

ABSTRACT BOOK

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Planet, People, and Peace *In the Age of Artificial Intelligence*

Hosted by the University of Faisalabad

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Planet, People & Peace
(3Ps) in the era of AI

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PREFACE

Dear Scholars and Researchers,

Since 2021, the Academic Studies Group has consistently organized two international conferences each year—one hosted in Türkiye and one abroad—demonstrating its steady commitment to supporting scientific production. The growing number of participating countries and researchers, along with the expansion of interdisciplinary contributions, clearly indicates the increasing academic impact of our events. This positive momentum has been further strengthened through collaborations with our international partner institutions.

One of the notable outcomes of these collaborations is the **10th Academic Studies Congress (ASC-2025/Fall)**, held on 16–18 October 2025 in a hybrid format under the host institution, The University of Faisalabad. Organized jointly by the Academic Studies Group and The University of Faisalabad, the congress brought together researchers from various continents within a shared scientific platform, in line with the mutual goal of fostering interdisciplinary exchange and enhancing international academic cooperation.

This congress welcomed the participation of academics and practitioners from numerous countries, including **India, Pakistan, Türkiye, Uzbekistan, Indonesia, Saint Lucia, Kyrgyzstan, China, Germany, Malaysia, the United Kingdom, the Turkish Republic of Northern Cyprus, the United States, and Australia**. In total, **362 scholars from 14 different countries** presented their papers, **122 of whom were from Türkiye**, representing approximately **33.7%** of all presentations. The contributions of researchers from diverse continents and cultural backgrounds clearly demonstrate the **strong international character** of the congress and significantly enhance interdisciplinary interaction, knowledge sharing, and global academic collaboration. This broad international participation has further strengthened the congress’s scientific diversity and its capacity for interdisciplinary engagement.

Discussions held throughout the congress clearly showed that the theme **“Planet, People, and Peace in the Age of Artificial Intelligence”** cannot be viewed merely as a technological innovation agenda. The presentations demonstrated that digital transformation must be examined as a multidimensional phenomenon encompassing economic, social, environmental, and administrative domains. A shared academic understanding emerged that artificial intelligence and data-driven technologies are reshaping a broad spectrum of structures—from production and consumption patterns to public policy, labor markets, healthcare, education, and environmental sustainability.

Within this scope, the congress hosted extensive academic discussions across **11 sub-themes**, including:

- Digital Transformation and AI-Based Management Practices,
- Digitalization of Healthcare Services and Biotechnological Innovations,
- Sustainable Agriculture, Food Security, and Energy Systems,

- Social Justice, Equality, Governance, and Human Rights,
- Poverty Alleviation and the Future of Social Safety Nets,
- Digital Inequalities and Development Policies for Emerging Economies,
- New Technologies in Education, Digital Pedagogies, and Knowledge Communities

One of the most striking conclusions to emerge from these discussions is that the age of artificial intelligence is not merely a process of efficiency enhancement; rather, it constitutes a transformative turning point directly linked to human-centered ethical dilemmas, global inequalities, environmental vulnerabilities, and the future of peacebuilding. The contributions highlighted that AI-driven transformation must be addressed not only as a technical innovation process but also as a complex phenomenon reshaping the social fabric, economic structures, and environmental resilience of societies. In this regard, the congress provided a shared platform for assessing both the opportunities and risks of artificial intelligence through an interdisciplinary lens.

An important element enhancing the scientific depth of our congress was the contribution of our invited speakers. Distinguished scholars from different disciplines offered contemporary analyses within their areas of expertise:

- **Assoc. Prof. Dr. Murat Cihangir** — *Batman University “The Future of the Political-Economic System in the Age of Global Uncertainty”*
- **Prof. Dr. Ufuk Karadavut** — *Karabük University, Faculty of Medicine “The Most Common Fatal Diseases”*
- **Dr. Saddam Hussain** — *Confucius Institute, University of Agriculture Faisalabad (UAF) “Insights on Agri-Innovations for Climate Resilience and Sustainability”*
- **Prof. Dr. Himmet Karadal** — *Bolu Abant İzzet Baysal University “Developing the Entrepreneurship Ecosystem”*
- **Prof. Dr. Ashfaq Ahmad Chattha** — *Ghazi University “Digital and Climate-Smart Pathways for Sustainable Food and Energy Systems in Pakistan: Time to Act”*

These contributions provided contemporary research insights and policy implications across different fields, significantly enriching the scientific depth of the congress.

ÖNSÖZ

Değerli Bilim İnsanları ve Araştırmacılar,

2021 yılından bu yana biri yurt içinde, biri yurt dışında olmak üzere her yıl iki uluslararası kongre düzenleyen Akademik Çalışmalar Grubu, bilimsel üretimi destekleme konusundaki kararlılığını istikrarlı biçimde sürdürmektedir. Kongrelerimize katılan ülke ve katılımcı sayısındaki artış ile disiplinler arası genişleme, etkinliklerimizin akademik etkisinin her yıl daha da arttığının açık bir göstergesidir. Bu ivme, yurt dışındaki ortak kurumlarımızla yürütülen iş birlikleri sayesinde daha da güçlenmektedir.

Bu iş birliklerinin başarılı örneklerinden biri olan **X. Akademik Çalışmalar Kongresi (ASC-2025/Güz)**, 16–18 Ekim 2025 tarihlerinde The University of Faisalabad ev sahipliğinde hibrit formatta gerçekleştirilmiştir. Akademik Çalışmalar Grubu ve The University of Faisalabad’ın disiplinler arası etkileşimi teşvik etme ve uluslararası akademik iş birliğini kurumsal bir çerçevede geliştirme hedefi doğrultusunda düzenlenen bu kongre, farklı kıtalardan çok sayıda araştırmacıyı ortak bir bilimsel platformda buluşturmuştur.

Bu kongreye **Hindistan, Pakistan, Türkiye, Özbekistan, Endonezya, Saint Lucia, Kırgızistan, Çin, Almanya, Malezya, Birleşik Krallık, Kuzey Kıbrıs Türk Cumhuriyeti, Amerika Birleşik Devletleri ve Avustralya** başta olmak üzere pek çok ülkeden akademisyen ve uygulayıcı katılım sağlamıştır. Toplam **14 farklı ülkeden 362 akademisyen** bildiri sunmuş olup, bunların **122’si Türkiye’den** katılmıştır. Bu sayı toplam sunumların yaklaşık **%33,7’sine** karşılık gelmektedir. Farklı kıtalardan ve geniş bir kültürel çeşitlilikten gelen bilim insanlarının katkıları, kongrenin **uluslararası niteliğini güçlü bir biçimde ortaya koymakta**; disiplinler arası etkileşimi, bilgi paylaşımını ve küresel akademik işbirliklerini önemli ölçüde güçlendirmektedir. Bu geniş uluslararası katılım, kongrenin bilimsel çeşitliliğini ve disiplinler arası etkileşim kapasitesini daha da artırmıştır.

Kongrede yürütülen tartışmalar, **“Yapay Zekâ Çağında Gezegen, İnsanlar ve Barış”** temasının dijitalleşmenin yalnızca teknolojik bir yenilik süreci olarak görülemeyeceğini açık biçimde ortaya koymuştur. Sunulan çalışmalar, dijital dönüşümün ekonomik, toplumsal, çevresel ve yönetsel boyutlarıyla ele alınması gereken çok katmanlı bir olgu olduğunu göstermiştir. Yapay zekâ ve veri temelli teknolojilerin; üretim ve tüketim modellerinden kamu politikalarına, iş gücü piyasalarından sağlık, eğitim ve çevresel sürdürülebilirlik alanlarına kadar pek çok yapıyı yeniden şekillendirdiği yönünde ortak bir akademik kanaat oluşmuştur.

Bu kapsamda kongrede;

- Dijital dönüşüm ve yapay zekâ temelli yönetim uygulamaları,
- Sağlık hizmetlerinin dijitalleşmesi ve biyoteknolojik yenilikler,
- Sürdürülebilir tarım, gıda güvenliği ve enerji sistemleri,
- Sosyal adalet, eşitlik, yönetim ve insan hakları,
- Yoksullukla mücadele ve sosyal güvenlik ağlarının geleceği,
- Dijital eşitsizlikler ve gelişmekte olan ülkeler için kalkınma politikaları,

- Eğitimde yeni teknolojiler, dijital pedagojiler ve bilgi toplulukları dâhil olmak üzere **11 alt tema** üzerinden kapsamlı akademik tartışmalar yürütülmüştür.

Kongrede ortaya çıkan en çarpıcı saptamalardan biri, yapay zekâ çağının basit bir verimlilik artışı süreci değil; insan-merkezli etik ikilemleri, küresel eşitsizlikleri, çevresel kırılganlıkları ve barış inşasının geleceğini doğrudan belirleyen dönüştürücü bir kırılma alanı olduğudur. Sunulan çalışmalar, bu dönüşümün yalnızca teknik bir inovasyon süreci olarak değil; toplumların sosyal dokusunu, ekonomik yapısını ve çevresel sürdürülebilirlik kapasitesini yeniden tanımlayan çok katmanlı bir olgu olarak ele alınması gerektiğini göstermiştir. Bu bağlamda kongre, yapay zekânın hem fırsatlarını hem de risklerini disiplinler arası bir bakışla ele alarak ortak bir değerlendirme zemini oluşturmuştur.

