a relationship between the chemical profile of Simonaseuli wine produced with wild yeast and the soil-climatic factors of different geographical areas in the left bank zone of the Alazani Valley.

Keywords: Winemaking, Simonaseuli, Soil, Climate change

COMPREHENSIVE SCREENING BY LC-ESI-QTOF-MS/MS FOR PROFILING OF POLYPHENOLS AND ANTIOXIDANT ACTIVITIES IN SELECTED AUSTRALIAN PLANTS

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Leguminous plants of Fabaceae family are widely recognized for their ethnomedicinal significance and pharmacological potential, distributed across Australia. Study was focused on phytochemical profiling of polyphenolic compounds and their antioxidant activities in selected plant species for their food application as Nutraceutical/ functional foods. Comprehensive profiling and tentative identification of polyphenolic compounds were also performed using LC-ESI-QTOF-MS/MS analysis. Among the evaluated species, total phenolic content was observed highest in *Acacia harpophylla*, *Lysiphyllum hookeri*, and *Peltophorum pterocarpum* (157 mg GAE/g). Flavonoids were exhibited highest quantity in *Calliandra houstoniana* (6.74 mg QE/g) and *Neptunia monosperma* 6.63 mg QE/g). Total condensed tannins were most abundant in *L. hookeri* and *N. monosperma* (66.4 mg CE/g). The radical scavenging activities (DPPH, ABTS) were greater in *P. pterocarpum* (DPPH = 311 mg AAE/g; ABTS = 64.0 mg AAE/g). These results of antioxidant assays demonstrated that plants with higher TPC had a stronger antioxidant activity. Compound identification analysis tentatively identified 52 polyphenolic compounds including phenolics (18), flavonoids (22), lignans (2), stilbenes (1) and other polyphenols (9). Current study findings highlight the potential of Australian Aboriginal medicinal plants as potential source of polyphenolic compounds and may suggest their potential applications as functional ingredients in foods and nutraceuticals.

Keywords: Aboriginal medicinal flora, plant-derived antioxidants, Bioactive compounds, Fabaceae, Polyphenols, LCMS-QToF

EXPERIMENTAL EVALUATION OF SWIMMING PERFORMANCE AND SOCIAL BEHAVIOR IN ZEBRAFISH (DANIO RERIO) IN A DOSE-RESPONSE FRAMEWORK

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Abstract

In natural aquatic ecosystems, organisms are constantly exposed to complex mixtures of pollutants, with the simultaneous presence of antibiotics and heavy metals representing a major environmental problem. Given that these contaminants are found in the environment in combination, and not individually, the aim of this study was to evaluate the synergistic impact of exposure to amoxicillin and methylmercury on the zebrafish biological model, as well as the potential modulatory role of alpha-lipoic acid. The experimental design included four groups: a control group, a group treated with alpha-lipoic acid, a group exposed to a mixture of amoxicillin and methylmercury, and a group subjected to co-exposure to both toxic substances together with alpha-lipoic acid.

Swimming performance was assessed by quantifying parameters such as total distance traveled and speed, while sociability was analyzed using the T-maze paradigm, offering fish the choice between an arm with social stimuli and one without. The results suggest that the presence of these pollutants in combination modulates activity levels and significantly alters sociability patterns, indicating a direct link between physiological performance and social decisions. The study also highlights that alpha-lipoic acid can influence these behavioral responses, providing important insights into how substances with antioxidant potential may interact with environmental pollutants. These findings highlight the utility of combining motor and sociability tests for a comprehensive neurobehavioral assessment in toxicology research.

Keywords: co-exposure, amoxicillin, methylmercury, alpha-lipoic acid, neurobehavior.

STUDY OF NOBLE METAL STABILIZED MAGNETIC NANOPARTICLES FOR BIOMEDICAL APPLICATIONS

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Abstract

In this study, magnetic nanoparticles were synthesized using an adapted chemical coprecipitation method and subsequently stabilized with a noble metal coating. The nanoparticles were characterized through a series of microstructural and magnetic techniques, including SEM, TEM, XRD, and VSM, which confirmed their morphology, crystalline structure, and magnetic behavior in agreement with literature data.

After confirming the structural and magnetic integrity of the nanoparticles, their biological performance was investigated through antibacterial assays. The antimicrobial activity was evaluated against two representative bacterial strains: *Staphylococcus aureus* (Gram-positive) and *Escherichia coli* (Gram-negative). The results revealed measurable antibacterial effects, indicating that the noble-metal-stabilized magnetic nanoparticles possess promising antimicrobial properties.

Overall, the study highlights the successful synthesis, stabilization, and characterization of the nanoparticles, as well as their potential antibacterial activity, supporting their relevance for future biomedical and antimicrobial applications.

Keywords: noble metal, magnetic nanoparticles, *Escherichia coli*, *Staphylococcus aureus*

EVALUATING THE BEHAVIORAL IMPACT OF IRON OXIDE NANOPARTICLE IN A MODEL OF ALZHEIMER'S-TYPE COGNITIVE IMPAIRMENT INDUCED IN ZEBRAFISH

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Abstract

This study investigates the complex impact of iron oxide nanoparticle administration on cognitive performance using a zebrafish (*Danio rerio*) experimental model. To simulate the pathophysiology of Alzheimer's disease, scopolamine, a muscarinic antagonist was utilized to induce a transient cholinergic deficit, resulting in significant impairments in spatial learning and memory retention.

The experimental framework employed a robust suite of behavioral assays, to quantify alterations in exploratory behavior and mnemonic function. Preliminary results indicate that while iron oxide nanoparticles hold potential for targeted therapeutic delivery, their interaction with the blood-brain barrier and the central nervous system remains a critical variable. The study focuses on the direct correlation between iron oxide nanoparticle exposure and the exacerbation or mitigation of scopolamine-induced deficits. Through precise behavioral monitoring, the research evaluates how these nanoparticles influence cognitive markers, such as turn preference in the T-maze and exploratory drive in the New Object Recognition test. These observations serve as a critical baseline for identifying the neurotoxicological profile of iron oxide nanoparticles, ensuring that their application in neurodegenerative models does not interfere with essential learning and memory retention processes.

The study highlights the need for further research to determine in greater detail the effects of administering this type of nanoparticle, as well as the neurotoxic potential of iron oxide nanoparticles.

Keywords: Alzheimer's disease, iron oxide nanoparticles, scopolamine

THE ACUTE PHARMACOLOGICAL EFFECTS OF CAFFEINE AND ITS MODULATION BY N-ACETYL-CYSTEINE IN ZEBRAFISH (*DANIO RERIO*)

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Abstract

Caffeine is a widely consumed central nervous system stimulant known to produce rapid and measurable neurobehavioral effects across vertebrate species. Because of its well-established influence on arousal, locomotion, and emotional regulation, it is frequently used in behavioral neuroscience to model acute changes in anxiety and social behavior. In this study, we investigated the acute effects of caffeine on three main behavioral domains in zebrafish (*Danio rerio*): anxiety-like behavior, aggression, and social preference, and evaluated the potential modulatory role of N-acetylcysteine (NAC).

Zebrafish were acutely exposed to caffeine alone or in combination with NAC under controlled laboratory conditions. Behavioral assessments specifically targeted anxiety-like behavior, aggression, and social preference. These measures were used to evaluate both individual stress-related responses and alterations in social interaction patterns.

The results showed that acute caffeine exposure significantly increased anxiety-like behavior, indicating heightened arousal and increased neural excitability. In addition, caffeine induced notable changes in both aggression and social preference, suggesting a broader disruption of behavioral regulation and social decision-making processes in zebrafish.

Co-treatment with N-acetylcysteine partially attenuated several of the caffeine-induced effects. Specifically, NAC reduced anxiety-like behavior and helped normalize locomotor activity. It also modulated changes in aggression and social preference, indicating a partial stabilizing effect on caffeine-induced behavioral alterations.

Overall, the findings demonstrate that acute caffeine exposure significantly affects anxiety-like behavior, aggression, and social preference in zebrafish, while also increasing general activity levels. Furthermore, N-acetylcysteine appears to exert a modulatory effect, mitigating some of these neurobehavioral changes, likely through its antioxidant and neuroregulatory properties.

Keywords: caffeine; zebrafish; n-acetylcysteine; behavior

IMPACT OF SARS-COV-2 INFECTION ON SPERM QUALITY AND MALE REPRODUCTIVE FUNCTION: A META-ANALYSIS STUDY**Anfel ABID¹, Yamina BELKHIRI^{1,2}, Boutheyna BOUSLIMANI¹**

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Abstract

Emerging evidence suggests that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) may adversely affect male reproductive function through potential impairment of both semen quality and endocrine regulation; however, the extent and consistency of these effects remain under investigation. This meta-analysis aimed to quantitatively evaluate the impact of SARS-CoV-2 infection on male reproductive health, including key semen parameters and hormonal profiles.

A total of 24 studies published between 2020 and 2025 were included, comprising 2,174 COVID-19 patients and 1,741 healthy controls, with all studies assessing semen parameters and/or reproductive hormone levels. Pooled standardized mean differences (SMD) with corresponding p-values were calculated to compare infected individuals with controls.

The results demonstrated a significant reduction in semen quality among infected individuals, including decreased semen volume (SMD: -0.15, $p = 0.0002$), total sperm count (SMD: -0.29, $p < 0.00001$), total motility (SMD: -0.35, $p < 0.00001$), progressive motility (SMD: -0.20, $p < 0.00001$), sperm morphology (SMD: -0.37, $p < 0.00001$), and sperm concentration (SMD: -0.21, $p < 0.00001$), with subgroup analysis indicating more pronounced effects within the first three months post-infection and partial recovery thereafter. In parallel, hormonal analysis revealed a significant decrease in testosterone levels (SMD: -0.83, $p < 0.00001$), alongside significant increases in follicle-stimulating hormone (FSH) (SMD: 0.34, $p < 0.00001$) and luteinizing hormone (LH) (SMD: 0.53, $p < 0.00001$), suggesting impaired testicular function and dysregulation of the hypothalamic–pituitary–gonadal axis. Overall, SARS-CoV-2 infection appears to be associated with measurable impairment of semen quality and disruption of male reproductive hormonal balance, potentially mediated by inflammatory and oxidative stress mechanisms as well as direct viral effects on testicular tissue, highlighting the need for further large-scale prospective studies to clarify long-term reproductive outcomes.

Keywords: SARS-CoV-2, semen parameters, sperm quality, testosterone, FSH, LH, male fertility, meta-analysis.

MAGNETICALLY SEPARABLE ACTIVATED CARBON FROM WASTE CORNCOB FOR THE EXCELLENT REMOVAL OF ARSENIC FROM WATER**Bijoylakshmi Boruah*, and P.K. Swain****

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Abstract

An effective and affordable nano adsorbent activated corncob carbon (ACC) was derived from waste corncob by pyrolysis method. To upsurge the adsorption assets and to recover the used adsorbent, ACC was then impregnated with magnetite (MACC) by chemical co-precipitation method. X-ray powder diffraction, Dynamic light scattering, Transmission electron microscopy, Scanning electron microscopy, and Fourier transform infrared spectroscopy were used to study the surface characteristics, morphology, and functional group. Vibrating Sample Magnetometer was used to measure the magnetic saturation of magnetite impregnated ACC (MACC). Contact angle was measured to find the hydrophilic and hydrophobic nature of materials. The obtained crystalline size of ACC and MACC NPs were 23.91 nm and 9.07 nm, respectively from XRD. The obtained zeta potential charge of corncob carbon (CC), ACC, and MACC were 73.77 mV, 76.58 mV and 69.74 mV, respectively. The comparative sorption analysis of CC, ACC and MACC nanosorbents were performed effectively for the removal of arsenic As(III) from aqueous solution. The highest arsenic removal was found about 96.32% using adsorbents MACC. About 83.26% arsenic removals were obtained using ACC and 53.06% obtained using CC.

Keywords: Corn charcoal, Pyrolysis, Corn activated carbon, Adsorption, Purification, Water treatment.

STATISTICAL STUDY OF THE PHYSICO-CHEMICAL CHARACTERISTICS OF GROUNDWATER IN THE GHIS-NEKOR AQUIFER - MOROCCO: BY HYDROCHEMICAL ANALYSIS

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Abstract

The chemical characterization of the Ghis-Nekor aquifer has attracted significant attention from researchers in Morocco. It is a crucial indicator of the environmental situation and the socio-economic development of this Moroccan region. Indeed, it helps decision makers to conduct a conscious and sustainable management. The primary objective of this study is to investigate the origin of salinity using isopoly elements such as Strontium and Bromide and to evaluate the physicochemical quality of groundwater in the Ghis-Nekor aquifer region and to determine the sources of pollution in order to establish maps of the qualities of the Ghis-Nekor water table.

For this reason, of Ghis-Nekor aquifer 19 samples were examined during the month of July 2023, in terms of isotopic elements such as bromine (Br) and strontium (Sr) et (03 samples), and in terms of physico-chemical parameters such as pH, temperature, electrical conductivity (EC), Chlorides, Nitrates, Ammonium, Nitrite, Sulfates, Sodium, Potassium, Bicarbonates, Calcium, orthophosphates and Magnesium. The spatial distribution of the results was visualized through thematic maps generated using a Geographic Information System (GIS), offering crucial insights for decision-making processes related to water resource management in the region. The water temperature varies between 15.1 and 49°C. The pH is close to neutral, varying between 6.65 and 7.86.

The waters are classified into three distinct chemical facies: chlorinated and sulfated calcic-magnesium facies, bicarbonated calcic-magnesium facies, and chlorinated sodium-potassium facies. The degradation of water quality in the aquifer of the basin of Ghis-Nekor could have geological and anthropogenic origins.

The analysis of bromide and strontium contents allows to discriminate the origin of salinity anomalies. Molar ratios such as Cl/Br, Br/Cl, and Sr/Ca are employed to distinguish areas influenced by geological factors, such as the leaching of salt formations and facies, from those impacted by anthropogenic activities.

Keywords: Groundwater - Quality - Pollution - GIS - Ghis-Nekor, water table -Morocco.

ANTIBIOTICS SUSCEPTIBILITY PATTERN AND CHLORINE TOLERANCE OF GRAM-POSITIVE COCCI BACTERIA ISOLATED FROM SELECTED SWIMMING POOLS IN IBADAN NIGERIA**Elizabeth Adewumi Ajekiigbe, Jesse Michael and Olutayo Israel Falodun**

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Abstract

Antibiotic resistance is a serious global health challenge, with serious implications for the treatment of infectious diseases and environmental safety. The proliferation of antibiotic-resistant bacteria is no longer confined to clinical settings; it has extended into natural and man-made environments, including water systems, and recreational facilities such as swimming pool. Swimming pools are potential reservoirs for Microbial contamination, including Gram-positive cocci such as Staphylococci, Enterococci, Micrococci and Bacilli. This study was therefore carried out to determine the antibiotics susceptibility pattern of Gram-positive cocci bacteria isolated from selected swimming pool water samples in Ibadan, Nigeria.

Water samples were aseptically collected into sterile sampling bottles from six different swimming pools. Isolation and characterization of the bacterial isolates were done using standard microbiological techniques. In addition, antimicrobial susceptibility testing of the isolates was carried out using Kirby Baurer disc diffusion method against seven antibiotics: gentamicin, erythromycin, vancomycin, chloramphenicol, ciprofloxacin, tetracycline, and cotrimoxazole. The statistical analysis was done using descriptive analysis.

From the samples, 165 bacterial isolates were recovered out of which 55.0% were identified as Gram-positive cocci (n=76). The antibiotics susceptibility patterns of the Gram positive cocci isolates showed that resistance to chloramphenicol was 66.6%, followed by gentamicin (52.9%), ciprofloxacin (50.0%), and cotrimoxazole (50.0%). Lower resistance rate was observed to tetracycline (32.4%), erythromycin (23.5%), and vancomycin (23.5%).

Gram-positive cocci bacteria isolated from swimming pool water in Ibadan exhibited high rate of resistance to tested antibiotics, indicating a threat to public health. Therefore, continuous monitoring and strict water control are recommended to prevent the spread of resistant bacterial pathogens to the pool users.

Keywords: Antibiotic resistance, Gram-positive cocci, Swimming pool water, Ibadan Nigeria

STRUCTURE-BASED COMPUTATIONAL PROFILING OF RESVERATROL AGAINST THE ERCC AND XRCC DNA-REPAIR NETWORKS

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Abstract

Colorectal cancer (CRC) remains a leading contributor to cancer-related mortality worldwide, and a substantial fraction of treatment failures trace back to acquired chemoresistance. A central cause of this resistance is the over-activity of DNA damage repair (DDR) pathways, which dismantle the very lesions that platinum agents and 5-fluorouracil are designed to inflict. Two arms of DDR are particularly relevant in CRC: nucleotide excision repair, anchored by ERCC1, and base excision repair, scaffolded by XRCC1. Pharmacological disruption of these pathways is therefore an attractive chemosensitisation strategy, yet the molecular basis for natural-product engagement of the DDR machinery remains poorly mapped at residue resolution. Resveratrol, a polyphenolic stilbene long associated with modulation of PI3K/AKT signalling, is a strong candidate chemosensitiser but has not previously been profiled in an integrated manner against this network. In the present study, we performed structure-based molecular docking of resveratrol against seven crystallographically validated PDB targets representing three functional layers of the CRC DDR axis: the upstream PI3K/AKT signalling apex (PI3K, AKT-PH), the kinase regulators (casein kinase 2, thymidine phosphorylase, activated AKT), and the downstream repair effectors (XRCC1, ERCC1). All seven docking runs returned binding energies between -6.1 and -7.9 kcal/mol, consistent with biologically credible, multi-target engagement. Notably, the most favourable interactions (-7.9 kcal/mol) clustered at the regulatory layer casein kinase 2 and thymidine phosphorylase — rather than at the repair effectors themselves, suggesting that resveratrol may compromise DDR indirectly, by destabilising the kinase-driven activation of repair proteins rather than by inhibiting their catalytic activity. Comparative docking against active AKT versus its PH-domain further revealed clear conformational selectivity. Collectively, these findings yield a residue-resolved, network-wide structural map of resveratrol's potential mode of engagement with the CRC DDR axis and provide a rational starting point for the design of next-generation stilbene-based chemosensitisers.

Keywords: resveratrol; molecular docking; DNA damage repair; ERCC1; XRCC1; colorectal cancer; chemosensitisation.

ZOO NOTIC RISKS ASSOCIATED WITH URBAN STRAY CAT POPULATION

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Abstract

The urban population of feral and outdoor cats is increasing day by day and interaction with humans is also rising due to the settlement of cats around houses where food is abundant. Uncontrolled stray cat populations and unusual contacts may expose humans to significant zoonotic risks through the transmission of various diseases. These feline populations often have contact with wildlife as well as community and household pets, which further increases indirect disease transmission even without direct human contact. Meso-carnivores such as skunks and raccoons and omnivores such as rats and mice, may also influence transmission dynamics, as cats exhibit notable free-roaming behaviour.

Rabies is considered a primary concern, particularly in India, where the disease remains endemic. The aggressive nature of cats when provoked, combined with minimal and sometimes unnoticed clinical signs compared to dogs, may make them potential contributors to silent and undetected spread to humans. Toxoplasmosis, caused by *Toxoplasma gondii*, is another serious zoonotic infection. Healthy cats may show minimal clinical signs; however, oocysts shed in faeces can infect humans, leading to abortion, myalgia, neurological and respiratory dysfunction. Cat scratch disease, caused by *Bartonella henselae*, occurs following scratches or bites and may result in localized lesions; in immunocompromised individuals, it can progress to endocarditis, encephalitis or retinitis. *Toxocara cati*, a causative agent of larva migrans, can infect humans through ingestion of faecal-contaminated soil or sand. Other gastrointestinal pathogens transmitted via faecal contamination include Salmonella, Giardia, Campylobacter and MRSA. Ectoparasites such as *Ctenocephalides felis* further contribute to transmission, while infections such as leishmaniasis, dermatophytosis, *E. coli* and even avian influenza have been associated with feline-related transmission risks.

Only a limited number of these diseases are well-documented with clearly defined epidemiological patterns; however, the true burden is likely higher than reported. Common transmission patterns involve contact with sick animals or their excretions, increased community cat populations leading to environmental faecal contamination and bites or scratches. Environmental changes, including habitat destruction, further increase human-wildlife interactions indirectly mediated by felids. There is a clear need to understand local epidemiology by identifying risk factors and determinants, modelling transmission networks and documenting cat population dynamics and contact rates. One Health approaches, including mitigation strategies, public awareness, effective TNR (Trap-Neuter-Release) programs, school-based education and strengthened veterinary support, are essential to break the transmission chain and bridge the knowledge gap between the scientific community and the public.

Keywords: Cat, Community, Rabies, Transmission, One Health.

DENTAL PROBLEMS IN PATIENTS WITH ALZHEIMER'S DISEASE AND PARKINSON'S DISEASE DEMENTIA WITH LEWY BODIES

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Abstract

Patients with Alzheimer's Disease (AD) and Parkinson's Disease Dementia with Lewy bodies (PDD-LB) present a high burden of oral and dental pathology due to cognitive decline, motor impairment, autonomic dysfunction, and polypharmacy. Oral diseases in these populations are frequently underdiagnosed and undertreated, despite their significant impact on nutrition, systemic health, and quality of life. This article provides an overview of the mechanisms linking neurodegeneration and oral health, common dental conditions, systemic consequences, challenges in dental management, and evidence-based clinical recommendations. Emphasis is placed on interdisciplinary care and the role of caregivers in prevention and long-term management.

Keywords: Alzheimer's Disease; Parkinson's Disease Dementia with Lewy Bodies; Dental Problems

EFFECTS OF TARTRAZINE EXPOSURE ON BEHAVIOR AND LOCOMOTOR ACTIVITIES IN ZEBRAFISH (*DANIO RERIO*)

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Abstract

Tartrazine is a synthetic azo dye, characterized by its intense yellow color, widely used to enhance the visual appearance of products in the food, pharmaceutical, cosmetic, and textile industries. Due to its low cost, chemical stability, and ability to impart bright shades, this additive is commonly found in a variety of products such as soft drinks, sweets, baked goods, and medications. Approximately 65% of azo dyes are used as food additives, and tartrazine is among the most widely used worldwide, despite providing no nutritional benefit. In recent years, the use of tartrazine has been the subject of considerable debate, as some studies have linked it not only to allergic reactions (such as urticaria, asthma, and hypersensitivity), but also to potential effects on the nervous system, including hyperactivity and attention difficulties, particularly in children. For this reason, in certain countries, products containing this dye are required to carry warning labels. Furthermore, there is evidence suggesting that tartrazine may induce oxidative stress and interfere with metabolic processes, raising concerns about the effects of chronic exposure, even at doses considered safe. In the present study, the toxicological and behavioral effects of tartrazine were investigated using zebrafish (*Danio rerio*), a model organism frequently employed in neurotoxicity research due to its sensitivity and relevance for studying biological mechanisms in vertebrates. Zebrafish were exposed to multiple concentrations of the substance for 96 hours, and their behavior was assessed using parameters such as total distance traveled, velocity, duration of immobility (freezing), clockwise rotation, and counterclockwise rotation. The results revealed a complex response, dependent on both dose and concentration, suggesting the presence of different patterns of toxicity. Additionally, an increase in the time spent in the lower area of the aquarium was observed, a behavior commonly associated with anxiety or stress. These findings indicate that tartrazine can significantly influence behavior and the functioning of the nervous system in exposed organisms.

Keywords: Tartrazine; Zebrafish; Behavior; Toxicity

TÜRKİYE’DE ÇOCUK YOKSULLUĞUNUN GENEL GÖRÜNÜMÜ: TÜİK VERİLERİ ÜZERİNE BİR DEĞERLENDİRME

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Özet

Yoksulluk az gelişmiş ülkelerin yanı sıra hem gelişmiş hem de gelişme olan ülkelerde yaşanan küresel sosyal bir sorundur. Özellikle yoksulluk yaş gruplarına göre çocukların daha fazla etkilendiği görülmektedir. Çoğunlukla ailenin yoksulluğu ile ilişkili olan çocuk yoksulluğunun temel nedenleri arasında ailelerin düşük geliri, enflasyon, işsizlik, hızlı nüfus artışı, madde bağımlılığı, düşük eğitim düzeyi, tek ebeveynli hane yapısı, göç, aile içi sorunlar ve doğal afetler gibi sorunlar yer almaktadır. Bu bağlamda çalışmanın temel amacı; Türkiye için çocuk yoksulluğunun genel görünümünü incelemektir. Çalışmada TÜİK web sitesindeki ikincil veriler aracılığıyla tablolar oluşturulmuş olup betimsel analiz yapılmıştır. Çalışmanın bulgularına göre; Türkiye’de aynı ve nakdi sosyal koruma yardımlarının yıllar bazında önemli düzeyde arttığı ve ciddi düzeyde maddi yoksulluk yaşayan çocukların yıllara göre azaldığı gözlemlenmektedir. Ancak 0-17 yaş grubunda olan çocukların 18-64 ve 65+ yaş gruplarına oranla daha fazla yoksulluk veya sosyal dışlanma riskine maruz kaldıkları elde edilmiştir. Bununla birlikte kadınların erkeklere göre daha fazla yoksulluk ve sosyal dışlanma riski altında yaşadıkları bulgusuna ulaşılmıştır. Sonuç olarak çocuk yoksulluğunun azaltılması için ailelere istihdam desteğinin artırılması ve sosyal koruma sistemlerinin güçlendirilmesi büyük önem arz edecektir.

Anahtar Kelimeler: Çocuk yoksulluğu, TÜİK verileri, betimsel analiz.

AN OVERVIEW OF CHILD POVERTY IN TURKEY: AN ANALYSIS OF TÜİK DATA

Abstract

Poverty is a global social issue affecting not only developing countries but also both developed and developing nations. In particular, it is evident that children are disproportionately affected by poverty compared to other age groups. The primary causes of child poverty, which is largely linked to family poverty, include low family income, inflation, unemployment, rapid population growth, substance abuse, low educational attainment, single-parent households, migration, domestic issues, and natural disasters. In this context, the primary objective of this study is to examine the overall picture of child poverty in Turkey. The study utilized secondary data from the Turkish Statistical Institute (TÜİK) website to create tables and conduct a descriptive analysis. According to the study’s findings, it is observed that in-kind and cash social protection assistance in Turkey has increased significantly over the years, and the number of children experiencing severe material deprivation has decreased over time. However, it was found that children in the 0–17 age group are exposed to a higher risk of poverty or social exclusion compared to those in the 18–64 and 65+ age groups. Additionally, the study revealed that women face a higher risk of poverty and social exclusion than men. Consequently, increasing

employment support for families and strengthening social protection systems will be of great importance in reducing child poverty.

Keywords: Child poverty, TUIK data, descriptive analysis.

HOW AZERBAIJAN'S LABOR INCOME STRUCTURE SHIFTED OVER 2011–2021: EVIDENCE FROM SECTORAL MULTIPLIERS AND NETWORK CENTRALITY ANALYSIS**Seyfullazadə Natiq**

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Abstract

Azerbaijan's oil-dependent economy went through three structurally distinct phases between 2011 and 2021. These were the oil boom peak, the price collapse of 2014–2016, and a partial recovery. This paper examines how the structure of labor income generation changed over this period, using official input-output tables for 19 economic sectors. For each sector, direct labor income coefficients, and labor multipliers of Type I (direct and indirect) and Type II (direct, indirect, and induced) have been calculated. The sectors are then placed into four groups based on multiplier strength. Eigenvector centrality is also applied to the labor-weighted production network to find which sectors spread income most widely. The results identify a major structural shift. Sectors that both create many jobs and generate high wages are called core labor sectors. The number of such sectors fell from seven in 2011 to three in 2021. At the same time, the number of capital-intensive sectors with high wages per unit of output but low employment creation increased from three to ten. Education and administrative services were the only sectors to maintain their primary employment status throughout the period. The 2016 oil shock was structurally decisive, where the public administration, health, and arts sectors shifted from core labor to the capital-intensive category by 2021, as rising wage coefficients and employment multiplier growth outpaced the growth in employment. Eigenvector centrality analysis shows that the sectors with the strongest position in the network like professional services in 2011–2016 do not consistently align with the sectors with the highest multiplier coefficients. This indicates a partial decoupling between the influence of the production network and labor income generation. These results characterize the sensitivity of labor income at the sector level during the oil revenue period and provide a structural basis for a targeted diversification policy.

Keywords: input-output analysis, labor income multipliers, Azerbaijan, oil-dependent economy, eigenvector centrality

VOLATILITY DYNAMICS OF RISK TENDENCIES ACROSS DIFFERENT INVESTOR GROUPS IN TÜRKİYE

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Abstract

The dynamic structure of financial markets indicates that investors make decisions not only according to price movements but also in response to changing risk perceptions and psychological tendencies. Therefore, examining changes in the risk-taking tendencies of investor groups is important for a better understanding of market behavior and financial vulnerabilities. In this study, the volatility structures of the Risk Tendency Index (REKS) series, which represent the risk-taking tendencies of different investor segments in Turkish capital markets, are analyzed from a behavioral finance perspective. Approximately 15 years of weekly data are utilized in the analysis. The study considers the REKS Total, REKS Domestic, REKS Foreign, REKS Domestic Individual, REKS Domestic Corporate, REKS Funds, and REKS Qualified Investor series.

The volatility level of each investor group's risk perception, the persistence of shocks, and the asymmetric responses to negative news are comparatively examined through appropriate GARCH-type models. In this framework, in addition to standard GARCH models, EGARCH, GJR-GARCH, and TGARCH models are employed. The findings demonstrate that the volatility dynamics of investor groups are not homogeneous. In particular, domestic investor groups exhibit an asymmetric volatility structure, individual investors are found to be more sensitive to negative shocks, and institutional investors display a more controlled risk structure. Moreover, volatility shocks appear to be more persistent for foreign investors and funds. The findings also reveal that investor groups do not respond to market conditions in the same direction or at the same speed. The study is expected to contribute to the literature on investor segmentation, risk management, and behavioral finance.

Keywords: Risk Tendency Index, investor behavior, GARCH models, behavioral finance

ANALYSIS OF THE DYNAMIC DEPENDENCE STRUCTURE AMONG INVESTOR GROUPS'
RISK TENDENCIES THROUGH MGARCH MODELS

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Abstract

In financial markets, investor groups not only exhibit different levels of risk tolerance but also interact with one another and display co-movement at varying degrees over time. Therefore, investor behavior should be evaluated not only through univariate volatility structures but also within the framework of dynamic dependence relationships among investor groups. In particular, identifying how the correlation structure among different investor segments evolves over time is important for understanding market fragilities and systemic risk. This study investigates the conditional correlation and volatility relationships among the Risk Tendency Index (REKS) series of different investor groups in Turkish capital markets. The analysis is based on approximately 15 years of weekly data and considers the REKS Total, REKS Domestic, REKS Foreign, REKS Domestic Individual, REKS Domestic Corporate, REKS Funds, and REKS Qualified Investor series. To determine the time-varying dependence structure among investor groups, multivariate GARCH models are employed. In this context, the CCC-GARCH model, which examines constant correlation structures, the DCC-GARCH model, which captures time-varying correlations, and the BEKK-GARCH model, which reveals volatility spillover mechanisms, are applied comparatively. The findings indicate that the dependence structure among investor groups is not homogeneous and may vary over time. While a higher degree of co-movement is observed among certain investor groups, others exhibit a more segmented structure. Furthermore, volatility shocks do not spread across investor groups at the same intensity, and the correlation structure differs depending on market conditions. The study is expected to contribute to a better understanding of the dynamic relationship structure among investor groups and to the development of risk management strategies tailored to specific investor segments.

Keywords: Risk Tendency Index, Dynamic Dependence, MGARCH Models, Conditional Correlation, Behavioral Finance

SMELLS LIKE MONETARY INTELLIGENCE: MONETARY POLICY IN THE AGE OF
ARTIFICIAL INTELLIGENCE

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Abstract

Artificial intelligence is one of the most prominent and increasingly influential technological developments today, leading to significant transformations across the economy, in firms' operational structures, and in the functioning of financial markets. In line with these developments, key actors of the financial system—most notably central banks—are making growing use of AI-based methods in their decision-making processes and analytical activities. In this context, the effects of artificial intelligence on central banking are attracting increasing attention in both the academic literature and policy circles, with various conferences and research initiatives emerging in this field. This transformation process offers new opportunities for the economic and financial system, while also bringing about a range of risks and challenges. The aim of this study is to analyze the potential effects of artificial intelligence on monetary policy within a conceptual and theoretical framework, and to evaluate the opportunities and risks that these effects entail for the policy-making process. In this study, drawing on the existing literature, the effects of artificial intelligence on data processing capacity, forecasting performance, and decision-support mechanisms are examined; and the implications of these factors for the monetary policy transmission mechanism and central bank decision-making processes are discussed. In particular, developments regarding the use of artificial intelligence and data-driven methods within the Central Bank of the Republic of Turkey are analyzed within the framework of central banking practices, and the scope and limitations of integrating these technologies into decision-making processes are discussed. In this context, the potential contributions of AI-based tools in areas such as inflation forecasting, financial stability analysis, and policy communication are evaluated, while the constraints arising from factors such as data quality, model risks, and institutional capacity are also considered. In the final section of the study, policy recommendations for the use of artificial intelligence in monetary policy practices are developed in light of the findings.

Keywords: Artificial Intelligence, Monetary Policy, Financial Stability, Central Bank of the Republic of Turkey, Central Banking, Monetary Policy Transmission.

TÜRKİYE’DE TAMAMLAYICI SAĞLIK SİGORTASININ GELİŞİMİ: TALEP BELİRLEYİCİLERİ VE SAĞLIK SİSTEMİNE ETKİLERİ**Sibel ÖLMEZ CANGİ**

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Özet

Türkiye’de tamamlayıcı sağlık sigortası (TSS), sağlık sisteminde kamu hizmetlerini destekleyen ve bireylerin özel sağlık hizmetlerine erişimini kolaylaştıran tamamlayıcı bir finansman aracı olarak son yıllarda hızlı bir gelişim göstermiştir. Bu sigorta türü 2010’lu yılların ortalarından itibaren kurumsallaşmış, özellikle 2020 sonrası dönemde ise dikkat çekici bir büyüme ivmesi yakalamıştır. Türkiye Sigorta Birliği verilerine göre, tamamlayıcı sağlık sigortalı sayısı son yıllarda önemli bir artış göstermiştir. Bu kapsamda sigortalı sayısı 1,6 milyondan 5,6 milyona yükselerek yaklaşık %250 oranında artmıştır. Aynı dönemde sağlık sigortası prim üretiminde de kayda değer bir yükseliş gözlenmiş olup, TSS’ nin toplam sağlık sigortası portföyü içerisindeki payı belirgin şekilde artmıştır. Bu gelişmeler, tamamlayıcı sağlık sigortalarının Türkiye sağlık sistemi içerisindeki rolünün giderek güçlendiğini göstermektedir. Bu çalışmanın amacı, Türkiye’de TSS talebindeki artışın belirleyicilerini incelemek ve bu artışın sağlık sistemi üzerindeki olası etkilerini değerlendirmektir. Bu çerçevede Literatür İncelemesi yöntemi benimsenmiştir. Türkiye özelinde özellikle son dönemde gözlenen hızlı artışın bütüncül bir çerçevede ele alınmasının sınırlı olduğu görülmektedir., kamu sağlık hizmetlerindeki yoğunluk algısı, bekleme süreleri ve hizmet kalitesine ilişkin bireysel algıların TSS talebini artıran önemli faktörler olduğunu göstermektedir. Bunun yanı sıra bankasürans kanallarının yaygınlaşması ve sigorta şirketlerinin dağıtım stratejileri de bu artışı desteklemektedir. Söz konusu büyüme, TSS’ nin yalnızca bireysel bir tercih değil, aynı zamanda sağlık sisteminin yapısal bir tamamlayıcısı haline geldiğini ortaya koymaktadır. Ayrıca, TSS uygulayan ülkelerle Türkiye’deki uygulamalar karşılaştırılarak benzer ve/veya farklı yönleri incelenmiştir. Bu bağlamda, tamamlayıcı sağlık sigortalarının yaygınlaştırılmasının kamu sağlık sistemi üzerindeki talep baskısını azaltabileceği ve kaynak kullanımında etkinliği artırabileceği değerlendirilmektedir. Politika önerileri kapsamında, TSS’ye yönelik teşvik mekanizmalarının güçlendirilmesi, bankasürans kanallarının etkin kullanımının artırılması ve bireylerin sigorta bilincini geliştirmeye yönelik finansal eğitim programlarının yaygınlaştırılması önerilmektedir.

Anahtar Kelimeler: Tamamlayıcı sağlık sigortası, sağlık ekonomisi, sigorta talebi, bankasürans, sağlık politikaları

THE DEVELOPMENT OF SUPPLEMENTARY HEALTH INSURANCE IN TÜRKİYE: DETERMINANTS OF DEMAND AND ITS EFFECTS ON THE HEALTHCARE SYSTEM**Abstract**

Supplementary Health Insurance (SHI) in Türkiye has shown rapid development in recent years as a complementary financing tool that supports public healthcare services and facilitates individuals’ access to private healthcare services. This type of insurance became institutionalized in the mid-2010s and has gained remarkable growth momentum after 2020. According to data from the Insurance Association of Türkiye, the number of individuals covered by supplementary health insurance has increased significantly in recent years. In this context, the number of insured individuals rose from 1.6 million to 5.6 million, corresponding to an approximate increase of 250%. During the same period, a notable rise in health insurance premium production has also been observed, and the share of SHI within the total health insurance portfolio

has increased substantially. These developments indicate that the role of supplementary health insurance within the Turkish healthcare system is becoming increasingly significant. The aim of this study is to examine the determinants of the increasing demand for SHI in Türkiye and to evaluate its potential effects on the healthcare system. In this context, a literature review methodology has been adopted. It is observed that, particularly in Türkiye, there are limited studies that address the recent rapid increase within a holistic framework. Perceptions of congestion in public healthcare services, waiting times, and individual perceptions regarding service quality are identified as key factors driving the demand for SHI. In addition, the expansion of bancassurance channels and the distribution strategies of insurance companies have also supported this growth. This growth demonstrates that SHI is not merely an individual preference but has become a structural complement to the healthcare system. Furthermore, by comparing countries that implement SHI with practices in Türkiye, similarities and differences have been analyzed. In this context, it is considered that the widespread adoption of supplementary health insurance may reduce demand pressure on the public healthcare system and enhance efficiency in resource utilization. Within the scope of policy recommendations, it is suggested to strengthen incentive mechanisms for SHI, increase the effective use of bancassurance channels, and expand financial education programs aimed at improving individuals' insurance awareness.