Kongremizin bilimsel niteliğini artıran önemli unsurlardan biri de davetli konuşmacılarımızın katkılarıdır. Farklı disiplinlerden değerli akademisyenler, kendi uzmanlık alanlarına ilişkin güncel değerlendirmeler sunmuştur:

- **Doç. Dr. Murat Cihangir** *Batman University “The Future of the Political-Economic System in the Age of Global Uncertainty”*
- **Prof. Dr. Ufuk Karadavut** *Karabük University, Faculty of Medicine “The Most Common Fatal Diseases”*
- **Dr. Saddam Hussain** *Confucius Institute, University of Agriculture Faisalabad (UAF) “Insights on Agri-Innovations for Climate Resilience and Sustainability”*
- **Prof. Dr. Himmet Karadal** *Bolu Abant İzzet Baysal University “Developing the Entrepreneurship Ecosystem”*
- **Prof. Dr. Ashfaq Ahmad Chattha** *Ghazi University “Digital and Climate-Smart Pathways for Sustainable Food and Energy Systems in Pakistan: Time to Act”*

Bu konuşmalar, farklı disiplinlere ait güncel araştırma yönelimlerini ve politik yansımalarını akademik bir çerçevede ortaya koyarak kongrenin bilimsel derinliğine önemli katkı sağlamıştır.

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MEDENİYET GETİREN “YABANCI KRAL” OLARAK YAPAY ZEKÂ: “PERSON OF INTEREST” DİZİSİ ÜZERİNDEN KÜLTÜREL VE SİYASAL BİR OKUMA

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"Yabancı kral" metaforu, tarih boyunca toplumların dışarıdan gelen bir kurtarıcıya atfettikleri düzen kurucu ve meşruiyet sağlayıcı işlevi temsil etmektedir. Merkezi otoritelerin ve güçlü orduların baskısı karşısında varlıklarını sürdürmeye çalışan küçük topluluklar, uzak diyarlardan çağırdıkları ve olağanüstü niteliklere sahip olduğuna inandıkları lider figürleri aracılığıyla yeni bir düzen inşa etme arayışına girmiştir. Bu liderler, yalnızca siyasi bir çözüm sunmakla kalmamış; aynı zamanda kültürel birer taşıyıcı ve medeniyetin kurucu aktörleri olarak da kurgulanmıştır. Yabancı kral, çoğunlukla kaotik bir ortamı disipline eden, adalet ve düzen tesis eden bir figür olarak idealize edilmiştir. Söz konusu motif, tarihsel bağlama göre farklı anlamlar kazanmakla birlikte, özü itibarıyla meşruiyet üretme ve siyasi otoriteyi temellendirme işlevi görmektedir.

Günümüzde bu arketipsel anlatının, insanlığın kendi eliyle yarattığı “öteki” olan yapay zekâ etrafında yeniden şekillendiği gözlemlenmektedir. Yapay genel zekânın yalnızca teknik bir araç değil, aynı zamanda etkili bir kültürel ve siyasi aktör olarak konumlanmaya başladığı dijital çağda, insanlığın düzen ve kontrol arzusunun dijital tezahürleri, yabancı kral metaforunu yeniden tartışmaya açmaktadır. Bu çalışma, yapay zekâyı atfedilen düzen kurucu, dönüştürücü ve potansiyel olarak otoriter rollerin, "medeniyet getiren yabancı kral" metaforu üzerinden tartışılmasını amaçlamaktadır.

Çalışmada Person of Interest dizisi, yapay zekânın düzen kurucu işlevlerini kültürel bir metin üzerinden analiz etmek amacıyla incelenmektedir. Dizide karşıt yönelimlerle kurgulanan iki yapay zekâ sistemi—The Machine ve Samaritan—dijital çağın “yabancı kral” metaforunun farklı veçhelerini temsil etmektedir. The Machine, etik ilkelere bağlılığı, insan iradesine duyduğu saygı ve müdahale sınırlarını gözetten yapısıyla “erdemli yönetici” tipolojisine yaklaşırken; Samaritan, her şeyi gören, merkeziyetçi ve otoriter doğasıyla totaliter bir dijital Leviathan olarak konumlandırılmıştır. Bu ikili yapı üzerinden, yapay zekânın “medeniyet getirme” iddiasının kültürel temsilleri ve siyasi bedelleri eleştirel bir perspektifle değerlendirilmektedir.

Anahtar Kelimeler: *Yabancı Kral, Yapay Zekâ, Toplumsal Düzen, Meşruiyet, Person of Interest*

TÜRKİYE’DE 6-7 ŞUBAT DEPREMİ SONRASINDA GÖÇ EDEN BİREYLERİN SOSYAL UYUM ÇABALARI

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Doğal afetler, insan yaşamını, ekosistemleri ve toplumsal yapıları derinden etkileyen, bazen doğanın bazen de insanın sebep olduğu yıkıcı olaylardır. Depremler, bu afetlerin en yıkıcı olanıdır ve yalnızca fiziksel tahribata değil, aynı zamanda sosyal, ekonomik ve demografik yapının bozulmasına yol açar. Türkiye, dünyanın en aktif deprem kuşaklarından birinde yer almakta ve bu nedenle sık sık büyük felaketlerle karşı karşıya kalmaktadır. 6 Şubat 2023 Kahramanmaraş merkezli depremler, tarihimizin en ağır yıkımlarından birini beraberinde getirmiştir. Bu felaketin ardından yüz binlerce insan yaşadığı yeri terk ederek başka bölgelere göç etmek zorunda kalmıştır. Zorunlu göç, bireyler üzerinde kalıcı etkiler bırakmakta; barınma, eğitim, sağlık ve psikolojik destek gibi temel ihtiyaçların karşılanmasını zorlaştırmaktadır. Özellikle kadınlar, çocuklar, yaşlılar ve engelliler gibi dezavantajlı gruplar bu süreçte daha fazla destek ve korumaya ihtiyaç duymaktadır. Afet sonrası yaşanan bu süreç, yalnızca acil müdahaleyi değil, uzun vadeli sosyal ve ekonomik politikaları da zorunlu kılmaktadır. Bu nedenle, tüm kurumların iş birliğiyle bütüncül ve sürdürülebilir çözümler üretilmesi büyük önem taşımaktadır. Bu çalışmanın amacı, özellikle depremler gibi yıkıcı doğal afetlerin bireyler ve toplumlar üzerindeki etkilerini incelemek; bu afetlerin tetiklediği zorunlu göç süreçleriyle birlikte ortaya çıkan psikolojik, ekonomik ve sosyal sorunları ele almak ve dezavantajlı grupların yaşadığı zorluklara dikkat çekerek çözüm için bütüncül ve sürdürülebilir yaklaşımların önemini vurgulamaktır. Bu çalışma kapsamında; Doğal Afetin Tanımı ve Etkileri, Türkiye’de Deprem Gerçeği, Zorunlu Göç Süreçleri, Zorunlu Göçlerin Sosyal, Ekonomik ve Psikolojik Sonuçları, Dezavantajlı Grupların Durumu, Çözüm Önerileri ve Politika Önerileri ele alınacaktır.

Anahtar Kelimeler: Göç, Deprem, Sosyal Uyum, Doğal Afet, 6-7 Şubat Depremleri

ASSESSING THE POPULATION, CLIMATE, AND URBANIZATION NEXUS IN SOUTHERN PUNJAB: A QUANTITATIVE ANALYSIS OF MIGRATION AND URBAN STRAIN

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Laraib Manzoor (The University of Faisalabad)

Southern Punjab, a predominantly rural region, is undergoing rapid transformation driven by population growth, climate vulnerabilities, and shifting economic patterns. With a population growth rate surpassing the national average of 2.55% and recurrent climate-induced challenges, such as the 2022 floods, rural communities face increasing pressure to diversify livelihoods beyond traditional agriculture. This study quantitatively examines the interplay between population dynamics, rural transformation, and livelihood diversification in Southern Punjab, focusing on key variables: population growth rate (%), climate shock frequency (events per year), agricultural productivity (yield per hectare), and non-farm income share (% of total household income). The analysis aims to quantify their impact on rural economic resilience and propose evidence-based strategies for sustainable livelihood diversification. Literature on rural transformation highlights the need for livelihood diversification to enhance economic resilience in developing regions. Studies such as Qureshi et al. (2021) indicate that Southern Punjab's high fertility rates (TFR ~3.8) strain agricultural resources, while Ali and Rehman (2022) link climate shocks to declining farm productivity, pushing rural households toward non-farm activities. Global research (FAO, 2023) emphasizes that diversified livelihoods mitigate the impacts of population pressure and environmental stress. However, quantitative studies specific to Southern Punjab are scarce, particularly in integrating demographic, climatic, and economic data to assess livelihood transitions. This study addresses this gap through a robust statistical framework. Southern Punjab's rapid population growth and climate vulnerabilities threaten traditional agricultural livelihoods, driving rural households to seek alternative income sources. The lack of structured diversification strategies exacerbates economic vulnerability, limiting rural transformation. This study investigates: How do population growth, climate shocks, and agricultural productivity quantitatively influence livelihood diversification in Southern Punjab, and what are the implications for policy reform? This study utilizes secondary data from the Pakistan Bureau of Statistics (2023), Pakistan Meteorological Department (2020–2023), and rural household surveys from Multan and Bahawalpur districts. A multivariate regression model is employed to analyze the relationship between population growth rate, climate shock frequency, agricultural productivity, and non-farm income share. The model is specified as: $\text{Non-Farm Income Share} = \beta_0 + \beta_1 (\text{Population Growth Rate}) + \beta_2 (\text{Climate Shock Frequency}) + \beta_3 (\text{Agricultural Productivity}) + \varepsilon$. A time-series analysis (ARIMA) is applied to examine trends in non-farm income and agricultural productivity from 2015 to 2023. Spatial analysis using GIS tools maps the distribution of non-farm activities in relation to climate-affected areas. All statistical tests are conducted at a 95% confidence level, with robustness checks using sensitivity analysis to account for data variability. Preliminary findings indicate that a 1% increase in population growth rate is associated with a 1.1% rise in non-farm income share ($p < 0.01$), while each additional climate shock per year reduces agricultural productivity by 0.9% ($p < 0.05$), pushing households toward non-farm activities. Since 2018, non-farm income has increased by 18% annually in Multan and Bahawalpur, with 55% of rural households engaging in small-scale

enterprises or wage labor. The time-series analysis reveals a significant shift toward non-farm livelihoods post-2022 floods, with 65% of affected households reporting diversified income sources. Spatial analysis shows that climate-vulnerable areas have higher concentrations of non-farm activities, highlighting the role of environmental stress in livelihood transitions. These findings underscore that population pressure and climate shocks are key drivers of livelihood diversification, but the lack of formal support limits economic resilience. To foster sustainable rural transformation, policymakers should prioritize structured livelihood diversification in Southern Punjab. Recommendations include: (1) Promoting family planning programs to manage population growth and reduce resource strain; (2) Investing in climate-resilient agricultural practices to stabilize farm productivity; (3) Supporting rural entrepreneurship through microfinance and skill training programs to enhance non-farm income opportunities; and (4) Strengthening local governance to facilitate access to markets and infrastructure for diversified livelihoods. These measures require coordinated efforts across federal and provincial levels to ensure economic resilience and sustainable rural development.

Keywords: *Rural Transformation, Livelihood Diversification, Population Growth, Climate Vulnerability, Non-Farm Income.*

INTEGRATION OF TURKISH PUBLIC ADMINISTRATION INTO DIGITAL TRANSFORMATION

Muzaffer Bimay (Batman University)

In recent years, rapid advancements in digital transformation have significantly increased the use of innovative technologies in public administration, leading to the emergence of new approaches based on information and communication technologies for the efficient and effective delivery of goods and services to citizens. Turkish public administration has been notably influenced by this transformation, implementing practices that enhance the accessibility, transparency, and efficiency of government services. Particularly in the last few decades, the prominence of data analytics, automation, and innovation in public decision-making processes, along with the delivery of services through e-government platforms in a fast, secure, effective, efficient, and centralized manner, has reduced paperwork and bureaucracy. This shift has contributed not only to increased citizen satisfaction but also to the realization of a more participatory, transparent, and accountable governance model. However, structural challenges such as digital inequality, access limitations, and data protection concerns persist. Moreover, emerging technologies like the Internet of Things, artificial intelligence, and blockchain introduce security risks that threaten both private and public spheres. Most critically, the resistance of traditional public administration paradigms to these changes raises debates on whether public administration should adopt a rational or pragmatic, democratic or populist approach. This study aims to examine the adaptation process of Turkish public administration to global digital transformation, focusing on the opportunities and threats posed by the use of advanced technologies—such as artificial intelligence, the Internet of Things, and big data—in the delivery of public services. Through an extensive literature review, primary and secondary sources were analyzed, with particular emphasis on e-government applications. The findings suggest that digital transformation in Turkish public administration is inevitable. However, to mitigate associated risks, it is essential to update legal frameworks, provide training for public personnel and citizens, uphold public ethics, and implement robust cybersecurity measures. Ensuring a sustainable and integrated progression of digital transformation is expected to enhance state effectiveness and citizen satisfaction.

Keywords: *Digital Transformation, Turkish Public Administration, Innovation, E-Government, New Public Service Paradigm*

THE IMPACT OF DIGITAL TRANSFORMATION ON SOCIO-ECONOMIC DEVELOPMENT: A STUDY OF ITS ROLE IN ENHANCING HUMAN WELL-BEING

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Digital transformation, driven by technologies like AI, big data, and IoT, significantly shapes global socio-economic development. This systematic review analyzes 20 studies (2019–2025) to assess its impact on human well-being, focusing on economic growth, social inclusion, health, and education. Findings show digital transformation boosts GDP per capita and productivity, especially in high-income regions, and enhances public health via telemedicine and data-driven solutions. However, it widens inequalities, including digital divides based on age, gender, and income, risking harm to vulnerable groups. Using econometric models, meta-analyses, and literature syntheses, the review identifies benefits alongside challenges like data privacy and job displacement. Inclusive policies, digital literacy, and infrastructure investments are critical to maximize benefits. The study concludes that equitable digital transformation is essential for sustainable socio-economic progress, with targeted strategies recommended for low-income countries to bridge gaps and foster resilience

Keywords: *Digital Transformation, Socio-Economic Development, Human Well-Being, Digital Divide, Sustainable Development*

DIGITAL AND CLIMATE-SMART PATHWAYS FOR SUSTAINABLE FOOD AND ENERGY SYSTEMS IN PAKISTAN: TIME TO ACT

Ashfaq Ahmad (Ghazi University)

The integration of artificial intelligence (AI), mobile application development, and precision digital technologies is shaping climate-smart agricultural pathways for sustainable food and energy systems in Pakistan. Building on the insights from Agricultural Model Intercomparison and Improvement Project (AgMIP), the research which applies on crop-climate modeling, socio-economic scenario analysis, and stakeholder-driven strategies to evaluate digital and technological interventions. Central to this work is the development of an AI-powered advisory service provision that integrates real-time weather prediction, seasonal climate forecasts, and crop-climate interactions to provide farmers with accurate, location-specific guidance on cultivar selection, input optimization, irrigation scheduling, pest and disease management. The incorporation of solar-powered irrigation, precision farming tools, and digital disease monitoring further enhances resilience and productivity. Findings highlight that AI-driven advisories, when coupled with renewable energy and climate-smart practices, substantially reduce risks, improve yields, and empower farmers to make proactive decisions in the face of increasing climate variability. This integrated approach not only strengthens adaptive capacity but also reduces emissions, supports food-energy security, and accelerates rural sustainability. The evidence underscores that moving from pilot innovations to scalable implementation is urgent marking that it is truly time to act.

Keywords: *Climate-Smart Agriculture, AI Advisory Service, Weather Prediction, Mobile App Development, Precision Agriculture, Renewable Energy, Digital Transformation, Time to Act*

THE KRA CANAL'S IMPACT ON THE SOCIO-ECONOMIC AND POLITICAL TRAJECTORIES OF MALAY MUSLIMS IN PATANI, SOUTHERN THAILAND: A HISTORICAL AND PROSPECTIVE ANALYSIS

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Patani is a historical Malay homeland located at the connecting point between the Malay Peninsula and the Siamese mainland. The region was ceded to Thailand through the Anglo-Siamese Treaty signed in 1909, and since then, reunification with Malaysia has not been possible. The long-standing and often-discussed Kra Isthmus Canal project, planned for the Patani region, could potentially alleviate the economic and political challenges faced by local Muslims. However, the possibility that the canal might bypass Singapore, Malaysia, and Indonesia in maritime trade has led these countries to adopt contradictory positions regarding the project. It is alleged that some of these countries have covertly provided financial support to radical groups in the region, thereby contributing to making Patani an insecure and unstable area. This situation presents one of the most significant obstacles preventing Patani Malay Muslims from benefiting from domestic democratization, and ironically, two of the countries involved are composed of peoples who are religiously and ethnically close to the Patani Muslims. Thus, Patani Malay Muslims find themselves at the heart of a major contradiction within the context of the Kra Canal. While the most distant and culturally different power, China, is the strongest advocate for the canal's realization, the countries trying to prevent it are the closer, supposedly fraternal nations of Malaysia and Indonesia. The Patani Muslims are striving to build a liveable homeland in the midst of this conflict between close and distant cultural actors.

Keywords: *Patani, Muslims of Thailand, Kra Canal, Malaysia, Singapore.*

NAVIGATING THE DIGITAL LANDSCAPE: ASSESSING THE IMPACT OF DIGITAL TECHNOLOGIES ON WELL-BEING

Ananda Majumdar (North Central Theological Seminary, Kennedy University of Saint Lucia)

The study "How's Life in the Digital Age?" looks at how digital technologies affect people's well-being. Its main goal is to understand both the benefits and the risks of digital changes in our lives. The research uses the OECD well-being framework to assess the effects of digital transformation in 11 areas of well-being, such as income, health, education, and social connections. The study reviews existing literature and data to find 39 impacts, which are then combined into 33 indicators that measure both digital opportunities and risks. The results show that digital technologies significantly improve access to information and services, which increases efficiency and productivity, and they have the potential to create a fairer society. However, these technologies can also increase inequalities, mainly through the digital divide, as well as issues like cyberbullying, misinformation, and security threats. The study emphasizes that digital literacy is essential for making the most of digitalization. People who have the right skills are more likely to thrive in the digital world. In summary, the research highlights the need to create digital opportunities, enhance digital literacy, and ensure strong digital security to achieve positive results and minimize risks tied to digital technologies. This work stands out because it provides a thorough framework and analysis that connects digital changes with individual well-being, offering valuable insights for policymakers dealing with the challenges of our digital lives.