Keywords: Supplementary health insurance, health economics, insurance demand, bancassurance, health policies.

**TELAFİ EDİCİ TÜKETİM PERSPEKTİFİNDEN SOSYAL DIŞLANMA ve TÜKETİM
TERCİHLERİ****Nazlı TIĞLI**

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Özet

Bu çalışma, tüketicilerin içinde bulundukları toplumdan dışlanmaları durumunda, tüketim tercihlerinin nasıl etkilendiğini telafi edici tüketim bağlamında ele almayı amaçlamaktadır. Telafi edici tüketim genel olarak, bireylerin yaşadıkları psikolojik sorunlar ya da yaşamlarındaki eksiklikler sebebiyle, tehdit olarak algıladıkları durumları ortadan kaldırmak ve rahatlamak amacıyla yapılmaktadır. Tüketim, fonksiyonel bir amaçtan ziyade, tüketicinin kendi benlik algısını kazanmak, kimlik, statü ve aidiyet kavramlarını elde edebilmek amacıyla yapılır hale gelmektedir. Tüketicinin içinde bulunduğu toplumdan çeşitli sebeplerle dışlanması, tüketim tercihlerinin değişmesine neden olabilmektedir. Bu durumda dışlanan birey, yaşadığı olumsuz durumu ve eksikliği giderebilmek amacıyla tüketim yapabilmektedir. Bireylerin dışlanma sebebiyle yaşadıkları güçsüzlük, kontrol kaybı, yetersizlik hissi gibi faktörler; tüketicinin alışverişe yönelmesine sebep olabilmektedir. Bu durumda, toplumda kabul görebilmek ve sosyal dışlanmanın getirdiği olumsuzluğu ortadan kaldırabilmek için tüketiciler, alışveriş tercihlerinden vazgeçip toplumda kabul gören ürünleri satın almaya yönelebilmektedir. Toplumda yeniden kabul görmek ve topluma uyum sağlamak için alışveriş yapmak isteyebilmekte ve tüketim stratejik bir seçim tercihinde dönüşebilmektedir. Kimi zaman da toplumda yeniden kabul edilmek yerine, tüketicinin uyum sağlama isteğinin tam tersi yönde de gerçekleşebilmektedir. Tüketici, dışlandığı toplumda kendini rahatlatmak ve güvende hissetmek amacıyla, toplumun kullandığı markayı tercih etmeyebilmekte ve tekrar satın almak istemeyebilmektedir. Bu çalışma, ilgili literatür ışığında ve tüketici tercihleri göz önünde bulundurularak yapılacak ve sonuçta işletmelerin sosyal dışlanma durumunu stratejik bir araç olarak kullanması amacıyla önerilerde bulunacaktır.

Anahtar Kelimeler: Telafi edici tüketim, sosyal dışlanma, tüketici davranışları

**SOCIAL EXCLUSION AND CONSUMER CHOICES FROM A COMPENSATORY
CONSUMPTION PERSPECTIVE****Abstract**

This study aims to examine how consumers' consumption preferences are affected when they are excluded from the society in which they live, within the context of compensatory consumption. Compensatory consumption generally occurs when individuals, due to psychological problems or deficiencies in their lives, seek to eliminate situations they perceive as threatening and to find relief. Consumption is increasingly carried out not merely for a functional purpose, but to enable the consumer to establish their self-image and to attain concepts of identity, status and belonging. The exclusion of a consumer from their society for various reasons can lead to changes in their consumption preferences. In such cases, the excluded individual may engage in consumption to alleviate the negative situation and sense of deficiency they are experiencing. Factors such as the sense of powerlessness, loss of control and inadequacy experienced by individuals due to exclusion can lead the consumer to turn to shopping. In such cases, in order to gain acceptance within society and to eliminate the negativity brought about by social exclusion, consumers may abandon their usual shopping preferences and turn to purchasing products that are socially accepted. They may wish to shop in order to regain acceptance within society and adapt to it, and consumption can thus become a strategic choice. At times, however, rather than seeking to be accepted back into society, the consumer's desire to adapt may manifest in the exact opposite direction. In order to feel at ease and secure within a society from which they feel excluded, consumers may choose not to opt for the brands used by that society and may be reluctant to repurchase them. This study will be conducted in the light of the relevant literature and with due consideration of consumer preferences, and

will ultimately offer recommendations aimed at enabling businesses to utilise social exclusion as a strategic tool.

Keywords: Compensatory consumption, social exclusion, consumer behaviour

VERGİ HUKUKUNDA BELGENİN DEĞİŞEN YÜZÜ: ELEKTRONİK BELGELER**Doç. Dr. Yasemin TAŞKIN**

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Özet

Bu çalışmada, vergilendirmede kullanılan belgelerin dijitalleşme ile birlikte dönüşümü ve bu dönüşümün idareler ve mükellefler açısından yarattığı sonuçlar incelenmektedir. Bu kapsamda mevzuat, içtihat ve doktrin kaynakları esas alınarak elektronik ve dijital belgelerin vergi hukukunda değişen anlamı ve içeriği değerlendirilmektedir. Hukuk sistemi içinde kanunlarda ve ikincil mevzuatta yapılan değişikliklerde elektronik alanla ilgili olan düzenlemeler giderek artmaktadır. Vergi kanunlarında pek çok alanda elektronik ortamda gerçekleştirilmesi öngörülen düzenlemeler bulunmakla birlikte bu alanlardan biri de elektronik belge (e-belge) ile ilgili olarak kanunlarda yer alan düzenlemelerdir. Mükellefin ödevleri içinde belgelendirme ile ilgili ödevlerine yer verilmekle birlikte kağıt ortamında düzenlenen belgeler zaman içinde elektronik ortamda düzenlenen ve yine elektronik ortamda imzalanan belgelere bırakmaya başlamıştır. Kağıt ortamından elektronik ortama aktarılan belgelerin maliyetin düşmesi, zaman tasarrufu sağlaması gibi olumlu tarafları bulunmasının yanı sıra güvenlik riskleri, ispat aracı olarak kullanılıp kullanılamayacakları gibi olumsuz tarafları da bulunmaktadır. Bu noktada bir belge ve kayıt olgularının aynı sistemin parçası olmalarına rağmen burada bağımsız değişkenin yani kayıtların belirleyicisinin belgeler olduğunun unutulmaması gerekmektedir. Ekonomik gerçeğe ulaşabilmek için büyük bilgi kümeleri olan belgelerin sağlık ve güvenilirliğinin korunmasının zorunlu olduğu bu bakımdan belge sistemlerine de büyük ölçüde yansıyan e-dönüşümün fiziki ortamda düzenlenerek muhafaza edilen belgelerin güvenlik risklerini en aza indirme hususunda etkili olacağı düşünülmektedir. Bugün hem fiziki hem de elektronik ya da dijital belgelerin birlikte kullanılmakta olduğu ancak uzak olmayan bir gelecekte fiziki ortamda düzenlenen belgelerin tamamen ortadan kalkarak yerlerini elektronik, dijital ya da sanal ortamlarda düzenlenecek belgelere bırakacağı değerlendirilmektedir.

Anahtar Kelimeler: Vergi, Dijitalleşme, E-Belge.

THE CHANGING FACE OF DOCUMENTS IN TAX LAW: ELECTRONIC DOCUMENTS**Abstract**

This study examines the transformation of documents used in taxation as a result of digitization, as well as the consequences of this transformation for tax authorities and taxpayers. The evolving meaning and content of electronic and digital documents in tax law are assessed in this context, based on legislation, case law, and legal doctrine. Within the legal system, for example, regulations related to the electronic environment have increasingly been incorporated into both primary legislation and secondary legislation. While tax laws include numerous provisions requiring transactions to be carried out electronically, one of the key areas concerns the regulations on electronic documents (e-documents). While taxpayers have duties relating to documentation, documents traditionally issued in paper form are gradually being replaced by those prepared and signed electronically. Although the transition from paper to electronic documents offers advantages such as reduced costs and time savings, it also brings certain disadvantages, including security risks and concerns regarding their admissibility as evidence. At this point, it should be noted that although the concepts of documents and records are part of the same system, documents constitute the determining factor of records, which function as the dependent variable. In order to reach economic reality, it is essential to preserve the integrity and reliability of documents, which represent large sets of information. In this respect, it is considered that digital transformation (e-transformation), which is also significantly reflected in document systems, will be effective in minimizing the security risks associated with documents prepared and stored in physical environments. Currently, physical and electronic (or digital) documents are used together; however, it is expected that

physical documents will eventually disappear entirely and be replaced by those created in electronic, digital, or virtual environments.

Key words: Tax, digitization, e-document.

FIRSATLAR VE TEHDİTLER PERSPEKTİFİNDEN YAPAY ZEKA OKURYAZARLIĞININ ROLÜ

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Özet

Okur yazarlık pek çok alanda kişiyi bilinçli hareket etme fırsatı veren bir olgudur. Bu niteliğe sahip olan kişiler ilgili alanda bilinçli hareket etme ve karar verme fırsatını yakalamış olurlar. Bilişim teknolojilerinin geldiği son aşama yapay zeka olgusunu karar alıcıların hayatına sokmuş ve artık pek çok karar yapay zeka yönlendirmesiyle verilir hale gelmiştir. Yapay zeka hakkında bilinçlenmek karar alıcıların pek çok noktada daha rasyonel kararlar almasına fırsat tanımaktadır. Bu bağlamda yapay zekâ okuryazarlığı günümüzde ön plana çıkan önemli konu başlıkları arasında yer almaktadır.

Bu çalışma, yapay zekâ teknolojileri karşısında bireylerin ve kurumların karar alma ve yönetim belcelerini artırmada kritik bir rol üstlenen “yapay zekâ okuryazarlığı”nın karar alıcılara sunduğu fırsatlar ve tehditler hakkında bir çıkarımda bulunmaktadır. Yapay Zeka Okuryazarlığı (YZ); algoritmik sistemlerin temel çalışma prensiplerini anlama, çıktıların doğruluğunu ve yanlılıklarını sorgulama, etik ve hukuki boyutları değerlendirme ve bu teknolojileri bilinçli biçimde kullanma becerilerini kapsamaktadır. Bu kapsamda çalışmada, YZ okuryazarlığının ekonomik, toplumsal ve yönetsel düzeylerde sunduğu fırsatlar ile ortaya çıkardığı riskler bütüncül bir çerçevede ele alınmaktadır. Fırsatlar arasında üretkenlik artışı, karar alma süreçlerinin iyileştirilmesi, eğitim ve sağlık gibi alanlarda kişiselleştirilmiş hizmetlerin yaygınlaşması ve yeni iş alanlarının oluşumu öne çıkmaktadır. Buna karşılık; iş gücü piyasasında dönüşüm ve mesleklerin yer değiştirmesi, veri gizliliği ihlalleri, algoritmik önyargı, yanlış bilgi üretimi ve etik sorunlar temel tehditler olarak değerlendirilmektedir.

Çalışmada yüksek düzeyde YZ okuryazarlığına sahip birey ve kurumların, yapay zekâdan doğan fırsatları daha etkin değerlendirebilmesi ve potansiyel riskleri daha başarılı şekilde yönetebilmesi beklenmektedir. Çalışmanın literatür incelemesi ve betimsel bulguları; sürdürülebilir kalkınma ve toplumsal refah açısından YZ okuryazarlığının yaygınlaştırılması kritik bir gereklilik olarak görülmekte; eğitim politikaları, kurumsal stratejiler ve kamu düzenlemeleri kapsamında bu alana yönelik bütüncül yaklaşımların geliştirilmesiyle optimal yönetimde ve rasyonel karar alma süreçlerinde yapay zekanın önemli roller üstleneceğini göstermektedir.

Anahtar Kelimeler: Yapay Zekâ Okuryazarlığı, Yapay Zekâ

THE ROLE OF ARTIFICIAL INTELLIGENCE LITERACY FROM THE PERSPECTIVE OF OPPORTUNITIES AND THREATS

Abstract

Literacy is a phenomenon that gives individuals the opportunity to act consciously in many areas. Individuals who possess this quality have the opportunity to act and make decisions consciously in the relevant field. The latest stage in information technologies has introduced artificial intelligence into the lives of decision-makers, and now many decisions are made with the guidance of artificial intelligence. Becoming aware of artificial intelligence allows decision-makers to make more rational decisions in many areas. In this context, artificial intelligence literacy is among the important topics that have come to the forefront today. This study aims to draw conclusions about the opportunities and threats presented by "AI literacy," which plays a critical role in enhancing the decision-making and governance skills of individuals and institutions in the face of AI technologies. AI literacy encompasses the ability to understand the fundamental working principles of

algorithmic systems, question the accuracy and biases of outputs, evaluate ethical and legal dimensions, and use these technologies consciously. In this context, the study comprehensively examines the opportunities and risks presented by AI literacy at economic, social, and managerial levels. Opportunities include increased productivity, improved decision-making processes, the widespread adoption of personalized services in areas such as education and healthcare, and the creation of new job opportunities. Conversely, transformation and shifts in the labor market, data privacy breaches, algorithmic bias, misinformation, and ethical issues are considered key threats.

The study concludes that individuals and institutions with a high level of AI literacy can more effectively utilize the opportunities arising from artificial intelligence. It is expected that AI will be able to assess and manage potential risks more successfully. The literature review and descriptive findings of the study show that the widespread adoption of AI literacy is a critical requirement for sustainable development and social welfare; and that artificial intelligence will play important roles in optimal governance and rational decision-making processes through the development of holistic approaches to this field within the scope of education policies, institutional strategies, and public regulations.

Keywords: AI Literacy, Artificial Intelligence

THE IMPACT OF CLIMATE CHANGE ON MACROECONOMIC CONDITIONS: AN
ASSESSMENT OF THE REAL AND FINANCIAL ECONOMY

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Abstract

Global warming and climate change are not only transforming social and economic dynamics but also directly affecting the capacity of central banks to ensure and maintain price stability. Therefore, climate-related risks are currently a priority area of interest and study for both policymakers and academics. In particular, the macroeconomic impacts of climate change, in the context of physical and transition risks, lead to different economic outcomes in the short, medium, and long term. These outcomes are clearly observed in key economic areas such as production, consumption, investment, labor markets, wages, productivity, and international trade. To mitigate the pressure of these risks on economic stability, central banks are developing new policy instruments that go beyond traditional tools and implementing strategies to minimize negative climate-related impacts. The main objective of this study is to reveal the effects of climate change on macroeconomic conditions and to evaluate the role of central banking in this process within an analytical framework. The study concludes that climate change, especially when combined with distorted transition policies, increases macroeconomic instability, which in turn prompts central banks to develop new monetary policy tools and strategies.

Keywords: Climate Change, Macroeconomic Conditions, Risk.

KATILIM BANKALARI VE TASARRUF FİNANSMAN ŞİRKETLERİNİN FAİZSİZ KONUT FİNANSMANI AÇISINDAN KARŞILAŞTIRILMASI

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Özet

Türkiye’de faizsiz konut finansmanı alanında faaliyet gösteren katılım bankaları ile tasarruf finansman şirketlerinin yapısal, işleyişsel ve maliyet unsurları açısından karşılaştırılmasını amaçlamaktadır. Faizsiz finans ilkelerine dayalı olarak geliştirilen bu iki model, bireylerin konut edinimini kolaylaştırmayı hedeflese de uygulama yöntemleri ve riskleri bakımından önemli farklılıklar göstermektedir.

Katılım bankaları, murabaha başta olmak üzere çeşitli finansman yöntemleriyle konut alımını desteklemekte, müşteriye peşin alım yaparak vadeli satış gerçekleştirmektedir. Bu sistemde banka aktif rol oynarken, maliyet unsurları genellikle kâr payı oranları üzerinden belirlenmektedir. Tasarruf finansman şirketleri ise dayanışma temelli bir yapı sunmakta, katılımcıların oluşturduğu havuz sistemiyle sırasıyla ya da sözleşmede yer alan belirli şartlara göre konut finansmanı sağlamaktadır. Bu modelde organizasyon ücreti ön plana çıkarken, finansman sürecinde doğrudan bir kâr payı uygulanmaması dikkat çekmektedir.

Çalışmada, her iki sistemin maliyet yapısı, erişilebilirlik düzeyi, sözleşme şeffaflığı ve risk dağılımı gibi kriterler üzerinden analizi yapılacaktır. Ayrıca düzenleyici çerçeve, denetim mekanizmaları ve tüketici korunması boyutları da değerlendirilecektir. Elde edilen bulgular, katılım bankalarının daha öngörülebilir bir finansman yapısı sunduğunu; tasarruf finansman şirketlerinin ise düşük maliyet avantajı ile öne çıkmakla birlikte belirli belirsizlikler barındırabildiğini göstermektedir.

Sonuç olarak, bireylerin finansman tercihlerinde maliyet kadar güven, şeffaflık ve risk unsurlarını da dikkate almaları gerektiği vurgulanmaktadır.

Anahtar Kelimeler: Faizsiz finans, katılım bankacılığı, tasarruf finansman sistemi, konut finansmanı

COMPARISON OF PARTICIPATION BANKS AND SAVINGS FINANCE COMPANIES IN TERMS OF INTEREST-FREE HOUSING FINANCE

Abstract

This study aims to compare participation banks and savings financing companies operating in the field of interest-free housing finance in Türkiye in terms of their structural features, operational processes, and cost components. Although both models are developed based on the principles of interest-free finance and aim to facilitate homeownership, they differ significantly in their implementation methods and risk structures.

Participation banks support housing purchases through various financing methods, primarily murabaha, by purchasing the property in cash and reselling it to the customer on a deferred payment basis. In this system, the bank plays an active role, and cost elements are generally determined through profit-sharing rates. In contrast, savings financing companies offer a solidarity-based model, providing financing through a pooled fund formed by participants, either sequentially or according to specific contractual conditions. In this model, the organization fee stands out, while no direct profit rate is applied during the financing process.

The study analyzes both systems in terms of cost structure, accessibility, contractual transparency, and risk distribution. In addition, regulatory frameworks, supervision mechanisms, and consumer protection aspects are also evaluated. The findings indicate that participation banks offer a more predictable financing structure, whereas savings financing companies stand out with lower cost advantages but may involve certain uncertainties.

In conclusion, it is emphasized that individuals should consider not only cost but also trust, transparency, and risk factors when choosing a financing model.

Keywords: Interest-free finance, participation banking, savings financing system, housing finance

İKLİM DEĞİŞİKLİĞİYLE MÜCADELEDE ENERJİ VERGİLERİNİN ROLÜ: OECD ÜLKELERİ ÜZERİNE BİR ANALİZ**Gamze Yıldız ŞEREN**

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Özet

Bu çalışma, enerji vergilerinin iklim değişikliği üzerindeki etkisini 32 OECD ülkesi örnekleminde ampirik olarak incelemeyi amaçlamaktadır. Artan küresel ısınma ve çevresel bozulma karşısında enerji vergileri, karbon emisyonlarını azaltmaya yönelik önemli politika araçlarından biri olarak öne çıkmaktadır. Bu bağlamda çalışma, enerji vergilerinin iklim değişikliği göstergeleri üzerindeki uzun dönemli etkilerini ortaya koyarak literatüre katkı sunmayı hedeflemektedir. Analiz kapsamında, değişkenler arasındaki uzun dönemli ilişkiyi belirlemek amacıyla Pedroni panel eşbütünleşme testleri uygulanmıştır. Eşbütünleşme ilişkisinin varlığı durumunda, uzun dönem katsayıları Dinamik En Küçük Kareler (DOLS) ve Tam Modifiye Edilmiş En Küçük Kareler (FMOLS) yöntemleri kullanılarak tahmin edilmiştir. Elde edilmesi beklenen bulguların, enerji vergilerinin çevresel dışsallıkları azaltmada etkili bir araç olup olmadığını ortaya koyması beklenmektedir. Çalışmanın sonuçlarının, politika yapıcılar açısından çevre dostu vergi politikalarının tasarlanmasına katkı sağlaması, piyasa katılımcıları açısından ise enerji maliyetleri ve yatırım kararları üzerindeki etkileri daha iyi anlamalarına yardımcı olması beklenmektedir. Ayrıca, bulguların özellikle Birleşmiş Milletler Sürdürülebilir Kalkınma Amaçları (SDG 7: Erişilebilir ve Temiz Enerji ve SDG 13: İklim Eylemi) ile uyumlu politika geliştirme süreçlerine önemli çıkarımlar sunacağı değerlendirilmektedir. Bu yönüyle çalışma, sürdürülebilir çevre politikalarının etkinliğini değerlendiren literatüre ampirik kanıt sağlayarak katkıda bulunmaktadır.

Anahtar Kelimeler: İklim Değişikliği, Enerji Vergileri, OECD

THE ROLE OF ENERGY TAXES IN COMBATING CLIMATE CHANGE: AN ANALYSIS OF OECD COUNTRIES**Abstract**

This study aims to empirically examine the impact of energy taxes on climate change using a sample of 32 OECD countries. In response to increasing global warming and environmental degradation, energy taxes have emerged as one of the key policy tools for reducing carbon emissions. Within this framework, the study aims to contribute to the literature by revealing the long-term effects of energy taxes on climate change indicators. In the empirical analysis, Pedroni panel cointegration tests were conducted to determine the long-run relationship among the variables. Where a cointegration relationship was found to exist, the long-run coefficients were estimated using the Dynamic Least Squares (DOLS) and Fully Modified Least Squares (FMOLS) methods. The expected findings are anticipated to reveal whether energy taxes are an effective tool for reducing environmental externalities. The results of the study are expected to contribute to the design of environmentally friendly tax policies for policymakers and to help market participants better understand the impacts on energy costs and investment decisions. Moreover, it is believed that the findings will provide significant insights for policy development processes, particularly those aligned with the United Nations Sustainable Development Goals (SDG 7: Affordable and Clean Energy, and SDG 13: Climate Action). In this respect, the study contributes to the literature by providing empirical evidence to assess the effectiveness of sustainable environmental policies.

Keywords: Climate Change, Energy Taxes, OECD

VERİ YÖNETİMİ: SAĞLIK KURUMLARI ÜZERİNE BİR DEĞERLENDİRME

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Özet

Sağlık sektöründe dijitalleşme sürecinin hız kazanmasıyla birlikte veri analitiği uygulamalarının kullanımında önemli bir artış yaşanmaktadır. Sağlık kurumlarında üretilen büyük hacimli verilerin etkin biçimde yönetilmesi; tıbbi görüntüleme, hastalıkların erken tanısı, salgınların izlenmesi, klinik karar destek sistemleri ve hizmet süreçlerinin iyileştirilmesi gibi birçok alanda stratejik avantajlar sağlamaktadır. Veri yönetimi ve analitik çözümler sayesinde sağlık hizmetleri daha sistematik, hızlı ve verimli bir yapıya kavuşmaktadır.

Son yıllarda sağlık veri yönetimi; teknolojik altyapılar, yapay zekâ uygulamaları ve bilimsel araştırmaların odağında yer alan önemli bir çalışma alanı haline gelmiştir. Sağlık veri analitiği üzerine gerçekleştirilen çalışmalar incelendiğinde, bu alanın hem kurumsal yönetim süreçlerinde hem de hasta bakım kalitesinin artırılmasında geniş bir uygulama potansiyeline sahip olduğu görülmektedir.

Bu çalışmada, sağlık kurumlarında veri yönetimi süreçleri ile büyük veri analitiğine dayalı karar alma mekanizmaları ele alınmaktadır. Ayrıca sağlık yöneticilerine rehberlik edebilecek temel veri analizi yöntemleri değerlendirilerek, sağlık hizmetlerinde verimlilik, kalite ve kaynak kullanım etkinliğinin artırılmasına yönelik öneriler sunulmaktadır.

Anahtar Kelimeler: Veri analitiği, sağlık, büyük veri, makine öğrenimi, veri madenciliği, sağlık bilişimi, sağlık hizmetleri.

DATA MANAGEMENT: AN ASSESSMENT OF HEALTHCARE INSTITUTIONS

Abstract

As the digital transformation process in the healthcare sector gains momentum, there has been a significant increase in the use of data analytics applications. The effective management of the large volumes of data generated by healthcare institutions provides strategic advantages in many areas, including medical imaging, early disease diagnosis, outbreak monitoring, clinical decision support systems, and the improvement of service processes. Thanks to data management and analytical solutions, healthcare services are becoming more systematic, faster, and more efficient.

In recent years, healthcare data management has become a key area of focus in technological infrastructure, artificial intelligence applications, and scientific research. An examination of studies on healthcare data analytics reveals that this field holds broad application potential in both organizational management processes and the enhancement of patient care quality.

This paper addresses data management processes in healthcare institutions and decision-making mechanisms based on big data analytics. Additionally, by evaluating fundamental data analysis methods that can guide

healthcare administrators, recommendations are presented to enhance efficiency, quality, and the effective use of resources in healthcare services.

Keywords: Data analytics, Healthcare, Review, Machine learning, Data mining, Health informatics, Healthcare

ÇEVRESEL KORUMA HARCAMALARININ EKOLOJİK AYAK İZİ ÜZERİNDEKİ ETKİSİ: 27 OECD ÜLKESİNDEN KANITLAR**Ömer ESEN ¹**

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Özet

Bu çalışma, çevresel koruma harcamalarının ekolojik ayak izi üzerindeki etkisini 1995–2023 dönemi için 27 OECD ülkesi örnekleminde incelemektedir. Değişkenler arasındaki uzun dönemli ilişkinin belirlenmesi amacıyla Pedroni panel eşbütünleşme testi uygulanmış, uzun dönem katsayıları ise FMOLS ve DOLS yöntemleriyle tahmin edilmiştir. Analiz sonuçları, çevresel koruma harcamalarının ekolojik ayak izini azaltıcı yönde etkelediğini göstermektedir. Buna karşılık ekonomik büyüme, ticari açıklık ve kentleşmenin ekolojik ayak izini artırdığı tespit edilmiştir. Yenilenebilir enerji kullanımının ise çevresel baskıyı azaltarak ekolojik sürdürülebilirliği desteklediği belirlenmiştir. Elde edilen bulgular, çevresel sürdürülebilirliğin sağlanabilmesi için ekonomik büyüme politikalarının çevresel koruma stratejileriyle birlikte yürütülmesi gerektiğini ortaya koymaktadır. Bu doğrultuda çevresel koruma harcamalarının artırılması, yenilenebilir enerji yatırımlarının teşvik edilmesi ve sürdürülebilir şehirleşme politikalarının güçlendirilmesi önem taşımaktadır. Çalışma, çevresel kamu harcamalarının ekolojik ayak izini azaltmadaki rolünü inceleyerek Birleşmiş Milletler Sürdürülebilir Kalkınma Hedefleri kapsamında özellikle SDG 12 (Sorumlu Üretim ve Tüketim), SDG 13 (İklim Eylemi) ve SDG 9 (Sanayi, Yenilikçilik ve Altyapı) amaçlarına yönelik politika tartışmalarına katkı sunmaktadır.

Anahtar Kelimeler: Çevresel Koruma Harcamaları, Ekolojik Ayak izi, OECD Ülkeleri, Eşbütünleşme Analizi

THE IMPACT OF ENVIRONMENTAL PROTECTION EXPENDITURES ON THE ECOLOGICAL FOOTPRINT: EVIDENCE FROM THE 27 OECD COUNTRIES**Abstract**

This study examines the impact of environmental protection expenditures on the ecological footprint in a sample of 27 OECD countries for the period 1995–2023. The Pedroni panel cointegration test was applied to determine the long-term relationship between the variables, and long-term coefficients were estimated using the FMOLS and DOLS methods. The analysis results show that environmental protection expenditures have a mitigating effect on the ecological footprint. Conversely, economic growth, trade openness, and urbanization were found to increase the ecological footprint. The use of renewable energy was determined to support ecological sustainability by reducing environmental pressure. The findings indicate that economic growth policies must be implemented in conjunction with environmental protection strategies to ensure environmental sustainability. Accordingly, increasing environmental protection expenditures, encouraging renewable energy investments, and strengthening sustainable urbanization policies are crucial. This study highlights the role of environmental public spending in reducing the ecological footprint, contributing to policy discussions under the United Nations Sustainable Development Goals, particularly SDG 12 (Responsible Production and Consumption), SDG 13 (Climate Action), and SDG 9 (Industry, Innovation, and Infrastructure).

Keywords: Environmental Protection Expenditures, Ecological Footprint, OECD Countries, Cointegration Analysis

THERMODYNAMIC INSIGHTS INTO SOME POLAR AMINO ACIDS: A CALORIMETRIC STUDY

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Abstract

This study presents a comparative thermodynamic investigation of selected polar amino acids—serine, threonine, asparagine and glutamine—using differential scanning calorimetry (DSC) and combustion calorimetry. These amino acids are characterized by polar side chains capable of forming hydrogen bonds, which significantly influence their thermal behavior and stability. Differential scanning calorimetry was employed to analyze phase transitions, melting behavior, and thermal stability, providing insight into structural changes occurring upon heating. In parallel, combustion calorimetry was used to determine standard thermodynamic parameters, such as enthalpies of combustion, enabling the evaluation of their energetic profiles. The combination of these two calorimetric techniques allows for a comprehensive assessment of the relationship between molecular structure and thermodynamic properties. Special attention is given to the role of functional groups in the side chains, namely hydroxyl groups in serine and threonine and amide groups in asparagine and glutamine, and their contribution to intermolecular interactions. The results reveal both common features and distinct differences in thermal behavior among the studied compounds, reflecting variations in molecular structure and bonding capacity. These findings contribute to a better understanding of the thermodynamic properties of polar amino acids and may have implications for their behavior in biological systems, as well as for applications in biochemistry and related fields.

Keywords: polar amino acids; calorimetry; thermodynamics; thermal stability.

GREEN SYNTHESIS OF HIGH-SURFACE-AREA ZnO USING ARGANIA PRESS-CAKE, OPTIMIZED VIA BOX-BEHNKEN DESIGN, INTEGRATED INTO CHITOSAN-CLAY BEADS FOR DYE DEGRADATION AND REGENERATED FOR Cu²⁺ PHOTOREDUCTION

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Abstract

This study presents a breakthrough circular economy-driven strategy for the green synthesis of ZnO nanoparticles using *Argania spinosa* press-cake, an abundant Moroccan agro-waste. A key innovation lies in the optimization of BET surface area (201.09 m²/g) via Box–Behnken design, enabling precise control of structural properties. The optimized ZnO was subsequently engineered into binary (CS@ZnO) and ternary (CS@ZnO@Ghassoul clay) nanocomposite beads, leading to significant enhancement in performance.

The ternary nanocomposite reached a high BET surface area of 398.23 m²/g, corresponding to an increase of approximately 98% compared to pristine ZnO, and exhibited excellent photocatalytic activity, achieving 97.87% degradation of Basic Yellow 28 within 40 min, with a marked improvement in reaction kinetics ($k_{app} = 0.1071 \text{ min}^{-1}$, compared to 0.00271 min^{-1} for ZnO).

A major advancement of this work is the regeneration-enabled dual functionality. After dye degradation, the regenerated ternary nanocomposite retained a high surface area (309.66 m²/g) and demonstrated near-complete Cu²⁺ photoreduction (99.5% in 110 min, $k_{app} = 0.02614 \text{ min}^{-1}$), while the binary system achieved 92.01% removal ($k_{app} = 0.01505 \text{ min}^{-1}$). This highlights a unique sequential treatment capability, combining organic dye degradation and heavy metal removal within a single reusable material.

DFT analysis revealed a low energy gap (2.05 eV), high electrophilicity (4.59 eV), and strong charge transfer capacity ($\Delta N_{max} = 2.92$), supporting the observed high reactivity. Application to real textile wastewater confirmed practical relevance, with 79.3% COD, 67.0% BOD₅, and 59.9% dye removal.

Overall, this work establishes a next-generation, scalable, and sustainable nanocomposite platform, integrating green synthesis, statistical optimization of BET surface area, and multifunctional regeneration, delivering a high-performance photocatalyst for complex wastewater remediation.

Keywords: *Argania spinosa* press-cake extract; Basic Yellow 28; BET surface area; Cu²⁺ photoreduction; Green synthesis; Zinc oxide nanoparticles.

COMPARISON OF GC-FID and GC-MS BIOLOGICAL ACTIVITIES USING METHANOL FRACTION OF CUMINUM CYMINUM LEAVES

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The aim of this study was to compare the GC- FID and GC- MS biological activities using methanol fraction of *Cuminum cyminum* leaves (MFCCL) The study adopted the experimental design. Air-dried and pulverized leaves were extracted and fractionated using methanol, n-hexane and ethyl acetate. Phytochemical analyses, acute toxicity study and identification of bioactive compounds were done using standard methods. Extraction of 1200 g of pulverized *C. cyminum* leaves with methanol yielded 7.34 %. The phytochemical analyses of the *C. cyminum* leaf methanol extract and its fractions revealed the presence of different phytochemical constituents in varied proportions. The methanol extract had tannins (905.00 ± 3.60 mg/100 g), terpenoids (433.76 ± 3.22 mg/100 g), glycosides (51.73 ± 2.06 mg/100 g), saponins (46.02 ± 1.25 %), flavonoids (32.64 ± 0.91 mg/100 g), alkaloids (18.35 ± 0.250 %), phenols (12.74 ± 0.31 %), and steroids (0.60 ± 0.08 mg/100 g). The n-hexane fraction had terpenoids (898.15 ± 7.29 mg/100 g), tannins (491.00 ± 3.00 mg/100 g), glycosides (95.99 ± 2.21 mg/100 g), flavonoids (21.82 ± 0.90 mg/100 g), saponins (13.51 ± 0.41 %), phenols (9.23 ± 0.47 %), alkaloids (8.50 ± 0.38 %) and steroids (0.71 ± 0.047 mg/100 g). The ethyl acetate fraction had tannins (1151.67 ± 3.06 mg/100 g), terpenoids (497.75 ± 2.08 mg/100 g), glycosides (192.32 ± 1.24 mg/100 g), flavonoids (20.94 ± 1.69 mg/100 g), phenols (17.60 ± 0.33 %), saponins (5.57 ± 0.13 %), alkaloids (2.27 ± 0.14 %), and steroids (1.21 ± 0.08 mg/100 g), whereas methanol fraction yielded tannins (3846.67 ± 1.08 mg/100 g), glycosides (268.39 ± 1.45 mg/100 g), terpenoids (77.07 ± 0.95 mg/100 g), flavonoids (53.11 ± 0.28 mg/100 g), saponins (30.94 ± 0.62 %), alkaloids (27.07 ± 0.96 %), phenols (2.09 ± 0.09 %), and steroids (0.97 ± 0.13 mg/100 g). The acute toxicity test showed neither death nor any sign of toxicity even at the highest tested dose of 5000 mg/kg body weight. The *in-vitro* antioxidant analyses revealed a dose-dependent increase in DPPH radical-scavenging activity, ferric reducing power and total antioxidant capacity. The GC-MS analysis of MFCCL revealed different peaks determining the presence of fifteen phytochemical compounds with different therapeutic activities. The major phytocompounds are cyclotrisiloxane, hexamethyl (41.9%), cyclotetrasiloxane octamethyl (14.9%), cycloheptasiloxane tetradecamethyl (9.1%) cyclopentasiloxane, decamethyl (5.4%) and minor compounds were also present. GC-FID analysis of MFCCL revealed the presence of ten bioactive flavonoids anthocyanin, chalcones, isoflavones, flavonones, flavan -3-ol, flavones, aglycone, galocatechin, catechin and epicatechin. Therefore, *Cuminum cyminum* stimulates to the enhancement of hepatic cytoprotective via inhibitory mechanism, regulation of protective factors, and synergistic effects of some discovered elements present in the MFCCL.

SELF COMPACTING CONCRETE USING PALM KERNEL SHELL AS PARTIAL REPLACEMENT FOR COARSE AGGREGATE**LAWAL N.A. and OLAOYE J.O**

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<https://orcid.org/0009-0001-4785-6258>**Abstract**

This study explores the use of palm kernel shell (PKS) as a partial replacement for coarse aggregate in self-compacting concrete (SCC) at replacement levels of 0%, 10%, 20%, and 30% by weight. The goal is to evaluate whether PKS, an agricultural waste material, can be used to produce sustainable concrete without significantly affecting performance. Fresh properties were assessed using slump flow, V-funnel, and L-box tests, while compressive strength, density, and water absorption were measured at 7, 14, and 28 days. The results show that all mixes met the basic requirements for SCC, although workability gradually decreased as the PKS content increased. Slump flow reduced from 750 mm to 680 mm, V-funnel time increased from 8 s to 12 s, and the L-box ratio dropped from 0.95 to 0.85. Similarly, compressive strength at 28 days decreased from 30 MPa for the control mix to 27 MPa, 24 MPa, and 21 MPa for 10%, 20%, and 30% PKS, respectively. A reduction in density and an increase in water absorption was also observed. The findings suggest that PKS can be effectively used in SCC up to a 20% replacement level, offering a more sustainable and lightweight alternative for concrete production.