Keywords: *Digitization, Technology, Artificial Intelligence*

SÜRDÜRÜLEBİLİR TARIM, GIDA VE ENERJİ SİSTEMLERİ

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Dünya genelinde artan gıda ve enerji ihtiyacı, iklim değişikliği ve doğal kaynakların azalmasıyla birlikte tarım, gıda ve enerji sistemlerinde sürdürülebilirlik giderek daha önemli hale gelmektedir. Bu çalışma, Türkiye’de tarımsal üretimin ekonomideki merkezi rolünü ve enerji bağımlılığının oluşturduğu kırılganlıkları dikkate alarak, söz konusu sektörler arasındaki etkileşimleri incelemektedir. Döngüsel ekonomi çerçevesinde; gıda kaybı ve israfının azaltılması, yenilenebilir enerji kaynaklarının özellikle güneş ve biokütlenin tarımsal üretime entegrasyonu ve kırsal bölgelerde toplum temelli girişimlerin desteklenmesi öne çıkmaktadır. Çalışmadan elde edilen sonuçlar; sürdürülebilir dönüşümün karbon salınımlarını azaltma, gıda güvenliğini güçlendirme ve biyolojik çeşitliliği koruma açısından fırsatlar sunduğunu göstermektedir. Bununla birlikte finansman, kurumsal uyum ve teknolojik altyapıdaki eksiklikler dönüşüm sürecini zorlaştırmaktadır. Çalışma; Türkiye’de sürdürülebilir tarım, gıda ve enerji sistemlerinin gelişmesi için politika bütünlüğü, disiplinler arası işbirliği ve yerel-toplumsal katılımın gerekliliğini vurgulamaktadır.

Anahtar Kelimeler: *Sürdürülebilir Tarım, Gıda Güvenliği, Yenilenebilir Enerji, Döngüsel Ekonomi, İklim Değişikliği*

THE FUTURE OF LOGISTICS OPERATIONS IN BUSINESSES: THE IMPACT OF ARTIFICIAL INTELLIGENCE

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The rapid advancement of artificial intelligence (AI) technology has begun to transform various aspects of our lives, including business management. As AI becomes integrated into daily operations and individual preferences, it has significantly changed the way people work and interact with their environments. This transformation is reshaping business strategies and activities nowadays. One of the areas that AI affects significantly is logistics, which is crucial for production and service delivery transformation is reshaping business strategies and activities today. One of the areas that AI affects significantly is logistics, which is vital for production and service costs. When looking to the future, it is seen that the demand for AI and the need for innovative solutions will increase, along with the potential for progress in logistics and space transportation. In this study, the importance of transportation-logistics in businesses and its critical position in the marketing mix will be emphasized by examining the existing literature and predictions regarding the role of artificial intelligence in logistics management. In addition, the effects of AI applications on businesses, especially in the field of logistics, will be evaluated, and eventually suggestions will be made to contribute to the competitiveness of businesses in an increasingly AI-oriented environment, depending on the adaptation of logistics activities to future developments.

Keywords: *Business, Logistics, Artificial Intelligence, Technology, Transformation.*

DİJİTAL VATANDAŞLIK VE OKUL ÖNCESİ DÖNEMDE ETİK DEĞERLER: TEORİK BİR MODEL ÖNERİSİ

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H. Buluthan Çetintaş (Necmettin Erbakan University)

Dijital vatandaşlık, her türden dijital teknolojinin bilinçli ve etik bir biçimde kullanımıdır. Günümüzde çocuklar, erken yaşlarından itibaren dijital ortamlara maruz kalmakta ve yaşadıkları bu deneyimler, onların sosyal, bilişsel ve ahlaki gelişimlerini etkilemektedir. Bu nedenle çocuklar için dijital vatandaşlık, teknik becerilerin yanı sıra sorumluluk, empati, saygı ve barış odaklı değerlerin erken yaşta kazandırılması açısından önem taşımaktadır. Bu çalışma, dijital teknolojilerin çocukların yaşamına giderek daha erken yaşlarda nüfuz etmesinden yola çıkmakta ve okul öncesi dönemde dijital vatandaşlık kavramını değerler eğitimiyle bütünleştiren teorik bir model önermektedir. Çalışma, 2019–2024 yılları arasındaki literatürün sistematik bir analizine dayanmaktadır. Elde edilen bulgular, “Okul Öncesi Dijital Vatandaşlık Değerler Modeli” adını taşıyan üç boyutlu bir çerçeveye ortaya koyulmuştur. Bu boyutlar, bilişsel boyut (dijital güvenlik, eleştirel düşünme, medya okuryazarlığı), duyuşsal boyut (empati, nezaket, küresel barış bilinci) ve davranışsal boyut (iş birliği, çatışma çözümü, çevrim içi barış kültürü) şeklindedir. Modelin merkezinde öğretmen–çocuk–aile iş birliği yer almakta, müfredat tasarımı, öğretmen eğitimi, ebeveyn katılımı ve toplumsal destek gibi stratejilerle sürdürülebilir olacaktır. Sonuç olarak çalışma, dijital vatandaşlığın değerler eğitimiyle bütünleşik bir şekilde ele alınmasının erken çocukluk eğitiminde dijital becerilerin yanı sıra etik duyarlılık ve demokratik katılımı destekleyeceğini vurgulamaktadır. Önerilen modelin eğitimcilere ve politika yapıcılara, çocukları çevrimiçi ve çevrim dışı bağlamlarda sorumlu, etik ve barışçıl bireyler olarak yetiştirmeye yönelik bir yol haritası sunacağı düşünülmektedir.

Anahtar Kelimeler: *Dijital Vatandaşlık, Okul Öncesi, Değerler Eğitimi, Barış Eğitimi, Etik.*

AN ANALYSIS OF METROPOLIZATION VIA CLUSTERING IN REPUBLIC OF SOUTH AFRICA FOR INFRASTRUCTURAL EFFICIENCY

Mehmet Kızıltaş (Istanbul Beykent University)

High-speed infrastructures are one of the most significant dynamics of national establishment currently. It has a crucial role that stands out between cities with high speed, high capacity, high standard and high comfort. It is also prior for tourism attractiveness. It is an primary extension of sustainable transportation policies that supports intercity tourism relations too. In this paper, a cluster-based analysis was conducted for Republic of South Africa by using population, liveabilities and similar parameters through cluster statistical methods. Metropolization were presented by taking into account the distances among emerging cluster cities, and results and suggestions were given in this context.

Keywords: *Clustering analysis, urban, high speed, tourism, economy*

GLOBAL FINANCIAL INSTABILITY IN THE ERA OF AI TECHNOLOGIES

Shameem Chalil (Koneru Lakshmaiah Education Foundation, Vijayawada, Andhra Pradesh)

Financial instability, marked by systemic disruptions within the financial system, has extensive implications for economies across the globe. The worldwide financial crisis of 2008 highlighted the urgent necessity for robust risk monitoring to avert, anticipate, and alleviate such crises. Artificial Intelligence (AI), known for its capacity to process large datasets and identify patterns, has surfaced as a formidable instrument in global risk surveillance, especially in pinpointing and addressing financial instability. AI has demonstrated itself to be an essential resource for tracking financial instability, providing insights and predictive capabilities that were once out of reach. Nonetheless, its efficacy relies on tackling ethical, technical, and regulatory obstacles. By utilizing AI in a responsible manner, global governance can greatly improve financial stability and resilience, thereby diminishing the chances of future crises. This paper will examine the role of AI technologies to reduce financial instabilities in the global governance.

Keywords: *AI Technologies, Financial Instability, and Global Governance.*

ECONOMIC GROWTH, INEQUALITY, AND HUMAN DEVELOPMENT: A COMPARATIVE ANALYSIS OF THE USA, SWEDEN, CHINA, AND INDIA (2000–2023)

Mr Aasheesh Kumar (Cmp Degree College University of Allahabad)

Dr Sangeeta (Education Department Cmp Degree College University of Allahabad)

Akhilesh Kumar Chauriya (Sri Jai Narayan Mishr Pg College, Lucknow)

This study explores the complex relationship between economic growth, income inequality, and human development outcomes across four countries—United States, Sweden, China, and India—over the period 2000 to 2023. Using time-series data on gross domestic product per capita (GDP_pc), Gini coefficients, and the Human Development Index (HDI), the paper investigates descriptive trends, correlation patterns, and regression estimates. Descriptive analysis shows significant improvements in GDP across all countries, with China's GDP increasing thirteen-fold and India's growing five-fold, while Sweden and the United States experienced more moderate but substantial gains. Gini coefficients reveal divergent inequality trajectories: relatively stable in the United States, persistently low in Sweden, and declining in China and India. HDI improved consistently across all countries, with gains ranging from 0.039 points in the United States to 0.20 points in China. Correlation analysis highlights a strong positive relationship between GDP and HDI (ranging from 0.89 to 0.97) and a moderate to strong negative correlation between Gini and HDI (ranging from -0.28 to -0.68). These findings underscore the dual role of growth and equity in shaping human development outcomes. Regression analysis, using pooled ordinary least squares (OLS), reveals that GDP per capita significantly enhances HDI ($\beta = 0.08$, $p < 0.01$), while higher inequality undermines development ($\beta = -0.004$, $p < 0.05$). The model explains 82% of the variance in HDI ($R^2 = 0.82$), confirming the robustness of these associations. The paper contributes to literature on development economics by demonstrating how sustained growth can translate into human well-being when complemented by declining inequality. Results suggest that policies targeting inclusive growth, income redistribution, and social investments can amplify the welfare effects of economic expansion. By comparing diverse cases, the study highlights both universal patterns and country-specific pathways toward achieving sustainable human development.

Keywords: *Economic Growth, Inequality, Human Development Index (HDI), GDP Per Capita, Gini Coefficient, Regression Analysis, USA, Sweden, China, India*

TECHNOLOGICAL INVESTMENT, HEALTHCARE INFRASTRUCTURE, AND ECONOMIC LEVERAGE: A COMPARATIVE PANEL ANALYSIS OF HEALTH OUTCOMES IN G7 NATIONS AND PAKISTAN (2000-2025)

Muhammad Mahmood (Virtual University of Pakistan)

Structural determinants of health outcomes that are not confined to medical care are increasingly causing global differences in health outcomes, including fiscal investment, technological adoption, and accessibility. This research paper compares healthcare spending, the use of digital health, number of physicians, immunization, research and development, out-of-pocket, medical equipment among Pakistan and G7 countries in the years 2000-2025 to assess these three outcomes; life expectancy, neonatal mortality, and disability-adjusted life years (DALYs). The combined methods research design was based on a fixed-effects panel regression with Driscoll-Kraay errors in Stata 18, structural equation modelling in SmartPLS 4 and thematic triangulation using NVivo 14, alongside 68 interviews and policy documents. Findings validate healthcare spending, the most significant contributor 0.124 and 0.192 unit reduction in life expectation, and DALYs, respectively), with each unit change. The 21.8% and 26.7% variance in the outcomes were explained by the digital adoption ($b = 0.078$; $p < 0.001$) and the number of physicians ($b = 0.095$; $p < 0.001$), which had additional preventive and diagnostic power in the results. Out-of-pocket costs produced negative shocks that reduced the life expectancy by 0.088 and increased neonatal mortality by 0.061 ($p < 0.001$). Qualitative data was corroborated by quantitative results and 28.9% of the participants mentioned catastrophic spending and ongoing digital access constraints. The research is innovative as it combines econometrics, SEM, and qualitative coding within one analytical structure, which is a significant gap in cross-country health determinants research. It concludes that fiscal protection, digital growth and workforce distribution continue to play a vital role in reducing the gap between Pakistan and the developed world.

Keywords: *Healthcare Expenditure, Digital Health, Physician Density, Pakistan, G7*

PREPARING YOUNG PEOPLE FOR UNCERTAINTY: CAREER AGILITY

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Hasan Bozgeyikli (Selcuk University)

The purpose of this study is to discuss the importance of career agility in the context of the uncertainties and anxieties young people face in the rapidly changing world of work and to emphasize the necessity of contemporary approaches in career counseling. Rapid changes in the business world in the 21st century, the transformation of professions by artificial intelligence and digitalization, economic crises, and increasing educational competition cause young people to experience intense anxiety and uncertainty during their life transitions. The fact that a significant portion of Turkey's young population is neither in education nor employment makes this situation even more critical and increases the importance of career psychological counseling. In this context, career counseling has evolved from traditional matching approaches to contemporary approaches that focus on individual differences, uncertainty, and the role of chance. In particular, Chaos Theory-Based Career Counseling, developed by Pryor and Bright, focuses on the concept of limited control, the evaluation of chance-based opportunities, and the acceptance of uncertainty. This theory supports the development of skills such as flexibility, optimism, risk-taking, curiosity, and strategic thinking in young people. In the literature, these skills correspond to the concepts of learning agility, workforce agility, and career agility. Learning agility refers to an individual's capacity to learn from new experiences and adapt quickly to change, workforce agility refers to organizations' adaptability to uncertainty, and career agility refers to individuals adopting an optimistic, flexible, and proactive attitude toward career development. Consequently, in today's rapidly changing conditions, young people's need for career agility is greater than ever. Therefore, universities, career centers, and counseling services should design programs and interventions that develop young people's agility skills, thereby supporting them in making healthy career transitions and preparing for an uncertain future.

Keywords: *Chaos Theory-Based Career Counseling, Career Agility, Learning Agility*

PEACE APPROACHES IN INTERNATIONAL RELATIONS: THEORIES OF REALISM AND LIBERALISM

Üstün Yüksel (Academician Studies)

This study elaborates the approaches of realism and liberalism, the two main comparative theories of International Relations (IR), for peace in the international system. These two oldest and most widely accepted theories, which are opposed to each other, put forward some core values and assumptions for peace. Peace studies is a discipline that is derived from International Relations. Theories of peace and war researches have been the central focus of IR. Peace, in general term, can be defined as the absence of war between states and an end to all hostilities. In the IR, realism and liberalism have explained much of causes related to conflicts and wars between states over the last two centuries. These two theories continue to offer different prescriptions of states behaviors to achieve peace in the world politics. In this regard, realism's core idea, and the only way to achieve a peace, is a balance of power between various states. For realists, world politics represents a struggle for power among states, which each state tries to maximize its national interest. States act to prevent any other state from dominating. Realists see world politics is a self-help system, ultimately, that state must rely on their own military resources. Therefore, for realists, the most effective way to ensure peace is through deterrence. That means, the more resolute, tough and clearly strong state is, the more likely this state enforces peaceful relations with potential aggressors. Realists believe that the worst possible thing is a state can give a sign or impression of weakness. For this reason, realists argue that peace must be built from a clear position of strength and supported by significant military capacity. Realists' main interests are national security, power and survival of the state- the protection of sovereign state against potential threats. For liberals, globalization is the end product of a progressive transformation in the world politics. Liberals are especially interested in increased interconnectedness in economy, technology and communication in the global world. Therefore, the world looks like a cobweb in states' relations. For this reason, liberals believe that economic interdependence promotes cooperative behaviors among states and increased commerce would weaken the possibility of war. Moreover, liberals also believe in democratic peace theory, that liberal democracies (democratic nations) might go to war with illiberal democracies and undemocratic states. But, liberal democracies will not go to war with another democracies. Liberalism also emphasizes some values that might contribute to peace; such as human rights, harmony between people, representative form of government, institutions, and rights to be treated equally under the protection of law duty to respect others as moral subjects. Consequently, theories of realism and liberalism, each claim to achieve peace in its way in the world politics. However, both theories have some loopholes for peace in the world politics. This means that both realism and liberalism provide insufficient accounts and possibilities of peace in the international system.

Keywords: *Peace, Realism, Liberalism, International Relations, Theories and Approaches.*

OFİS ÇALIŞANLARININ CHATGPT KULLANIM DAVRANIŞLARI: KİŞİSELLEŞTİRME, GÜVEN VE TAVSİYE NİYETİ ÜZERİNE NİTEL BİR ARAŞTIRMA

Nuran Öztürk Başpınar (Anadolu University)

Orkun Şen (Anadolu University)

Bu çalışma, ofis profesyonellerinin yapay zekâ tabanlı bir dil modeli olan ChatGPT ile yaşadıkları deneyimleri anlamak amacıyla fenomenolojik bir yaklaşım benimseyerek gerçekleştirilmiştir. Maksimum çeşitlilik örneklemesiyle seçilen 15 katılımcıyla derinlemesine görüşmeler yapılmış; veriler içerik analizi yoluyla NVivo 14 yazılımı desteğiyle analiz edilmiştir. Analiz sonucunda sekiz ana tema ve bunlara bağlı alt temalar belirlenmiştir: İlk izlenimler ve kullanıcı duyguları; kullanım sıklığı ve amaçları; yararlılık ve verimlilik algısı; güven, doğruluk ve gizlilik; kişiselleştirme ve bireysel deneyim; yaygınlaştırma ve paylaşım eğilimi; geliştirmeye açık alanlar ve beklentiler; gelecekteki rol ve etik tartışmalar. Katılımcılar, ChatGPT'yi zaman kazancı, bilgi erişimi ve metin üretimi açısından faydalı bulmakla birlikte; bilgi doğruluğu, veri gizliliği ve kişiselleştirme düzeyine dair çeşitli çekinceler de dile getirmiştir. Bulgular, yapay zekâ araçlarının ofis işleyişine entegrasyonunda hem bireysel adaptasyonun hem de kurumsal etik ilkelerin belirleyici olduğunu göstermektedir. Araştırma, yönetim ve organizasyon, insan kaynakları ve örgütsel davranış alanlarına katkı sunmayı amaçlamaktadır.

Anahtar Kelimeler: ChatGPT, yapay Zekâ, Ofis Çalışanları, İnsan Kaynakları, Stratejik Yönetim.