Keywords: Self-compacting concrete; Palm kernel shell; Sustainable construction; Lightweight concrete; Workability; Compressive strength

APPLICATION OF GEOMETRIC AVERAGE MODEL FOR IDENTIFYING HIGH
MINERALIZATION ZONES USING GAMMA-RAY SPECTROMETRY DATA IN THE BOKE
BAUXITE DISTRICT, REPUBLIC OF GUINEA

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Abstract

The identification and delineation of zones with high mineralization potential are critical for discovering valuable mineral deposits. Various methodologies have been employed to pinpoint areas subjected to alteration processes, including the analysis of airborne gamma-ray spectrometry data, which has consistently produced accurate and reliable results.

In this study, gamma-ray spectrometry was utilized for the first time in the Boke region of north-western Republic of Guinea, a renowned global bauxite district. Data were systematically collected, processed, and mapped to produce concentration maps for potassium (K), thorium (eTh), and uranium (eU). The generation of abundance ratios and the F parameter facilitated the identification of regions with elevated potassium concentrations, which serve as indicators of potential alteration zones associated with bauxite mineralization.

The analytical results from the K/eU and K/eTh ratios, along with the F parameter and potassium concentration map, were integrated using geometric average model. This model synthesized the resulting informative maps into a comprehensive mineral prospectivity map, which is instrumental for guiding mineral exploration. The study identified three high-prospectivity areas: the Ordovician at Pita, the Silurian at Telimele, and the Devonian at Faro. Preliminary prospecting in these delineated regions suggests the presence of significant potential, warranting further advanced exploration.

Keywords: Gamma-Ray Spectrometry; Bauxite Mineralization; Potassium Concentration; Geometric average Model; Mineral Prospectivity Map

**VALORIZATION OF LEMNA GIBBA BIOMASS AS A SUSTAINABLE CORROSION INHIBITOR
FOR MILD STEEL IN SULFURIC ACID SOLUTION**

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Abstract

This study explores the valorization of *Lemna gibba*, an aquatic plant commonly used in phytoremediation, as a sustainable corrosion inhibitor for mild steel in acidic environments. The extract exhibits high inhibition efficiencies (>80%) at low concentration (800 ppm), as confirmed by electrochemical and gravimetric methods. Its performance is attributed to the adsorption of naturally occurring bioactive compounds forming a protective layer on the metal surface. Spectroscopic analyses reveal the presence of oxygenated functional groups that promote interaction with Fe^{2+} ions. The inhibition mechanism involves both physical and chemical adsorption. These findings demonstrate the potential of *Lemna gibba* as an eco-friendly, cost-effective alternative to conventional inhibitors, contributing to green chemistry and circular resource utilization.

Keywords: Green corrosion inhibition; Carbon steel; *Lemna gibba* extract; Polarization; EIS

ENGINEERING AMORPHOUS ARCHITECTURES: THE COMPETING ROLES OF LITHIUM AND NIOBIUM IN NOVEL PHOSPHATE GLASSES

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Abstract

A novel series of $(27.5-x)\text{Li}_2\text{O}-2.5\text{Bi}_2\text{O}_3-x\text{Nb}_2\text{O}_5-70\text{P}_2\text{O}_5$ ($0 \leq x \leq 7.5$ mol%) glass matrices was synthesized via the conventional melt-quenching protocol. XRD and DSC analyses rigorously corroborated the amorphous character of all specimens.

Physicochemical evaluations indicated that progressive niobium incorporation systematically modulates density and molar volume, signifying enhanced network compaction and altered structural connectivity.

Concurrently, FTIR and Raman spectroscopies evidenced the prevalence of pyrophosphate moieties and elucidated the pivotal role of Nb–O linkages in driving structural reorganization.

While SEM imaging confirmed a topologically homogeneous and defect-free morphology, electrochemical assessments revealed a divergent compositional trend: ionic conductivity is augmented by elevated alkali concentrations but concomitantly attenuated by niobium doping. These dynamics were strictly validated by Arrhenius-derived activation energies.

Keywords: Phosphate glasses, Niobium integration, Structural reorganization, Ion-transport dynamics, Melt-quenching, Ionic conductivity.

COMPARATIVE STUDY BETWEEN PALM KERNEL OIL SOAP AND JATROPHA OIL SOAP

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Abstract

This study evaluated the quality and performance characteristics of soap produced from palm kernel oil and jatropha oil using two different sodium hydroxide sources: analytical sodium hydroxide and commercial sodium hydroxide. The soaps were assessed based on pH, free fatty acid (FFA), moisture content, yield, lathering power, cleaning power, hardness, and alkalinity. The results showed that both palm kernel oil and jatropha oil soaps met the general requirements for laundry soap and were considered safe for use, with FFA values below the allowable limit of 0.2. The soap produced from palm kernel oil generally exhibited superior performance, particularly in lathering power and hardness, compared with jatropha oil soap. Yield values were also favorable, with palm kernel oil soap giving 86.3% and jatropha oil soap giving 79.5%. The study further showed that soaps produced with commercial sodium hydroxide had lower alkalinity and pH values than those produced with analytical sodium hydroxide, indicating that commercial sodium hydroxide produced soap values closer to the acceptable standard range. Overall, the findings demonstrate that both oils can be used for soap production, but palm kernel oil produced better soap quality under the tested conditions.

Keywords: FFA, Palm Kernel Oil, Jatropha Oil, Soap Production, Sodium Hydroxide, Yield

PERFORMANCE EVALUATION OF HYDROTHERMALLY PREPARED Ce-DOPED SrSnO₃ FOR ELECTROCHEMICAL ENERGY STORAGE

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Abstract

Perovskite-based nanostructures have been widely researched for supercapacitors due to their outstanding conductivity, electrochemical features, minimal cost, and eco-friendliness. However, this study aims to compare the electrochemical activity of strontium tin oxide (SrSnO₃) and Ce-doped SrSnO₃ created by a hydrothermal procedure. The as-prepared materials were thoroughly analysed for their structure, chemical composition, and capacitive performance. The X-ray diffraction analysis indicated that the SrSnO₃ phase had a cubic crystal system. The capacitance, charge/discharge rate, and rate capability of SrSnO₃ were improved by cerium doping. The Ce-doped SrSnO₃ showed exceptional super-capacitive activity with a specific capacitance (C_{sp}) of 1155 F/g, specific energy (S_E) of 48 Wh/kg, and specific power (S_P) of 308 W/kg at a 1 A/g current density (j). Additionally, the doped material exhibited lower internal resistance than the undoped sample. The remarkable performance of the doped material was accredited to increased active sites, conductivity, electroactive surface, and a high ion diffusion rate. The advantageous characteristics of Ce-doped SrSnO₃ render it a potential material for electrochemical devices. However, the results provide a solid basis for creating advanced supercapacitor electrodes with remarkable performance. Therefore, this work enhances our understanding of perovskites and demonstrates their potential use in electrochemistry, particularly for energy storage.

Keywords: Ce-doped SrSnO₃; Perovskite; Supercapacitor; Hydrothermal approach; Electrochemical performance

CROSS-PLATFORM MODERNIZATION OF HYPERSPECTRAL IMAGING SOFTWARE FOR SKIN OXYGENATION AND MELANIN ANALYSIS**Dragos MANEA**

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Abstract

This work presents the progressive redevelopment of two biomedical software applications for hyperspectral skin analysis: one for tissue oxygenation assessment and one for melanin distribution mapping. The original software lines were developed within the INOE 2000 biomedical hyperspectral imaging activity, where published studies demonstrated algorithms for mapping cutaneous oxygenation, monitoring flap perfusion after surgery, assessing skin tumor oxygenation, and estimating melanin concentration and distribution in human skin.

The purpose of the present work is to modernize these research-oriented applications and transform them into faster, more robust, and more easily deployable tools for routine biomedical use. The redevelopment is being carried out in Avalonia, a cross-platform .NET UI framework that enables a unified codebase for Windows, macOS, and Linux, with a consistent rendering model and an architecture suited to MVVM-based separation between interface, processing logic, and data management. The rewrite preserves the scientific core of the applications, namely the processing of hyperspectral datasets into clinically interpretable maps of oxyhemoglobin, deoxyhemoglobin, oxygen saturation, and melanin concentration, while replacing the legacy interface and deployment model with a more maintainable framework.

The oxygenation software converts hyperspectral reflectance data into spatially resolved maps that can support vascular assessment, tissue viability monitoring, reconstructive follow-up, and dermatologic investigations. In parallel, the melanin software provides quantitative pigmentation maps useful for phototype evaluation, lesion characterization, and objective assessment of skin pigmentation patterns. Preliminary results from the ongoing rewrite indicate a noticeably faster application opening time, improved interface responsiveness, cleaner modular organization, and easier debugging and extension of the codebase.

The migration to Avalonia offers advantages beyond visual modernization. It enables cross-platform deployment from a single codebase, improves maintainability through clearer separation of concerns, supports self-contained distribution, and creates a stronger foundation for Native AOT and compiled bindings, which are associated with faster startup, reduced memory usage, and improved deployment efficiency. In conclusion, the ongoing rewrite represents not only a software update, but also a necessary step toward increasing the usability, portability, and long-term sustainability of these hyperspectral biomedical applications in both research and future clinical workflows.

Keywords: hyperspectral imaging; oxygenation mapping; melanin mapping; biomedical software; Avalonia; cross-platform redevelopment.

ADHERENCE TO THE MEDITERRANEAN DIET IN PATIENTS UNDERGOING RENAL REPLACEMENT THERAPY IN MOROCCO

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Abstract

Background: Chronic kidney disease (CKD) is a serious public health problem worldwide, with a significant public health burden, associated with aging and a higher prevalence of comorbidities, such as diabetes, obesity and hypertension. Obviously, chronic kidney disease leads to end stage renal disease (ESRD) requiring dialysis or transplantation. Indeed, patients on chronic kidney disease stage-five Dialysis (CKD-5D) are consistently subject to particular dietary restrictions. Current guidelines provide general recommendations for hemodialysis (HD) patients focus on achieving a sufficient energy and protein intake without exceeding Phosphorus, Potassium, Sodium, and fluid intake limits. **Objectives:** The aim of this study was to assess the adherence of patients undergoing maintenance dialysis to the Mediterranean Diet, and investigated what factors influence it.

Subjects and Methods: In a cross-sectional study, data on sociodemographic, lifestyle factors, clinical, biochemical parameters and diet were collected on a sample of 157 haemodialysis patients. Adherence to MD was assessed according to a MD score (MDS) based on the daily frequency of intake of eight food groups (vegetables, legumes, fruits, cereals, fish, red meat, dairy products and MUFA/SFA), using the sex specific sample medians as cut-offs. A value of 0 or 1 was assigned to consumption of each component according to its presumed detrimental or beneficial effect on health.

Results: According to the MDS, the study data show that high adherence (34,6%) to MD was characterized by intakes high in vegetables, fruits, fish, cereals, olive oil, and low in meat and moderate in dairy. Furthermore, patients with high adherence to MD had significantly high intakes of calories, protein, carbohydrates, iron and vitamins (C, B1, B9).

Conclusion: In Morocco, maintaining the traditional MD pattern play pivotal role for public health system. More research is needed in this field to precisely measure this association especially for this category of chronic disease.

Keywords: Hemodialysis patients, nutritonal status, Mediterranean diet, MDS, Morocco

BIOENGINEERED SOLUTIONS IN THE GOLDEN HOUR: A SYSTEMATIC REVIEW OF TRAUMA NURSING PERSPECTIVES

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Abstract

Trauma remains a leading cause of global mortality, with a significant proportion of preventable deaths occurring within the “golden hour.” Rapid intervention particularly in hemorrhage control and early diagnosis is critical for improving survival outcomes. Advances in biotechnology, including artificial intelligence (AI), bioengineered blood products, and biomarker-based diagnostics, are transforming trauma care delivery and expanding the clinical role of trauma nurses.

Objective: This systematic review aimed to evaluate the impact of biotechnology on trauma care during the golden hour and to assess its implications for trauma nursing practice.

Methods: A systematic review was conducted in accordance with PRISMA guidelines. A comprehensive search of PubMed, Scopus, and Web of Science identified studies published between 2019 and 2025. A total of 1,247 records were retrieved, with 312 duplicates removed. Following screening and eligibility assessment, 38 studies were included in the final analysis. Data were synthesized using a narrative approach due to study heterogeneity.

Results: Biotechnology demonstrated significant improvements in trauma care outcomes. AI-assisted triage systems improved prediction accuracy by 15–25%, enhancing rapid clinical decision-making. Early hemostatic interventions supported by bioengineered solutions reduced mortality risk by 20–30%. Biomarker-based diagnostics improved early detection of complications, particularly in traumatic brain injury. Despite these advances, limited nurse-focused research, high implementation costs, and infrastructural challenges especially in low-resource settings remain key barriers.

Conclusion: Biotechnology is reshaping trauma care within the golden hour by improving speed, precision, and patient outcomes. Trauma nurses play a pivotal role in the successful integration of these innovations. Future research should prioritize nurse-centered studies and equitable implementation strategies to maximize global impact.

Keywords: Golden hour, Biotechnology, Artificial intelligence, Trauma nursing, Hemorrhage control

COMPARATIVE EFFECTS OF PHONOPHORESIS WITH DICLOFENAC SODIUM VERSUS
THERAPEUTIC ULTRASOUND WITH CONVENTIONAL PHYSICAL THERAPY IN KNEE
OSTEOARTHRITIS

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Abstract

Background: Osteoarthritis of the knee is a common painful condition. The primary treatment for knee osteoarthritis has been conventional Physical Therapy but, other types of adjunct therapy including therapeutic ultrasound and phonophoresis are also combined with Physical Therapy.

Objective: This study aimed at determining whether combined diclofenac sodium phonophoresis and therapeutic ultrasound with Physical Therapy was effective in symptomatic knee osteoarthritis.

Methods: A randomized controlled trial was conducted on 30 males (aged 50-60 years) with bilateral knee osteoarthritis (clinically and radiologically confirmed - Kellgren Lawrence Grade II to IV). They were randomly allocated into two groups (n = 15). They were given a ten-day (10 sessions) Physical Therapy program. They received therapeutic ultrasound and diclofenac sodium phonophoresis respectively. Pain and function was measured pre- and post-intervention with the Visual Analogue Scale (VAS) and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). Data was analysed using paired and independent-samples t-test ($p < 0.05$). The effect size (Cohen's d) was also calculated.

Results: There was improvement in pain and function in both groups. And the improvement in the VAS score was greater in the phonophoresis group than the ultrasound group ($p < 0.001$) with a large effect size ($d = 1.58$). There was an improvement in the WOMAC scores in both groups, but no difference in the change in the two groups at post treatment ($p = 0.334$). This is a result of a difference in the WOMAC score at baseline.

Conclusion: The effect of diclofenac sodium phonophoresis is better than therapeutic ultrasound and Physical Therapy in pain reduction of patients with knee osteoarthritis. Both interventions also have improved function but needs to be studied further with larger sample size and longer follow up period to establish these effects.

Key words: Diclofenac sodium, Phonophoresis, Osteoarthritis, Ultrasound, Knee Pain, Knee Osteoarthritis.

**VISUAL ARTS PEDAGOGICAL THERAPY AND STRUCTURED ENVIRONMENTAL ECOLOGY:
AUTISM-FRIENDLY RESIDENTIAL MICRO-ENVIRONMENTS DURING COVID-19**

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Abstract

Within the framework of sustainable development and contemporary landscape research, inclusive micro-environments that support human well-being represent an important area of interdisciplinary inquiry, particularly in relation to Sustainable Development Goals 3 and 11. This study examines autism-friendly residential environments as human-ecological systems in which spatial organization and environmental structure directly influence psychological stability and everyday functioning.

The built interior environment is interpreted as a structured sensory landscape that operates analogously to Nature-Based Solutions. Through environmental predictability, visual clarity, functional zoning, and sensory protection, autism-specific spatial organization may function as a form of psychosocial green infrastructure that reduces environmental stress and supports emotional regulation.

The paper presents findings from a qualitative pilot study conducted during the COVID-19 pandemic in a residential home for autistic adults. Drawing on Éva Sándor's Visual Arts Pedagogical Therapy and a phenomenological case-study approach involving three participants, the research identifies three recurring patterns: affective stabilization, the functional integration of sensory focus into creative activity, and the facilitator's role as a secure relational base.

The findings suggest that structured spatial organization and therapeutic creative activity may function synergistically as a stabilizing ecological system during periods of crisis and social isolation. The study highlights the importance of integrating neurodiversity-informed design principles into sustainable environmental and spatial planning in order to support inclusive and psychologically sustainable living environments.

**EPIDEMIOLOGY, RISK FACTORS, CLASSIFICATION, PROGNOSTIC MARKERS, AND
CURRENT THERAPEUTIC STRATEGIES FOR BREAST CANCER****Maroua RIAD *, Jamal MABROUKI, Ahmad AL-SHAMI**

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Abstract

Breast cancer remains the most common malignancy among women in Morocco and represents a major public health challenge. Over the past two decades, its incidence has shown a gradual increase, reflecting both improved diagnostic capacities and the country's epidemiological transition. The average age at diagnosis is around 48 years, with a predominance among women aged 40 to 55. Most cases are diagnosed at a locally advanced stage, mainly due to the absence of a national screening program and delayed access to healthcare services. Data from regional cancer registries indicate an average incidence of 45–50 new cases per 100,000 women, with regional variations. The most frequent histological subtype is invasive ductal carcinoma, accounting for about 70% of cases. Biologically, a high proportion of tumors are hormone receptor-positive, while triple-negative forms are associated with poorer outcomes. Identified risk factors include age, nulliparity, family history, hormonal influences, as well as dietary patterns and urban lifestyle. Trend analyses highlight the growing need for enhanced awareness, medical training, and the implementation of screening strategies adapted to the Moroccan context.

Keywords: Breast cancer, epidemiology, incidence, screening, public health.

FEATURES OF RENAL AND LUMBAR HEMODYNAMICS DURING MUSCLE CONTRACTION AND AFTER COFFEE INTAKE IN STUDENTS

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Abstract

In recent years, there has been growing interest in the physiological mechanisms regulating blood circulation in skeletal muscles and kidneys under various functional loads. Particular attention is paid to factors influencing hemodynamics in the lumbar region, which plays a key role in maintaining posture and enabling trunk movements. Furthermore, the widespread consumption of caffeine among young people makes the study of its effect on renal blood flow highly relevant.

The aim of this study was to assess changes in blood flow in the lumbar region and kidneys during lateral trunk bends, as well as after coffee consumption, in healthy male students using rheography. To achieve this aim, a literature review was conducted and an experimental study was performed involving 15 volunteers aged 18–22 years. The following parameters were recorded: rheographic index (RI), peripheral vascular resistance index (PVRI), maximum rate of rapid blood filling (MRRBF), and diastolic index (DI).

The results showed that during left and right trunk bends, RI and MRRBF decreased bilaterally, along with asymmetric changes in PVRI, indicating mechanical compression of blood vessels and activation of compensatory vasomotor reactions. After coffee consumption, a sharp increase in RI and MRRBF was observed within the first 5 minutes, followed by a gradual return to baseline values by 15–20 minutes, reflecting the biphasic nature of caffeine's action: initial vasoconstriction and subsequent stabilization of blood flow.

In conclusion, lateral trunk bends induce complex asymmetric hemodynamic changes in the lumbar region, while coffee exerts a dynamic biphasic effect on renal blood flow. These findings expand our understanding of muscle physiology and may be used to develop recommendations for the prevention of circulatory disorders.

Keywords: lumbar region, renal blood flow, muscle contraction, coffee, rheography, hemodynamics

**PHYSIOLOGICAL ADAPTATIONS TO LONG-TERM APNEA TRAINING IN FREE DIVERS:
MECHANISMS OF SURVIVAL AND RISK OF MALADAPTATION**

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Abstract

Freediving serves as a unique physiological model for studying the absolute limits of human endurance, as elite athletes remain conscious at oxygen levels clinically considered lethal. This phenomenon provides invaluable insights for treating ischemia and advancing pulmonary rehabilitation.

At the respiratory level, divers exhibit a Forced Vital Capacity up to 134% of predicted values, often utilizing the "lung packing" technique to increase total capacity by 15–47%. While rigorous training desensitizes chemoreceptors to hypercapnia and suppresses the involuntary urge to breathe, the extreme intrapulmonary pressure involved can lead to medical complications such as microtears and pneumomediastinum. Programs inspired by these adaptations have successfully improved walking distances in COPD patients and increased overall vital capacity.

The cardiovascular system adapts through the diving reflex, triggering profound bradycardia of 20–40 bpm and a "blood shift" that redistributes blood volume from the limbs toward the heart and brain. Despite systolic blood pressure rising significantly to 239 mmHg due to sympathetic vasoconstriction, the heart maintains contractility by utilizing lactate as fuel. However, risks of junctional rhythms or AV blocks increase when PaO₂ drops below 4.8 kPa.

Furthermore, the ability to stimulate erythrocyte release from the spleen increases the blood's oxygen-carrying capacity.

At the molecular level, heat shock proteins like HSP27 protect cardiomyocytes from apoptosis, while the expression of nitric oxide reduces mitochondrial oxygen consumption to preserve limited resources. However, these adaptations lead to "Oxy-Inflammation," a state where surfacing triggers sudden oxidative stress, lipid peroxidation, and endothelial strain. Building systemic ischemic tolerance through these molecular pathways offers new horizons for organ protection during complex cardiac surgeries and transplantations, potentially mitigating the damage caused by ischemia-reperfusion injury.

Keywords: apnea, hypoxia, diving reflex, lung packing, ischemia-reperfusion, oxidative stress, HSP27, hypercapnia.

GLUT1 VE GLUT3 TAŞIYICILARINI HEDEFLEYEN REDOKS-DUYARLI GLİKOZ-MİTOMİSİN C KONJUGATININ TASARIMI VE MOLEKÜLER KENETLENME ANALİZİ

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Özet

Kanser hücreleri, Warburg etkisi doğrultusunda artmış glikolitik aktivite ile proliferasyonlarını sürdürmektedir. Bu süreçte özellikle GLUT1 ve GLUT3 taşıyıcılarının ekspresyon artışı önemli rol oynamaktadır. Bu taşıyıcılar, glikozun hücre içine alımında görev alarak tümör hücrelerinin artan enerji ihtiyacını karşılamaktadır. Bu çalışmada, güçlü bir antitümör ajan olan Mitomisin C'nin (MMC) seçici hedeflenmesini sağlamak amacıyla, redoks-duyarlı bir bağlayıcı aracılığıyla glikoz ile konjuge edildiği yeni bir ilaç modeli tasarlanmış ve bu yapının GLUT1 ve GLUT3 ile etkileşimi moleküler kenetlenme (docking) yöntemiyle araştırılmıştır.

MMC ve D-glikoz birimleri arasında disülfid bağı içeren konjugat *in silico* olarak tasarlanmış ve optimize edilmiştir. Hedef proteinler olarak GLUT1 (PDB: 4PYP) ve GLUT3 (PDB: 4ZW9) seçilmiş, kenetlenme analizleri glikoz taşınımında kritik rol oynayan aktif bölge kalıntıları esas alınarak gerçekleştirilmiştir. Bağlanma afinitelerinin karşılaştırılması amacıyla serbest glikoz ve MMC kontrol grubu olarak değerlendirilmiştir.

Kenetlenme sonuçları, tasarlanan konjugatın her iki taşıyıcıya da kontrol moleküllerinden daha yüksek afinite gösterdiğini ortaya koymuştur. En kararlı kompleks GLUT3 ile elde edilmiştir. Bu etkileşimde -9,35 kcal/mol bağlanma enerjisi ve 9 hidrojen bağı saptanmıştır. Konjugatın glikoz biriminin ASN286, GLU378 ve GLN281 kalıntılarıyla; linker ve MMC kısmının ise TRP386 ve TRP410 gibi aromatik kalıntılarla etkileşerek bağlanmayı stabilize ettiği gözlenmiştir.

Bu bulgular, redoks-duyarlı glikoz-MMC konjugatının özellikle GLUT3 üzerinden seçici taşınma potansiyeline sahip olduğunu göstermektedir. Çalışma, MMC'nin hedefe yönelik taşınmasını destekleyebilecek yeni bir glukokonjugat modeline ilişkin teorik temel sunmakta ve ileri *in vitro* çalışmalar için öncü veri sağlamaktadır.

Anahtar kelimeler: glikokonjugasyon, GLUT1/GLUT3, ilaç hedefleme, mitomisin C, moleküler kenetlenme, Warburg etkisi.

DESIGN AND MOLECULAR DOCKING ANALYSIS OF A REDOX-RESPONSIVE GLUCOSE-MITOMYCIN C CONJUGATE TARGETING GLUT1 AND GLUT3 TRANSPORTERS**Abstract**

Cancer cells sustain their proliferation through increased glycolytic activity in line with the Warburg effect. In this process, the upregulated expression of GLUT1 and GLUT3 transporters plays a particularly important role. These transporters mediate glucose uptake into the cell and thereby meet the increased energy demand of tumor cells. In this study, a novel drug model was designed in which Mitomycin C (MMC), a potent antitumor agent, was conjugated with glucose via a redox-sensitive linker in order to achieve selective targeting, and the interaction of this structure with GLUT1 and GLUT3 was investigated by molecular docking analysis.

A conjugate containing a disulfide bond between MMC and D-glucose units was designed and optimized in silico. GLUT1 (PDB: 4PYP) and GLUT3 (PDB: 4ZW9) were selected as target proteins, and docking analyses were performed based on active-site residues that play critical roles in glucose transport. Free glucose and MMC were evaluated as control groups in order to compare binding affinities.

Docking results revealed that the designed conjugate exhibited higher affinity for both transporters than the control molecules. The most stable complex was obtained with GLUT3. In this interaction, a binding energy of -9.35 kcal/mol and 9 hydrogen bonds were detected. It was observed that the glucose moiety of the conjugate interacted with residues ASN286, GLU378, and GLN281, while the linker and MMC moiety stabilized binding through interactions with aromatic residues such as TRP386 and TRP410.

These findings indicate that the redox-sensitive glucose-MMC conjugate has the potential for selective transport, particularly via GLUT3. This study provides a theoretical basis for a novel glycoconjugate model that may support the targeted delivery of MMC and offers preliminary data for further in vitro investigations.

Keywords: glycoconjugation, GLUT1/GLUT3, drug targeting, Mitomycin C, molecular docking, Warburg effect.

UTILIZATION OF HYDROPHOBIC DEEP EUTECTIC SOLVENT-MODIFIED MAGNETIC NANOPARTICLES FOR THE MICROEXTRACTION AND DETERMINATION OF 2,4-DICHLOROPHENOL IN WATER SAMPLES**Elif YILDIZ**

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Abstract

Chlorophenols are significant organic pollutants widely used in agriculture, industry, and domestic applications; they exhibit persistent, toxic, and carcinogenic properties in the environment and pose serious risks to human health. Therefore, monitoring them in water samples, even at low concentrations, is of great importance. In this study, 2,4-dichlorophenol will be extracted from water samples using a microextraction method based on a magnetic hydrophobic deep eutectic solvent, and then analyzed using high performance liquid chromatography-UV detector (HPLC-UV). For this purpose, hydrophobic deep eutectic solvents (HDES) were successfully prepared using a simple and low-cost combination of decanoic acid as a hydrogen bond acceptor and 2-pentanol as a hydrogen bond donor. The prepared HDES were then used to modify magnetic nanoparticles, resulting in Fe₃O₄@HDES, which acts as an effective adsorbent for 2,4-dichlorophenol. To determine the optimal extraction conditions, the amount of adsorbent, solution pH, ionic strength, solvent type and volume, and extraction and elution times were optimized. The developed method demonstrated excellent linearity for all investigated chlorophenols, with correlation coefficients (R^2) of ≥ 0.9971 . The limit of detection (LOD) ranged from 0.09 $\mu\text{g mL}^{-1}$, while the limit of quantification (LOQ) were between 0.28 $\mu\text{g mL}^{-1}$. The relative recoveries of the proposed method were assessed at three concentration levels, yielding values in the range of 88–101 %, with RSDs not exceeding 8.5% for the analyzed water samples.

Keywords: Chlorophenol, magnetic hydrophobic deep eutectic solvent, high performance liquid chromatography, microextraction, UV detector.

A DENSITY FUNCTIONAL THEORY STUDY OF THE REACTIVITY PROPERTIES AND DEGRADATION OF IMIDACLOPRID

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Abstract

Pesticides are important chemicals for the daily use with their critical role as enhancing crop yields, and protecting against different type of pests [1]. It is known that only a small proportion of the pesticides can reach the target, and the rest distributed on the different environmental counterparts. Therefore, the high use numbers of pesticides is an important problem with its negative effects on both environment, and human health [2,3]. Imidacloprid (IM) (1-(6-chloro-3-pyridylmethyl)-2-nitroiminoimidazolidine) is one of the used pesticides for crop, vegetable, and fruit control. Unfortunately, IM has detected in aqueous environment because of its soluble nature [4]. Thus, new studies needed to assess the properties on the IM.

Computational Chemistry give opportunity for evaluating chemical information of molecules with an excellent accuracy [5]. This research explores the reactivity, and probable degradation mechanism of IM molecule. Within this study, all the calculations were performed by using Density Functional Theory (DFT) method with B3LYP/6-31g(d,p) basis set. The aqueous medium effect on the calculation was taken into consideration by using Conductor-like Polarizable Continuum Model (C-PCM). The reactivity of the IM molecule was investigated both global and local reactivity descriptors. According to the finding of this study possible degradation pathways of IM molecule was discussed.

Keywords: Imidacloprid, reactivity, degradation, Density Functional Theory

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**CORRECTION OF PILE-UP DISTORTIONS AND OPTIMIZATION OF TISSUE
DIFFERENTIATION IN PHOTON-COUNTING DETECTOR SPECTRAL MAMMOGRAPHY
USING NEURO-ADAPTIVE METHODS**

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Abstract

As mentioned in the article presented by us, today, spectral mammography is considered one of the most promising methods for detecting breast cancer at the initial stage. In particular, the application of photon counting detectors (PCD) allows for the accurate separation of different tissues due to their ability to distinguish energy.

The main object and subject - of the research work is the correction of the negative pile-up effects that occur when the radiation dose increases in spectral mammography systems by neuro-adaptive methods.

The aim of the research - the main goal of our work is to eliminate pile-up distortions in mammography systems with photon-counting detectors through the application of artificial neural networks.

In this way, it is necessary to increase the accuracy of the recovery of spectral data and, ultimately, to ensure the differentiation of tissues in a better form. For these reasons, one of the most important issues facing modern medical physics is the development of adaptive correction methods based on neural networks.

Keywords: mammography, spectral mammography, photon detector, neuro-adaptive method

IMPACT OF CTAB SURFACE MODIFICATION ON CO₂ ADSORPTION PERFORMANCE OF ZIF-7: TOWARD A HYBRID EXPERIMENTAL–COMPUTATIONAL STRATEGY**Mahammadali Ayrarov**

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Abstract

The development of efficient porous adsorbents for post-combustion carbon capture remains a critical challenge in sustainable chemical engineering. Among metal–organic frameworks, zeolitic imidazolate framework-7 (ZIF-7) has attracted increasing attention due to its high thermal stability, selective CO₂ affinity, and gate-opening adsorption behaviour. However, the influence of surfactant-mediated surface modification on the adsorption performance of ZIF-7 has not been sufficiently clarified. In this study, pristine ZIF-7 was synthesized and subsequently modified using cetyltrimethylammonium bromide (CTAB) through a post-synthetic surface treatment route. The objective was to investigate how CTAB-induced interfacial changes affect the structural properties and CO₂ adsorption behaviour of the framework. The synthesized materials were characterized using powder X-ray diffraction (PXRD), Fourier-transform infrared spectroscopy (FTIR), and thermogravimetric analysis (TGA) to evaluate crystallinity, surface modification, and thermal stability. Comparative CO₂ uptake performance was assessed by thermogravimetric adsorption measurements under controlled conditions. Preliminary findings indicate that CTAB treatment significantly influences the adsorption response of ZIF-7, suggesting that surface coverage, pore accessibility, and interfacial interactions collectively govern gas uptake behaviour. To further interpret the observed trends, density functional theory (DFT) calculations using ORCA and grand canonical Monte Carlo (GCMC) simulations using RASPA are proposed to provide molecular-level insight into adsorption energetics and equilibrium uptake characteristics. This work presents a hybrid framework integrating synthesis, characterization, adsorption testing, and computational modelling for the rational design of modified MOF adsorbents. The findings are expected to contribute to the development of tuneable ZIF-based materials for next-generation carbon capture technologies.

Keywords: ZIF-7, CTAB, Carbon dioxide capture, Metal–organic frameworks, Surface modification, Hybrid modelling.

FIELD-BASED INVESTIGATION OF WHEEL (BODEN) WEAR BEHAVIOUR IN E23000 TRAIN SETS: EFFECTS OF INITIAL OPERATION, BOGIE POSITION AND LINE CHARACTERISTICS

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Abstract

This study presents a field-based investigation of wheel (boden) wear behaviour in E23000 train sets during their first year of operation. Unlike simulation-driven approaches, the analysis is grounded in real operational measurements, enabling the identification of dominant wear patterns under actual service conditions. The study integrates temporal (running-in behaviour), structural (bogie position and wagon type), and operational (line characteristics) factors within a unified analytical framework. The results reveal a distinct two-stage wear evolution. An accelerated wear rate is observed during the initial running-in period, followed by a transition to a more stabilised regime. This behaviour indicates that early-stage surface adaptation between wheel and rail plays a critical role in determining subsequent wear progression. Significant differences are identified between motor cars (MC) and trailer cars (T), demonstrating the strong influence of traction forces and dynamic loading conditions on wear development. Furthermore, bogie-based analysis shows that wear is not uniformly distributed along the train configuration, with certain bogies consistently experiencing higher material loss. Left-right comparisons also reveal asymmetric wear patterns, primarily attributed to track curvature and directional operation characteristics. Overall, the findings confirm that wheel wear evolution is governed by structured, interrelated, and physically interpretable mechanisms rather than random variation. The insights obtained from this field-based study provide a reliable basis for improving maintenance strategies and contribute to a deeper understanding of wear behaviour in urban rail systems under real operating conditions.

Keywords: Wheel wear behaviour, Running-in period, Urban rail systems, Bogie-based wear distribution, Asymmetric wear patterns

DİJİTAL HABER MEDYASINDA AKRAN ZORBALIĞININ TEMSİLİ**Selin KİRAZ DEMİR**Doç.Dr, Amasya Üniversitesi Merzifon Meslek Yüksekokulu Basım ve Yayım Teknolojileri, Amasya-Türkiye
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ORCID: 0000-0002-5936-2722**Özet**

Akran zorbalığı çocuklar ve ergenler arasında olumsuz bir şekilde gelişen toplumsal bir sorunu temsil etmektedir. Günümüzde bu kavram yeni iletişim teknolojilerinin gelişmesiyle okul ortamlarında kalmayıp, çevrimiçi platformlarda yer almaktadır. Bu döngünün aynı şekilde devam etmesi akran zorbalığı kavramının görünürlüğünü artırırken, medyadaki temsiliyetin nasıl sunulduğu sorusunu gündeme getirmektedir. Akran zorbalığının sürekli gündemde olması bu kavramın psikolojik ve sosyal boyutunu öne çıkarmaktadır. Bu kapsamda medya kitlelerin sesi ve vicdanı olmak zorundadır. Medya, bu kavramı gündeme taşıyarak problemin odak noktasına yönelebilmesine katkı sağlamaktadır.

Bu çalışmanın amacı, dijital haber medyasında akran zorbalığının nasıl temsil edildiğini incelemektir. Araştırmada, nitel araştırma yöntemlerinden biri olan içerik analizi yöntemi kullanılmıştır. Belirlenen anahtar kelimeler kullanılarak (akran-siber zorbalık, okul içi şiddet) en çok ziyaret edilen iki web sitesindeki haberler içerik analizi yöntemi ile incelenmiştir. Ayrıca çalışma, haber metinlerinin hangi söylemler ve temalar etrafında kurgulandığını analiz etmektedir. Yapılan inceleme sonucunda haberlerde çoğunlukla olayın dramatik ve çarpıcı yönlerinin öne çıkarıldığı; buna karşılık zorbalığın nedenleri, önleyici-müdahale stratejileri ve mağdurlar üzerindeki psikolojik etkilerinin sınırlı düzeyde ele alındığı saptanmıştır. İncelenen haberlerde, üretilen içeriklerin kitleler üzerinde toplumsal farkındalık oluştururken, bazı durumlarda sansasyonel olgu olarak ortaya çıkmaktadır. Akran zorbalığı, medyada daha çözüm odaklı ele alınmalıdır. Medya, akran zorbalığı sorununu ele alırken, çözüm önerilerini sunmaktadır. Bu çalışma, akran zorbalığının temsil pratiklerini ortaya çıkarmaktadır.

Anahtar Kelimeler: Medya, Akran Zorbalığı, Gündem Belirleme, İçerik Oluşturma**REPRESENTATION OF PEER BULLYING IN DIGITAL NEWS MEDIA****Abstract**

Peer bullying represents a social problem that develops negatively among children and adolescents. With the advancement of new communication technologies, this phenomenon is no longer confined to school environments but has also extended to online platforms. The continuation of this cycle increases the visibility of peer bullying while raising questions about how it is represented in the media. The persistent presence of peer bullying in public discourse highlights its psychological and social dimensions. In this context, the media is expected to function as the voice and conscience of society. By bringing this issue to the agenda, the media contributes to directing attention toward the core of the problem.

The aim of this study is to examine how peer bullying is represented in digital news media. In the research, content analysis, one of the qualitative research methods, was employed. Using predetermined keywords (peer-cyberbullying, school violence), news articles from the two most visited websites were analyzed through content analysis. Additionally, the study investigates the discourses and themes around which news texts are constructed. The findings reveal that news reports predominantly emphasize the dramatic and striking aspects of incidents; however, the causes of bullying, preventive-intervention strategies, and the psychological effects on victims are addressed to a limited extent. While the analyzed content contributes to raising social awareness,

in some cases it also presents bullying as a sensational phenomenon. Peer bullying should be addressed in a more solution-oriented manner in the media. The media is expected to offer solution-oriented approaches when covering peer bullying. This study reveals the representation practices of peer bullying.

Keywords: Media, Peer Bullying, Agenda Setting, Content Creation

KENT GETTOLARINDAN SİBER DÜNYAYA: BİREYLERİN KİMLİK OLUŞUMUNDA KENTSEL MEKÂN VE YENİ MEDYA KULLANIM ETKİLERİNİN KARŞILAŞTIRMALI ÇÖZÜMLEMESİ: GAZİ MAHALLESİ ÖRNEĞİ**Cem Eren**

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Özet

Yeni iletişim teknolojileri, insanların sosyal ilişkilerini; düşünsel perspektiflerini, değerlerini ve aidiyetlerini önemli ölçüde etkilemiştir. Bu etki alanının sosyo-mekânsal etkileşim süreçlerini de kapsamı, kentsel mekânlardaki toplumsal pratiklerin de insan yaşamındaki rolünü tartışmaya açmıştır. Zira günümüzde, yeni iletişim teknolojileri odağında gelişen sosyalleşme pratikleri, kentsel mekânlardaki sosyo-mekânsal pratiklerin ve bunların etkilerinin dönüşmesine yol açmıştır. Özellikle kentlerin dezavantajlı ve damgalanmış mekânları olarak tanımlanan gettolar, dijital kültürün etkilerinin farklı biçimlerde deneyimlendiği sosyal alanlar olarak dikkat çekmektedir.

Bu çalışma da, kentsel mekânın kimlik oluşumundaki belirleyici rolünün dijital kültürün yükselişiyle nasıl dönüştüğünü, Y ve Z kuşakları karşılaştırması üzerinden incelemeyi amaçlamaktadır. Araştırma, İstanbul Gazi Mahallesi'nde yaşayan 12 Y kuşağı ve 12 Z kuşağı bireyle gerçekleştirilen derinlemesine görüşmelere dayanmaktadır. Bulgular, kentsel mekânın kimlik üzerindeki kurucu etkisinin özellikle Z kuşağında belirgin biçimde zayıfladığını; buna karşılık dijital kültürün yeni aidiyet biçimleri, kimlik repertuarları ve toplumsal yönelimler üreten başat bir alan hâline geldiğini göstermektedir. Y kuşağı için getto, güçlü bir mekânsal aidiyet, kolektif bellek ve dayanışma alanı olarak anlamlandırılırken; komşuluk, akrabalık ve mahalle ilişkileri kimliğin temel bileşenleri arasında yer almakta, mekân aynı zamanda güvenlik, özgürlük ve kültürel süreklilik sağlayan bir "karşı-mekân" işlevi görmektedir. Buna karşılık Z kuşağında mekânsal etkileşimlerin belirleyiciliği zayıflamakta; sosyal ilişkiler, serbest zaman pratikleri ve kültürel tercihler büyük ölçüde dijital ağlar üzerinden şekillenmektedir. Bu kuşakta kimlik, mekânsal referanslardan koparak daha akışkan, bireysel ve seçici bir nitelik kazanmakta; politik, kültürel ve dinî katılım biçimleri kolektif mekânsal pratiklerden uzaklaşıp dijital aracılı ve bireysel yönelimlere kaymaktadır. Ayrıca, getto deneyiminin Z kuşağı açısından kolektif bir direniş alanı olmaktan ziyade sosyal hareketliliği sınırlayan bir engel olarak algılanması, kuşaklar arasında belirgin bir sosyo-mekânsal kırılmaya işaret etmektedir. Sonuç olarak çalışma, dijitalleşmenin yalnızca mekânsal aidiyeti zayıflatmadığını; aynı zamanda bireylerin toplumsal, kültürel ve politik konumlanışlarını yeniden tanımlayan bir dönüşüm sürecine yol açtığını ortaya koymaktadır.

Anahtar kelimeler: dijital kültür, getto, sosyo-mekânsal etkileşim, kimlik.

FROM URBAN GHETTOS TO THE CYBER WORLD: A COMPARATIVE ANALYSIS OF THE EFFECTS OF URBAN SPACE AND NEW MEDIA USE ON INDIVIDUALS' IDENTITY FORMATION: THE CASE OF GAZİ NEIGHBORHOOD**Abstract**

New communication technologies have significantly influenced individuals' social relations, intellectual perspectives, values, and senses of belonging. The expansion of this sphere of influence to encompass socio-spatial interaction processes has also brought into question the role of social practices in urban spaces in shaping human life. In contemporary contexts, forms of socialization that have developed around new communication technologies have led to the transformation of socio-spatial practices in urban environments, as well as their impacts. In particular, ghettos—defined as disadvantaged and stigmatized urban spaces—emerge as social arenas in which the effects of digital culture are experienced in distinct ways.

This study aims to examine how the constitutive role of urban space in identity formation has been transformed with the rise of digital culture, through a comparative analysis of Generations Y and Z. The research is based

on in-depth interviews conducted with 12 individuals from Generation Y and 12 individuals from Generation Z residing in the Gazi Neighborhood of Istanbul. The findings indicate that the formative influence of urban space on identity has significantly weakened, particularly among Generation Z; conversely, digital culture has become a dominant sphere that produces new forms of belonging, identity repertoires, and social orientations. For Generation Y, the ghetto is interpreted as a space of strong spatial belonging, collective memory, and solidarity; neighborhood, kinship, and community relations constitute core components of identity, while space itself functions as a “counter-space” that provides security, freedom, and cultural continuity. In contrast, among Generation Z, the determinative role of spatial interactions has diminished; social relations, leisure practices, and cultural preferences are largely shaped through digital networks. Within this generation, identity becomes increasingly detached from spatial references, acquiring a more fluid, individualized, and selective character; forms of political, cultural, and religious participation shift away from collective spatial practices toward digitally mediated and individualized orientations. Furthermore, the perception of the ghetto experience among Generation Z—as an obstacle limiting social mobility rather than a site of collective resistance—points to a significant socio-spatial rupture between generations.

In conclusion, the study demonstrates that digitalization not only weakens spatial belonging but also initiates a broader process of transformation that redefines individuals’ social, cultural, and political positioning.

Keywords: digital culture, ghetto, socio-spatial interaction, identity.

UTOPIAN SOCIALISM AND ITS IMPORTANT THINKERS

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Abstract

This study aims to examine the concept of utopian socialism within its historical context, as it emerged in the early nineteenth century as a response to the profound transformations brought about by the Industrial Revolution and the French Revolution, as well as to the socio-economic devastation and intensifying class conflicts generated by industrial capitalism. The first section of the study addresses the development of “immature theories” parallel to the not yet mature material conditions of the period, and the corresponding tendency to resolve social problems at a mental or conceptual level. In this context, utopian socialism by excluding revolutionary class struggle developed moral, reformist, and peaceful solutions, while attempts to reconstruct the social order were presented to society from the outside through propaganda, model practices, and ethical reforms, which are analyzed in this study. The second section focuses on the founding figures of this movement Robert Owen, Henri de Saint-Simon, and Charles Fourier by analyzing both their ideas and practical experiments. In this framework, the study examines Owen's materialist thesis that human character is shaped by the environment, his New Lanark experiment, and his pioneering role in modern cooperative movements; Saint-Simon's vision of an industrial society based on the distinction between “producers” and “idlers,” along with his advocacy for a social order grounded in science and merit; and finally, Fourier's phalanstère model centered on human passions, his emphasis on women's emancipation, and his radical critique of civilization. In conclusion, this study seeks to provide a comprehensive evaluation of the trajectory of utopian socialist critiques of capitalism, their intellectual legacy for modern socialism, and the practical developments that emerged in response to these approaches.

Keywords: Utopian Socialism, Robert Owen, Henri de Saint-Simon, Charles Fourier, Industrial Revolution, Political Theories

ÜTOPYACI SOSYALİZM VE ÖNEMLİ DÜŞÜNÜRLERİ

Özet

Bu çalışma, 19. yüzyılın başında Sanayi Devrimi ve Fransız Devrimi'nin yarattığı köklü dönüşümler neticesinde, sanayi kapitalizminin doğurduğu sosyo-ekonomik yıkımlara ve yoğunlaşan sınıfsal çatışmalara bir tepki olarak ortaya çıkan ütopiyacı sosyalizm kavramını tarihsel bağlamı içerisinde incelemeyi amaçlamaktadır. Çalışmanın ilk bölümünde, dönemin henüz olgunlaşmamış maddi koşullarına paralel olarak gelişen “olgunlaşmamış teoriler” ve bu doğrultuda toplumsal sorunların zihinsel olarak çözülme çabası ele alınmaktadır. Ütopiyacı sosyalizmin devrimci sınıf mücadelesini dışlayarak ahlaki, reformist ve barışçıl çözümler geliştirdiği bu süreçte, toplumsal düzeni yeniden kurmaya yönelik arayışların, propaganda, örnek uygulamalar ve ahlaki reformlar yoluyla topluma dışarıdan sunulması analiz edilmektedir. Çalışmanın İkinci bölümünde ise bu akımın kurucu figürleri olan Robert Owen, Henri de Saint-Simon ve Charles Fourier'nin fikirleri ve pratik deneyimleri ele alınmaktadır. Bu kapsamda çalışmada Owen'ın insan karakterinin çevre tarafından şekillendirildiği yönündeki materyalist tezi, New Lanark deneyimi ve modern kooperatifçilik girişimleri, Saint-Simon'un “üretenler” ile “boş gezenler” ayırımına dayanan sanayi toplumu tahayyülü ve toplumsal tabakalaşmanın bilim ile liyakate dayanması gerektiği fikri ve son olarak Fourier'nin insan tutkularını merkeze alan falanster modeli, kadın özgürleşmesini temele alan vizyonu ve radikal uygarlık eleştirisi analiz edilmektedir. Sonuç olarak bu çalışmanın amacı ütopiyacı düşünürlerin kapitalizme yönelttikleri eleştirilerin izlediği yolu, bu düşüncelerin modern sosyalizme kalan mirasını ve bu yaklaşımlara karşı ortaya çıkan pratik gelişmeleri bütüncül bir perspektifle değerlendirmeyi amaçlamaktadır.

Anahtar Kelimeler: Ütopiyacı Sosyalizm, Robert Owen, Henri de Saint-Simon, Charles Fourier, Sanayi Devrimi, Siyasal Teoriler.

NATO’NUN KRİZ YÖNETİMİ YAKLAŞIMININ EVRİMSEL GELİŞİMİ

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Özet

Uluslararası ilişkiler disiplinde “Kriz” kavramı, beklenmedik siyasi, ekonomik veya toplumsal olayların normal gidişatı bozmasının yanı sıra, bu bozulmanın ardından yaşanan sorunların oluşturduğu gerilimleri ve çözümsüzlük durumlarını ifade etmektedir (Dağ, 2016: 104). Kriz yönetimi ise uluslararası bir kriz sırasında gelişmelerin daha büyük sorunlara yol açmadan ülke çıkarlarına uygun bir şekilde ele alınma süreci olarak tanımlanabilir (Dağ, 2016: 104).

Krizlerin devletlerin yanı sıra uluslararası örgütleri hatta bireyleri ve grupları da etkileyen özel bir olgu olduğunu ifade etmek mümkündür (Aydemir, 2005: 210). Buradan hareketle krizler, zaman içerisinde uluslararası ilişkilerin önemli aktörlerinden biri olan uluslararası örgütlerin de ilgi alanına girmiştir.

NATO, kriz yönetimi konusunda faaliyetler yürüten bir örgüttür. NATO için kriz yönetimi, örgütün temel güvenlik görevlerinden biridir (NATO, 2025). Kriendler’e göre bu görev, Soğuk Savaş sonrası ortaya çıkan yeni güvenlik ortamına uyum sürecinde örgütün çalışma alanına eklenmiştir (Kriendler, 2004: 59). Böylece NATO, Soğuk Savaş sonrası geçirdiği yapısal dönüşümle, günümüzün yeni tehditleri ile de mücadele eden bir örgüte dönüşmüştür (Dizdaroğlu, 2022: 207).

NATO, farklı zaman dilimlerinde dünyanın farklı bölgelerinde çeşitli kriz yönetimi operasyonları gerçekleştirmiştir. Bu operasyonlar insani müdahale, çatışmaları önleme, terör örgütleriyle mücadele, lojistik destek türünden çok çeşitli amaçlarla gerçekleştirilmiştir. Bu çalışmada NATO’nun kriz yönetimi yaklaşımının evrimsel gelişiminin incelenmesi amaçlanmaktadır. Bu doğrultuda NATO’nun kriz yönetimi anlayışı ve bu konuda gerçekleştirdiği faaliyetler analiz edilecektir.

Anahtar Kelimeler: Kriz Yönetimi, NATO, NATO’nun Kriz Yönetimi Operasyonları

THE EVOLUTIONARY DEVELOPMENT OF NATO'S CRISIS MANAGEMENT APPROACH**Abstract**

In the field of International Relations, the concept of “crisis” refers not only to the disruption of the normal course of events caused by unexpected political, economic, or social occurrences, but also to the tensions and deadlocks resulting from the problems that follow such disruptions (Dağ, 2016: 104). Crisis management can be defined as the process of addressing developments during an international crisis in a manner consistent with national interests, before they lead to more serious problems (Dağ, 2016: 104).

It can be argued that crises are a unique phenomenon that affects not only states but also international organizations, and even individuals and groups (Aydemir, 2005: 210). Consequently, crises have, over time, become a matter of interest for international organizations, which are important actors in international relations.

NATO is an organization that carries out activities related to crisis management. Crisis management is one of NATO’s core security missions (NATO, 2025). According to Kriendler, this mission was integrated into the organization’s scope of work as part of the process of adapting to the new security environment that emerged after the Cold War (Kriendler, 2004: 59). Thus, through the structural transformation it underwent after the Cold War, NATO has evolved into an organization that also addresses today’s new threats (Dizdaroğlu, 2022: 207).

NATO has conducted various crisis management operations in different regions of the world at different times. These operations have been carried out for a wide variety of purposes, including humanitarian intervention,

conflict prevention, countering terrorist organizations, and logistical support. The aim of this study is to examine the evolutionary development of NATO's crisis management approach. To this end, NATO's understanding of crisis management and the activities it has carried out in this regard will be analyzed.

Keywords: Crisis Management, NATO, NATO's Crisis Management Operations

CONTENT ANALYSIS OF THE WEBSITES OF COFFEE HOUSES IN KAYSERİ:
GASTRONOMIC IDENTITY AND PRESENTATION STRATEGIES

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Abstract

The aim of this study is to examine the websites of coffee restaurants operating in the province of Kayseri in terms of their gastronomic identity and presentation strategies. Content analysis, a qualitative research method, was employed in the study. Within this scope, the websites of ten coffee restaurants identified via Google Maps were systematically analysed in terms of their textual and visual content. The data obtained were evaluated in terms of the restaurants' promotional styles in the digital environment, the extent to which they emphasise local culinary elements, their presentation styles, and the themes prominent in their visual content. The findings indicate that the restaurants predominantly present themselves on their websites through modern, traditional, and minimalist approaches. It was determined that the modern presentation style is more prevalent, although some establishments create a traditional identity by bringing historical and cultural elements to the fore. It was also found that local culinary elements are emphasised to varying degrees across the restaurants, with some establishments highlighting these elements strongly whilst others give them a more limited prominence. In terms of visual content, product-focused presentations were found to take centre stage, whilst the venue's ambience was used as a supporting element. Consequently, it is assessed that the ways in which restaurants reflect their gastronomic identities on digital platforms vary, and that digital presentation strategies play a significant role in shaping customer perception.

Keywords: Gastronomy, Coffee Culture, Content Analysis

**КОНСТИТУЦИОННЫЙ КОНТРОЛЬ И КОНСТИТУЦИОННЫЙ НАДЗОР: ПРОБЛЕМЫ
РАЗГРАНИЧЕНИЯ В СОВРЕМЕННОЙ ПРАВОВОЙ ДОКТРИНЕ****Оруджлу Рустам Афган оглы**

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Аннотация

Настоящее исследование посвящено анализу сущности конституционного контроля и его соотношения с конституционным надзором в условиях развития современной конституционно-правовой доктрины. Актуальность темы обусловлена существующей в юридической науке терминологической неопределённостью, вследствие которой данные категории нередко отождествляются, несмотря на различие их юридической природы и функционального назначения.

Исследование исходит из положения о том, что формальное признание конституции актом высшей юридической силы само по себе не гарантирует её эффективного действия. Реализация принципа верховенства конституции требует существования специального институционального механизма, обеспечивающего соответствие нормативных правовых актов конституционным предписаниям. В научной литературе конституционный контроль рассматривается как деятельность уполномоченных органов по проверке нормативных актов на предмет их конституционности с возможностью признания их недействительными. В отличие от него конституционный надзор носит преимущественно аналитический и превентивный характер и не влечёт обязательных юридических последствий.

На основе сравнительно-правового и доктринального анализа обосновывается, что конституционный контроль выступает активным механизмом обеспечения конституционной законности и защиты прав человека, тогда как конституционный надзор выполняет функцию мониторинга и выявления потенциальных конституционных рисков. Проведённое разграничение имеет важное значение для развития института конституционного правосудия и укрепления принципа правового государства.

Ключевые слова: конституционный контроль, конституционное наблюдение, конституционная законность, конституционное правосудие, правовое государство.

**CONSTITUTIONAL CONTROL AND CONSTITUTIONAL SUPERVISION: PROBLEMS OF
DIFFERENTIATION IN MODERN LEGAL DOCTRINE****Orujlu Rustam Afgan oglu**

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Abstract

The present study examines the essence of constitutional control and its correlation with constitutional supervision within the framework of contemporary constitutional legal doctrine. The relevance of the research is determined by the existing terminological ambiguity in legal scholarship, where these categories are frequently identified as synonymous despite differences in their legal nature and functional purposes.

The research proceeds from the premise that the formal recognition of the constitution as the act possessing supreme legal force does not in itself guarantee its effective implementation. The realization of the principle of constitutional supremacy requires the existence of a special institutional mechanism ensuring the conformity of normative legal acts with constitutional provisions. In legal doctrine, constitutional control is understood as the activity of authorized bodies aimed at reviewing normative acts for their constitutionality with the authority

to declare them invalid. In contrast, constitutional supervision is predominantly analytical and preventive in nature and does not produce binding legal consequences.

Based on comparative legal and doctrinal analysis, the study substantiates that constitutional control acts as an active mechanism for ensuring constitutional legality and the protection of human rights, whereas constitutional supervision performs monitoring functions and identifies potential constitutional risks. The differentiation of these institutions is of significant importance for the development of constitutional justice and the strengthening of the rule-of-law principle.

Keywords: constitutional control, constitutional supervision, constitutional legality, constitutional justice, rule of law.

TÜRKİYE AS AN EMERGING ENERGY HUB AND ITS ROLE IN ENERGY DIPLOMACY AND REGIONAL SECURITY IN THE SOUTH CAUCASUS AND EU CONTEXT 2002–2024

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Abstract

This article examines Türkiye's energy diplomacy impact on energy security in the South Caucasus and its geopolitical vicinity between 2002 and 2024. Over this time, Türkiye has emerged as a pivotal energy transit country connecting source of energy to markets in Europe. Key to this approach is the implementation of major infrastructure projects like the Baku-Tbilisi-Ceyhan (BTC) oil pipeline, the Baku-Tbilisi-Erzurum (BTE) gas pipeline and the Trans-Anatolian Natural Gas Pipeline (TANAP), alongside the Trans Adriatic Pipeline (TAP), which together form the backbone of the Southern Gas Corridor.

Employing a qualitative case study method, study examines how these projects, with Türkiye's bilateral partnerships on energy with Azerbaijan and engagement in European energy markets, help to diversify energy supply routes and sources. In this regard, the Southern Gas Corridor has emerged as a critical alternative energy source and route for the EU in its quest to diversify energy sources and build a resilient future energy supply.

The research assesses Türkiye's position not just as a transit nation but as a potential energy hub for the region having global effects on energy security and markets. It also relates to the challenges facing Türkiye's sustainable energy diplomacy in terms of geopolitical, regional and global factors impacting on energy demand.

While Türkiye's energy diplomacy has boosted regional energy interconnections and identified a new source of energy for the European Union, it has only had a limited impact on overall regional energy security due to structural and geopolitical restrictions. These constraints and the need for further policy developments are also covered in this study.

This study makes a valuable contribution to the scholarly debate by providing a project-based analysis of Türkiye and its strategic role in the energy security of the region and Europe, as well as a critical assessment of its success, limitations and potential.

Keywords: Energy Diplomacy, Türkiye, Energy Security, South Caucasus, European Union

ESCALATION DYNAMICS IN THE KASHMIR CONFLICT: NUCLEAR DETERRENCE, CRISIS BEHAVIOUR, AND REGIONAL INSTABILITY IN SOUTH ASIA

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Abstract

This article examines escalation patterns in the Kashmir region within the broader context of the nuclearized rivalry between India and Pakistan. As one of the most volatile areas in international politics, Kashmir offers a critical case study for understanding how crises develop and escalate under a nuclear deterrence framework. The study traces the origins of the conflict to the 1947 partition and analyses its persistence through repeated military confrontations. It further evaluates how nuclearization—following the Pokhran-II and Chagai-I tests—has reshaped crisis behaviour without eliminating the risk of conflict.

Drawing on deterrence and escalation theory, the article assesses major crises such as the Kargil War and the 2019 India–Pakistan standoff to illustrate how escalation unfolds in a nuclear environment. The findings suggest that while nuclear deterrence reduces the likelihood of full-scale war, it simultaneously enables limited conflicts and increases the risk of miscalculation and rapid escalation. Factors such as geographical proximity, entrenched political tensions, and weak crisis-management mechanisms further heighten instability. Ultimately, the study concludes that Kashmir remains a significant nuclear flashpoint and underscores the urgent need for improved diplomacy and institutionalized mechanisms to mitigate escalation risks in South Asia.

Keywords: Kashmir, nuclear deterrence, escalation, South Asia, conflict studies, India–Pakistan rivalry

**ETHNOCHEMISTRY AND THE SUSTAINABLE DEVELOPMENT GOALS: POSITIONING
INDIGENOUS CHEMICAL KNOWLEDGE WITHIN GLOBAL SUSTAINABILITY
FRAMEWORKS****Abdulkadir HALLIRU**

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Abstract

Ethnochemistry, a branch of ethnoscience, examines indigenous chemical knowledge embedded in cultural practices such as traditional medicine, food processing, agriculture, dye production, and environmental management. Developed through long-term empirical observation and intergenerational transmission, these knowledge systems represent valuable but often underutilized resources for addressing contemporary sustainability challenges. This paper explores the position of ethnochemistry within the United Nations Sustainable Development Goals (SDGs), with emphasis on its contributions to health, food security, education, industrial innovation, environmental sustainability, and climate action. Using a conceptual and analytical approach, the study synthesizes literature on indigenous knowledge systems and sustainability science to identify intersections between ethnochemical practices and selected SDGs, particularly SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 15 (Life on Land). Findings reveal that ethnochemistry contributes to sustainable development through natural resource utilization, eco-friendly production systems, and culturally grounded healthcare practices. In health systems, ethnochemical knowledge supports affordable traditional medicines, several of which have informed modern pharmaceuticals. In agriculture and food systems, it improves food preservation, soil management, and pest control through natural and biodegradable substances. Furthermore, ethnochemistry enhances education by promoting culturally responsive science learning and supports innovation through bio-based alternatives for industrial processes. Its environmentally sustainable practices contribute to biodiversity conservation and reduced chemical pollution, aligning with climate and ecological goals. Despite its relevance, ethnochemistry remains underrepresented in formal scientific and policy frameworks due to limited documentation and weak integration with modern science. The paper concludes that ethnochemistry serves as a bridge between indigenous knowledge systems and contemporary scientific innovation. Integrating ethnochemistry into sustainability frameworks can promote inclusive development and strengthen progress toward achieving the SDGs.

Keywords: Ethnochemistry, Indigenous Knowledge Systems, Sustainable Development Goals, Traditional Medicine, Sustainability, Innovation

A STUDY OF THE FOOD SECURITY AND THE PATTERN OF CONSUMPTION OF FOOD BY RURAL WOMEN IN ASSAM: A CASE STUDY IN THAURA JAPIHOJIA VILLAGE OF SIVASAGAR, ASSAM**Dr. Saurabh Kumar Sarma**Academic Councilor, IGNO University, Assam, India, ORCID NO: <https://orcid.org/0000-0002-3562-066X>**Abstract**

Food, the basic to survival means different to different persons. It is the core component for development of individuals. Therefore, the concern over 'food' and 'food security' have existed throughout history amongst scholars, academicians etc. apart from the common people. In a society there cannot be any socio-economic development and its sustainability without food security. In reference to the study, it is intended to concentrate on the consumption pattern of food of rural women. It may be noted that in spite of immense contributions of women in every aspect including household food and nutrition security, they face food insecurity. Food insecurity is an important contributor to health and a factor in both underweight and malnutrition, and overweight and obesity. Countries where both undernutrition and overweight and obesity coexist are said to be experiencing a double burden of malnutrition. India is one example of a country experiencing this double burden. Women have been found to experience the negative impacts of food insecurity and obesity, however, the reasons that women experience the impact of malnutrition more so than men are complex and are under-researched. This study is therefore conducted to thoroughly investigate food insecurity problem of women in rural areas especially, find out the hidden causes of the problem and to provide certain concrete futuristic recommendations to the policy planners nationally and even internationally on women and more particularly regarding raising the level of food security status of women and also to empower women in terms of food access too. This study is also significant as it projects the fact that household food and nutrition security have a female perspective as women plays many roles in the entire food chain. To know the family equations in terms of gender and nutrition is another significance of the study; in reference to the study, it is intended to concentrate on the consumption pattern of food of rural women in the Thaura Japihojia village of Thaura Dol Block, Sivasagar. It may be noted that in spite of immense contributions of women in every aspect including household food and nutrition security, they face food insecurity. This current research employed a simple random sampling method to begin to fill this gap by exploring the dietary intake, anthropometric characteristics, and food security status of rural women of Japihojia village of Sivasagar, Assam. In total, 106 sample were surveyed from the selected age group between 25 years to 50 years. Contributing to these findings was a very limited diet, high in energy, and low in protein and iron. The findings of this research suggest that the rural women in this study area have a lack of diet diversity and may be at risk of a range of non-communicable diseases. The obtained results thus suggest that in order to improve the food security level of women particularly rural women, the national nutritional programmes should be developed. In this connection it should be stated that since many years the government of both the national and state level adopted many schemes and policies specially for the women. To bring development, various special packages for women have been introduced by the government. There are many policies for women's education, for pregnant women, lactating mothers, employment of women, and so on. Hence, food expenditure and income of households is not the sole factor which influences food security status of women in the study. In fact, the study results suggest that women of households with high income and also women of lower income households suffer from the food insecurity problem. A social factor is strongly related to the food security of the women and that is 'gender bias'.

Keywords: food security, India, women, rural

THE ROLE OF PUBLIC OFFICIALS IN PREVENTING CORRUPTION PERMITS: A COMPARATIVE ANALYSIS BETWEEN THE REPUBLIC OF MOLDOVA AND EUROPE

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Abstract

Corruption in the process of issuing construction permits represents a significant governance challenge, particularly in transitional economies where institutional frameworks are still consolidating and administrative practices remain vulnerable to discretionary decision-making. This article examines the role of public officials in preventing corruption within construction permitting systems, focusing on their responsibility to ensure transparency, legality, and accountability in administrative procedures. It provides a comparative analysis between the Republic of Moldova and European practices, highlighting key differences in regulatory maturity, institutional capacity, and enforcement effectiveness.

The study evaluates how legal frameworks shape the behavior of public officials and influence the integrity of permitting processes. In the Republic of Moldova, although substantial reforms have been introduced to align national legislation with European standards, practical implementation continues to face challenges such as limited administrative capacity, bureaucratic complexity, and inconsistent application of anti-corruption measures. These factors increase the risk of informal practices and undermine public trust in construction governance.

In contrast, European systems generally demonstrate stronger institutional safeguards, higher levels of administrative transparency, and advanced digitalization of permitting procedures. These mechanisms reduce direct interaction between applicants and officials, thereby limiting opportunities for corruption and improving accountability.

The analysis also emphasizes the importance of institutional capacity, ethical standards, and oversight mechanisms in shaping the effectiveness of public officials in corruption prevention. Overall, the article highlights that while Republic of Moldova has made notable progress in legal harmonization, further improvements in implementation, digital governance, and institutional integrity are essential to achieve sustainable corruption prevention in construction permitting systems.

Keywords: tax evasion, construction sector, public budget, shadow econom.

LEGAL DELIMITATION OF FORCED MARRIAGE FROM HUMAN TRAFFICKING IN CRIMINAL LAW**Milea DIANA**

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Abstract

This article addresses one of the most challenging issues in contemporary criminal law, namely the legal delimitation of forced marriage from human trafficking, two distinct yet frequently overlapping offences that share common elements of coercion, exploitation, and the violation of personal autonomy. Although both phenomena involve the subjugation of the victim's free will through threat, deception, or abuse of a position of vulnerability, their criminal characterization, constituent elements, and applicable sanctions differ substantially. A rigorous legal distinction between the two is indispensable for the correct qualification of criminal acts, the effective prosecution of perpetrators, and the adequate protection of victims within the national legal framework of the Republic of Moldova.

In the Republic of Moldova, forced marriage is criminalized under Article 2002 of the Criminal Code (Law No. 985/2002), introduced through legislative amendments aimed at aligning national law with European standards on preventing and combating violence against women and domestic violence. Human trafficking is regulated separately under Article 165 of the same code, which implements the provisions of the Palermo Protocol and Council of Europe Convention on Action against Trafficking in Human Beings (Warsaw, 2005), ratified by Moldova. While forced marriage may constitute an autonomous offence, it can simultaneously represent a form of exploitation falling within the definitional scope of human trafficking, particularly when the victim is recruited, transported, or transferred for the purpose of being subjected to a forced marital union. The study examines the points of intersection and divergence between these two criminal norms, analysing the special legal object, the objective and subjective constituent elements, and the aggravating circumstances provided by Moldovan criminal law.

A central criterion of delimitation resides in the purpose of exploitation. Human trafficking is characterized by an instrumental exploitation of the victim for economic gain, sexual exploitation, forced labour, or organ removal, whereas forced marriage, in its autonomous criminal form, targets primarily the suppression of the victim's right to freely consent to marriage, without necessarily implying further economic exploitation. However, in practice, forced marriage is frequently used as a concealment mechanism for trafficking, particularly in cross-border cases involving minor victims or socially vulnerable women. The study further analyses relevant jurisprudence from the European Court of Human Rights, including the cases of *Rantsev v. Cyprus and Russia* (2010) and *S.M. v. Croatia* (2020), in which the Court clarified state obligations in cases where trafficking and coerced family arrangements intersect, emphasizing the duty to investigate, prosecute, and provide reparation.

The research also highlights the procedural and institutional challenges faced by Moldovan law enforcement and prosecutorial authorities when classifying cases that contain elements of both offences, including issues of concurrent qualification, evidentiary difficulties, and victim reluctance to cooperate due to family or community pressure. The article concludes with recommendations for legislative clarification, the development of prosecutorial guidelines capable of assisting practitioners in correctly delimiting the two offences, and the strengthening of inter-agency cooperation among the police, prosecutors, social protection services, and civil society organizations. Harmonization with Directive 2011/36/EU on preventing and combating trafficking in human beings and with the Istanbul Convention standards ratified by Moldova is identified as a priority for ensuring coherent and effective criminal justice responses to both forms of serious violation of human dignity.

Keywords: forced marriage, human trafficking, criminal law, legal delimitation, Criminal Code, exploitation.

EXPONENTIAL-TYPE ESTIMATORS FOR MEAN ESTIMATION UNDER COMPLETE AND PARTIAL AUXILIARY INFORMATION UNDER CIRCULAR SYSTEMATIC SAMPLING

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Abstract

This paper generalizes three types of exponential-type estimators for estimating the mean of a study variable using information from an auxiliary variable under circular systematic sampling (CSS). The proposed estimators are developed to accommodate both complete and partial auxiliary information. Their statistical properties are examined by deriving expressions for bias, mean squared error (MSE), and minimum MSE using first-order approximations. A theoretical efficiency comparison is conducted between the proposed estimators and classical ratio and regression estimators, along with a comparison to the estimators of Bahl and Tuteja (1991), Gupta and Shabbir (2008), Grover and Kaur (2011), and Riaz et al. (2017) within the CSS framework. The results indicate that the proposed estimators achieve higher efficiency than existing alternatives under certain conditions. Furthermore, the theoretical findings are supported by an empirical study, demonstrating the practical relevance and effectiveness of the proposed estimators.

Keywords: Auxiliary information, Bias, Circular systematic sampling (CSS), Mean squared error (MSE) and Percent relative efficiency (PRE).

SPEED, POWER, AND SILENCE AN ANALYSIS OF JOURNALISTS' PERCEPTIONS OF THE ALBANIAN MEDIA LANDSCAPE

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Abstract

The Albanian media system has experienced rapid technological transformation over the past two decades, marked by the proliferation of media outlets, digital platforms, and real-time information flows. Despite these developments, international reports and academic research continue to highlight structural challenges affecting media freedom, editorial independence, and the professional conditions of journalists. While existing studies primarily focus on institutional indicators such as media ownership concentration, regulatory frameworks, and press freedom rankings, fewer studies examine how journalists themselves perceive the strengths and weaknesses of the media environment in which they operate.

This paper addresses this gap by exploring journalists' perceptions of the Albanian news industry through a small-scale exploratory survey conducted with 35 journalists working in different media organizations. Inspired by a similar approach developed by the Pew Research Center to examine journalists' views of the news industry, the study asks respondents to identify what the Albanian media does well and what it does poorly.

The findings reveal three key dynamics shaping the contemporary media landscape: speed, referring to digitalization and the rapid circulation of information; power, reflecting the influence of political actors and media ownership on editorial agendas; and silence, expressed through self-censorship and professional vulnerability among journalists. Together, these dimensions illustrate the paradox of a media system that is technologically dynamic yet structurally fragile.

Keywords: media systems, journalism, Albania, media freedom, political influence, self-censorship

GOVERNANCE AND WATER RESILIENCE: A SYSTEMATIC REVIEW OF THE LITERATURE

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Abstract

As the world grapples with the challenges of the Anthropocene, resilience has become a central concept for understanding and managing socio-ecological systems, especially those involving water resources. While resilience features prominently in major international policy agendas, its meaning remains contested, making it difficult to translate into concrete water governance measures. Water systems offer a particularly useful lens for exploring the interplay between structural vulnerabilities, growing human pressures, and institutional constraints.

This article reports a systematic review of 46 peer-reviewed studies indexed in the Web of Science, with the aim of identifying the governance attributes most strongly associated with water resilience. The review examines key dimensions including actors, conceptual frameworks, methodologies, geographic contexts, and governance attributes. Findings point to a clear dominance of socio-ecological systems thinking and adaptive governance approaches, with stakeholder participation, multi-level coordination, institutional flexibility, social learning, and actor connectivity emerging as central elements. The study also highlights a persistent gap between the theoretical recognition of these attributes and their actual implementation on the ground, driven by institutional fragmentation, power imbalances, scale mismatches, and weak enforcement capacities.

Keywords: Governance, Resilience, Socio-ecological Systems, Water Resources, Systematic Literature Review.

HEALTH AND DISEASE IMPLICATIONS OF PEARL MILLET IRRIGATED WITH TRICKLING FILTER-TREATED WASTEWATER IN SEMI-ARID NORTH AFRICA

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Pearl millet commonly known as Bachna (Ilan), is one of the four major cereals alongside rice, maize, and sorghum cultivated in tropical semi-arid regions, particularly in Africa and Asia. Nutritionally, pearl millet is rich in essential nutrients and bioactive compounds such as phenols. It provides high energy, contains less starch, and is an excellent source of fiber (1.2g/100g, predominantly insoluble). Notably, it exhibits 8-15 times higher α -amylase activity than wheat, has a low glycemic index (55), and is naturally gluten-free. Its protein content ranges from 8 to 19%, though it is relatively low in lysine, tryptophan, threonine, and sulfur-containing amino acids. With a lipid content of 3-6%, pearl millet offers greater energy than sorghum and is comparable to brown rice. Given its nutritional profile, pearl millet holds promise for managing celiac disease, constipation, and various non-communicable diseases. However, further research is needed, including nutritional studies on populations in pearl millet-consuming regions and clinical trials to evaluate its therapeutic effects in specific health conditions. In this study, we also assessed the agro-physiological and biochemical proprieties of the crops. Hence, the highest productivity of millet and leaf area were obtained in response to irrigation with RWW and TWW compared to WW; while macro-elements (TP, TKN, and K) were also affected in millet irrigated with RWW compared to TWW and WW. However, the plants irrigated with well water accumulate more Ca, Na, and Mg than those irrigated with RWW and TWW. All the crops irrigated with three water treatments showed a relatively similar concentration of micro-nutriments. The prevalence of total chlorophyll content in the plants increased with well water irrigation. Nevertheless, the biochemical parameters (protein and sugar content) were adversely affected in maize irrigated with RWW as compared to TWW and WW. Moreover, the use of treated Millets are a major source of human food, and their production has been steadily increasing in the last decades to meet the dietary requirements of the increasing world population. Millets are an excellent source of all essential nutrients like protein, carbohydrates, fat, minerals, vitamins, and bioactive compounds. However, the nutrients, bioactive compounds, and functions of cereal grains can be influenced by the food preparation techniques such as decortication/dehulling, soaking, germination/malting, milling, fermentation, etc. urban wastewater improves the physicochemical properties and fertility of the soil compared to well water and enhances crop productivity.