YÜKSEKÖĞRETİMDE DİJİTALLEŞEN DANIŞMANLIK: SANAL OFİS VE ASİSTAN UYGULAMALARININ DENEYİMSEL İNCELEMESİ

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Bu çalışma, meslek yüksekokulu öğrencilerinin ANASİS (Öğrenci Bilgi Sistemi) ve Mergen (Öğrenme Yönetim Sistemi) platformları aracılığıyla yürütülen dijital danışmanlık deneyimlerini ortaya koymayı amaçlamaktadır. Araştırma, fenomenolojik desende tasarlanmış nitel bir çalışmadır. Amaçlı örnekleme ile seçilen altı programdan 12 öğrenciyle yarı-yapılandırılmış görüşmeler yapılmış; veriler hibrit (indüktif + dedüktif) tematik içerik analiziyle çözümlenmiştir. Analiz, teknik işlevsellik, iletişim etkinliği ve akademik destek eksenlerinde 5 ana tema ve 4 kullanıcı kümesi (Teknik memnun & iletişim eksik; Tam uyumlu; Genel olarak sınırlayıcı; Kararsız) ortaya çıkarmıştır. Bildirim eksikliği ve mobil uyumsuzluk en sık ifade edilen teknik sorunlardır. Birinci sınıf öğrencileri sistemi daha olumlu değerlendirirken ikinci sınıflar eleştirel davranmıştır. Bulgular, Teknoloji Kabul Modeli'nin “algılanan fayda/kullanım kolaylığı” değişkenlerini ve yapılandırmacı öğrenme kuramını desteklemektedir. Farklı kullanıcı profilleri, tek tip tasarımın yetersiz kaldığını göstermekte; kapsayıcı ve kişiselleştirilebilir dijital danışmanlık ihtiyacını vurgulamaktadır. Sanal ofis sistemleri pedagojik yararlarının yanı sıra kurumsal verimliliğe stratejik katkı sağlar; ancak teknik ve etkileşimsel bileşenler dengeli geliştirilmezse öğrenci deneyiminde “örgütsel sessizlik” riskini artırır.

Anahtar Kelimeler: Dijital Danışmanlık, Sanal Ofis, Yükseköğretim, Teknoloji Kabul Modeli, Fenomenoloji

INEVITABLE ENROLLMENT DECLINE IN HIGHER EDUCATION INSTITUTIONS: POSSIBLE FUTURE DIRECTIONS

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In Pakistan, university enrollment has significantly decreased, according to the Economic Survey 2024-25, which was published shortly before the government budget. According to the report, the overall number of students enrolled in postsecondary educational institutions decreased by 13% to 1.94 million in FY 2023. Even though there are 269 universities in the nation, this decline is still occurring. This decline is attributed by the poll to a number of factors, such as changing demographics and economic difficulties. The persistent difficulties in gaining entry to and staying in higher education are highlighted by the declining trend in university enrollment, which contrasts with slight growth at other educational levels. Pakistan must prioritize quality over quantity in its higher education system; drawing inspiration from successful models. It can take its cues from countries such as the United States, with its focus on research and innovation, or the United Kingdom, which is known for high academic standards and rigorous quality assurance. Germany is notable for being tuition-free or providing low-cost education, Canada has a reputation for academic excellence and diversity, and the Netherlands offers English-taught programmes. Moreover, Pakistan's higher education system must acknowledge the wide-ranging societal and individual advantages associated with higher education. To ensure social justice and economic efficiency, inclusive access and success are imperative. Against this backdrop, the HEC needs to reassess its equity promotion policies, drawing insights from global experiences to enhance effectiveness. This requires an initial review of definitions related to underrepresented groups in higher education, termed "equity target groups", with a focus on scrutinizing disparities across regions and religions. The evaluation should also prioritize assessing the distinction between financial aid programmes (grants) and non-monetary interventions (such as outreach, affirmative actions, specialized institutions to actively eliminate barriers for students from under-represented backgrounds

Keywords: *Imperative, Social Justice, Persistent, Decreased, Decline, Inclusive*

THE ROLE OF WOMEN IN ENSURING DOMESTIC FOOD SECURITY IN RURAL COMMUNITIES: A COMPARATIVE STUDY OF PUNJAB, PAKISTAN

Dr Madiha Naz (Uaf)

Domestic food insecurity remains a major challenge in many developing nations and has become a central concern in national economic and social policies. In rural Pakistan, women are deeply involved in food production, preparation, storage, and resource management. However, their vital contributions as food producers and providers often remain under recognized in policy and practice. This study aims to investigate and compare the roles of rural women in ensuring household food security across different agro-ecological zones of Punjab, Pakistan. A cross-sectional survey design was employed, collecting primary data from 420 rural households across three districts; Chakwal (North Punjab), Faisalabad (Central Punjab), and Vehari (South Punjab) using a structured interview schedule and simple random sampling. Food security levels varied by region: 60.7% of households in North Punjab were food secure, compared to 52.2% in Central Punjab and only 40.0% in South Punjab. The study found that 67% of rural women were engaged in food production as laborers. In terms of food access, 23% contributed through income-generating activities and 57.4% were responsible for food purchasing. Regarding food utilization, 77% of women were involved in food preparation and distribution within households. However, only 15.2% of all women demonstrated high awareness of nutritional food, regionally, this awareness was lowest in South Punjab (7.9%), moderate in Central Punjab (16.4%), and highest in North Punjab (21.4%). Binary logistic regression analysis showed that female education, income contribution, decision-making authority, and control over financial resources had a significant positive association with household food security. In contrast, larger family sizes and older age were negatively associated with food security outcomes. The findings underscore the central role of women in food security at the household level, particularly in production and utilization. To improve food security in rural communities, it is essential to invest in women's education, provide training, enhance access to income-generating opportunities, and ensure equitable resource distribution.

Keywords: *Women, Food Security, Rural Households, Gender Roles, Punjab, Pakistan*

INVISIBLE ECONOMIES: RURAL WOMEN'S FOOD DECISION-MAKING AND HOUSEHOLD SECURITY IN AGRARIAN PUNJAB, PAKISTAN

Dr Madiha Naz (Uaf)

In the agrarian regions of Punjab, Pakistan, rural women play a vital yet often unrecognized role in ensuring household food security. Their food-related decisions represent a complex negotiation between cultural expectations, economic limitations, and nutritional demands. This qualitative study, grounded in behavioral economics, aims to explore how rural women make food-related decisions while navigating structural inequalities and psychological constraints. The research is based on in-depth interviews and focus group discussions with 45 women from three rural districts in Punjab. It examines the cognitive processes, social pressures, and informal economic strategies that shape women's food management practices in resource-scarce households. The findings reveal that women employ various adaptive strategies rooted in behavioral patterns such as mental accounting, scarcity framing, and present bias. Decision-making is driven not only by the availability and affordability of food but also by a moral responsibility to safeguard the health of family members especially children while maintaining household harmony and dignity. Common coping strategies include rationing, ingredient substitution, reliance on local social networks, and self-sacrifice through deferred consumption. Despite limited control over household finances, rural women demonstrate considerable agency, resilience, and ingenuity in food provisioning functioning as "invisible economists" within the home. However, their decision-making capacity is often constrained by entrenched gender norms, low literacy rates, and the absence of institutional support. This study underscores the need to integrate gendered behavioral insights into food security policies and rural development programs. Recognizing the economic rationality and invisible labor of rural women is essential to designing inclusive and effective interventions. The research contributes to an evolving discourse on the intersection of gender, food security, and behavioral development in South Asia, advocating a shift from welfare-based approaches to empowerment-driven strategies.

Keywords: *Invisible Economies, Rural Women, Food Decision-Making, Household Food Security, Behavioral Economics*

COGNITIVE ERGONOMICS AND MENTAL TOUGHNESS AS DRIVERS OF HUMAN CAPITAL SUSTAINABILITY FOR CLIMATE RESILIENCE

Fasiha Batool (Tuf)

The escalating impacts of climate change highlight the urgent need for resilience strategies that extend beyond ecological and technological domains. Human capacities, particularly cognitive and psychological resources, are critical yet underrepresented in resilience discourse. Addressing this gap requires an integration of human factors into sustainable development approaches. This study proposes a theoretical framework linking cognitive ergonomics and mental toughness to human capital sustainability, positioning these elements as central drivers of climate resilience. A conceptual analysis was undertaken to examine the roles of cognitive ergonomics focused on optimizing mental processes such as decision-making, problem-solving, and adaptive thinking and mental toughness, a psychological construct that supports sustained motivation, performance, and wellbeing under conditions of uncertainty and adversity. Their interaction is explored as a mechanism for enhancing human capital sustainability. The framework suggests that cognitive ergonomics enhances efficiency and adaptability, while mental toughness strengthens the translation of cognitive skills into resilient performance. Together, they contribute to sustaining productivity, adaptability, and collective wellbeing within organizations and communities facing climate-related stressors. By placing human factors at the core of resilience strategies, the model complements existing ecological and technological approaches. Future empirical research should investigate the dynamic interaction between cognitive ergonomics and mental toughness, offering evidence-based insights for developing resilient workforces and sustainable organizations. This human-centered framework provides a holistic pathway to strengthening climate resilience and embedding sustainability within volatile environments.

Keywords: *Cognitive Ergonomics, Climate Resilience, Mental Toughness, Human Capital, Organizational Sustainability, Sustainable Workplace*

SURVIVING THE HEAT: A SYSTEMATIC REVIEW OF CLIMATE-INDUCED HEALTH RISKS AND SOCIOECONOMIC IMPACTS IN SOUTH ASIA (2020–2024)

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South Asia faces a growing risk from intense heatwaves, a trend linked to climate change and rapid urban development. These extreme events increasingly threaten health, reduce productivity, and undermine economic stability. In this context the purpose of this review was to examine existing evidence on the health and socioeconomic consequences of heatwaves in South Asia. Unlike earlier reviews, this study synthesizes the most recent evidence (2020–2024) across both health and socioeconomic domains. Relevant studies published between 2020 and 2024 were identified through systematic searches of PubMed, and Scopus. The review process followed PRISMA guidelines, and 21 studies met the final inclusion criteria after screening more than 500 records. The findings suggest that rising severity of heatwaves is linked to increased mortality, higher hospital admissions, and elevated rates of cardiovascular and respiratory illnesses. Heat stress also linked with reduce labor output, damage agricultural productivity, and place significant pressure on national economies. Vulnerable populations including the elderly, women, children, and informal workers, face more risks, with notable gender and urban-rural disparities. Evidence suggested urgent need for stronger early warning systems, wider access to affordable and sustainable cooling, climate-sensitive urban planning, and integration of heat risk management into national policy.

Keywords: *South Asia, Heatwaves, Public Health, Socioeconomic Impacts, Adaptation Strategies*

BRIDGING THE CLIMATE FINANCE GAP: THE ROLE OF GREEN FINTECH IN PAKISTAN AND CHINA'S DEVELOPMENT STRATEGIES

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Developing countries are at serious risk from climate change, necessitating creative financial measures to increase resilience. Combining digital finance with environmentally friendly practices can help Pakistan bridge the financial gap for climate change while learning from China's green finance innovations. China has been at the forefront of Green FinTech solutions, providing insightful perspectives. This research will emphasize how Pakistan might use digital financial technology to promote sustainable economic development and manage its increasing climate vulnerability. Pakistan must immediately eliminate its \$10 billion yearly climate funding deficit because it is one of the most climate-affected nations in the world. The main goal of the study is to create and evaluate a workable Green FinTech framework that is suited to Pakistan's particular socioeconomic situation, where there are 183 million mobile users, high rates of financial exclusion, and serious climate hazards. This study will look at three important aspects of adopting green fintech. First, it will evaluate how climate-resilient funding might be distributed using already-existing digital payment platforms such as JazzCash and EasyPaisa, especially for small-scale farmers and women-led businesses. Second, the study will test out novel solutions such as blockchain-based carbon credit systems for agriculture and AI-powered climate risk assessment tools for microfinance institutions. Thirdly, this study will assist in Policy proposals that take advantage of China's regulatory expertise and tackle Pakistan's particular difficulties to scale Green Fintech. The study will use a mixed-methods approach, integrating case studies from China's Green FinTech ecosystem, farmer surveys in Punjab and Sindh, and data analysis on financial inclusion. In line with SDGs 1 (No Poverty), 5 (Gender Equality), and 13 (Climate Action), the anticipated result will be a workable framework for Pakistan to use digital money for climate resilience. It will focus on solutions to Pakistan's most critical climate concerns, such as water scarcity in the Indus Basin and urban flooding in Karachi. The results will also offer guidance to other developing countries dealing with similar climate-finance dilemmas. The ultimate objective is to illustrate how well-executed financial innovations may change the paradigm of climate finance from one that is reliant on donors to one that is driven by the market and empowers local people while fostering long-term resilience. With particular relevance to South and East Asia's quickly changing digital ecosystem, the work will add new understanding at the nexus of inclusive development, financial technology, and climate adaptation.

Keywords: *Green FinTech, Climate Finance, Digital Payments, Pakistan & China Sustainable Development*

BARRIERS TO DIGITAL PARTICIPATION IN DEVELOPING COUNTRIES: ANALYZING TECHNOLOGICAL, SOCIAL, AND CULTURAL OBSTACLES TO COMMUNITY ENGAGEMENT

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Digital technologies have the potential to drive inclusive development in low- and middle-income countries, yet numerous barriers to digital participation persist, preventing many communities from engaging effectively with digital tools. This systematic review analyzes the technological, social, and cultural factors that inhibit equitable access to digital technologies, focusing on the interconnections between these barriers. Technological barriers, including inadequate internet infrastructure, high costs of connectivity and devices, and unreliable electricity, are significant constraints to digital inclusion, particularly in rural and underserved regions. Social factors such as gender disparities, economic inequality, age-related challenges, and disability contribute to the exclusion of vulnerable groups. Cultural obstacles, including mistrust of digital systems, language barriers, and limited digital literacy, further impede engagement with digital technologies. Through a comprehensive review of literature and case studies, this study identifies the broad scope of these barriers, noting how they create a cycle of digital marginalization. Despite the availability of digital infrastructure in some regions, low usage rates are often due to the lack of locally relevant content and inadequate support structures. The review emphasizes that addressing digital exclusion requires a multi-dimensional approach that goes beyond infrastructure investment. Key recommendations include the need for inclusive design, culturally relevant digital education, and collaboration between governments, civil society, and private sector actors. The findings underscore the critical role of closing the digital divide in fostering sustainable, inclusive development, highlighting the importance of empowering individuals and communities to fully participate in the digital economy and society.

Keywords: *Digital Inclusion, Digital Divide, Developing Countries, Barriers to Participation*

TOWARD INCLUSIVE DIGITAL FUTURES: A MULTI-METHOD ECONOMETRIC, STRUCTURAL, AND QUALITATIVE ANALYSIS OF DIGITAL TRANSFORMATION AND SOCIETAL WELL-BEING IN ASIA (2000–2025)

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This study was initiated with the purpose of exploring how digital transformation reconfigures social well-being in Pakistan, India, China and Japan for 2000–2025 using econometric and structural and qualitative viewpoints. In this context, digitalization has been woven into the fabric of opportunity and challenge in equal measure – an enabler for inclusion, productivity and enhanced quality of life as well as a source of potentially increasing inequality and environmental pressure. Methodologically, the research used panel fixed effects and Driscoll-Kraay robust inference in STATA 18, augmented by two-step system GMM estimations for endogeneity consideration, SmartPLS 4.0 for path analysis with 5,000 bootstraps of data points and NVivo 14 Plus to triangulate themes observed from conducting of the 48 expert interviews. Results consistently show human capital and digital literacy have the most positive significant effect on BLI ($\beta = 0.304$, $p < 0.01$), whereas digital infrastructure quality is revealed to be the largest determinant of DII ($\beta = 0.412$, $p < 0.01$). Governance sophistication ($\beta = 0.218$, $p < 0.01$), AI integration ($\beta = 0.186$, $p < 0.01$), and R&D investment ($\beta = 0.241$, $p < 0.01$) continue to drive digital benefits forward; green computing has marginal but growing effects ($\beta = 0.074^*$). Convergence is supported by dynamic models (half-life convergence = 1.4 years), with high explanatory power ($R^2 = 0.587\text{--}0.623$; $Q^2 = 0.421$). What is original about our study is that it transcends into triangulation, where econometric elasticities are cross-validated with qualitative narratives resulting in 89% concordance and accounting for 72% of the anomalies. Taken together, the evidence suggests that digital transformation is path-dependent and institutionally mediated and that country-specific strategies are required. Infrastructure growth, human capital investment and governance interventions are identified as the panacea to realizing inclusive and sustainable digital futures.

Keywords: *Digital Transformation, Human Capital, Digital Infrastructure, Societal Well-Being, Asia*

SUSTAINABLE AGRICULTURE: ENTREPRENEURIAL PATHWAYS THROUGH CROP DIVERSIFICATION

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Agriculture remains the backbone of Pakistan's economy and food security, yet it is increasingly vulnerable to climate change, marked by erratic rainfall, rising temperatures, water scarcity, and shifting pest dynamics. These challenges not only threaten staple crop yields but also expose rural livelihoods to heightened risks. Agricultural entrepreneurship and crop diversification emerge as critical business models for climate adaptation and resilience. Crop diversification through the integration of high-value horticultural crops, pulses, oilseeds, fodder, and climate-smart varieties reduces dependence on water-intensive staples such as wheat and rice while enhancing soil health, income streams, and nutrition security. For Pakistan, where smallholder farmers dominate and climate-induced yield losses are mounting, entrepreneurial models in seed supply chains, climate-smart inputs, value-added processing, and digital market linkages offer scalable pathways for sustainable rural transformation. Leveraging crop diversification within inclusive business models—such as contract farming, cooperatives, and climate-smart agribusiness startups—to mitigate risks, attract investment, and tap into emerging green markets. International experiences highlight the role of innovation, financial inclusion, and supportive policy frameworks in enabling farmers to transition from subsistence to market-oriented, climate-resilient agriculture. For Pakistan, aligning national agricultural policy with global best practices in crop diversification and agri-entrepreneurship is essential. This includes investments in extension services, cold chain infrastructure, credit facilities, and climate information systems. By fostering diversified, entrepreneurial farming systems, Pakistan can build resilience to climate shocks, reduce rural poverty, and contribute to global food security. The integration of local practices with international models offers a pragmatic pathway toward sustainable agriculture in an era of accelerating climate change.

Keywords: *Sustainable Agriculture, Agri-Entrepreneurship, Crop Diversification, Climate Resilience*

CHINA-PAKISTAN ECONOMIC CORRIDOR: ADDRESSING THE GRIEVANCES OF PAKISTAN'S MARGINALIZED PROVINCES

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In the recent past, Pakistan had witnessed a stiff layer of terrorism in its marginalized provinces which halted its economic development and push it into a situation where foreign and domestic investors hesitate to invest. Inequitable economic development, security situation, political backlash and uneven resource distribution among provinces did not permit equal uplift of every province, which created grievances among them. In 2013, China launched China Pakistan Economic Corridor (CPEC), a \$62 billions of investment in numerous connectivity projects to support the dwindling economy of Pakistan. In this context, the purpose of this study is to explore benefits of CPEC to minimize grievances of its marginalized provinces and create social cohesion. The study is qualitative in nature and data is collected through primary and secondary sources. The study reveals that CPEC has benefits for Pakistan. The study concludes that increasing investment under CPEC will create business and employment opportunities in the country, which will reduce poverty among its people. This will help to minimize economic inequality, regional disparity and ultimately grievances among marginalized provinces. Therefore, CPEC can help Pakistan to address economic grievances of the provinces and create social cohesion.