Keywords: Pearl Millet; irrigation; Health, nutritional; physiological proprieties; Trickling Filter.

ASSESSING THE NUTRITIONAL AND HEALTH OUTCOMES OF MILLET GROWN WITH TRICKLING FILTER-EFFLUENT UNDER ARID NORTH AFRICAN CONDITIONS

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Millet is an important crop for dry land farmers. They are highly nutritious and climate compliant crops, millet also known as Bachna (Illane), is one of the four most important cereals (rice, maize, sorghum and millets) grown in the semi-arid tropical regions of the world, mainly in Africa (North of Africa imtoute marrakech – Morocco) and Asia. Our aim is to study the potential health benefits of millet. It is rich in a number of nutrients and non-nutrients such as phenols. It is high in energy, contains less starch, lots of fibre (1.2 g/100 g, most of which is insoluble), 8 to 15 times more α -amylase activity than wheat, a low glycaemic index (55) and is glutenfree. The protein content varies from 8 to 19% and millet is low in lysine, tryptophan, threonine and sulphur amino acids. The energy content of millet is higher than that of sorghum and almost equal to that of brown rice, as the fat content is generally higher (3 to 6%). millet can be recommended in the treatment of coeliac disease, constipation and a number of noncommunicable diseases. Nutritional studies on the population living in the millet belts of the world and clinical trials on the impact of millet in specific pathological conditions are needed. An experimental reuse study was performed using raw (RWW) and treated urban wastewater (TWW) by Trickling Filter (TF) process to irrigate millet in comparison to well water (WW) as a control over a period of 5 months the highest productivity of millet and leaf area were obtained in response to irrigation with RWW and TWW compared to WW; while macronutrients (TP, TKN, and K) were also affected in millet irrigated with RWW compared to TWW and WW. However, the plants irrigated with well water accumulate more Ca, Na, and Mg than those irrigated with RWW and TWW, the biochemical parameters (protein and sugar content) were adversely affected in millet irrigated with RWW as compared to TWW and WW. Moreover, the use of treated urban wastewater

Keywords: *Millet ; nutritional ,health , irrigation; treated wastewater reuse; physiological proprieties; Trickling Filter.*

ADSORPTION OF POLYPHENOLS EXTRACTED FROM OLIVE OIL BY POZZOLAN-BASED BEADS AND SODIUM ALGINATE

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Abstract

Adsorption experiments confirmed that the adsorption reaction of phenol ions on AS/PZ was strongly dependent on pH, adsorbent dose and initial phenol concentration, with a maximum adsorption capacity of 244 mg/g at 25°C and pH equal to 6.2. The adsorption isotherm showed a better fit with the Freundlich model and the kinetic studies demonstrated that the adsorption data correlated with a pseudo-second order model. Finally, the phenol regeneration results show that the adsorbed phenol remains almost unstable and can be desorbed using distilled water alone. The kinetic studies showed that the desorption data correlated with a pseudo-second-order model and a pore diffusion model. After six cycles of the adsorption-desorption process, the adsorbent retained its high adsorption capacity, which decreased in the seventh cycle, to 60 mg/g, due to non-reversible saturation of the adsorption sites.

Keywords: adsorption, phenol, sodium alginate, bead, pozzolan, column.

SYNTHESIS OF POZZOLAN (AZROU-TIMAHDITE) AND SODIUM ALGinate BEADS FOR EFFICIENT ADSORPTION OF OLIVE OIL POLYPHENOLS

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Abstract

Adsorption experiments confirmed that the adsorption reaction of phenol ions on AS/PZ was strongly dependent on pH, adsorbent dose and initial phenol concentration, with a maximum adsorption capacity of 244 mg/g at 25°C and pH equal to 6.2. The adsorption isotherm showed a better fit with the Freundlich model and the kinetic studies demonstrated that the adsorption data correlated with a pseudo-second order model. Finally, the phenol regeneration results show that the adsorbed phenol remains almost unstable and can be desorbed using distilled water alone. The kinetic studies showed that the desorption data correlated with a pseudo-second-order model and a pore diffusion model. After six cycles of the adsorption-desorption process, the adsorbent retained its high adsorption capacity, which decreased in the seventh cycle, to 60 mg/g, due to non-reversible saturation of the adsorption sites.

Keywords: adsorption, phenol, sodium alginate, bead, pozzolan, column.

BUSINESS ADMINISTRATION LOGISTICS**Aishwarya S**

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Abstract

Logistics is a key foundation for management in modern businesses, and it represents the planning, coordination, and execution of placing products, services, and information into motion throughout various complex supply chain networks. Successful organizations in today's globalized and competitive marketplace will achieve greater levels of cost-effectiveness, customer satisfaction, and flexibility to respond to the needs of the market when they demonstrate an advanced skill set in managing their logistics operations. This article will examine the multiple dimensions of how logistics impact business administration, and how the successful use of strategic frameworks (e.g., just-in-time delivery, demand forecasting, and warehouse management systems) facilitates the efficient use of logistics systems for organizational success. In addition, it will analyze how logistics models are currently evolving with the incorporation of various digital technologies (e.g., artificial intelligence, real-time tracking, and cloud computing), and highlight the effect that data-driven decisions are having on redefining existing supply chain models. Moreover, this article will address some of the challenges that logistics managers face, such as regulatory compliance issues, sustainability issues, last-mile logistics complications, and global disruptions. Finally, this article will emphasize the importance of aligning logistics strategies with the overall objectives of the entire organization through an analysis of both theory and practice. Through the implementation of effective logistics management as part of business administration, organizations can reduce operating costs, create additional value to customers, enhance the credibility of their brands, and improve the long-term viability of their businesses within an environment of rapidly changing economic conditions.

Keywords: Logistics management, Business administration, Demand forecasting, Warehouse management, Digital transformation, Operational efficiency, Value creation

**WHAT DRIVES PUBLIC FINANCE DEFICITS IN THE EMERGING ECONOMIES? A
THEORETICAL INVESTIGATION**

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Abstract

This paper provides a theoretical investigation of the determinants of public finance deficits, by focusing on the main macroeconomic, institutional and governance-related factors and indicators. The public deficit is conceptualized as being influenced by variables such as public debt, the unemployment rate, inflation rate, economic development, the governance quality index, the political stability index, corruption index and institutional efficiency.

From a theoretical standpoint, the literature shows that higher unemployment rate, corruption and debt level can weaken fiscal balances through reduced revenues, increased public expenditures and debt interest payments. Conversely, stronger economic development, better institutional and governance efficiency indexes are expected to strengthen public budget. At the same time, some variables such as inflation can have both effects on the public deficit. Overall, the paper highlights that public finance deficit are the result of the interaction between economic conditions, structural and institutional performance.

Keywords: Public Finance; Public Deficit; Public Debt; Corruption; Economic development

VALORIZATION OF WASTE ROCKS FROM THE FORMER FRENCH MINING COMPANY OF MIBLADEN: RECOVERY OF LEAD AND BARITE

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Abstract

The intensive mining activities of the former French company in MIBLADEN have left behind large volumes of waste rocks containing residual concentrations of lead (Pb) and barite. These mining residues, which have been stored without any valorization, represent a dual challenge: an underexploited potential economic resource and a source of environmental pollution.

This study aims to characterize these waste rocks through comprehensive physicochemical analyses in order to assess their valorization potential. Gravity separation and flotation tests will be conducted to optimize the recovery of lead and barite. In parallel, an assessment of the environmental impacts associated with these residues will be carried out.

The expected results will enable the proposal of an integrated solution combining resource recovery and sustainable mining waste management. This approach will contribute to the rehabilitation of old mining areas while offering an economic opportunity through the reintegration of these materials into the industrial value chain.

ANALYSIS OF PRODUCTION RESULTS OF LAYER HENS IN CONDITIONS OF ORGANIC PRODUCTION**Dr. Bratislav Pešić, prof**

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Abstract

The main goal of this paper is an initial consideration of the most important aspects of the conditions and technology of poultry farming in organic egg production, based on existing domestic and international standards and the latest literature data. In organic production, chickens are raised in open, that is, free-range systems. The use of cages is prohibited in this production. Organic poultry production represents an extensive type of production compared to conventional production. In addition to the method of cultivation, the space used, the choice of hybrids, and the achieved results, this production differs from the conventional one in the way of eating and the amount of food consumed. Food consumption under organic production conditions is 131 g/day/head, while the hens' carrying capacity under the mentioned conditions is 73.5%. Chicken mortality is much higher than in controlled production conditions (14.8%), which is the result of natural conditions and adverse weather conditions. From the point of view of nutrition, it would be ideal if as much as possible of the total amount of food for chickens is produced on their own plots (50%), while the remaining part can be obtained from producers engaged in organic production, bearing in mind the fact that with 1 hectare of organic land, meet the needs of 100 litters. The maximum number of hens allowed on one hectare is 230 hens. These requirements have implications for the composition of poultry meals in order to meet the needs in certain nutrients and energy, especially in terms of providing protein needs, in accordance with production goals. The general conclusion is that organic production in poultry farming, although it is a more extensive type of production, has a perspective in the conditions of a developed market along with the development of consumer awareness.

Keywords: poultry farming, laying, nutrition, egg production.**ORGANİK ÜRETİM KOŞULLARINDA KANATLI HAYVAN ÜRETİMİNİN SONUÇLARININ ANALİZİ****Özet**

Bu çalışmanın temel amacı, güncel yerel ve uluslararası standartlara ve literatürdeki en son verilere dayanarak, organik yumurta üretiminde kanatlı hayvan yetiştiriciliğinin koşulları ve teknolojisinin en önemli yönlerinin ön değerlendirmesini yapmaktır. Organik üretimde, tavuklar açık, yani serbest dolaşım sistemlerinde yetiştirilir. Bu üretim türünde kafes kullanımı yasaktır. Organik kanatlı hayvan yetiştiriciliği, geleneksel üretime kıyasla daha yaygın bir üretim türüdür. Yetiştirme yöntemine, kullanılan alana, melez seçimine ve elde edilen sonuçlara ek olarak, bu üretim, yemleme yöntemi ve tüketilen yem miktarı açısından da geleneksel üretimden farklılık gösterir. Organik üretim koşullarında yem tüketimi günde 131 g/baş iken, bu koşullar altında tavukların yumurtlama kapasitesi %73,5'tir. Tavuk ölüm oranı, kontrollü üretim koşullarına göre (%14,8) çok daha yüksektir; bu, doğal koşulların ve elverişsiz hava şartlarının bir sonucudur. Beslenme açısından, tavuklar için toplam yemin %50'sinin yerinde üretilmesi ve geri kalanının organik üreticilerden satın alınması idealdir; çünkü 1 hektar organik arazi 100 yumurtlayan tavuğun ihtiyaçlarını karşılayabilir. Hektar başına izin verilen maksimum tavuk sayısı 230'dur. Bu gereksinimler, özellikle protein ihtiyaçlarının karşılanması açısından, üretim hedeflerine uygun olarak, belirli besin ve enerji ihtiyaçlarını karşılamak için

kümes hayvanı yeminin bileşimini etkiler. Genel olarak, organik kümes hayvanı üretimi daha yaygın bir üretim türü olmasına rağmen, gelişmiş pazarlarda ve tüketici bilincinin gelişmesiyle birlikte umut vadeden bir geleceğe sahiptir.

Anahtar kelimeler: kümes hayvancılığı, yumurta verimi, beslenme, yumurta üretimi.

EVALUATION OF FRUIT PULP SOLVENT EXTRACTS OF *Ximenia americana* ON SOME PATHOGENIC BACTERIAAminu Idi^{a*}, Muhammad Aminu Umar^a and Abdullahi Nasir^b^aDepartment of Biochemistry, Faculty of Basic Medical Sciences, Bayero University, P.M.B. 3011, Kano State, Nigeria.^bDepartment of Biochemistry, Faculty of Natural and Applied Sciences, Umaru Musa Yar'adua University, P.M.B. 2218, Katsina, Katsina State, Nigeria.

Abstract

Background: *Ximenia americana* is an edible medicinal tree of West Africa and Arabian Peninsula that is rich in nutrients and bioactive compounds commonly used in traditional medical practice as antimicrobial and anti-inflammatory. This study was carried out to evaluate the antibacterial activity of *Ximenia americana* dried fruit pulp solvent extracts on six pathogenic bacteria isolates.

Methods: In this study the macerated crude methanolic extract was fractionated into *n*-hexane, chloroform, ethyl acetate and methanol fractions. Each fraction was tested for inhibitory activity against bacterial isolates. The bacterial isolates were obtained from Microbiology Department, Bayero University, Kano Nigeria.

Antibacterial activities were assessed against six bacterial isolates, *Escherichia coli*, *Klebsiella pneumonia*, *Salmonella typhi*, *Shigella dysenteriae*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa* using agar well-diffusion method with gentamicin used as standard. Four different varying concentration of each extract, 12.5 mg/ml, 25 mg/ml, 50 mg/ml and 100 mg/ml were used. Antibacterial activity was assessed using agar well-diffusion minimum inhibitory concentration (MIC) on Mueller-Hinton media in triplicates, inhibition zones were measured in millimeter.

Results: Qualitative phytochemical screening of the crude methanolic extract showed the presence of alkaloids, saponins, phenols, phytosterols, terpenoids and quinones. Antibacterial activities increased from low to high concentrations in all the extracts fractions. Chloroform fraction showed inhibitory activities in all the six tested bacterial isolates, with higher inhibition zone on *Escherichia coli* (5.38 ± 0.23 at 12.5 mg/ml, 6.60 ± 0.34 at 25 mg/ml, 7.20 ± 0.33 at 50 mg/ml and 16.20 ± 0.47 at 100 mg/ml). Ethyl acetate showed inhibitory activities on four isolates except *Staphylococcus aureus*, Methanolic fraction showed inhibitory activities on four isolates except *Pseudomonas aeruginosa*, while *n*-hexane fraction showed activities on only three isolates, *Salmonella typhi*, *Shigella dysenteriae*, *Staphylococcus aureus*.

Conclusion: *Ximenia americana* fruit pulp extract contained phytochemicals with antibacterial activities against the tested bacterial isolates.

NUTRITIONAL CHARACTERIZATION OF WHEAT-UNRIPE PLANTAIN COMPOSITE COOKIES BASED ON PROXIMATE AND MINERAL ANALYSIS.**Ezeofor Nebechi Jane (Ph.D)**

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Abstract

Cookies represent the largest category of snack items among baked foods all over the world. It contains less moisture content, different varieties of cookies are used as one of the fast and nutritious snacks, cookies are popular as convenient food (Baljeet, 2014). This study evaluated the proximate composition, mineral evaluation and sensory properties of cookies produced from wheat and unripe plantain flour blends. Unripe plantain flour was produced using methods described by Ogundele and Hiam (2024). Unripe plantain was processed into flour and blend with wheat flour into different ratio of 70:30 (PWA), 60:40 (PWB) and 50:50 (PWC) of wheat-unripe plantain flour respectively, cookies were prepared using the method described by Oladebeye and Oladebeye (2023). The method of A.O.A.C, (2012) was used for proximate, Calcium, magnesium, phosphorous and zinc content of the snacks samples were determined by the complexometric titration method described by Onwuka (2018). The sensory attributes of the cookies were evaluated using the method described by Iwe (2014). Twenty (20) panelists randomly selected from students of Department of Food Technology. The results of the sensory properties shows that all the cookies sample were accepted by the panelist. The general acceptability of the cookies shows the value of 8.28 for sample PWA, 7.92 for sample PWB and 7.98 for sample PWC. The proximate composition of the two best sample (PWA and PWC) shows that sample PWC recorded higher values for moisture (7.00%), ash (9.73%), crude fiber (4.50%), crude protein (19.15%) and crude fat (18.03%) more than sample PWA which recorded higher value in carbohydrate (53.15%) only. The mineral composition of the two best sample (PWA and PWC) shows that sample PWA recorded higher values for calcium (5.35mg/100g), magnesium (22.71mg/100g), phosphorous (0.15mg/100g), and iron (0.11mg/100g) more than sample PWC which recorded slightly higher value in zinc (4.30mg/100g) only. This shows that addition of unripe plantain flour improves the nutrient composition of the cookies. This study showed that unripe plantain can be used as partial replacement of wheat in cookies and bakery product in order to reduce the burden placed on wheat.

Keywords: Wheat-unripe plantain, cookies, characterization, proximate and mineral

ADVANCING FOOD SAFETY IN ARTIFICIAL INTELLIGENCE: CURRENT PROGRESS, CHALLENGES, AND FUTURE DIRECTIONS**Babita Gupta**

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Abstract

Food safety deserves the application of higher-level technology to shield customers from dietary illnesses and protect business reputations. The article focuses on artificial intelligence's current situation in the area of food sector, emphasizing the difficulties related to sharing data, encouraging interdisciplinary collaboration, providing training in data science and developing software for professionals in the field, and exploring the various uses of AI within the field of food safety. Machine learning models are discussed, which include a decision tree model that identifies vegetable diseases early on, improving crop superiority and security. The outcomes demonstrate the high rate of precision of the decision tree model. Using a parallel support vector machine model, researchers looked into a risk assessment model for dairy production. Numerous data sources, including analyses of dairy product data and amounts of pertinent components (like protein and sodium), are used to support the study. The accuracy of the algorithms was remarkably high. Moreover, deep learning models are discussed in which researchers looked at using them to handle hyperspectral data to predict shrimp freshness using both visible and near-infrared wavelengths. Based on the acquired deep structures, logistic regression, and a sparse autoencoder model were used to categorize the freshness of the shrimp. The utilization of machine learning as well as deep learning aids to identify patterns in food safety. The suggested algorithms present multiple goals for maximizing the layout and employ a meta-heuristic and the deep neural network method for optimizing the food safety assessment.

Keywords: Food safety, decision tree, sparse autoencoder, Bayesian network, decision tree.

COMPARATIVE STUDY OF MAILLARD-INDUCED CROSSLINKING IN STARCH-SOY PROTEIN SYSTEMS: EFFECT OF STARCH CONCENTRATION AND BOTANICAL ORIGIN**Vaishanvi Kanwar**

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Abstract

The Maillard reaction is widely recognized for its role in modifying the functional and structural properties of food biopolymers, particularly through the formation of covalent crosslinks between proteins and polysaccharides. In this study, the effect of starch concentration on Maillard-induced crosslinking in starch-soy protein systems was systematically investigated using starches derived from different botanical sources. The selected starches were characterized for their compositional and structural differences, which are known to influence their reactivity during thermal processing. Starch-soy protein mixtures were prepared at varying starch concentrations and subjected to controlled thermal treatment to induce Maillard reactions. The extent of crosslinking was evaluated using physicochemical and functional parameters, including browning intensity, solubility, viscosity changes, and possible alterations in molecular interactions. The results demonstrated that both starch concentration and botanical origin significantly influenced the progression of the Maillard reaction and the degree of crosslinking achieved. Higher starch concentrations generally enhanced the probability of interaction between reactive groups, leading to increased crosslinking, although the magnitude of this effect varied among different starch sources. Variations in amylose content, granule structure, and inherent compositional differences contributed to distinct crosslinking behaviours. These findings highlight the importance of selecting appropriate starch types and optimizing concentration levels to tailor the functional properties of starch-protein systems. Overall, this study provides valuable insights into the role of starch concentration and botanical variability in modulating Maillard-induced crosslinking, with potential applications in the development of novel food formulations with improved texture, stability, and functionality.

Keywords: Maillard reaction, starch-protein interaction, soy protein, starch concentration, botanical origin, crosslinking, functional properties, physicochemical characteristics.

**PRODUCTION OF POLYLACTATE FROM FRUIT, VEGETABLE WASTE, AND RICE USING
DIFFERENT LACTIC ACID BACTERIA AND THEIR CONSORTIUM**

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Abstract

Poly(lactic acid) (PLA) is a biodegradable polyester polymer that is produced from renewable resources, such as corn or other carbohydrate sources. However, its poor toughness limits its commercialization. PLA composites can meet the growing performance needs of various fields, but limited research has focused on their sustainable applications in sports. This paper reviews the latest research on PLA and its composites by describing the characteristics, production, degradation process, and the latest modification methods of PLA. Then, it discusses the inherent advantages of PLA composites and expounds on different biodegradable materials and their relationship with the properties of PLA composites. Finally, the importance and application prospects of PLA composites in the field of sports are emphasized. Although PLA composites mixed with natural biomass materials have not been mass produced, they are expected to be sustainable materials used in various industries because of their simple process, nontoxicity, biodegradability, and low cost.

Keywords: Poly lactic acid, Biodegradable polymers, compostable materials, renewable source.

UNRAVELING SELECTIVE ADSORPTION MECHANISMS IN EUCALYPTUS CAMALDULENSIS-DERIVED GREEN NANOCOMPOSITES VIA MULTI-SCALE MOLECULAR MODELING

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Abstract

The selective removal of heavy metals (Pb(II), Cd(II)) and pesticides (diuron) from multi-pollutant saline matrices remains challenging due to competitive ion interference (Cu(II), Zn(II)). While experimental data demonstrate high selectivity for bio-sourced nanocomposites, the underlying molecular mechanisms governing pore accessibility and binding site preference require elucidation.

This study presents a coupled computational framework, integrating Density Functional Theory (DFT), Molecular Dynamics (MD), and Grand Canonical Monte Carlo (GCMC) simulations, to rationalize experimental selectivity data obtained from Box-Behnken designed experiments.

DFT calculations on polyphenolic fragments revealed preferential binding energies for Pb(II) and Cd(II) (-285.4 and -198.7 kJ·mol⁻¹) compared to Cu(II) and Zn(II) (-156.3 and -142.1 kJ·mol⁻¹) at pH 5.5–6.0, with Natural Bond Orbital analysis confirming stronger metal–oxygen covalent character for the target metals.

Classical MD simulations demonstrated that competitive ions retain rigid octahedral hydration shells (6 H₂O, $r \approx 2.08$ – 2.10 Å), creating effective hydrated radii incompatible with micropore entry (<2 nm). In contrast, Pb(II) and Cd(II) exhibit labile, distorted hydration spheres (4–5 H₂O, $r \approx 2.38$ – 2.45 Å), facilitating pore accessibility and stable surface complexation. GCMC simulations predicted competitive adsorption isotherms with selectivity coefficients ($\alpha_{\text{Pb/Cu}} = 4.8$ – 6.2 ; $\alpha_{\text{Cd/Zn}} = 3.9$ – 5.1) strongly correlating with experimental values ($R^2 > 0.91$), while reproducing saline matrix effects through explicit ion screening. Free energy perturbation calculations further confirmed diuron partitioning into hydrophobic polyphenolic domains ($\Delta G = -42.3$ kJ·mol⁻¹) via π – π stacking, contrasting with hydrophilic pesticide behaviour.

This integrated methodology establishes quantitative structure–property–function relationships, enabling predictive screening of green adsorbents and reducing empirical optimization cycles for sustainable remediation of complex contaminated environments.

Keywords: Competitive adsorption; DFT; Eucalyptus camaldulensis; multi-scale modelling; Molecular dynamics; Green nanocomposite; Heavy metals; Pesticides; Selective adsorption

INNOVATIVE STRATEGIES FOR AQUATIC SAFETY ENHANCEMENT: ELIMINATION OF NOVEL POLLUTANTS WITH INTEGRATED ECOLOGICAL HAZARD ASSESSMENT**Abderrazzak Ihouaten¹, Khadija El-Moustaqim², and Jamal Mabrouki¹**

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Abstract

Rapid urban expansion, intensified chemical consumption, and the continuous discharge of untreated or insufficiently treated wastewater near densely populated regions have significantly increased human and ecological exposure to hazardous pollutants. Many of these contaminants exhibit uncertain toxicological profiles, posing potential risks to public health and environmental integrity. Similar toxic colorants are also extensively used in pharmaceutical production, rubber processing, and other manufacturing sectors, further aggravating water quality deterioration. Conventional remediation technologies often fail to efficiently eliminate these recalcitrant organic compounds, highlighting the urgent need for advanced, sustainable, and cost-effective treatment strategies. Safe water access remains a critical global challenge, with more than two billion people lacking reliable supplies of potable water. In addition to dyes, emerging contaminants such as pharmaceuticals and heavy metals continue to accumulate in aquatic systems as a consequence of industrial and urban activities. The aim of this work is to investigate advanced nanotechnology-based systems for efficient wastewater purification, with particular emphasis on the degradation of hazardous dyes and other emerging pollutants through environmentally friendly photocatalytic processes. This study seeks to evaluate the capacity of engineered nanomaterials to operate under visible-light irradiation, generate reactive oxygen species, and achieve rapid pollutant decomposition and mineralization. In addition, the work aims to assess the operational stability, recyclability, and environmental safety of these materials in view of practical large-scale applications.

Keywords: Nanotechnology; Wastewater Treatment; Photocatalysis; Emerging Contaminants; Water Purification; Sustainable Remediation; Environmental Safety

REVISITING SPUTTERING PHYSICS: PERSPECTIVE ON THIN FILM PRECISION ENGINEERING**BOUAZZA Abdelkader**

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Abstract

Film preparation using sputtering phenomena is classified in the physical vapor deposition (PVD) process, and has been widely used in these days. Several parameters contribute to the disposition at the substrate level of the ejected particles and hence the morphology of these films to produce high-quality thin films. This work investigates the influence of two critical parameters, temperature and high pressure, on the magnetron sputtering for the deposition process using the Monte-Carlo code SIMTRA. We created a vacuum chamber with dimensions of 30 cm x 30 cm x 50 cm; the magnetron used has a circle-shaped target with a radius of 2 cm, which contains three different targets (Si, Ge, and Cu), and the substrate with a radius of 7 cm; the distance between them is 15 cm. With these adjustments and the use of Monte Carlo code to simulate the particles ejected away from the target to determine the kinetic energy and number of atoms arriving at the substrate, an evident result was obtained, demonstrating that high temperature and pressure harm particle disposition on the substrate.

Keywords: Thin films deposition, Monte-Carlo simulations, Physical vapor deposition, magnetron Sputtering process.

NUMERICAL MODELING OF TRIBOLOGICAL BEHAVIOR OF FILLED POLYMER UNDER DRY SLIDING CONDITIONS

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Abstract

Microscratch testing is a commonly employed method for assessing surface damage and tribological performance in metallic and polymeric materials, as well as their composites. In this study, particular attention is given to the tribological behavior of filled polypropylene, a widely used polymer in the manufacturing of numerous products. The mechanical properties of both neat polypropylene and talc-filled polypropylene were evaluated. The obtained results were subsequently exported and incorporated into a numerical model developed with the commercial finite element software Abaqus. The numerical microscratch simulations allowed for the analysis of key physical parameters, including material deformation, Von Mises stress distribution, normal and tangential forces, and the coefficient of friction. The findings were interpreted with respect to the talc content and the associated mechanical characteristics of the material. Furthermore, the evolution of Von Mises stresses, displacement fields, scratching forces, and friction coefficient was thoroughly examined and discussed.

Keywords: Filled polymer; Tribology; Numerical modeling; Finite Element Method; Wear; Friction coefficient.

INFLUENCE OF MECHANICAL PROPERTIES ON THE STRUCTURAL BEHAVIOR FACTOR OF REINFORCED CONCRETE BEAMS

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Abstract

The behavior factor is a key parameter in seismic design, as it reflects the ability of structures to dissipate energy through inelastic behavior. In this context, both linear and nonlinear (pushover) analyses are performed using ETABS in accordance with FEMA-356 guidelines, while the design follows the requirements of the Algerian seismic code RPA2024. A series of structural models are developed with bay lengths ranging from 3 to 6 meters, while maintaining a constant total height of 18.36 meters, in order to investigate the influence of mechanical properties such as concrete compressive strength, steel yield strength, and reinforcement ratio, as well as geometric parameters, on the seismic response. The results indicate that both mechanical properties and bay lengths have a significant effect on the structural behavior factor, as improvements in material strength and reinforcement ratio enhance ductility and energy dissipation capacity, leading to higher values of (q). Conversely, increasing bay length affects the stiffness and nonlinear response of the beams, thereby influencing their overall seismic performance. Furthermore, the interaction between mechanical and geometric parameters is shown to play a crucial role in defining the global structural response. In conclusion, this study demonstrates that accurate consideration of these factors is essential for reliable estimation of the structural behavior factor, contributing to improved seismic design and performance of reinforced concrete structures.

Keywords: RPA 2024, nonlinear pushover analysis .Response reduction factor, ductility, over strength factor.

PRELIMINARY SURVEY OF INSECTS OF CASHEW (*Anacardium occidentale* L.) IN PRMSU SAN MARCELINO, ZAMBALES, PHILIPPINES

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¹ College of Agriculture, President Ramon Magsaysay State University, Zambales, Philippines 2007

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Abstract

This study was conducted to determine the insects of cashew currently occurring in PRMSU San Marcelino, Zambales, Philippines. The goals of the study are to identify the insects of cashew present during wet and dry seasons, evaluate the traps used and determine their diversity index and ecological services, and suggest an eco-friendly and sustainable pest management plan.

Five collection methods were performed, specifically handpicking, use of sweep nets, light trap, Malaise trap, and Pitfall traps, in three sites: PRMSU Orchard 1, 2 and 3. After collection, the specimens were then put in ethyl alcohol and were identified up to the nearest taxa possible using available literature.

Results showed that, based on the 23 weeks of sampling, a total of 16,665 individuals are collected from 10 orders belonging to 56 families. Pitfall trap has the most number of collected insects attributing to the presence of soil dwellers in dense vegetation in the sampling sites. During the dry season, the H' index of insects collected is 1.835484, which is relatively higher than wet seasons with an H' of 1.784665. For the ecological services, a total of 35 insects are identified as pests, pollinators with 4, predators with 14, and scavengers having 3 insects, which means that the specimens collected have significant ecological and economical importance. To conserve and encourage the population of beneficial insects and reduce the pests, Integrated Pest Management (IPM) can be considered and applied to the cashew plantations.

As a conclusion, there is a diverse population of beneficial and insect pests in the surveyed cashew plantations. Determining the insects present in the area can greatly help in the proper control methods. IPM is recommended as an eco-friendly alternative and holistic pest management strategy, and a long-term survey and observation is also recommended to properly monitor and assess the insect populations in the plantations.

Keywords: Cashew, Philippines, Zambales, Insect Pests, Beneficial Insects, Diversity Index, Integrated Pest Management (IPM)

PRELIMINARY SURVEY OF INSECTS ASSOCIATED WITH DRAGON FRUIT (*Hylocereus undatus*) IN SELECTED FARMS IN ZAMBALES, PHILIPPINES

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Abstract

Dragon fruit is one of the arising high valuable crop in the Philippines, specifically in Zambales. Despite the high demand, farm produce is significantly reduced due to several reasons, which include the infestation of pests and diseases.

This study was conducted to investigate the insect populations of dragon fruit in selected farms in Zambales using different kinds of collection methods, specifically the use of Malaise Trap, Pitfall trap, Sweep net, and Handpicking. To do this, identification to the nearest possible taxa, determination of total occurrence, categorizing of insects based on life habit, and analyses using Shannon-Weiner Diversity Index (H') were performed. This study was conducted during wet and dry seasons at the Eugenio and Bañaga farms (Zambales) to ensure a more thorough observation.

Analyses of the results of total abundance and H' index on each collection method showed that, based on the 6-month collection, a total of 11, 206 individuals, belonging to nine orders and forty-two families, were identified as well as their ecological services, i.e., pests, predators, pollinators, and scavengers. Insects were preserved using a solution of ethyl alcohol, water and dishwashing liquid. Pitfall traps of both farms have the highest diversity of Coleoptera and Blattodea which means that pests, predators and scavengers are dominating the populations. Furthermore, both Malaise traps and sweep nets in both farms are calculated as moderate diversity, due to the presence of moderately dense vegetation. In addition, both Handpicking and Malaise at Eugenio are at low diversity due also to the presence of low-density vegetation.

To improve further studies, it is recommended to include more sampling sites to study more geographic distribution, lengthen the observation period to generate more reliable data, add more type of traps to possibly collect more data, and perform more in-depth statistical analyses.

Keywords: Dragon fruit, Zambales, Philippines, Insect pests, Beneficial insects, Integrated Pest Management (IPM)

PERFORMANCE OF SNAPBEANS (*Phaseolus vulgaris* L.) APPLIED WITH MYCORRHIZAE AND VARYING LEVELS OF FULVIC ACID**Ronel S. De Guzman¹**¹Faculty, College of Agriculture, President Ramon Magsaysay State University, San Marcelino Campus, Zambales, Philippines¹ORCID ID: <https://orcid.org/0000-0002-2770-6519>**Justine Gabriel H. Coronel²**²Research Student, College of Agriculture, President Ramon Magsaysay State University, San Marcelino Campus, Zambales, Philippines**Maybelyn P. Dumlao³**³Research Student, College of Agriculture, President Ramon Magsaysay State University, San Marcelino Campus, Zambales, Philippines**Abstract**

Snap bean (*Phaseolus vulgaris* L.) is an important legume crop with high nutritional value; however, productivity in marginal soils, such as lahar-laden areas, may be constrained by poor soil fertility and low biological activity. This study evaluated the effects of mycorrhizal inoculation and varying levels of fulvic acid (FA) on the growth, yield, and profitability of snap beans grown in lahar-laden soil. The experiment was arranged in a factorial Randomized Complete Block Design (RCBD) with two factors: Factor A—Fulvic Acid levels (ST1: 0 g/L; ST2: 3 g/L; ST3: 6 g/L; ST4: 9 g/L) and Factor B—Mycorrhizae (MT1: without; MT2: with), replicated three times with ten sample plants per replication. Growth and yield parameters measured included average weekly growth increment, final plant height, pod length, pod weight per plant, number of pods, computed yield per hectare, and cost-and-return analysis. Results showed that FA application significantly improved all reported growth and yield parameters, with the best overall performance consistently observed at 6 g FA/L (ST3), followed by 9 g FA/L (ST4), 3 g FA/L (ST2), and the control (ST1). Mycorrhizae also significantly enhanced growth and yield across FA levels, while the FA × Mycorrhizae interaction was generally not significant, indicating mainly additive effects. In the economic analysis, MT1ST3 recorded the highest net income and return on investment. These findings indicate that applying fulvic acid—especially at 6 g/L—combined with mycorrhizae can improve snap bean performance in lahar-laden soil and provide favorable profitability.

Keywords: Snap bean (*Phaseolus vulgaris* L.); Fulvic acid; Mycorrhizae inoculation; Lahar-laden soil; Growth and yield performance

**NAPHTHALENE ACETIC ACID (NAA) AND FERMENTED AZOLLA EXTRACT
SUPPLEMENTATION IN HYDROPONICALLY GROWN CELERY (*Apium graveolens* L.)****Ronel S. De Guzman¹**¹Faculty, College of Agriculture, President Ramon Magsaysay State University, San Marcelino Campus, Zambales, Philippines¹ORCID ID: <https://orcid.org/0000-0002-2770-6519>**Reinz E. Grimaldo²**²Research Student, College of Agriculture, President Ramon Magsaysay State University, San Marcelino Campus, Zambales, Philippines**Joyce Ann C. Revasto³**³Research Student, College of Agriculture, President Ramon Magsaysay State University, San Marcelino Campus, Zambales, Philippines**Abstract**

Celery (*Apium graveolens* L.) is a high-value crop of increasing importance in urban and peri-urban agriculture. Optimizing nutrient management in hydroponic systems through bio-based inputs and plant growth regulators is crucial for enhancing productivity and profitability while reducing dependence on synthetic fertilizers. This study evaluated the effects of naphthalene acetic acid (NAA) and varying concentrations of fermented Azolla extract on the growth, yield, and economic performance of celery grown in a Kratky hydroponic system. A two-factor factorial experiment was conducted using a randomized complete block design with three replications. Factor A consisted of NAA application (MT1: no NAA; MT2: 0.5 mg L⁻¹ NAA), while Factor B comprised four levels of fermented Azolla extract (ST1: 0 mL L⁻¹; ST2: 1 mL L⁻¹; ST3: 2 mL L⁻¹; ST4: 3 mL L⁻¹). Growth parameters were recorded, such as calculated yield per 25 m² and cost–return. Analysis of variance was used to analyze data, and treatment means were compared using the least significant difference test. Fermented Azolla extract at 0.45% N, 0.25% P, and 1.88% K with a pH of 4.97 increased vegetative growth and yield significantly when applied to soil at rates between 1–2 mL L⁻¹, but reduced performance overall at application of 3 mL L⁻¹. MT1ST3 (2 mL L⁻¹ fermented Azolla extract without NAA) produced the highest yield (40.19 kg per 25 m²), net income, and return on investment. Taking these results into consideration, application of fermented Azolla extract at 2 mL L⁻¹ without NAA yields the best performance and an economically favorable scenario for hydroponic celery production, and supports the use of Azolla-based inputs to improve sustainability and profitability.

Keywords: Azolla extract; hydroponics; celery; plant growth regulator; cost and return analysis

NANO-ENCAPSULATED MANGOSTEEN PEEL: AN ECONOMIC EVALUATION OF ITS USE AS A PHYTOGENIC ADDITIVE IN APEC-INFECTED BROILERS**Ristina Siti Sundari^{1*}, Andri Kusmayadi²**

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Abstract

Avian Pathogenic *Escherichia coli* (APEC) infections present a critical challenge to intensive broiler production, severely undermining biological performance and escalating operational costs. To address this, phytogenic feed additives derived from natural sources, such as mangosteen peel, have emerged as sustainable alternatives. While nanocapsule technology enhances the targeted release of these active compounds, its economic viability remains to be rigorously validated. This study evaluates the economic impact of incorporating mangosteen peel extract nanocapsules into the diets of APEC-challenged broilers. Through analyses of Income Over Feed Cost (IOFC), Break-Even Value (BEV), and sensitivity simulations, the findings demonstrate that this additive significantly improves feed efficiency and profit margins, particularly in carcass-based marketing frameworks. Furthermore, the study establishes economically viable price thresholds for active ingredients (P_{aBE} and P_{EFE}) that fluctuate with efficiency gains and market dynamics. These results provide a robust framework for developing adaptive and sustainable feed strategies in the poultry industry.

Keywords: Broiler; infecyed; mangosteen peel extract,

ARTIFICIAL INTELLIGENCE AND NURSING: YESTERDAY, TODAY, AND TOMORROW

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Abstract

Introduction: Rapid advancements in science and technology have initiated a fundamental shift in the delivery and management of healthcare services, bringing about a comprehensive process of digital transformation. Artificial Intelligence (AI), which lies at the center of this transformation, was first defined in the literature by John McCarthy. AI technologies possess the potential to reduce the workload of nurses and enhance the quality of patient care by supporting clinical decision-making and documentation processes, particularly in complex care scenarios. Accordingly, these technologies, which mimic human intelligence and simulate cognitive processes, are shaping the past, present, and future of the nursing profession.

Objective: This study aims to comprehensively analyze the integration of AI technologies into the nursing profession within the framework of historical development, current applications, and future projections.

Method: This study was conducted as a review article.

Findings: Today, AI applications are actively utilized to optimize the quality of nursing care through clinical decision support systems, electronic health records, and diagnostic algorithms. Furthermore, it offers innovative solutions for formulating individualized treatment plans and minimizing medical errors. Digitalization, which gained momentum specifically during the pandemic, has paved the way for the integration of global examples such as 'Robear', 'Pepper', and 'Grace', as well as domestic robotic systems developed in Turkey like 'ADA' and 'Atacan', into care processes. These assistive robots provide operational efficiency by alleviating the physical workload of nurses in areas such as mobilization, logistics, and psychosocial support. Despite these practical reflections of technology, while nurses' attitudes toward AI generally follow a moderately positive trend, it is observed that younger generation nurses with less professional experience and professionals with high digital literacy exhibit higher levels of acceptance toward these technologies.

Conclusion: In a future perspective, it is envisioned that AI will take over routine and administrative tasks, thereby allowing nurses more time for humanistic care processes such as empathy, emotional support, and ethical reasoning. In nursing, it is expected that the Metaverse, wearable sensor patches, and predictive analytical tools will optimize personalized care plans. Consequently, it is critical for the professional future of nurses that they do not remain mere spectators to this technological transformation but instead assume active leadership roles in the design, implementation, and ethical oversight processes of AI technologies.

Keywords: Nursing, Artificial Intelligence, Care.

YAPAY ZEKA VE HEMŞİRELİK: DÜN, BUGÜN VE YARIN

Özet

Giriş: Bilim ve teknolojideki hızlı ilerlemeler, sağlık hizmetlerinin sunumu ve yönetiminde köklü bir paradigma değişimini tetikleyerek kapsamlı bir dijital dönüşüm sürecini başlatmıştır. Bu dönüşümün merkezinde yer alan Yapay Zeka (YZ), literatürde ilk kez John McCarthy tarafından tanımlanmıştır. YZ teknolojileri; özellikle karmaşık bakım senaryolarında klinik karar verme ve dokümantasyon süreçlerini

destekleyerek, hemşirelerin iş yükünü azaltma ve hasta bakımı kalitesini artırma potansiyeline sahiptir. İnsan zekasını taklit eden ve bilişsel süreçleri simüle eden bu teknolojiler; hemşirelik mesleğinin geçmişini, bugününü ve geleceğini şekillendirmektedir.

Amaç: Bu çalışma, yapay zeka teknolojilerinin hemşirelik mesleğine entegrasyonunu; tarihsel gelişim, güncel uygulamalar ve gelecek projeksiyonları çerçevesinde kapsamlı bir şekilde analiz etmeyi amaçlamaktadır.

Yöntem: Bu çalışma, bir derleme makalesi olarak yapılandırılmıştır.

Bulgular: Günümüzde YZ uygulamaları; klinik karar destek sistemleri, elektronik sağlık kayıtları ve tanısal algoritmalar aracılığıyla hemşirelik bakımı kalitesini optimize etmek için aktif olarak kullanılmaktadır. Ayrıca, bireyselleştirilmiş tedavi planlarının oluşturulması ve tıbbi hataların minimize edilmesi noktasında yenilikçi çözümler sunmaktadır. Özellikle pandemi döneminde ivme kazanan dijitalleşme; 'Robear', 'Pepper' ve 'Grace' gibi küresel örneklerin yanı sıra, Türkiye'de geliştirilen 'ADA' ve 'Atacan' gibi yerli robotik sistemlerin bakım süreçlerine dahil edilmesine zemin hazırlamıştır. Bu yardımcı robotlar; mobilizasyon, lojistik ve psikososyal destek gibi alanlarda hemşirelerin fiziksel iş yükünü hafifleterek operasyonel verimlilik sağlamaktadır. Teknolojinin bu pratik yansımalarına rağmen, hemşirelerin YZ'ye yönelik tutumları genel olarak orta düzeyde pozitif bir seyir izlerken; mesleki deneyimi daha az olan genç kuşak hemşirelerin ve dijital okuryazarlığı yüksek profesyonellerin bu teknolojilere yönelik kabul düzeylerinin daha yüksek olduğu gözlemlenmektedir.

Sonuç: Gelecek perspektifinde, YZ'nin rutin ve idari görevleri devralması; böylece hemşirelerin empati, duygusal destek ve etik muhakeme gibi hümanistik bakım süreçlerine daha fazla zaman ayırması öngörülmektedir. Hemşirelikte Metaverse, giyilebilir sensör yamaları ve öngörücü analitik araçların kişiselleştirilmiş bakım planlarını optimize etmesi beklenmektedir. Sonuç olarak, hemşirelerin bu teknolojik dönüşümde yalnızca izleyici kalmamaları; aksine YZ teknolojilerinin tasarımı, uygulanması ve etik denetim süreçlerinde aktif liderlik rolleri üstlenmeleri mesleki gelecekleri açısından kritik öneme sahiptir.

Anahtar Kelimeler: Hemşirelik, Yapay Zeka, Bakım.

**DEPREM SONRASI SİGARA BAĞIMLILIĞINDAKİ ARTIŞ: MALATYA'DAKİ
DEPREMZEDELERİN BAĞIMLILIK DAVRANIŞLARININ İNCELENMESİ****Doç. Dr. Zeynep SAĞIR**

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Fatih Baysal¹**Hilal Akçay¹****Muhammed Hasan Baki¹**¹Lisans Öğrencisi, Malatya Turgut Özal Üniversitesi, Sosyal ve Beşeri Bilimler Fakültesi, Psikoloji Bölümü, Malatya-Türkiye**Özet**

Doğal afetler, bireylerin ruh sağlığını ve başa çıkma mekanizmalarını derinden etkileyerek bağımlılık davranışlarını tetikleyebilmektedir. Bu araştırma, 6 Şubat 2023 Kahramanmaraş depremleri sonrasında Malatya'daki depremzedelerde sigara bağımlılığındaki artış eğilimini ve bu artışa zemin hazırlayan travma sonrası stres bozukluğu (TSSB), sosyal destek eksikliği, yalnızlık ve ekonomik kayıplar gibi psikososyal faktörleri incelemek amacıyla yürütülmüştür. Eş zamanlı gömülü tasarımın kullanıldığı araştırmanın nicel aşamasında, 50 depremzedeye Fagerström Nikotin Bağımlılığı Testi (FTND) ve Olayların Etkisi Ölçeği-Revize (IES-R) uygulanmıştır. Nitel aşamada ise bağımlılık düzeyinde belirgin artış saptanan katılımcılarla yarı yapılandırılmış derinlemesine görüşmeler gerçekleştirilmiş ve elde edilen veriler içerik analizi yöntemiyle çözümlenmiştir. Genişletilmiş nitel bulgular, sigaranın depremzedeler tarafından can kayıpları ve sosyal izolasyonla baş etmede bir “can simidi” ve “dert ortağı” olarak konumlandırıldığını ortaya koymuştur. Katılımcılar, artçı deprem korkusu ve sürekli tetikte olma hali sırasında yaşanan yoğun kaygıdan uzaklaşmak amacıyla sigarayı bir “mola aracı” olarak kullandıklarını ifade etmiştir. Ekonomik kısıtlılıkların tüketimi azaltması beklenirken, “her şeyin kaybedildiği” algısının yarattığı boş vermişlik duygusuyla bireylerin sınırlı maddi kaynaklarını dahi sigaraya ayırdığı paradoksal bir durum gözlemlenmiştir. Ayrıca, travma karşısında çaresizlik yaşayan ebeveynlerin sigaraya yönelmesinin gençler üzerinde meşrulaştırıcı bir etki yarattığı ve sigara içme davranışının bireylere yaşamlarında “kontrol edebildikleri tek alan” hissini vererek bir başa çıkma mekanizmasına dönüştüğü belirlenmiştir. Sonuç olarak, afet sonrası sigara tüketimindeki artışın yalnızca nikotin arayışına indirgenemeyeceği; aksine belirsizlik, yas ve kontrol kaybına karşı geliştirilen psikososyal bir telafi çabası olduğu anlaşılmaktadır. Bu doğrultuda, afet sonrası bağımlılık müdahalelerinin travma odaklı ruh sağlığı politikalarıyla entegre bir şekilde ele alınması gerektiği önerilmektedir.

Anahtar Kelimeler: Deprem, Travma Sonrası Stres Bozukluğu (TSSB), Sigara Bağımlılığı, Psikososyal Destek, Karma Yöntem.

**INCREASE IN SMOKING ADDICTION AFTER THE EARTHQUAKE: AN EXAMINATION OF
ADDICTION BEHAVIORS AMONG EARTHQUAKE SURVIVORS IN MALATYA****Abstract**

Natural disasters can profoundly affect individuals' mental health and coping mechanisms, potentially triggering addictive behaviors. This study was conducted to examine the increasing trend in cigarette dependence among earthquake survivors in Malatya following the February 6, 2023 Kahramanmaraş earthquakes, as well as the psychosocial factors underlying this increase, such as post-traumatic stress disorder (PTSD), lack of social support, loneliness, and economic losses. Using a concurrent embedded design, the quantitative phase of the study involved administering the Fagerström Test for Nicotine Dependence (FTND) and the Impact of Event Scale-Revised (IES-R) to 50 earthquake survivors. In the qualitative phase, semi-structured in-depth interviews were conducted with participants who showed a significant increase in dependence levels, and the data were analyzed using content analysis. Expanded qualitative findings revealed

that cigarettes were perceived by survivors as a “lifeline” and a “companion in distress” for coping with loss of life and social isolation. Participants reported using smoking as a “break tool” to escape intense anxiety during aftershocks and states of constant alertness. While economic hardship would be expected to reduce consumption, a paradoxical pattern emerged in which individuals, driven by a sense that “everything has already been lost,” allocated even their limited financial resources to cigarettes. Moreover, it was found that parents who turned to smoking due to trauma unintentionally legitimized this behavior for younger individuals. Smoking also evolved into a coping mechanism by providing a sense of “the only controllable aspect” in individuals’ lives. In conclusion, the increase in cigarette consumption after disasters cannot be explained solely as a search for nicotine; rather, it represents a psychosocial compensatory effort developed in response to uncertainty, grief, and loss of control. Accordingly, it is recommended that post-disaster addiction interventions be integrated with trauma-focused mental health policies.

Keywords: Earthquake, Post-Traumatic Stress Disorder (PTSD), Cigarette Addiction, Psychosocial Support, Mixed Methods.

ÖĞRETMEN ADAYLARININ GELECEK KAYGILARINA İLİŞKİN NİTEL BİR İNCELEME**Doç. Dr. Zeynep SAĞIR**

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Özet

Atanamayan öğretmenlerin yaşadığı psikolojik zorluklar ve geleceğe yönelik kaygılar, günümüz eğitim sisteminin önemli ve güncel sorunlarından birini oluşturmaktadır. Özellikle 2023 yılında yaşanan doğal afetler, belirsiz atama süreçleri ve değişen sınav koşulları, öğretmen adaylarının psikolojik durumlarını ve motivasyonlarını olumsuz yönde etkilemiştir. Bu çalışma, 2023 yılında ataması yapılmayan öğretmen adaylarının gelecek kaygılarını, öz-yeterlilik algılarını, motivasyon düzeylerini ve mesleki beklentilerini derinlemesine incelemeyi amaçlamıştır. Araştırmada nitel araştırma yaklaşımı benimsenmiş ve durum çalışması deseni uygulanmıştır. Veri toplama sürecinde, 2023 KPSS'ye girmiş 10 öğretmen adayı ile yarı yapılandırılmış görüşmeler gerçekleştirilmiş ve adayların sınav süreci, belirsizlikler, motivasyon değişimleri, mesleki hedefleri ve sosyal çevreleri ile olan etkileşimleri ayrıntılı olarak kaydedilmiştir. Elde edilen veriler, kodlanarak analiz edilmiş, katılımcıların yaşadıkları deneyimler, duygular ve düşünceler bütüncül bir bakış açısıyla değerlendirilmiştir. Bu sayede, adayların atama sürecinde yaşadıkları psikolojik zorluklar derinlemesine incelenmiştir. Araştırma bulguları, atama sürecindeki belirsizlik ve kaygının öğretmen adayları üzerinde önemli etkiler yarattığını göstermektedir. Katılımcıların bir kısmında motivasyon kaybı ve mesleki tükenmişlik hissi gözlenirken, bazı adayların alternatif kariyer yollarını değerlendirmeye başladıkları belirlenmiştir. Ayrıca öz-yeterlilik algılarında zayıflama yaşayan katılımcıların bulunduğu ve kaygı ile baş etme süreçlerinde bireysel ve çevresel faktörlerin farklı düzeylerde etkili olduğu görülmüştür. Bu çalışma, eğitim politikalarının geliştirilmesine katkı sağlama, öğretmen yetiştirme süreçlerine yönelik iyileştirme önerileri sunma ve benzer sorunlarla karşılaşan meslek grupları için yol gösterici olma açısından önem taşımaktadır.

Anahtar Kelimeler: Öğretmen Adayları, Atama Süreci, Gelecek Kaygısı, Nitel Araştırma, Durum Çalışması.

A QUALITATIVE STUDY ON THE FUTURE ANXIETY OF UNAPPOINTED TEACHERS**Abstract**

The psychological difficulties and future anxiety experienced by unappointed teacher candidates constitute one of the most significant and current issues in today's education system. In particular, the natural disasters in 2023, uncertainties in the appointment process, and changing examination conditions negatively affected the psychological well-being and motivation of teacher candidates. This study aims to examine in depth the future anxiety, self-efficacy perceptions, motivation levels, and professional expectations of teacher candidates who were not appointed in 2023.

A qualitative research approach was adopted, and a case study design was employed. Data were collected through semi-structured interviews with 10 teacher candidates who took the KPSS exam in 2023. The interviews included candidates' exam experiences, uncertainties, changes in motivation, professional goals, and interactions with their social environment, and these were recorded in detail. The collected data were coded and analyzed, and participants' experiences, emotions, and thoughts were evaluated from a holistic perspective. In this way, the psychological difficulties experienced by the candidates during the appointment process were examined in depth.

The findings indicate that uncertainty and anxiety in the appointment process have significant effects on teacher candidates. While some participants experienced a loss of motivation and feelings of professional

burnout, others were found to have begun considering alternative career paths. In addition, a decrease in self-efficacy perceptions was observed among some participants, and individual as well as environmental factors were found to influence coping processes at different levels.

This study is important in terms of contributing to the development of educational policies, offering improvement suggestions for teacher education processes, and serving as a guide for other professional groups facing similar problems.

Keywords: Teacher Candidates, Appointment Process, Future Anxiety, Qualitative Research, Case Study

**EVALUATION OF THE RELATIONSHIP BETWEEN STRESS STATUS AND NUTRITION
HABITS OF STUDENTS PREPARING FOR THE MEDICAL SPECIALIZATION EXAM**

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Abstract

This study was conducted to evaluate the relationship between stress and nutritional status among medical students during the preparation period for the Medical Specialization Exam (TUS). A total of 149 volunteer 5th and 6th year medical students participated in the study. The Westside Test Anxiety Scale was used to assess anxiety levels, and sociodemographic characteristics, anthropometric measurements, and nutritional habits were collected through an online questionnaire. Of the participants, 92 (61.7%) were female and 57 (38.3%) were male. In consideration of the study's findings, the changes in westside test anxiety scores according to the number of meals of the individuals were examined and it was seen that the test anxiety levels of the students who consumed 4 snacks were higher than the students who consumed one snack. When the change in anxiety scores based on the impact of stress on nutrition was examined, it was determined that there was no significant difference. The results suggest that unhealthy eating may be more common between meals during stressful periods. With the increasing frequency of meals with stress, individuals can gain healthy eating habits. Therefore, students should be encouraged to eat healthier snacks between meals and consume their meals at intervals. This study may show that nutrition during TUS preparation period may be associated with exam stress. Further studies are needed to support these findings.

Keywords: stress, exam anxiety, medical students, nutrition habits

YÜKSEK İRTİFADA YAPILAN EGZERSİZLERİN ORGANİZMAYA FİZYOLOJİK ETKİLERİ**Murat AYDIN**

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Özet

Bu çalışmada, yüksek irtifada gerçekleştirilen egzersizlerin insan organizması üzerindeki fizyolojik etkileri kapsamlı bir şekilde incelenmiştir. Yüksek irtifada barometrik basıncın azalmasına bağlı olarak gelişen hipoksik ortam, başta solunum, kardiyovasküler, hematolojik ve metabolik sistemler olmak üzere birçok fizyolojik sistemde önemli değişikliklere yol açmaktadır. Bu değişiklikler, organizmanın azalan oksijen basıncına uyum sağlamasına yönelik akut ve kronik adaptasyon mekanizmaları şeklinde ortaya çıkmakta ve performans üzerinde belirleyici rol oynamaktadır. Özellikle pulmoner ventilasyonda artış, kalp atım hızı ve kardiyak debide meydana gelen değişimler, eritropoietin (EPO) salınımının artması ve buna bağlı olarak hemoglobin ile eritrosit düzeylerinde yükselme, organizmanın oksijen taşıma ve kullanım kapasitesini artıran temel fizyolojik yanıtlar arasında yer almaktadır. Bununla birlikte, yüksek irtifaya hızlı ve kontrolsüz şekilde çıkılması durumunda akut dağ hastalığı, yüksek irtifa beyin ödemi ve yüksek irtifa akciğer ödemi gibi ciddi sağlık sorunları ortaya çıkabilmektedir. Ayrıca, yüksek irtifa koşullarında uygulanan farklı antrenman modellerinin sporcu performansı üzerindeki etkileri karşılaştırmalı olarak ele alınmış ve bu modellerin avantajları ile sınırlılıkları değerlendirilmiştir. Sonuç olarak, yüksek irtifada yapılan egzersizlerin organizma üzerinde performans artırıcı fizyolojik adaptasyonlar sağladığı, ancak aynı zamanda potansiyel sağlık riskleri barındırdığı belirlenmiştir. Bu nedenle, yüksek irtifa antrenmanlarının bireysel farklılıklar dikkate alınarak, uygun süre ve şiddette, planlı ve kontrollü bir şekilde uygulanması önerilmektedir.

Anahtar Kelimeler: Yüksek İrtifa, Hipoksi, Egzersiz Fizyolojisi, Eritropoietin (EPO), Hemoglobin

PHYSIOLOGICAL EFFECTS OF HIGH-ALTITUDE EXERCISES ON THE ORGANISM**Abstract**

In this study, the physiological effects of exercise performed at high altitude on the human organism were comprehensively examined. The hypoxic environment resulting from the decrease in barometric pressure at high altitude leads to significant alterations in various physiological systems, particularly the respiratory, cardiovascular, hematological, and metabolic systems. These changes occur as acute and chronic adaptive mechanisms that enable the organism to adjust to reduced oxygen availability and play a decisive role in physical performance. In particular, increased pulmonary ventilation, changes in heart rate and cardiac output, stimulation of erythropoietin (EPO) secretion, and subsequent increases in hemoglobin and erythrocyte levels represent fundamental physiological responses that enhance oxygen transport and utilization capacity. However, rapid and uncontrolled ascent to high altitude may result in serious medical conditions such as acute mountain sickness, high-altitude cerebral edema, and high-altitude pulmonary edema. In addition, different altitude training models and their effects on athletic performance were comparatively analyzed, and their advantages and limitations were evaluated. In conclusion, exercise at high altitude provides performance-enhancing physiological adaptations but also carries potential health risks. Therefore, altitude training should be carefully planned and implemented in a controlled manner, taking individual differences, appropriate duration, and exercise intensity into consideration.

Keywords: High Altitude, Hypoxia, Exercise Physiology, Erythropoietin (EPO), Hemoglobin

SANAL GERÇEKLİK (VR) TEKNOLOJİLERİ İLE YAPILAN ANTRENMANLARIN SPORTİF PERFORMANSA OLAN ETKİSİ

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Özet

Sanal Gerçeklik (VR) teknolojisi, bireyleri bilgisayar aracılığıyla gerçekleştirilen üç boyutlu bir simülasyonun içinde "tam daldırma" ve "orada olma" (varlık) hissini uyandıran inovatif cihazlardır. Spor bilimleri literatüründe VR; imgesel ve zihinsel yetilerin iyileştirilmesi, sporcuların sağlıklı bir şekilde müsabaka ortamlarında baskının en aza indirgenmesine yardımcı olmak ve özellikle sakatlık süreçlerinde antrenman ortamlarının güvenli hale getirilmesini desteklemek amacıyla kullanımı giderek artmaktadır. Güncel araştırmalar, VR antrenmanlarının motor performansın gelişimi, reaksiyon becerisi ve strateji gerektiren karar verme durumlarında klasik antrenman çeşitleriyle karşılaştırıldığında daha yüksek verimlilik sunduğu görülmüştür.

Sanal gerçeklik sistemleri kendi içinde alanlara ayrılmaktadır bunlar; sanal gerçeklik (VR),arttırılmış gerçeklik (AR) ve karma gerçeklik (MR) şeklindedir. Son olarak genişletilmiş gerçeklik olarak adlandırılan ve diğer üç teknolojiyi de kapsayan XR teknolojisi bulunur.VR sistemleri temel olarak Başa Takılan Ekranlar (HMD) ve CAVE (Bilgisayar Otomatik Sanal Ortam) sistemleri olarak ikiye ayrılmaktadır.

VR teknolojisi farklı spor disiplinlerinde kullanılmaktadır. Örneğin; takım sporlarından futbol ve basketbol gibi alanlarda kompleks maç modelleri üzerinden karar verme becerisini doğru ve hızlı bir şekilde gerçekleştirmeye yardımcı olmak için kullanılmaktadır. Hedef odaklı sporlardan okçuluk, curling, bowling gibi alanlarda VR zihinsel görselleştirme uygulamaları daha iyi atış becerisi ve görselleştirme becerisi açısından klasik antrenman çeşitlerine göre daha iyi gelişim sağladığı tespit edilmiştir. Cimnastik branşında ise simüle edilmiş denge aleti sayesinde antrene edilen yükseklik derinlik algısı sakatlanma riski olmaksızın güvenli bir ortamda beceri gelişimi sağlanmış ayrıca yapılan çalışmalar sonucunda da sanal ortamda kazanılan becerilerin başarıyla gerçek hayata aktarılabilirdiği kanıtlanmıştır.

Ancak bunlara rağmen VR teknolojilerinde ,sanal ortamda görsel derinlik algısında yaşanabilen uyumsuzluk nedeniyle ortaya çıkan göz yorgunluğu ve "siber hastalık" gibi sorunlar bulunmaktadır; bu sorunlar yakınsama-uyum çatışmasından kaynaklanmaktadır. Ayrıca, özellikle dövüş sporlarında dokunsal geri bildirimin olmaması, bu teknolojinin pragmatikliğini sınırlandıran bir durum olarak öne çıkmaktadır.

Sonuç olarak, sanal gerçeklik özellikle başlangıç seviyesindeki sporcular ve rehabilite sürecinde ki bireyler için çok iyi ve destekleyici bir teknoloji olarak değerlendirilmiş olsa da; elit sporcular açısından etkisinin kesinleştirilmesi ve donanımsal sınırlamalarının iyileştirilmesi açısından daha fazla kapsamlı ve yüksek kalitede çalışmalara ihtiyaç duyulmaktadır.

Anahtar Kelimeler: sanal gerçeklik(VR),arttırılmış gerçeklik (AR),karma gerçeklik(MR),sportif performans

THE EFFECT OF TRAINING USING VIRTUAL REALITY (VR) TECHNOLOGIES ON SPORTS PERFORMANCE

Abstract

Virtual Reality (VR) technology is an innovative device that awakens individuals to the feeling of "full immersion" and "being there" (presence) in a three-dimensional simulation performed through a computer. In the sports sciences literature, VR usage is increasingly on the rise for purposes such as improving visual and mental abilities, helping athletes manage stress in competitive environments in a healthy way, and supporting the creation of safe training environments, particularly during injury recuperation processes. Recent research has shown that VR training offers higher efficiency in developing motor performance, reaction skills, and decision-making requiring strategy compared to traditional training methods.

Virtual reality systems are divided into categories within themselves: these are virtual reality (VR), augmented reality (AR), and mixed reality (MR). Finally, there is XR technology, which is called extended reality and encompasses all three of these technologies. VR systems are essentially divided into two categories: Head-Mounted Displays (HMD) and CAVE (Computer-Generated Virtual Environment) systems.

VR technology is used in various sports disciplines. For example, it is employed in team sports like football and basketball to help athletes make accurate and rapid decisions based on complex match models. In target-oriented sports such as archery, curling, and bowling, VR mental visualization applications have been found to provide better development in terms of shooting skill and visualization ability compared to traditional training methods. In the field of gymnastics, the simulated balance beam enables skill development through trained height and depth perception in a safe environment without the risk of injury. Additionally, studies have proven that the skills acquired in the virtual environment can be successfully transferred to real-life situations.

However, despite these advancements, VR technologies present issues such as eye fatigue and "cybersickness" due to visual depth perception mismatches in the virtual environment; these problems stem from a convergence-accommodation conflict. Additionally, the absence of tactile feedback, particularly in combat sports, stands out as a factor limiting the practicality of this technology.

Consequently, although virtual reality has been evaluated as a very effective and supportive technology, especially for beginner athletes and individuals in the rehabilitation process; further comprehensive and high-quality studies are needed to confirm its impact on elite athletes and to improve its hardware limitations.

Keywords: virtual reality(VR),augmented reality(AR),mixed reality(MR),sports performance

ÜNİVERSİTE PERSONELLERİNİN PSİKOLOJİK GIDA VE SOSYAL MEDYA BAĞIMLILIKLARININ DEĞERLENDİRİLMESİ

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Özet

Sosyal medya bağımlılığı bireylerin sosyal medyayı aşırı derecede kullanma, sosyal medyaya giriş yapma konusunda karşı konulamaz dürtülerinin olmasıdır ve davranışsal bağımlılık türüdür. Bu durum anksiyete, depresyon, yalnızlık, uyku bozuklukları, dikkat eksikliği gibi psikolojik sorunlara yol açabilmektedir. Sosyal medyanın kullanımıyla beslenme arasındaki ilişki cinsiyet, yaş, eğitim ve sağlık durumu gibi faktörlere bağlı olarak değişmektedir. Sosyal medyaya maruziyet güzellik algısı ve olumsuz beden imajı üzerinden yeme bozukluklarına neden olabilir. Yemek bağımlılığı yeme davranışları üzerindeki kontrolün bozulması, duygusal yeme ve yiyecek isteğiyle karakterize edilen davranışlardır. Gıda bağımlılığına bağlı olarak bireylerde obezite ve bununla birlikte Tip 2 diyabet, insulin direnci, lipid birikimi, alkolsüz yağlı karaciğer hastalığı gibi bulaşıcı olmayan hastalıkların görülme sıklığında artış olabilir. Bu çalışmanın amacı üniversite personellerinin Psikolojik Gıda ve Sosyal Medya Bağımlılığı arasındaki ilişkiyi incelemektir.

Çalışmamıza Yozgat Bozok Üniversitesi’de çalışan 18-70 yaş aralığındaki 277 birey katılmıştır. Katılımcılara 3 bölümden oluşan anket uygulanmıştır. 1. Bölümde katılımcılara demografik özellikleri, sağlık bilgileri ve beslenme alışkanlıklarıyla ilgili sorular sorulmuştur. 2. Bölümde Psikolojik Gıda Bağımlılığı ölçeği, 3. bölümünde ise Sosyal Medya Bağımlılık ölçeği uygulanmıştır. Psikolojik gıda ve sosyal medya bağımlılığı ölçeklerinde alınabilecek maksimum puanlar sırasıyla 98 ve 65’dir. Katılımcıların psikolojik gıda bağımlılık düzeyleri orta-yüksek iken sosyal medya bağımlılık düzeyleri düşük-ortadır.

Sonuç olarak 2026 yılının “Bağımsız Gelecek, Sağlıklı Nesilleri” yılı olması bağımlılığın önemli bir halk sağlığı sorunu olduğunu göstermektedir. Çalışmanın sonucuna göre katılımcıların psikolojik gıda bağımlılık düzeylerinin nispeten yüksek olması obezite ve bulaşıcı olmayan hastalıkların riskini arttırabilir. Bu doğrultuda, bireylerin hem beslenme davranışları hem de sosyal medya kullanım alışkanlıkları konusunda farkındalıklarının artırılmasına yönelik çalışmaların planlanması önem taşımaktadır.

Anahtar Kelimeler: Psikolojik Gıda, Sosyal Medya, Bağımlılık, Obezite

EVALUATION OF PSYCHOLOGICAL FOOD AND SOCIAL MEDIA ADDICTIONS AMONG UNIVERSITY STAFF.

Abstract

Social media addiction is a type of behavioral addiction characterized by individuals having an irresistible urge to excessively use or access social media. This can lead to psychological problems such as anxiety, depression, loneliness, sleep disorders, and attention deficit. The relationship between social media use and nutrition varies depending on factors such as gender, age, education, and health status. Exposure to social media can lead to eating disorders through perceptions of beauty and negative body image. Food addiction is characterized by impaired control over eating behaviors, emotional eating, and food cravings. Food addiction can increase the incidence of obesity and related non-communicable diseases such as type2 diabetes, insulin resistance, lipid

accumulation, and non-alcoholic fatty liver disease. The aim of this study is to examine the relationship between psychological food and social media addiction among university personnel.

Our study included 277 individuals aged 18-70 working at Yozgat Bozok University. A three-part questionnaire was administered to the participants. The first part included questions about demographic characteristics, health information, and eating habits. In section 2, the Psychological Food Addiction scale was administered, and in section 3, the Social Media Addiction scale was administered. The maximum possible scores on the psychological food and social media addiction scales were 98 and 65, respectively. Participants' levels of psychological food addiction were moderate-high, while their levels of social media addiction were low-moderate.

In conclusion, the fact that 2026 is designated as the "Year of Independent Futures, Healthy Generations" indicates that addiction is a significant public health problem. According to the study's results, the relatively high levels of psychological food addiction among participants may increase the risk of obesity and non-communicable diseases. Therefore, planning initiatives to increase individuals' awareness of both their eating behaviors and social media usage habits is crucial.

Keywords: Psychological Food, Social Media, Addiction, Obesity

ROKURONYUM ALERJİSİ SAPTANAN İKİ OLGUDA PERİOPERATİF DÖNEMDE ANESTEZİ YÖNETİMİ**Serap Karakaş**

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Özet

Rokuronyum, 1994'ten bu yana yaygın kullanılan, hızlı etki başlangıçlı, orta etkili endotrakeal entübasyonu kolaylaştıran bir nöromusküler bloker ajan (NMBA)'dır. Asetilkolin reseptörlerine kompetitif antagonizma yoluyla etki gösteren bu ajan, NMBA'lar arasında anafilaksi insidansının en yüksek olduğu ilaç olarak bilinmektedir. Perioperatif anafilaksi her 6.000–20.000 anestezi uygulamasında bir görülmekte ve %3–9 oranında ölümle sonuçlanabilmektedir. NMBA'lar, tüm perioperatif anafilaksi vakalarının %50–70'inden sorumlu tutulmaktadır. Bu olgu sunumunda, daha önce rokuronyuma maruziyet öyküsü bulunmayan ve alerji tanısı intraoperatif dönemde konulan iki hasta ele alınmıştır. **Birinci olguda**, 36 yaşındaki kadın hasta laparoskopik histerektomi için anestezi indüksiyonu sırasında derin hipotansiyon, taşikardi, dudakta şişlik ve bronkospazm gelişmiştir. Anafilaktik şok yönetimi kapsamında adrenalin, norepinefrin infüzyonu, kortikosteroid ve bronkodilatör uygulandı. Operasyon iptal edilerek hasta yoğun bakıma alındı. Postoperatif dönemde bakılan triptaz değeri normal sınırlarda olmasına karşın, bu bulgu tanıyı dışlamamakta, çünkü vakaların %30'undan fazlasında triptaz düzeyi normal kalabilmektedir. Bir ay sonra gerçekleştirilen deri testlerinde rokuronyum alerjisi doğrulandı, diğer ajanlar güvenli bulundu. Yeniden planlanan total abdominal histerektomi operasyonu, kombine spinal-epidural anestezi ile komplikasyonsuz tamamlandı. **İkinci olguda**, sistemik alerjik reaksiyon öyküsü bulunan 44 yaşındaki astım broşiale tanılı kadın hastada preoperatif alerji-immunoloji konsültasyonu istendi. Deri testlerinde midazolam, ketamin, fentanil ve rokuronyuma karşı duyarlılık saptandı; propofol, lidokain, remifentanil, bupivakain güvenli bulundu. NMBA'lar arasındaki çapraz reaktivite oranının %60–85 gibi yüksek seviyelerde seyretmesi göz önünde bulundurularak kas gevşetici kullanılmaksızın propofol, lidokain ve remifentanil kombinasyonu ile genel anestezi uygulandı. Operasyon hemodinamik açıdan stabil seyretti, hasta komplikasyonsuz taburcu edildi. Her iki olgudan çıkarılan temel ilkeler: anafilaksi şüphesinde IV epinefrinin gecikmeksizin uygulanması; deri testlerinin reaksiyondan en az 4–6 hafta sonra, antihistaminik ve kortikosteroidler kesilerek yapılması; tüm NMBA'ların çapraz reaktivite açısından sistematik biçimde taranması; mümkün olduğunda rejyonel anestezi tekniklerinin öncelikli uygulanmasıdır. Alerjik komorbidite taşıyan hastalarda preoperatif değerlendirme standart protokollerle sınırlı kalmamalı, bireyselleştirilmiş ilaç alerji tetkikini kapsamalıdır. Alerji-immunoloji, anesteziyoloji ve ilgili cerrahi branşlar arasındaki multidisipliner iş birliği, hasta güvenliğinin sağlanmasında belirleyicidir.

Anahtar kelimeler: rokuronyum, nöromusküler bloker ajan, alerji, anafilaksi

**ANESTHESIA MANAGEMENT DURING THE PERIOPERATIVE PERIOD IN TWO CASES
DIAGNOSED WITH ROCURONIUM ALLERGY****Abstract**

Rocuronium is a rapid-onset, intermediate-duration neuromuscular blocking agent (NMBA) widely used to facilitate endotracheal intubation since 1994. Acting through competitive antagonism at acetylcholine receptors, it carries the highest reported incidence of anaphylaxis among NMBAs. Perioperative anaphylaxis occurs in 1 per 6,000–20,000 administrations with a mortality rate of 3–9%, and NMBAs account for 50–70% of all such reactions. This report presents two patients in whom rocuronium allergy was diagnosed intraoperatively without prior exposure history. **In the first case**, a 36-year-old female developed profound hypotension, tachycardia, labial angioedema, and bronchospasm during induction for laparoscopic hysterectomy. Anaphylactic shock was managed with epinephrine, norepinephrine infusion, corticosteroids, and bronchodilators; the operation was cancelled and the patient transferred to the intensive care unit. Postoperative serum tryptase was within normal limits, which did not exclude the diagnosis, as tryptase may remain normal in over 30% of confirmed cases. Skin testing at one month confirmed rocuronium allergy, and the rescheduled total abdominal hysterectomy was completed uneventfully under combined spinal-epidural anesthesia. **In the second case**, a 44-year-old female with bronchial asthma and prior systemic allergic reactions underwent preoperative allergy-immunology consultation. Skin testing revealed sensitization to midazolam, ketamine, fentanyl, and rocuronium, while propofol, lidocaine, remifentanyl, and bupivacaine were safe. Given the 60–85% cross-reactivity rate among NMBAs, general anesthesia was delivered with propofol, lidocaine, and remifentanyl without a muscle relaxant; the procedure was hemodynamically stable and the patient discharged without complications. Core clinical principles emerging from both cases include: immediate intravenous epinephrine upon anaphylaxis suspicion; skin testing at least 4–6 weeks after the reaction; systematic NMBA cross-reactivity screening; and preferential use of regional techniques when feasible. In patients with allergic comorbidities, preoperative evaluation must incorporate individualized drug allergy assessment, and multidisciplinary collaboration among allergy-immunology, anesthesiology, and surgery is essential for patient safety.

Keywords: rocuronium, neuromuscular blocking agent, allergy, anaphylaxis

ÇOK BOYUTLU ÖLÇEKLEME ANALİZİ İLE OECD ÜYESİ ÜLKELERİN EKONOMİK GÖSTERGELERE DAYALI DEĞERLENDİRİLMESİ**Aylin ALKAYA**

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Özet

Günümüzde ülkelerin ekonomik gelişmişlik düzeyi, gelir seviyesi, üretim kapasitesi, yatırım hacmi, istihdam oranları, enflasyon ve dış ticaret gibi ekonomik göstergeler aracılığıyla değerlendirilmeye çalışılmaktadır. Ekonomik göstergeler bir ülkenin ekonomik durumunu, kaynak kullanım verimliliğini ve sürdürülebilir büyüme potansiyelini değerlendirmek için önemli veriler sunmaktadır. Ülkelerin ekonomi alanında hangi düzeyde olduklarına ilişkin kıyaslamalar yapılması amacıyla ekonomik göstergeler kullanılmaktadır. Bu çalışmanın amacı, Ekonomik İşbirliği ve Kalkınma Örgütü (OECD) üye ülkeleri arasında temel ekonomik göstergeler temelinde karşılaştırmalar yapmak ve OECD üyesi ülkelerin birbirlerine göre göreceli konumlarını değerlendirmektir. Ülkelerin göreceli konumlarının belirlenmesinde çok değişkenli istatistiksel analiz tekniklerinden biri olan çok boyutlu ölçekleme analizi uygulanmıştır. 2014 ve 2024 yılları verilerine dayalı analizler yapılmış iki yıl için ülkelerin konumları araştırmanın konusunu oluşturmuştur. 10 yıl içinde bulgulara değişim olup olmadığı incelenmiştir. Araştırmanın yöntemi olarak çok boyutlu ölçekleme (ÇBÖ) analizi kullanımına karar verilmiştir. 2014 yılı için ÇBÖ analizi sonucu Türkiye, Amerika Birleşik Devletleri (ABD), Lüksemburg, İspanya ve Yunanistan'ın diğer ülkelerden uzakta konumlandığı görülmüştür. 2024 yılı için ÇBÖ analizi sonucu Türkiye ve ABD'nin diğer ülkelerden uzakta konumlandığı belirlenmiştir. Her iki yıl için de Türkiye diğer ülkelerden uzakta konumlanmış olup Türkiye'nin ekonomik gösterge değerlerinin düşük seviyede kaldığı belirlenmiştir. Türkiye'nin ekonomik göstergeler bakımından ayrışmasını azaltabilmesi için enflasyonu düşüren, üretkenliği ve yüksek katma değerli ihracatı artıran yapısal reformlara odaklanması ve başarılı ülkelerin (örneğin Lüksemburg) politika uygulamalarını referans alması önerilebilir.

Anahtar kelimeler: Ekonomik Göstergeler, OECD, Çok Boyutlu Ölçekleme

EVALUATION OF OECD MEMBER COUNTRIES BASED ON ECONOMIC INDICATORS USING MULTIDIMENSIONAL SCALING ANALYSIS**Abstract**

Today, the economic development level of countries is assessed through economic indicators such as income level, production capacity, investment volume, employment rates, inflation, and foreign trade. Economic indicators provide important data for assessing a country's economic condition, resource use efficiency, and sustainable growth potential. Economic indicators are used to make comparisons regarding the economic level of different countries. The aim of the study is to conduct comparisons among member countries of the Organisation for Economic Co-operation and Development (OECD) based on key economic indicators, and to evaluate the relative locations of these countries with respect to one another. In determining the relative locations of the countries, the application of multidimensional scaling analysis—one of the multivariate statistical analysis techniques—has been carried out. Analyses were conducted using data from 2014 and 2024,

and the countries' locations for both years constituted the focus of the study. It was examined whether there were changes in the findings over the ten-year period. Multidimensional scaling (MDS) was selected as the research method. For the year 2014, the results of the multidimensional scaling analysis showed that Türkiye, the United States, Luxembourg, Spain, and Greece were positioned away from the other countries. For 2024, it was determined that Türkiye and the United States were located farther from the other countries. In both years, Türkiye was positioned far from the other countries, and it was determined that Türkiye's economic indicator values remained at a low level. To reduce Türkiye's divergence in economic indicators, it is recommended that structural reforms focusing on lowering inflation, increasing productivity, and promoting high value-added exports be implemented, and that policy practices of successful countries (e.g., Luxembourg) be taken as reference.

Keywords: Economic Indicators, OECD, Multidimensional Scaling

KÜMELEME ANALİZİ KULLANILARAK SOSYOEKONOMİK GÖSTERGELERE GÖRE OECD ÜYESİ ÜLKELERİN KARŞILAŞTIRMALI DEĞERLENDİRMESİ

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Özet

Sosyoekonomik göstergeler, ülkelerin veya toplumların ekonomi ve sosyal alanlardaki durumunu analiz etmeye olanak sağlamakta ve politika yapımcıların kalkınma stratejileri oluşturulması ve sürdürülebilir ekonomik büyüme stratejileri geliştirmesi açısından yol gösterici bir temel oluşturmaktadır. Ülkelerin sosyoekonomik göstergeler bakımından kıyaslamalarının yapılması önemli görülmektedir. Çalışmada Ekonomik İşbirliği ve Kalkınma Teşkilatı (OECD) üyesi ülkelerin sosyoekonomik göstergeler bakımından sınıflamalarının yapılması amaçlanmıştır. Sınıflamaların belirlenmesinde çok değişkenli istatistiksel analiz tekniklerinden kümeleme analizi uygulanmıştır. OECD üyesi ülkeleri için en güncel 2022 yılı sosyoekonomik göstergeler verileri kullanılmıştır. Kümeleme analizi sonucu 10 düzeyinde 5 küme olduğu tespit edilmiştir. Kümeleme yapısına göre gelişmekte olan ülkelerin aynı kümede sınıflandığı ve gelişmiş ülkelerin diğer kümelerde gruplandığı belirlenmiştir. Amerika Birleşik Devletleri tek başına bir küme oluşturmuştur. Gelişmekte olan bir ülke olan Türkiye kümeleme analizi sonucu yine gelişmekte olan ülkelerin yer aldığı kümenin üyesi olarak belirlenmiştir. Sosyoekonomik göstergelerin çoğunda gelişmekte olan ülkelerin yer aldığı kümenin en olumsuz gösterge ortalama değerlerine sahip olduğu belirlenmiştir. Gelişmekte olan ülkeleri içeren kümenin hükümetin eğitime yaptığı toplam harcama düzeyinde üçüncü sırada iyi gösterge ortalama değerine sahip olduğu, doğumda beklenen yaşam süresinde de üçüncü sırada iyi gösterge ortalama değerine sahip olduğu gözlenmiştir. OECD bünyesinde politika deneyimi paylaşımının artırılması ve başarılı uygulamaların ülke koşullarına uyarlanması gelişmekte olan ülkelerin sosyoekonomik performansını iyileştirebilir. Gelişmiş ülkelerin eğitim, sağlık ve istihdam politikalarının incelenerek ülke koşullarına uyarlanması gelişmekte olan ülkelerin performansını iyileştirmede etkili olabilir.

Anahtar kelimeler: Sosyoekonomik Göstergeler, OECD, Kümeleme Analizi.

A COMPARATIVE ASSESSMENT OF OECD MEMBER COUNTRIES ACCORDING TO THE SOCIOECONOMIC INDICATORS USING CLUSTER ANALYSIS

Abstract

Socioeconomic indicators enable the analysis of the economic and social conditions of countries or societies and provide a guiding basis for policymakers in developing development strategies and sustainable economic growth policies. Comparative analysis of countries in terms of socioeconomic indicators is considered important. This study aims to classify member countries of the Organization for Economic Cooperation and Development (OECD) based on their socioeconomic indicators. Cluster analysis, a multivariate statistical

analysis technique, was applied to determine the classifications. The most recent 2022 socioeconomic indicators data for OECD member countries were used. As a result of cluster analysis, five clusters at ten-level grouping were identified. According to the clustering structure, developing countries were grouped within the same cluster, while developed countries were distributed across other clusters. The United States formed a single cluster by itself. Türkiye, as a developing country, was also identified as a member of the cluster comprising developing countries based on the cluster analysis results. It was determined that the cluster comprising developing countries had the most unfavorable average values for most socioeconomic indicators. It was observed that the cluster comprising developing countries ranked third in terms of average values for total government expenditure on education, and also third for life expectancy at birth. Enhancing policy experience sharing within the OECD and adapting successful practices to national conditions may improve the socioeconomic performance of developing countries. Examining and adapting the education, health, and employment policies of developed countries to national contexts can also be effective in improving the performance of developing countries.

Keywords: Socioeconomic Indicators, OECD, Cluster Analysis.

DİJİTAL ÇAĞDA SOSYAL DEVLET UYGULAMALARI: KAMU HİZMETLERİNİN DİJİTALLEŞMESİ**Yeliz BULUT**

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Özet

Toplumların siyasal, sosyal ve iktisadi yapısının değişime uğradığı dijitalleşme çağında sosyal devlet anlayışı da yeni dinamiklerle şekillenmiştir. Klasik devlet düşüncesi bağlamında, kamu hizmeti sağlayıcısının görevi sınırlı iken, günümüzde devletin rol ve sorumluluklarında dijitalleşmeye bağlı olarak köklü bir değişim gözlemlenmiştir. Dijitalleşme, kamu hizmetlerinin alanını genişletmiş ve bu çerçevede farklı hizmet sunum biçimlerini de ortaya çıkartmıştır. Kamu hizmetlerinde büyük değişikliklerin yaşandığı ve dijital teknolojilerin bütüncül bir yaklaşımla kullanıldığı bu dijital dönüşüm çerçevesinde, vatandaşa hızlı ve etkili hizmet sunma, sağlıklı veri toplama, karar alma süreçlerini daha iyi yönetme ve kamu kaynaklarını daha verimli kullanma ana hedeflerdir. Dijitalleşmenin kamu hizmetlerine sağladığı en önemli katkılardan biri, hizmetlerin daha etkili, şeffaf ve erişilebilir hale gelmesidir. Bu gelişme, bir yandan kamusal hizmet sunumunda kaliteyi artırmakta, diğer yandan kamu kurumlarının sorunlarla daha etkin biçimde başa çıkmasına imkân tanımaktadır. Dijital dönüşüm sayesinde vatandaşlar, çok çeşitli hizmet alanlarına dijital hizmetler aracılığıyla doğrudan erişebilir hale gelmiştir. Elektronik hizmet (E-Hizmet) kullanımında, işlemlerin ve karar alma süreçlerinin daha kontrol edilebilir ve belgelendirilebilir nitelikte olması, vatandaşların hizmet süreçlerine daha fazla katılımını sağlamış bu da süreçlere ilişkin hesap verebilirlik ve güvenilirlik algısını güçlendirmiştir. Dijital teknolojiler sayesinde kamu kurumları, kamu politikalarının belirlenmesi ve uygulanmasında geniş hacimli verileri daha etkili bir şekilde yönetebilir ve kaynakları daha verimli kullanabilir pozisyona gelmiştir. Ancak kamu hizmetlerinde dijitalleşmenin beraberinde getireceği tüm bu olumlu yansımaların yanısıra yaşanabilecek bazı riskli durumların da göz ardı edilmemesi gerekmektedir. Siber güvenlik tehditleri, dijital eşitsizlik, veri güvenliği ve gizliliği, teknolojik altyapı yetersizlikleri ve personelin dijital beceri yoksunluğu gibi sayılabilecek durumlar, kamu hizmetlerinde dijitalleşmenin başarısı önünde duran temel sorun ve uygulama zorlukları olarak değerlendirilebilir. Serbest piyasa ortamında sadece özel sektörde değil, toplumların refah seviyelerinin artırılması bağlamında kamusal alanda da, ulusal ve uluslararası arenadaki rekabet, başta e-devlet uygulaması olmak üzere dijital teknolojilerin gelişmesine ortam hazırlamıştır. Türkiye'nin, kamu yönetimi alanında, uzun yıllardır yürüttüğü bilgi ve iletişim teknolojileri alanındaki reformist uygulamaları, küreselleşmenin etkisiyle 1980'li yıllara gelindiğinde hızla artarak ivme kazanmıştır. O günden bugüne Türkiye'de, devlet, bürokrasi, ekonomi, siyasi ve kültürel alanda gerçekleştirilen iyileştirmelerin başını, kamu yönetiminde yapılandırılan teknoloji ve dijital bağlamı politikalar çekmektedir. Dijital dönüşüm süreçleri, kamu yönetimi anlayışını yeniden şekillendirerek sosyal devlet uygulamalarının kapsamını ve kamu hizmetlerinin sunum biçimini önemli ölçüde etkilemektedir. Bu çalışma, dijital çağda sosyal devlet ilkesinin nasıl yeniden yapılandığını ve kamu hizmetlerinin dijitalleşmesi sürecinde ortaya çıkan fırsat ve riskleri Türkiye'den örneklerle analiz etmeyi amaçlamaktadır. Bu amaç doğrultusunda, araştırmada nitel araştırma yöntemi benimsenmiş; literatür taraması ve doküman analizi teknikleri kullanılarak ulusal örnekler incelenmiştir. Elde edilen bulgular, dijitalleşmenin kamu hizmetlerinde hız, maliyet etkinliği ve erişim kolaylığı sağladığını; ancak dijital uçurum, veri güvenliği ve teknolojik dışlanma gibi yeni sorun alanlarını da beraberinde getirdiğini göstermektedir. Bu sonuçlar, dijitalleşmenin sosyal devlet ilkelerini güçlendirebileceği gibi, uygun politikalar geliştirilmediği takdirde eşitsizlikleri derinleştirebileceğini ortaya koymaktadır. Çalışmanın bilimsel katkısı, sosyal devlet kavramını dijital dönüşüm bağlamında ele alarak literatüre güncel ve eleştirel bir bakış açısı sunmasında yatmaktadır. Ayrıca, kamu hizmetlerinin daha kapsayıcı, güvenli ve sürdürülebilir şekilde sunulabilmesi için politika önerileri geliştirilmiştir. Bu bağlamda çalışma, kuramsal ve uygulamaya dönük katkılar sağlamaktadır. Beklenen sonuçlar arasında, dijitalleşmenin sosyal devletin geleneksel rolleri üzerindeki dönüştürücü

etkilerinin analizi, dijital eşitsizliği azaltmaya yönelik politika önerileri ve yeni nesil sosyal hizmet modellerinin geliştirilmesi için yol haritası sunulması yer almaktadır. Çalışma, kamu hizmetlerinin dijitalleşmesinin sosyal devlet ve birey odaklılık ilkeleriyle nasıl uyumlu bir şekilde entegre edilebileceğine dair kapsamlı bir çerçeve sağlayacaktır.

Anahtar Kelimeler: Sosyal Devlet, Dijitalleşme, Kamu Hizmetleri, E-Devlet, Dijital Dönüşüm

SOCIAL STATE PRACTICES IN THE DIGITAL AGE: DIGITALIZATION OF PUBLIC SERVICES

Abstract

In this digital era, where political, social, and economic structures of societies have undergone profound transformations, the concept of the social state has likewise been reshaped by new dynamics. Within the framework of classical state theory, the role of public service providers was relatively limited; however, today, a radical transformation in the state's roles and responsibilities has emerged due to digitalization. Digitalization has expanded the scope of public services and introduced new forms of service delivery. Within this digital transformation process characterized by significant changes in public services and the integrated use of digital technologies the principal objectives are to provide citizens with rapid and effective services, ensure reliable data collection, improve decision-making processes, and utilize public resources more efficiently. One of the most significant contributions of digitalization to public services is making these services more effective, transparent, and accessible. This development not only improves the quality of public service delivery but also enables public institutions to address societal challenges more effectively. Through digital transformation, citizens have gained direct access to a wide range of service areas via digital platforms. In the use of electronic services (e-services), the fact that processes and decision-making mechanisms are more controllable and documentable has increased citizen participation while simultaneously strengthening perceptions of accountability and reliability. Through digital technologies, public institutions have become capable of managing large volumes of data more effectively in the formulation and implementation of public policies, thereby ensuring more efficient resource utilization. However, despite these positive reflections, potential risks associated with the digitalization of public services should not be overlooked. Cybersecurity threats, digital inequality, data security and privacy concerns, inadequate technological infrastructure, and insufficient digital competencies among personnel can be considered the primary challenges and implementation barriers to the successful realization of digital transformation in public services. In a free-market environment, not only within the private sector but also in the public sphere, national and international competition aimed at enhancing societal welfare has created conditions conducive to the development of digital technologies, particularly e-government applications. In Türkiye, reformist practices in information and communication technologies within public administration have accelerated significantly since the 1980s under the influence of globalization. Since that period, technology-driven and digitally oriented policies structured within public administration have led the reforms implemented in Türkiye across the domains of state governance, bureaucracy, economy, politics, and culture. Digital transformation processes have substantially influenced the understanding of public administration by reshaping both the scope of social state practices and the methods of public service delivery. This study aims to analyze how the principle of the social state has been reconstructed in the digital age and to evaluate the opportunities and risks emerging during the digitalization of public services through examples from Türkiye. For this purpose, a qualitative research methodology was adopted, and national examples were examined through literature review and document analysis techniques. The findings indicate that digitalization provides speed, cost-effectiveness, and ease of access in public services; however, it also introduces new areas of concern, such as the digital divide, data security issues, and technological exclusion. These results reveal that while digitalization may strengthen social state principles, it may also deepen inequalities if appropriate policies are not developed. The scientific contribution of this study lies in its presentation of a contemporary and critical perspective to the literature by addressing the concept of the social state within the framework of digital transformation. Furthermore, policy recommendations have been developed to ensure that public services are delivered in a more inclusive, secure, and sustainable manner. In this context, the study provides both theoretical and practical contributions. Expected outcomes include analyzing the transformative effects of digitalization on the traditional roles of the social state, offering policy recommendations aimed at reducing digital inequality, and presenting a roadmap

for the development of next-generation social service models. Ultimately, the study provides a comprehensive framework for understanding how the digitalization of public services can be integrated harmoniously with the principles of the social state and citizen-centered governance.

Keywords: Social State, Digitalization, Public Services, E-Government, Digital Transformation

DİJİTALLEŞME VE TEKNOLOJİ BAĞIMLILIĞI İLİŞKİSİ: TÜRKİYE’DE ÇOCUKLAR ÜZERİNE KARŞILAŞTIRMALI BİR ANALİZ**Sibel DUYGULU**

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Özet

Dijitalleşme, toplumsal ve bireysel yaşamın hemen her alanını dönüştüren oldukça kapsamlı bir süreçtir. Bu süreç, internetin ve teknolojinin yaygınlaşmasıyla çeşitli alanlarda bireylere hem önemli fırsatlar sunmakta hem de artan internet ve teknoloji kullanımına bağlı olarak kullanıcı farkındalığının yetersizliği, etik sorunlar, kişisel verilerin ihlali, siber saldırı gibi çeşitli olumsuz etkileri de beraberinde getirmektedir. Ayrıca internetin ve dijital teknolojilerin aşırı ve yoğun kullanımı, bireylerin teknolojiye bağımlılık geliştirme riskini de artırmaktadır. Bu durumlar; dijitalleşmenin faydaları kadar olumsuz yönlerinin de olduğunu, beklenmedik çeşitli riskler taşıdığını göstermekte ve literatürde bu hususlar sınırlı düzeyde incelenmektedir. Bu bağlamda çalışmada, dijitalleşmenin bireysel düzeydeki olumsuz etkileri teknoloji bağımlılığı kavramı çerçevesinde ele alınmaktadır. Çalışmanın temel amacı, dijitalleşme ile teknoloji bağımlılığı arasındaki ilişkiyi Türkiye örneği üzerinden çocuklar özelinde incelemektir. Bu kapsamda çalışmada, “Dijitalleşme, teknoloji bağımlılığına sebebiyet verir mi? Çocuklar dijital araçları hangi amaçla kullanmaktadır? Türkiye’de dijitalleşme süreci çocukların teknoloji kullanımını nasıl etkilemektedir? sorularına yanıt aranmaktadır. Çalışma, literatür taraması yapılması nedeniyle nitel araştırma yöntemlerinden doküman incelemesine ve çocukların teknoloji kullanıma ilişkin Türkiye İstatistik Kurumu (TÜİK) verilerinin kullanılması nedeniyle de nicel araştırma yöntemi çerçevesinde ikincil veri analizine dayanmaktadır. Bu çerçevede çalışmada; 2020-2026 yılları arasında çocukların teknoloji kullanımına ilişkin TÜİK verileri karşılaştırmalı olarak analiz edilmiştir. Temel bulgular, dijitalleşmenin çocuklarda teknoloji ve internet kullanımını artırdığını, bu atışın çocuklarda bağımlılık riskini güçlendirdiğini göstermektedir. Çalışma, dijitalleşmenin birey üzerindeki olumsuz etkilerini teknoloji bağımlılığı ekseninde çocuklar nezdinde bütüncül bir yaklaşımla analiz edilmesi bakımından literatüre önemli bir katkı sağlamakta ve gelecekte yapılacak araştırmalar için kavramsal bir temel oluşturmaktadır.

Anahtar Kelimeler: Dijitalleşme, Teknoloji Bağımlılığı, TÜİK.**THE RELATIONSHIP BETWEEN DIGITALIZATION AND TECHNOLOGY ADDICTION: A COMPARATIVE ANALYSIS ON CHILDREN IN TURKEY****Abstract**

Digitalization is a comprehensive process transforming almost every aspect of social and individual life. This process, driven by the widespread proliferation of the internet and technology, provides individuals with substantial opportunities across various sectors while simultaneously generating numerous adverse consequences, including inadequate user awareness, ethical concerns, violations of personal data privacy, and increased exposure to cyberattacks associated with the expanding use of digital technologies. Furthermore, excessive and intensive use of the internet and digital technologies increases the risk of individuals developing technology addiction. These situations demonstrate that digitalization has both benefits and negative aspects, carrying various unexpected risks, and these issues are only partially examined in the literature. In this context, this study addresses the negative effects of digitalization at the individual level within the framework of the concept of technology addiction. The main objective of the study is to examine the relationship between

digitalization and technology addiction, specifically focusing on children in Turkey. This study seeks answers to the following questions: “Does digitalization cause technology addiction? For what purposes do children use digital tools? How does the digitalization process in Turkey affect children's technology use?” The study relies on qualitative research methods, specifically document analysis, due to the literature review, and on quantitative research methods, specifically secondary data analysis, due to the use of Turkish Statistical Institute (TÜİK) data on children's technology use. In this context, TÜİK data regarding children's technology use between 2020 and 2026 were comparatively analysed in the study. The main findings show that digitalization increases technology and internet use among children, and this increase strengthens the risk of addiction in children. The study makes a significant contribution to the literature by analyzing the negative effects of digitalization on individuals through a holistic approach focusing on technology addiction in children, and provides a conceptual foundation for future research.

Keywords: Digitalization, Technology Addiction, Turkish Statistical Institute (TÜİK).

FUZZY TOPSIS-BASED PRIORITISATION OF DIGITAL TRANSFORMATION PROJECTS IN PARTICIPATION BANKING: A MULTI-CRITERIA DECISION ANALYSIS UNDER UNCERTAINTY

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Abstract

Decision-making in participation banking is complex because of Advisory Board oversight, regulatory rules and limited data. This study proposes a Fuzzy TOPSIS model to rank project management priorities and digital transformation initiatives in Türkiye's participation banking sector, under uncertainty. It builds on our earlier work in project management in participation banking. The proposed model uses triangular fuzzy numbers. The first application prioritises two project plans called *Fin-Advisor AI* and *Cyber Resilience Modernisation* against nine criteria taken from SWOT and PESTLE dimensions. The second application benchmarks Turkish participation banks on eight project management maturity dimensions, using publicly available documentary indicators. The applications are based solely on publicly available sectoral, regulatory, and institutional documents, and on literature-informed illustrative fuzzy ratings. The vertex method computes distances to the fuzzy positive and negative ideal solutions. The results show that *Cyber Resilience Modernisation* is only slightly preferred over the *Fin-Advisor AI* project. A sensitivity analysis shows that the direction of the result is stable, although the margins stay narrow. The model offers a sector-specific MCDM framework that can be used for interest-free banking decisions under uncertainty.

Keywords: Fuzzy TOPSIS, Multi-Criteria Decision Making, Participation Banking, Digital Transformation, Project Prioritisation, Triangular Fuzzy Numbers.

**FUZZY SERVQUAL BENCHMARKING OF TURKISH TELECOMMUNICATIONS OPERATORS:
IMPLICATIONS FOR THE COST OF POOR QUALITY AND CUSTOMER RETENTION**

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Abstract

Service quality is a central determinant of customer retention and long-term profitability in the Turkish telecommunications market, but the financial consequences of service-quality gaps are difficult to observe directly. This study benchmarks two anonymised Turkish operators, T1 and T2, and proposes a Fuzzy SERVQUAL model based on triangular fuzzy numbers and centroid defuzzification. The model uses literature-informed illustrative fuzzy ratings and publicly available sectoral information to demonstrate how perception–expectation gaps can be translated into diagnostic service-quality priorities. The Juran Trilogy and the Quality-Iceberg model are then used as interpretive lenses to map each SERVQUAL dimension to the stage of quality management where the hidden cost of poor quality is most likely to accumulate. The contribution is methodological and diagnostic: a transparent benchmarking procedure that translates fuzzy SERVQUAL evidence into stage-specific management priorities. COPQ and customer retention are not measured directly but interpreted from the perception-expectation gaps.

Keywords: Fuzzy SERVQUAL, triangular fuzzy numbers, service-quality gap, Cost of Poor Quality, Juran Trilogy, benchmarking, telecommunications, customer retention.

VISIBLE FACIAL DIFFERENCE, STIGMA, AND DISCRIMINATION: A REVIEW FROM A SOCIAL WORK PERSPECTIVE**Elvan Ulucan Özkan**

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Abstract

Visible facial difference represents a multidimensional experience that affects not only an individual's physical appearance but also their self-concept, social relationships, and social positioning. As the face is the most salient feature in interpersonal interactions, differences in facial appearance often trigger processes of stigma and discrimination. Individuals with visible differences are frequently subjected to negative stereotypes and are perceived as less competent, less sociable, and less attractive. These biased perceptions lead to outcomes such as social exclusion, teasing, and discrimination across various life domains.

This study aims to review the existing literature on stigma and discrimination experienced by individuals with visible facial differences and to examine the psychosocial impacts of these processes from a social work perspective. Current findings indicate that these individuals experience significant psychosocial challenges, including low self-esteem, body image dissatisfaction, social anxiety, and depression. Furthermore, they often encounter difficulties in establishing social and romantic relationships, tend to avoid social environments, and are disadvantaged in employment processes.

Stigma is a multilayered process that is reproduced not only at the individual level but also through interpersonal interactions and broader social structures. Cultural norms and media representations reinforce structural exclusion by idealizing physical beauty. In this context, social work interventions should adopt a multi-level approach, including individual empowerment, strengthening social support mechanisms, and developing anti-stigma policies. Ultimately, visible facial difference should be addressed as a significant social issue requiring holistic and rights-based social work approaches.

Keywords: Visible facial difference, stigma, discrimination, psychosocial impacts, social work

GÖRÜNÜR YÜZ FARKLILIĞI, DAMGALANMA VE AYRIMCILIK: SOSYAL HİZMET PERSPEKTİFİNDEN BİR DERLEME**Özet**

Görünür yüz farklılığı, bireyin yalnızca fiziksel görünümünü değil, aynı zamanda benlik algısını, sosyal ilişkilerini ve toplumsal konumunu etkileyen çok boyutlu bir deneyimdir. Yüzün kişilerarası etkileşimlerde en dikkat çekici unsur olması nedeniyle, bu bölgedeki farklılıklar sıklıkla damgalanma ve ayrımcılık süreçlerini tetiklemektedir. Görünür farklılığa sahip bireyler, çoğu zaman olumsuz stereotiplere maruz kalmakta ve daha az yetkin, daha az sosyal ve daha az çekici olarak değerlendirilmektedir. Bu önyargılı algılar; sosyal dışlanma, alay edilme ve farklı yaşam alanlarında ayrımcılık gibi sonuçlara yol açmaktadır.

Bu çalışma, görünür yüz farklılığına sahip bireylerin damgalanma ve ayrımcılık deneyimlerini ele alan literatürü derleyerek, bu süreçlerin psikososyal etkilerini sosyal hizmet perspektifinden incelemeyi amaçlamaktadır. Mevcut bulgular, bu bireylerin düşük öz saygı, beden imajı memnuniyetsizliği, sosyal anksiyete ve depresyon gibi önemli psikososyal sorunlar yaşadığını göstermektedir. Ayrıca bireylerin sosyal ve romantik ilişkiler kurmada güçlük yaşadığı, sosyal ortamlardan kaçınma eğilimi gösterdiği ve istihdam süreçlerinde dezavantajlı konuma düştüğü görülmektedir.

Damgalanma yalnızca bireysel düzeyde değil, kişilerarası etkileşimler ve toplumsal yapılar aracılığıyla yeniden üretilen çok katmanlı bir süreçtir. Kültürel normlar ve medya temsilleri, fiziksel güzelliği idealize ederek görünür farklılığa sahip bireylerin yapısal olarak dışlanmasını pekiştirmektedir. Bu bağlamda sosyal

hizmet uygulamalarının; bireysel güçlendirme, sosyal destek mekanizmalarının geliştirilmesi ve damgalama karşıtı politikaların oluşturulmasını içeren çok düzeyli müdahaleleri kapsamı gerekmektedir. Sonuç olarak, görünür yüz farklılığı, bütüncül ve hak temelli sosyal hizmet yaklaşımları gerektiren önemli bir sosyal sorun olarak ele alınmalıdır.

Anahtar Kelimeler: Görünür yüz farklılığı, damgalanma, ayrımcılık, psikososyal etkiler, sosyal hizmet.

YAPAY ZEKÂ VE BLOCKCHAIN TABANLI AKILLI TEDARİK ZİNCİRLERİNİN İLAÇ PAZARLAMASINA YANSIMALARI**Ömer CENGİZ**

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Özet

Dijital dönüşümün hız kazandığı günümüzde, sağlık ve ilaç sektöründe veri odaklı sistemler gelişme göstermiştir. Bu durum hem uygulama sürecinde hem de pazarlama faaliyetlerin de önemli değişimleri beraberinde getirmiştir. Bu çalışma ile yapay zekâ ve blockchain teknolojisi ile tedarik zinciri uygulamalarının ilaç pazarlamasına olan etkileri lojistik ve pazarlama alanyazınında incelenmiştir. Yapay zekâ ve blockchain teknolojilerinin kullanımı ile ortaya çıkan akıllı tedarik zinciri uygulamalarının ilaç sektöründeki rolü bu çalışma ile incelenmiş ve bu yapıların pazarlama uygulamalarına yansımalarının incelenmesi amaçlanmıştır.

Araştırmada nitel araştırma yöntemlerinden doküman analizi tekniği kullanılmıştır. Araştırma bulgularına göre, yapay zekâ uygulamalarının veri analizi, talep tahmini, tüketici davranışı ve hedef kitle bölümlendirmesi alanlarında pazarlama süreçlerinin daha etkili bir şekilde yönetileceğini göstermiştir. Özellikle blockchain teknolojisinin ilaç tedarikinde şeffaflık, izlenebilirlik ve güvenilirlik sağladığı görülmektedir. Blockchain teknolojisiyle, sahte ilaçların önlenmesi ve ürün güvenliğini artırması önemli katkı sunmuştur. Araştırma bulguları aynı zamanda blockchain teknolojisi ve yapay zekâ uygulamalarının beraber kullanılmasıyla lojistik süreçlerinin de daha etkili ve verimli kullanılmasına olanak sağlamaktadır.

Uluslararası ilaç pazarında görünen büyüme eğilimleriyle birlikte dijitalleşmenin pazarlama ve lojistik uygulamalarında etkisinin giderek arttığı görülmektedir. Türkiye’de düzenleyici sistemlerin etkisiyle pazarlama ve lojistik faaliyetleri daha çok sağlık görevlileri üzerinden yürütülmektedir. Bu durumda da dijital ve veri odaklı yaklaşımların gün geçtikçe önem kazandığını göstermektedir. Tüm bu etkilerin bir sonucu olarak, yapay zekâ ve blockchain tabanlı akıllı tedarik zincirlerinin güven ve şeffaflık tabanlı bir anlayış oluşturmuştur. Bu çalışma ile hem uygulayıcılara hem de araştırmacılara yönelik çeşitli öneriler sunulmuştur.

Anahtar Kelimeler: Yapay Zekâ, Blockchain, Tedarik Zinciri, Lojistik, Pazarlama, İlaç Pazarlaması.

THE IMPLICATIONS OF ARTIFICIAL INTELLIGENCE AND BLOCKCHAIN-BASED SMART SUPPLY CHAINS ON PHARMACEUTICAL MARKETING**Abstract**

In today’s world, where digital transformation is gaining momentum, data-driven systems have seen significant development in the healthcare and pharmaceutical sectors. This has brought about major changes in both operational processes and marketing activities. This study examines the impact of supply chain applications utilizing artificial intelligence and blockchain technology on pharmaceutical marketing within the logistics and marketing literature. The role of smart supply chain applications—enabled by the use of artificial intelligence and blockchain technologies—in the pharmaceutical sector is explored in this study, with the aim of analyzing how these structures influence marketing practices.

The study employed the document analysis technique, one of the qualitative research methods. According to the research findings, artificial intelligence applications have demonstrated that marketing processes can be managed more effectively in the areas of data analysis, demand forecasting, consumer behavior, and target audience segmentation. In particular, blockchain technology has been shown to provide transparency,

traceability, and reliability in the pharmaceutical supply chain. Blockchain technology has made significant contributions to preventing counterfeit drugs and enhancing product reliability. The research findings also indicate that the combined use of blockchain technology and artificial intelligence applications enables logistics processes to be managed more effectively and efficiently.

Along with the growth trends observed in the international pharmaceutical market, the impact of digitalization on marketing and logistics practices is increasingly evident. In Turkey, due to the influence of regulatory systems, marketing and logistics activities are primarily conducted through healthcare professionals. This situation demonstrates that digital and data-driven approaches are gaining importance day by day. As a result of all these factors, artificial intelligence and blockchain-based smart supply chains have fostered an understanding rooted in trust and transparency. This study presents various recommendations for both practitioners and researchers.

Keywords: Artificial Intelligence, Blockchain, Supply Chain, Logistics, Marketing, Pharmaceutical Marketing.

GRAMMATICAL COHESION IN DESCRIPTIONS AND CONVERSATIONS OF TWO SELECTED
EXCERPTS FROM CHARLES DICKENS'S *Great Expectations*

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Abstract

This paper explores the grammatical cohesion in descriptions and conversations in Charles Dickens's *Great Expectations*. It aims to unravel how grammatical cohesion properties are packaged in the novel. To this end, qualitative and quantitative methods have been used. In practical terms, two excerpts have been selected and split into clauses and clause complexes. The analysis of the extracts is grounded in Systemic Functional Linguistics (SFL), chiefly from the grammatical cohesion perspective. The findings show that there are more grammatical devices in descriptions than there are in conversation. And these items are personal references and conjunctions. They are basically made up of anaphoric references and additive conjunctions. More importantly, most of these tokens appear in hypotactic relations whereby subordinate clauses depend on the main clauses. They also are found sporadically in some paratactic, embedded, and simplex-clause relations. By and large, it can be inferred that personal references and conjunctions are likely to be more found in descriptions than in conversations in fiction.

Keywords: SFL, grammatical cohesion, descriptions, conversations, fiction

THE DEVELOPMENT OF COMMUNICATION SKILLS THROUGH INTERACTIVE ENGLISH LANGUAGE CLASSES AT A NON-LANGUAGE UNIVERSITY

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Abstract

The present article addresses the issue of developing foreign language communicative competence among first-year students at a non-language university who are enrolled in a wide range of academic disciplines. The necessity for this study arises from the imperative to transform English from an academic discipline into a functional instrument for professional advancement.

The methodological basis of the study consists of a systemic approach and the principles of "learning by doing." The author conducts an analysis of the implementation of a comprehensive interactive model that incorporates cognitive mapping (clusters), descriptive analysis of objects and emotions, digital storytelling (video blogs), as well as interdisciplinary project work followed by a presentation.

The empirical study demonstrated a qualitative leap in the development of all components of competence. The findings of the study demonstrate a substantial enhancement in fluency scores, and a notable augmentation in active vocabulary. The utilisation of simulations resulted in a reduction in language anxiety of first-year students. In conclusion, it is argued that the integration of analytical, creative, and project-based methods helps bridge the gap in the foundational training of students across different disciplines and lays the groundwork for their successful professional development in a global digital environment.

Keywords: communicative competence, English language, interactive learning, career-oriented education.

LOOKING BACK TO INDIA: A LIGHT ON A. K. RAMANUJAN'S POETRY**Jaheda Sharmin Urmi**

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Abstract

This paper explores the bicultural and ironic perspective of A.K. Ramanujan, a central figure in Indian English literature often characterized as the "poet of exile." Despite residing in the United States, Ramanujan's poetic lens remained fixed on his Indian roots, specifically his memories of Mysore and Madurai. This study examines how Ramanujan utilizes a "bicultural viewpoint" to bridge the geographical and emotional gap between his American present and his South Indian cultural past. Through a close reading of selected poems including "A River," "Snakes," "The Striders," and "Love Poem for a Wife" the research highlights Ramanujan's unique ability to de-romanticize Indian life. In "A River," he employs biting irony to critique the poetic neglect of human suffering during the Vaikai River floods. In "Snakes" and "The Striders," he juxtaposes Hindu mythology and religious rituals with personal fear and spiritual resilience. Finally, "Love Poem for a Wife" illustrates how unshared childhood memories and domestic cultural frameworks create an enduring "memory-filled presence" that shapes identity in the diaspora. The paper concludes that Ramanujan's work serves as a vital link between the sacred and the mundane, offering a realistic, unidealized re-examination of Indian identity that balances tradition with modern change.

Keywords: A.K. Ramanujan, Indian English Poetry, Cultural Identity, Diaspora, Irony, Memory.

**PERCEPTION AND USE OF DRONE TECHNOLOGY IN NEWS GATHERING AND REPORTING
IN NIGERIA**

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Abstract

This study examines how drone technology is perceived and used by Nigerian journalists and news organizations, and how those perceptions shape adoption in newsgathering and reporting. Using a mixed-methods approach a nationwide survey of 220 journalists from broadcast and online newsrooms, in-depth interviews with 20 news managers and drone operators, and a content analysis of 150 drone-assisted news items published between 2021–2024 the research explores attitudes toward drones, practical applications, operational barriers, and ethical concerns. Results show a generally positive perception of drones for improving story reach, visual quality, and reporter safety (especially for conflict, disaster, and environmental coverage), but reveal low-to-moderate levels of routine use. Major constraints include unclear regulatory frameworks, high acquisition and maintenance costs, limited institutional training, liability and privacy concerns, and infrastructural challenges (power, connectivity). Editors and managers cited editorial benefits but stressed risk management and public trust as prerequisites for wider deployment. The paper argues that without coordinated policy, capacity-building and ethical guidelines, Nigeria’s news sector will under-leverage drone potential or face reputational risks. Recommendations include establishing clear civil-aviation/media regulations, subsidized training programmes, newsroom standard operating procedures for aerial footage, and public engagement to address privacy and safety concerns.

Keywords: Drones, Newsgathering, Journalism, Media Policy, Ethics.

APPLICATIONS OF TRANSFORMATION SEMIGROUPS IN REAL-WORLD SYSTEMS

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Abstract

Transformation semigroups play a significant role in modern algebra due to their rich structural properties and wide range of applications in scientific and computational systems. A transformation semigroup, consisting of mappings from a non-empty set X into itself under the composition of mappings, provides an important algebraic framework for studying transformations and sequential operations. Since semigroups require only the associative property, they arise naturally in many mathematical and real-world models. This paper presents a brief overview of transformation semigroups and highlights their applications in various real-world systems. Applications in automata theory, formal languages, artificial intelligence, communication networks, and coding theory are discussed. The study demonstrates how the algebraic structure of transformation semigroups provides useful mathematical tools for analyzing complex systems, state transitions, and sequential processes in modern technologies.

Keywords: Semigroup, Transformation semigroup.

APPLICATION OF DAYLIGHTING STRATEGIES IN THE DESIGN OF AN ARCHITECTURAL CRAFT LABORATORY FOR THE SCHOOL OF ARCHITECTURE, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA.

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Abstract

This paper examines how daylighting strategies can inform the architectural design of craft laboratories, emphasizing the critical role of natural light in visual comfort, energy performance, and the quality of creative environments. Given the exacting demands of craftwork including accurate color perception, detailed manipulation, and material sensitivity effective daylighting is not merely beneficial but essential. The research investigates a range of passive design approaches, including building orientation, fenestration configuration, light shelves, skylights, clerestories, and interior surface reflectivity, contextualized within the specific requirements of craft practice. Through case study analysis and daylight modeling, the study evaluates light distribution, glare mitigation, and illuminance consistency across three key spatial typologies: workshops, exhibition spaces, and studios. The research also addresses the interplay between daylighting, thermal comfort, and occupant well-being, advancing a design philosophy grounded in sustainability and human-centered spatial quality. Findings indicate that strategic daylight integration substantially reduces reliance on artificial lighting while fostering an inspiring environment conducive to innovation and artisanal excellence. The paper concludes with evidence-based design recommendations tailored to craft laboratories, advocating for integrated solutions that harmonize architectural form, functional performance, and environmental responsibility.

Keywords: Daylighting strategies; craft laboratory; natural light; visual comfort; passive design; fenestration; skylights; light shelves; illuminance; light distribution.

URBAN PLANNING AND ARCHITECTURAL REGULATIONS FOR THE IMPROVEMENT OF INDOOR AIR QUALITY IN BOMU, EGBEMA AND OBITE OIL-PRODUCING COMMUNITIES TO MITIGATE THE POLLUTION CAUSED BY GAS FLARING IN RIVERS STATE, NIGERIA

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Abstract

This study interrogates the intersection of environmental degradation, spatial planning, and architectural design within oil-producing communities in Rivers State, with a specific focus on Bomu, Egbema, and Obite. Since the commercial discovery of crude oil in Oloibiri, Nigeria's petroleum industry has remained central to national economic development, yet it has simultaneously generated profound environmental and public health challenges, particularly in the Niger Delta. Among these challenges, gas flaring and associated industrial emissions have significantly degraded ambient and indoor air quality, exposing host communities to hazardous pollutants and chronic health risks. While existing scholarship has extensively documented the ecological and health consequences of oil exploitation, limited attention has been directed toward the role of urban planning systems and architectural regulations as proactive mechanisms for mitigating pollution exposure within the built environment.

This research addresses this gap by proposing a context-responsive framework that integrates urban planning strategies with architectural design controls to improve indoor air quality in oil-impacted settlements. The study is premised on the argument that spatial configuration, land-use regulation, and building design significantly influence pollutant dispersion, infiltration, and accumulation within residential environments. It critically examines how deficiencies in zoning enforcement, absence of buffer zones, and unregulated settlement expansion have intensified human exposure to airborne contaminants in close proximity to oil and gas infrastructure. Furthermore, it evaluates the extent to which existing regulatory instruments—such as development control mechanisms, building codes, and environmental policies—incorporate air quality considerations or fail to address the unique conditions of oil-producing communities.

Adopting a mixed-methods research design, the study combines quantitative environmental assessment with qualitative institutional analysis. Field measurements of indoor and outdoor air quality parameters will be conducted across stratified residential zones defined by proximity to gas flaring sites and industrial facilities. These data will be complemented by spatial analysis using geospatial mapping techniques to establish relationships between pollution sources and settlement patterns. In parallel, policy analysis and semi-structured interviews with planners, architects, and regulatory stakeholders will provide insights into governance structures, enforcement challenges, and implementation gaps. This integrative methodology enables a holistic understanding of both the physical dynamics of pollution and the socio-institutional frameworks that shape the built environment.

The research is guided by key questions concerning the influence of building orientation, settlement density, ventilation strategies, and zoning regulations on pollutant behavior and indoor air quality outcomes. Particular emphasis is placed on the effectiveness of spatial buffer zones, airflow optimization through urban form, and architectural interventions such as façade design, material selection, and cross-ventilation systems. By synthesizing empirical findings with regulatory analysis, the study aims to develop a comprehensive framework that aligns environmental health objectives with planning and design practices.

Expected outcomes include the identification of spatial and architectural determinants of pollution exposure, as well as the formulation of evidence-based guidelines for improving indoor environmental quality in oil-producing regions. The proposed framework will articulate minimum buffer distances, zoning adjustments, building orientation standards, and ventilation requirements tailored to high-risk environments. It will also outline an implementation model that emphasizes regulatory enforcement, stakeholder collaboration, and community inclusion.

Ultimately, this research contributes to the advancement of sustainable urban development in the Niger Delta by reframing architecture and urban planning as critical tools for environmental mitigation rather than passive responses to pollution. It offers a novel, design-oriented approach to addressing air quality challenges, with implications for policy reform, public health improvement, and resilience-building in vulnerable communities.

Keywords: Building Code, Gas Flaring, Environmental Pollution, Indoor Air Quality, Buffer Zone

FROM CURVES TO STRUCTURES: MATHEMATICAL MODELING OF FREE-FORM
ARCHITECTURE THROUGH DIFFERENTIAL GEOMETRY

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Abstract

This paper examines the use of the tools of differential geometry in the mathematical modeling and analysis of architectural structures of free-form, and dealing with the important issue of converting complex curved geometries into a practical architecture. Using a thorough evaluation of existing architectural paradigms, including geometric characteristics, and structural performance measures, the study will prove that the use of differential geometry provides powerful frameworks to successfully simulate complex architectural shapes. The main discoveries are that such mathematical methods improve not only the aesthetic quality of designs but also the structure of the design, making it possible to find novel solutions in architectural practice. The relevance of these findings is specially significant to the healthcare sector whereby healthcare facilities are becoming increasingly in need of flexible and efficient spaces that can meet various functional requirements. The research recommends that optimal architectural designs achieved by the use of advanced mathematical modeling may result in better patient outcomes and operational efficiencies in healthcare settings. In addition, the overall consequences of this study support the development of a paradigm shift in the design of architecture and the promotion of interdisciplinary cooperation that would unite mathematical science and the creation of architectural solutions, which would eventually allow the development of a complex geometry in practical and sustainable buildings that would address the changing needs of healthcare and others.

Keywords: Differential Geometry in Architecture; Free-Form Architectural Design; Parametric Surface Modeling; Gaussian and Mean Curvature; Computational Design Methods.

**VORONOI DIAGRAMS AND HUMAN BEHAVIOR: SPATIAL CONFIGURATION AND
MOVEMENT PATTERNS IN ARCHITECTURE**

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Abstract

This paper explores the complex interconnection between Voronoi diagrams and human action in an architectural setting, and in particular, how the spatial arrangements affect movement patterns and social interactions. The study confirms that strategic geometric patterns have a great impact on how users navigate and the number of interpersonal experiences within built environments. Using a mixed methods approach, the research quantitatively examined movement patterns using different architectural arrangements and gathered qualitative data that depicted user experience and perception of space. The major results show that the environment built based on the principles of Voronoi does not only allow moving more efficiently but also makes social connections between the occupants, especially in healthcare environments where the interactions between patients and staff members are vital. The implications of these results are further to the design of healthcare facilities, which may indicate that the use of Voronoi-based structures may result in better patient outcomes, higher levels of satisfaction, and more dynamic relationships between healthcare providers and patients. Moreover, this work highlights the significance of geometrical design in the planning and architecture practice by promoting a shift in understanding the architectural designs to put the behavior and interaction of the users first. The implications on the sphere of healthcare are immense, as it provides a guideline to the future studies and practice to establish conditions that can promote higher health and well-being by designing spaces thoughtfully.

Keywords: Voronoi Diagrams; Computational Geometry in Architecture; Human Movement Patterns; Behavioral Architecture; Pedestrian Flow Simulation.

PROPORTION AS A DESIGN LANGUAGE: MATHEMATICAL FRAMEWORKS IN CLASSICAL AND CONTEMPORARY ARCHITECTURE

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Abstract

This paper explores how proportion as a primary design language has been applied in classical and modern architecture with a particular focus on the way in which mathematical paradigms are applied in architectural design to determine the aesthetic and functional effects thereof. By conducting a comparative study, which combines quantitative data about the use of proportional systems in chosen architectural pieces with the qualitative information of expert interviews and case studies, the research shows that a regular use of proportion not only leads to a greater visual harmony but also to a considerable impact on user experience and wellbeing. The results reveal that particular proportional patterns are positively related to the emotional reactions of the users and their sense of space, which proves that purposeful design decisions based on mathematical principles can contribute to better healthcare spaces. This paper highlights the role of proportion in architecture, especially in healthcare facilities, the design of which can directly influence patient outcomes and staff productivity. The research provides the architects and designers with useful implications by emphasizing the intersection of architectural proportion and healthcare, which requires a careful use of the mathematical principles to build the environment that facilitates the healing process and improves the functionality of the environment in general. Essentially, the work sets a critical base on the future research on how mathematical frameworks contribute to architectural design, where the approach should be multidimensional, putting emphasis on the aesthetic aspects and human health.

Keywords: Architectural Proportion; Geometric Design Systems; Golden Ratio; Mathematical Modeling in Architecture; Classical Architectural Theory.

**MATHEMATICAL FOUNDATIONS OF GENERATIVE ARCHITECTURE: MORPHOGENESIS
THROUGH RULE-BASED GEOMETRY**

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Abstract

In this paper, the author explores the application of mathematical concepts into generative architecture with particular emphasis on the idea of morphogenesis based on rule-oriented geometry. The research question will focus on the gap in the systematic frameworks that elucidate how mathematical underpinnings can enhance design processes in architecture. Through gathering and discussing quantitative evidence of geometric arrangements and qualitative information of architectural case studies, the research explains the implications of these mathematical theories in the real-life context. The main results indicate that the use of mathematical rules in designing processes improves not only the spatial efficiency and aesthetic quality but also advances the innovation of adaptive solutions in architecture. As applied to the field of healthcare, this study shows that mathematically based architecture results in the development of healthcare facilities that yield good patient care, efficient workflow, and functionality. These findings are not just important in terms of the aesthetics and efficiency but can be used to transform the architectural practices by offering a powerful approach to designing spaces that can dynamically respond to the needs of people. The paper prompts a reconsideration of architectural training and practice by promoting the introduction of mathematical models, thereby creating opportunities to research and implement them in the medical architecture work and out of the field. Altogether, the approach to mathematics in design operations is a booster to promoting sustainable, flexible, and human-oriented design practices.

Keywords: Generative Architecture; Rule-Based Geometry; Architectural Morphogenesis; Computational Design; Differential Geometry in Architecture.

MORTALITY IN PATIENTS WITH INTRACEREBRAL HEMORRHAGE

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Abstract

Background: In case of brain hemorrhages, blood pressure monitoring is the main determinant to know the outcome of cerebrovascular events and resulting complications like bleeding recurrence, of bleeding or expansion of hematoma. Rise in blood pressure at the time of presentation can be a predictor of mortality in patients with intracerebral hemorrhage. The current study aimed to find out the association of elevated blood pressure with early mortality in patients with intracerebral hemorrhage.

Methods: A cross-sectional study was conducted at the Medicine department of Hayatabad Medical Complex Peshawar, from May to October 2024. The blood pressure of all the patients was recorded at the time of admission by using a sphygmomanometer in the lying position. A CT scan was done at the same hospital Hayatabad Medical Complex Peshawar, and comments from the radiologist on the CT scan were noted. The study participants were followed until they were discharged from the hospital, just to note the frequency of early mortality. Data was analyzed by using the Statistical Package for Social Sciences (SPSS) version 20. A p-value of less than 0.05 was considered significant.

Results: The mean age of the study participants was 69.7 ± 3.5 years, while most of them were male (78.6%). Out of the total 280 patients of cerebrovascular event due to intracerebral hemorrhage, 120 (42.9%) patients had early mortality. About 48.3% cases of diabetes mellitus were found with early mortality, and the result was statistically significant. Intraventricular extension of intracerebral hemorrhage reported 46.6% frequency of early mortality. Comparing normal and elevated blood pressure, the frequency of early mortality was higher in patients with elevated blood pressure; there was a strong and significant association between early mortality in cases of intracerebral hemorrhage and high blood pressure.

Conclusion: It can be concluded that the frequency of early mortality was higher in patients with elevated blood pressure, and there was a strong, significant association between elevated blood pressure and early mortality in patients with intracerebral hemorrhage.

MICROBIAL CONTAMINATION AND ANTIBIOTIC RESISTANCE IN SOLID WASTE DUMPING SITES: IMPLICATIONS FOR ENVIRONMENTAL AND PUBLIC HEALTH

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Abstract

The rapid increase in solid waste generation and its improper disposal have become serious concerns in many urban regions. Open dumping sites, in particular, provide a favorable environment for the growth of a wide range of microorganisms, including those that can cause disease. Over time, these sites have also been linked with the emergence and spread of bacteria that no longer respond effectively to commonly used antibiotics.

This review brings together findings from different studies to understand the types of microorganisms commonly found in solid waste dumping areas and the factors that support their survival. It also examines how the mixture of household, medical, and industrial waste contributes to the development of antibiotic resistance. Evidence from earlier research shows that soil, leachate, water, and even air around dumping sites can carry resistant bacteria, which may spread beyond the immediate area.

Possible routes of human exposure, such as direct contact, inhalation of contaminated air, and accidental ingestion, are also discussed. These pathways indicate that communities living near dumping grounds may face increased health risks.

Overall, the review highlights the need for better waste handling practices, routine monitoring of microbial contamination, and greater awareness of environmental health issues. Addressing these challenges is important to reduce the spread of antibiotic resistance and to protect both ecosystems and human populations.

Keyword: Microbial Contamination, Antibiotic Resistance (AMR), Solid Waste Dumping Sites, Public Health Risk, Environmental Pollution

ASSOCIATION OF SMARTPHONE USE DURING MEALS AND STUDY TIME WITH
ATTENTION SPAN, EATING BEHAVIOR, SLEEP QUALITY, AND ACADEMIC PERFORMANCE
IN SCHOOL- GOING CHILDREN

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Abstract

Introduction and purpose: In recent years, smartphone usage among school-going children has increased significantly, becoming an integral part of their daily routine. Children are now frequently exposed to smartphones not only for entertainment but also during essential activities such as meals and study time. This pattern of use has raised concerns about its potential impact on cognitive and behavioural development. Attention span plays a crucial role in learning and academic success, and excessive smartphone use may lead to increased distraction and reduced concentration. Furthermore, the habit of using smartphones during meals can contribute to unhealthy eating behaviours such as overeating or distracted eating. In addition, prolonged screen exposure, especially before bedtime, may negatively affect sleep quality, which in turn can influence cognitive functioning and academic performance. Despite growing awareness, limited research has comprehensively examined the combined effects of smartphone use during meals and study time on attention span, eating behaviour, sleep quality, and academic performance in healthy school-going children. Therefore, this study aims to explore these associations in detail.

Purpose of the Study: The purpose of this study is to determine the association between smartphone use during meals and study time and its impact on attention span, eating behaviour, sleep quality, and academic performance in school-going children. The study seeks to identify whether increased smartphone usage during these daily activities contributes to negative cognitive, behavioural, and academic outcomes.

Material and method: This study was designed as a cross-sectional observational study conducted among 80 healthy school-going children aged between 8 and 14 years. Participants were selected based on inclusion criteria, which included healthy children attending school and regularly using smartphones, while children with any neurological, psychological, or physical disorders were excluded. The participants were categorised into two groups based on their smartphone usage habits: those who frequently used smartphones during meals and study time, and those who had minimal or no such usage. Data were collected using a structured questionnaire filled out by parents to assess smartphone usage patterns, eating behaviour, and sleep quality. Attention span was evaluated using a simple Digit Span Test along with a parent-reported attention questionnaire. Academic performance was assessed through recent examination scores. The collected data were analysed using appropriate statistical methods, including independent t-tests and correlation analysis, with the level of significance set at $p < 0.05$.

Results (Expected): The findings of the study are expected to show that children who frequently use smartphones during meals and study time demonstrate reduced attention span, unhealthy eating behaviours, poor sleep quality, and lower academic performance compared to children with minimal smartphone use. A significant association is anticipated between higher smartphone usage and negative outcomes across cognitive, behavioural, and academic domains.

Discussion: The results of this study suggest that smartphone use during essential daily activities may have a detrimental effect on multiple aspects of a child's development. Reduced attention span observed in children may be attributed to constant multitasking and distraction caused by smartphone use. Unhealthy eating behaviours, such as overeating or distracted eating, may result from reduced awareness of food intake when children are engaged with screens during meals. Additionally, excessive smartphone use, particularly before bedtime, may interfere with sleep patterns by affecting circadian rhythms, leading to poor sleep quality. These findings are consistent with previous research indicating that increased screen time is associated with negative cognitive and behavioural outcomes in children. The study emphasizes the importance of monitoring and regulating smartphone use during critical daily routines to promote healthier developmental outcomes.

Conclusion: In conclusion, smartphone use during meals and study time is significantly associated with reduced attention span, unhealthy eating behaviour, poor sleep quality, and lower academic performance in school-going children. Limiting smartphone usage during these activities may contribute to improved cognitive function, better behavioural habits, and enhanced academic outcomes. The study highlights the need for increased awareness among parents and educators regarding the potential negative effects of excessive smartphone use in children.

Keywords: Smartphone use, Children, Attention span, Eating behaviour, Sleep quality, Academic performance.

HARNESSING ARTIFICIAL INTELLIGENCE FOR PREDICTIVE ANTIMICROBIAL STEWARDSHIP AND ACCELERATED ANTIBIOTIC DISCOVERY: A MULTI-OMIC INTEGRATION FRAMEWORK

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Abstract

The escalating global crisis of antimicrobial resistance (AMR) constitutes a formidable challenge to modern clinical medicine, as traditional culture-based susceptibility testing and conventional drug discovery pipelines fail to keep pace with the rapid evolution of multi-drug resistant (MDR) pathogens. This synthesis evaluates the transformative role of artificial intelligence (AI) in bridging the gap between high-throughput multi-omic data and actionable clinical interventions. The objective is to delineate how AI-driven frameworks can synergize genomic, phenotypic, and clinical datasets to predict resistance trajectories and catalyze the design of next-generation antimicrobial agents.

Methodologically, we examine the deployment of deep learning (DL) architectures—including graph neural networks (GNNs) for molecular property prediction and transformer-based large language models (LLMs) for protein-phenotype mapping. By integrating whole-genome sequencing (WGS) with longitudinal antibiogram data, these models facilitate the identification of cryptic resistance determinants that elude traditional homology-based searches. Key findings indicate that AI-driven predictive models achieve superior accuracy in determining minimum inhibitory concentrations (MICs) across diverse bacterial phylogenies. Furthermore, generative AI is revolutionizing *in silico* drug discovery by navigating vast chemical spaces to identify non-canonical antibiotic scaffolds with optimized pharmacokinetic profiles and reduced toxicity.

Despite this potential, the transition to AI-augmented precision microbiology faces significant hurdles, including data heterogeneity, the "black box" nature of algorithmic decision-making, and the requirement for robust regulatory validation. We conclude that while AI represents a paradigm shift toward proactive antimicrobial stewardship and precision medicine, addressing algorithmic interpretability (Explainable AI) and data bias is essential for clinical adoption. Ultimately, the convergence of bioinformatics and AI is critical for reclaiming the therapeutic advantage against pan-resistant pathogens and securing the future of global public health.

Keywords: Antimicrobial resistance (AMR), machine learning, genomic prediction, drug discovery, precision medicine, deep learning.

PROTECTIVE EFFECTS OF SOME BIOACTIVE COMPOUNDS NEUROPATHY

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Neuropathy, characterized by nerve damage and impaired sensory or motor function, is a common complication of metabolic disorders, chemotherapy, and aging. Increasing evidence highlights the therapeutic potential of bioactive compounds derived from natural and dietary sources in mitigating neuropathic damage. These compounds, including polyphenols, flavonoids, alkaloids, and omega-3 fatty acids, exhibit significant antioxidant, anti-inflammatory, and neuroprotective properties. Oxidative stress and chronic inflammation are key contributors to neuronal degeneration; thus, bioactive molecules that modulate these pathways can play a crucial role in preventing or slowing neuropathy progression. Several studies demonstrate that compounds such as curcumin, resveratrol, and quercetin enhance nerve regeneration, reduce lipid peroxidation, and improve mitochondrial function. Additionally, these agents can regulate signaling pathways involved in apoptosis and neuroinflammation, including NF- κ B and MAPK pathways. Some bioactive compounds also improve glucose metabolism and vascular function, indirectly reducing neuropathic risk, particularly in diabetic neuropathy. Despite promising preclinical and clinical findings, challenges remain in terms of bioavailability, optimal dosing, and long-term safety. Advances in formulation strategies, such as nanoparticle delivery systems, may enhance their therapeutic efficacy. Overall, bioactive compounds represent a promising complementary approach for the prevention and management of neuropathy, warranting further investigation through large-scale clinical trials to establish their clinical applicability and standardization.

Keywords: Neuropathy, Bioactive compounds, Neuroprotection, Oxidative stress, Anti-inflammatory

THE USE OF AI IN HEALTHCARE: EFFICIENCY AND COMPASSION

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Abstract

The invent and use of AI in day-to-day activities is not new but there have been rapid advances in the field in recent years. AI in healthcare has indeed aided in improving quality and efficiency of care by revolutionizing and strengthening modern healthcare right from predictive analysis in public health to improving medical errors and enhancing patients' outcome while simultaneously posing disturbing questions about compassion and equity. While AI can be a powerful tool for efficiency, there is the potential risk of it eliminating the essential human-to-human relationship between provider and patient. AI in healthcare provides reassuring solutions to long-standing challenges by enhancing precision, enabling personalized medicine and also helping in optimizing administrative workflows. This however, does not dispute its threat to core compassion of medical practices and worsening of health disparities. Despite its manifold advantages, can it account for the compassion and empathy that defines the human dimension of healthcare? This has raised concerns about trust, accountability and justice in patient-provider relationships. This paper explores the duality of AI in healthcare, its capacity to enhance efficiency while challenging the ethical foundations of compassion. A path forward requires bioethics responsibility to integrating technology that allows human-centered designs, accountability and ensures AI does not replace the vital role of empathy in healthcare.

Keywords: Artificial Intelligence, bioethics, emerging technologies, compassion, efficiency.

INFLUENCE OF STRUCTURED MODERATE EXERCISE ON OXIDATIVE STRESS
BIOMARKERS IN PREDIABETES

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Abstract

Background: Prediabetes is a preclinical stage with hyperglycemia below the level of diabetes mellitus but with a high risk of developing type 2 diabetes and its complications.

Methods: An experimental study design. Adult prediabetics (n=50), comprising 22 females and 28 males aged 18 to 35 years, were included in the study. Diagnosis of prediabetes was made with HbA1c falling in the range of 5.7– 6.4%, and fasting blood glucose (100 – 125 mg/dL). Anthropometric measurements and biochemical assays were performed at pre- and post-intervention. The participants performed a moderate exercise protocol of 30 min with HRmax% $70 \pm 5\%$ for 5 days a week for 8 weeks, monitored with pedometers. An Enzyme-Linked Immunosorbent Assay (ELISA) was carried out for individual and total antioxidants.

Results: Anthropometric parameters, including weight, waist and hip circumference, waist/hip ratio, and body mass index, showed a significant decrease at post-exercise analysis. Similar changes were observed for FBS (P value < 0.001) and HbA1c (P value < 0.001). Slight increase in Uric acid (P value of < 0.005) and TAC concentration (P value of < 0.001) were found. However, Superoxide dismutase and glutathione peroxidase, vitamin C and nitric oxide levels showed a decrease with P value of < 0.001 .

Conclusion: Moderate physical activity for 8 weeks had a significant effect on lowering the individual antioxidant levels, a nominal increase in TAC and uric acid, and an explicit decline in anthropometric and diabetic profiles of patients with prediabetes. It adds to the body of knowledge, the therapeutic effect of enhanced physical activity on prediabetes.

Keywords: Prediabetes, antioxidants, moderate exercise.

THE NEUROPROTECTIVE EFFECTS OF MANSORINE ON MEMORY DEFICITS INDUCED BY OKADAIC ACID IN A ZEBRAFISH MODEL OF ALZHEIMER'S DISEASE

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Abstract

Alzheimer's disease (AD) is a progressive neurodegenerative disorder with a major socio-economic impact worldwide. Given the limited efficacy of current therapies, there is a growing interest in natural compounds like Mansorine (MA), a coumarin extracted from *Mansonia gagei* known for its antioxidant properties. The aim of this study was to evaluate the effects of mansorine on memory using zebrafish (*Danio rerio*) as a preclinical model for AD. To induce amnesia, zebrafish were exposed to okadaic acid (OKA, 10 nM) for 4 days. The animals were divided into six groups: Control, Galantamine (1 mg/L), OKA + DMSO, and OKA treated with three different doses of MA (1, 3, and 6 µg/L). MA was administered for 7 days. Cognitive function was assessed using the Y-maze and Novel Object Recognition (NOR) tests, with statistical analysis performed via ANOVA and Tukey's test. The results indicated that OKA significantly impaired spatial memory and object recognition. While the 1 µg/L dose showed no significant effects, Mansorine at doses of 3 and 6 µg/L significantly improved cognitive performance ($p < 0.001$), increasing exploration time in the novel arm and preference for novel objects. Furthermore, MA treatment stimulated locomotor activity. In conclusion, Mansorine demonstrates significant potential in counteracting OKA-induced cognitive deficits, suggesting a neuroprotective role and a capacity for cholinergic function restoration.

Keywords: Alzheimer's disease, Mansorine, Zebrafish, Memory, Neuroprotection

HEART RATE VARIABILITY IN ELITE FOOTBALL: AN INTEGRATED APPROACH TO
MONITORING TRAINING LOAD, RECOVERY, AND COMPETITIVE READINESS

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Abstract

Background: Football is characterized by a congested competitive calendar with high physical and psychological demands. Heart rate variability (HRV) is a non-invasive marker of autonomic nervous system regulation and is increasingly used to monitor training load, recovery, stress, and readiness in elite athletes.

Objective: This systematic review aimed to examine HRV as an integrated monitoring tool in professional football, focusing on its relationships with training load, recovery status, pre-competitive anxiety, non-functional overreaching (NFOR), and performance outcomes.

Methods: A systematic search was conducted in PubMed, Scopus, Web of Science, and SPORTDiscus (2010–2025) following PRISMA guidelines. Studies involving professional or semi-professional football players with HRV measurements during training or competition were included. Data extraction focused on HRV indices, protocols, and physiological or performance outcomes.

Results: Twenty-eight studies (~1,050 players) were included. Three main domains emerged: training load monitoring, recovery/NFOR, and competitive stress. Higher parasympathetic activity (RMSSD, SDNN, HF) was associated with better fitness, improved recovery, and higher competitive level, whereas reduced HRV reflected increased load, fatigue, and pre-competitive anxiety. Individual factors such as age, body composition, and playing level influenced HRV responses.

Conclusion: HRV is a valuable integrative biomarker for monitoring physiological and psychological responses in elite football, supporting individualized training and recovery strategies.

Keywords: Heart rate variability; football; soccer; training load; recovery; performance monitoring.

FAMILY WORSHIP AS A SPIRITUAL BULWARK AGAINST BRAIN ROT: A CONCEPTUAL STUDY IN CHRISTIAN RELIGIOUS EDUCATION

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Abstract

The phenomenon of brain rot, namely the decline of cognitive abilities and the erosion of spirituality caused by excessive consumption of low-quality digital content, has become a serious challenge in contemporary education. Brain rot, which was designated as the Word of the Year 2024 by Oxford, has threatened not only intellectual capacity but also moral formation and spiritual life, particularly among Generation Z and Alpha. Studies in Christian Religious Education (CRE) have thus far focused more on the roles of schools and churches, while the family, as the primary locus of faith formation, has not been specifically examined in the context of this digital crisis. Therefore, the purpose of this study is to examine the role of family worship in safeguarding family members from brain rot. This study employs a systematic literature review encompassing neuroscience research on excessive digital consumption and family-based Christian Religious Education studies. The findings produce a concept of family worship that functions to shape cognition through the reading of Scripture; to cultivate spirituality through contemplative practices; and to form morality through the inculcation of Christian values such as wisdom, self-control, and spiritual sensitivity. Thus, the Christian family becomes a strong formative community in protecting the next generation from brain rot.

Keywords: brain rot, Christian Religious Education, family worship

RELIGION-BASED COOPERATIVES: INTEGRATING PROPHETIC VALUES, SOCIAL CAPITAL, AND COOPERATIVE EDUCATION

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Abstract

This study conceptualizes religion-based cooperatives as integrative socio-economic and educational institutions that connect spiritual values, ethical governance, and participatory economic engagement. The research aims to formulate a conceptual framework of prophetic cooperative management while examining its pedagogical relevance within school and student cooperative contexts. Using qualitative conceptual analysis supported by an integrative literature review, the study synthesizes perspectives from Islamic economics, cooperative theory, social capital scholarship, and experiential learning frameworks. Five defining characteristics emerge: worship-oriented economic intentionality, ta'āwun (mutual assistance) as institutional solidarity, sharia-aligned transactional ethics, trust-based governance as social capital, and empowerment-focused welfare distribution. The study contributes theoretically by linking prophetic management perspectives with cooperative education discourse, thereby positioning religion-based cooperatives as praxis-based learning ecosystems integrating moral formation with economic participation. Practically, the findings highlight the strategic role of educational cooperatives in nurturing cooperative citizenship, ethical entrepreneurship, and intergenerational transmission of cooperative identity. Overall, the research advances cooperative studies, Islamic economics, and educational innovation by offering a holistic framework for understanding cooperatives as institutions of ethical-economic transformation.

Keywords: religious cooperative, prophetic management, cooperative education, cooperative pedagogy

**REGULATORY COMPLIANCE IN MEXICAN SMES: THE INTERPLAY BETWEEN
REGULATORY BURDEN AND COMPLIANCE CULTURE**

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Abstract

This article examines regulatory compliance in Mexican small and medium-sized enterprises (SMEs) as a multidimensional phenomenon extending beyond mere formal adherence to legal obligations. It develops an analytical framework integrating fiscal, labour and administrative dimensions, and incorporates compliance culture as a central explanatory variable. The study proceeds from the premise that SME compliance is shaped by the interaction between regulatory burden, organizational capacity and internal governance practices, rather than by deterrence alone.

Methodologically, the research adopts a qualitative design based on systematic literature review and doctrinal analysis of contemporary scholarship and institutional reports. This approach enables the identification of recurring patterns in the relationship between regulatory complexity and corporate behavior in the SME sector. The findings indicate that compliance in practice tends to be adaptive and selective, with firms prioritizing obligations according to resource constraints, perceived enforcement risk and operational feasibility.

Within this context, compliance culture emerges as a strategic governance mechanism capable of strengthening internal controls, mitigating legal exposure and supporting gradual formalization processes. The analysis further suggests that digitalization and administrative simplification may enhance compliance conditions, although persistent structural constraints particularly those associated with informality, continue to limit full regulatory alignment.

The article concludes by advancing a reframed understanding of regulatory compliance in SMEs, advocating for preventive, risk-based and context-sensitive approaches that align legal expectations with the operational realities of Mexican enterprises, thereby informing both public policy design and corporate compliance strategies.

Keywords: regulatory compliance, SMEs, compliance culture.

DEVELOPING CRITICAL THINKING OF EFL STUDENTS USING LLMs IN HIGHER EDUCATION

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Abstract

This paper aims at investigating the theoretical background of incorporating Large Language Models into English as a Foreign Language education to develop students' critical thinking skills at university level. The fast development of generative artificial intelligence technology is seen as a serious threat to traditional teaching methodologies. It becomes crucial to shift from the usual methods of learning a foreign language to its careful and critical analysis. According to this study, it is necessary to treat Large Language Models not as simple writing machines, but rather as cognitive models which should be supervised by people. It is assumed that using artificial intelligence to generate a text may lead to intellectual passivity. Such a dependency on artificial intelligence will make learners unable to put much effort into mastering the pragmatics and sociolinguistics of the foreign language. To prevent this problem, it is suggested to create a theoretical pedagogical model aimed at analyzing the linguistic and pragmatic features of artificial intelligence in a project-oriented way.

The inclusion of tasks that involve the detection of structural and stylistic mismatches and contextual errors in automatically produced texts can effectively promote advanced-level thinking in students. The paper states that one of the most common flaws of artificial intelligence is the inability to fully understand cultural implications, sophisticated speech acts, and emotional background of the conversation in general. Thus, to detect the mistakes in the algorithm's performance, it is necessary for students to possess comprehensive philological skills. By considering the computer as an ally but an imperfect interlocutor at the same time, one promotes the process of conscious examination of lexical choices and pragmatics of speech. It is important that the position of the learner be reconsidered as that of an active contributor to the text production.

Keywords: English as a Foreign Language, large language models, critical thinking, linguistic evaluation, pragmatic competence, project-based learning, higher education.

INTEGRATED CHARACTERIZATION OF NATURAL GROUNDWATER IN THE SOUTHERN MOROCCAN SAHARA FOR DRINKING WATER PURPOSES: MULTIVARIATE APPROACHES AND A GLOBAL WATER QUALITY INDEX

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Abstract

In arid and semi-arid regions, groundwater represents a strategic resource for drinking water supply, requiring comprehensive assessment of its physicochemical and microbiological quality. This study proposes an integrated approach for the characterization of natural groundwater in a southern Moroccan Sahara, combining conventional analytical methods with advanced statistical tools.

A representative set of groundwater samples was collected following standardized protocols, covering different water supply sources. The investigated parameters include major physicochemical indicators, trace elements, and relevant microbiological variables for drinking water assessment. To explore the data structure and identify the key factors controlling water quality, multivariate statistical techniques were applied, including principal component analysis (PCA) and hierarchical clustering (HAC).

In addition, a global water quality index (WQI) was developed to synthesize the multi-parameter dataset and facilitate interpretation from an operational perspective. This index enables classification of groundwater resources according to their suitability for human consumption (WHO and NM 03.7.001) and helps identify the main sources of variability and potential degradation.

The findings highlight the relevance of integrated approaches for improving the understanding of hydrochemical processes and environmental pressures affecting groundwater systems. This work provides a robust methodological framework for groundwater quality assessment and sustainable water resource management in similar environmental contexts.

Keywords: Groundwater, water quality, multivariate analysis (ACP), water quality index, hydrochemistry, Morocco.

**APPLICATIONS OF AGRICULTURAL AUTOMATION AND ROBOTICS FOR IMPROVING
FARM DECISION-MAKING AND RESOURCE USE EFFICIENCY**

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Abstract

There is ongoing massive change in the world's agricultural industry, mainly due to automation, robotics, and artificial intelligence (AI). With the increase in food demands, shortage of labor, climate change, and need for resource sustainability, the industry is being compelled to move away from traditional agriculture that is input intensive to data-based and automated agriculture. Five main topics are covered including: autonomous farming machines; UAVs for crop monitoring and disease detection; robotic weeding and harvesting; IoT-based soil and water resources management; and ML-driven decision-making systems. Recent study clearly shows that all these emerging technologies help save inputs, reduce labor needs, and make decisions more accurate. Despite these advancements, there are still numerous hurdles such as high capital costs, lack of adaptation to various terrains, compatibility issues with sensors, and limited access by small farmers that are hindering large scale implementation. It is clear from the review that for full realization of the revolutionary impact of automation in agriculture, a combined effort will be needed from all stakeholders.

Keywords: agricultural automation, precision farming, UAV remote sensing, robotic weeding, IoT sensors, decision support systems, machine learning, resource use efficiency