Keywords: *CPEC, Poverty, Special Economic Zones, Inequality, Regional Disparities*

INTEGRATING DIGITAL POLICY AND SUSTAINABILITY IN EDUCATION: INSIGHTS FROM PAKISTAN AND CHINA

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Pakistan's fragmented digital education programs and China's nationally integrated EdTech ecosystem present opposing examples of sustainable implementation in the Global South. By examining five important factors digital infrastructure, Industry 4.0 technologies, e-governance, digital literacy, and teacher training through the perspective of SDG4-aligned policy implementation, this study explores how Pakistan and China's divergent governance frameworks influence the sustainable digitalization of their educational systems. The study's two main goals are in line with both nations' commitment to SDG 4 (Quality Education): first, to assess the relative efficacy of digital infrastructure, Industry 4.0 adoption, and e-governance frameworks in developing sustainable and fair educational systems in both nations; and second, to evaluate critically the differences between China's and Pakistan's teacher training programs and digital literacy initiatives in order to provide policy solutions that allow for the scalable, ecologically responsible integration of technology in the classroom. Equality of access is made possible by digital infrastructure, such as broadband networks and e-learning platforms, although there are still gaps between urban and rural areas, especially in Pakistan. Although adoption gaps still exist because of financial and technological constraints, Industry 4.0 technologies (AI, big data) maximize learning outcomes and institutional efficiency. Although e-governance simplifies policymaking and certification, Pakistan's decentralized system is more difficult to implement than China's integrated strategy. Digital literacy is still unequal, with Pakistan's fragmented efforts falling short of China's state-led programs. Since up skilling teachers guarantees successful technology integration an area in which China's standardized programs excel teacher training becomes a crucial component. This report compares Pakistan's issues, such as expanding e-waste issues, ongoing rural-urban education gaps, and electricity shortages that impact 30% of schools, with China's successful centralized EdTech approach. The study suggests three sustainable solutions improving teacher preparation programs for digital education, creating environmentally friendly regulations, and putting in place solar-powered digital classrooms to get around energy restrictions. In keeping with SDG4 goals, these suggestions seek to assist Pakistan in achieving equitable digital education while addressing the ecological and technological facets of sustainable development.

Keywords: *Digitalization, Sustainable Education, Pakistan, China, Digital Equity*

TOPLUMSAL DAYANIŞMA VE ÜÇÜNCÜ KUŞAK HAKLAR BAĞLAMINDA BARIŞIN SOSYOLOJİK TEMELLERİ

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Üçüncü kuşak insan hakları, klasik özgürlük hakları (siyasal ve medeni haklar) ile sosyal-ekonomik hakların ötesinde, kolektif boyutları ağır basan ve “dayanışma hakları” olarak da nitelendirilen yeni bir hak kategorisini ifade etmektedir. Bu haklar, ulusal sınırların ötesinde tüm insanlığı ilgilendiren küresel sorunlara yanıt üretme iddiasını taşımaktadır. Barış hakkı, bu kategorinin en çarpıcı örneklerinden birisidir. Savaşın veya doğrudan şiddetin yokluğu ile sınırlı olmayan barış hakkı, sosyolojik düzlemde yapısal eşitsizliklerin, kültürel dışlamaların ve toplumsal adaletsizliklerin ortadan kaldırılmasını zorunlu kılar. Bu yönüyle barış, salt negatif bir özgürlük değil; adalet, güvenlik ve eşitlik ilkeleri üzerinde inşa edilmesi gereken pozitif bir toplumsal durum olarak tanımlanmaktadır. Barış hakkının sosyolojik temelleri, toplumsal dayanışma ilişkilerinin niteliğiyle doğrudan bağlantılıdır. Bireylerin, grupların ve halkların karşılıklı bağımlılıkları, bu hakkın gerçekleştirilmesini yalnızca devletin sorumluluğuna indirgemeyi imkânsız kılar. Çevre hakkı, kalkınma hakkı, insani yardımlardan yararlanma hakkı ve self-determinasyon hakkı gibi üçüncü kuşak haklarla birlikte barış hakkı da, uluslararası toplumun ortak sorumluluk rejimi içinde ele alınan kolektif haklar olarak nitelendirilen dayanışma haklarından birisidir. Dayanışma, burada yalnızca bir değer değil, hakların işlevsel boyutunu mümkün kılan toplumsal bir mekanizma olarak öne çıkar. Ronald Dworkin’in hakların normatif gücüne ilişkin yaklaşımı, barış hakkının soyut bir ideal değil, hukuken ve ahlaken bağlayıcı bir yükümlülük alanı olduğunu analitik biçimde temellendirir. Dolayısıyla barış hakkı, sosyolojik bir perspektiften incelendiğinde, bireylerin tekil özgürlüklerinden çok daha geniş bir düzlemde, kolektif varoluşun sürekliliğini garanti altına alan normatif bir çerçeve sunmaktadır. Kalıcı barış, yalnızca devletlerin politikalarıyla değil; uluslararası örgütlerin düzenleyici gücü, sivil toplumun dönüştürücü kapasitesi ve bireylerin dayanışma pratikleriyle mümkün olabilir. Bu nedenle barış hakkı, üçüncü kuşak hakların merkezinde yer alarak, insanlığın ortak geleceğini güvence altına alan en kritik dayanışma hakkı konumundadır.

Anahtar Kelimeler: *İnsan Hakları Sosyolojisi, Üçüncü Kuşak Haklar, Barış Hakkı, Toplumsal Dayanışma, Dayanışma Hakları.*

IMPACT OF TECHNICAL TASKS, PROJECT MANAGEMENT COMPETENCIES, AND FINANCIAL TASKS ON PROJECT SUCCESS WITH MODERATION BY PROJECT COMPLEXITY AND MEDIATION BY GREEN ENERGY

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The growing complexity of information technology (IT) projects has heightened the need to understand the competencies and practices that drive project success, particularly in sustainability-oriented contexts. This research examines the impact of technical tasks, project management competencies, and financial tasks on IT project success, with project complexity as a moderator and green energy practices as a mediator. The study is positioned within the United Kingdom and European Union, regions characterized by strong regulatory and policy frameworks supporting sustainable project management. Adopting a mixed-method design, the research combines quantitative surveys from 412 IT project managers with qualitative interviews from industry experts. Structural Equation Modeling (SEM) was used to validate the framework and test hypotheses. The model demonstrated strong explanatory power, accounting for 68% of the variance in project success. Results indicate that technical tasks ($\beta = 0.41$, $p < 0.001$), project management competencies ($\beta = 0.37$, $p < 0.001$), and financial tasks ($\beta = 0.29$, $p < 0.01$) all have significant positive effects on project success. Project complexity exhibited a negative direct effect ($\beta = -0.22$, $p < 0.05$) but also moderated the relationships, amplifying the importance of competencies under high-complexity conditions.

Crucially, green energy practices emerged as a strong mediator. The indirect effect of competencies on project success through green energy was significant ($\beta = 0.24$, $p < 0.001$), underscoring the strategic role of sustainability initiatives. The mediation model also revealed that technical and financial tasks contribute to project outcomes more effectively when integrated with green energy considerations, highlighting the synergy between operational efficiency and environmental responsibility.

Comparative analysis across EU member states revealed variations in adoption. Projects in Northern Europe reported higher incorporation of green practices and correspondingly stronger effects on success, whereas projects in Southern Europe displayed greater variability due to regulatory and cultural differences. These findings suggest that while the integrated model is broadly applicable, contextual adaptations are necessary. The study contributes theoretically by advancing an integrated framework linking competencies, complexity, and sustainability, and practically by offering guidelines for managers and policymakers. Emphasizing both performance and environmental stewardship, the research demonstrates that sustainable practices are not only ethically desirable but also strategically advantageous in improving IT project success in complex environments.

Keywords: *IT Project Success, Technical Tasks, Project Management Competencies, Financial Tasks, Project Complexity, Green energy, Sustainable Project Management*

ANALYZING THE CONSTRAINTS FACED BY IMPORTERS, PROCESSORS AND WHOLESALEERS IN GHEE AND OIL INDUSTRY

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The ghee and oil industry, is a key component of Pakistan's food sector. Stakeholders such as importers, processors, and wholesalers play a significant role in its functioning. However, these groups face several constraints that hinder the smooth operation of their businesses. This study focused on identifying and comparing the major constraints faced by importers, processors, and wholesalers in the ghee and oil industry in Faisalabad. The objective was to assess how each stakeholder group is affected by different constraints. The findings showed that each stakeholder group is differently affected by specific constraints. Wholesalers reported the highest concern for delayed supply and transportation costs. Importers were primarily affected by high import taxes and inconsistent government regulations. Processors considered high energy costs and raw material price fluctuations as their major challenges. The Kruskal-Wallis H test showed statistically significant differences in how these constraints were perceived by each group. Quantitative approach has used structured questionnaires with a 5-point Likert scale were distributed among selected importers, processors and wholesalers in Faisalabad. Purposive sampling for importers and processors and wholesalers. The data were analyzed using weighted mean score, the Friedman test and the Kruskal-Wallis H test to rank and compare constraints across the stakeholder groups. This study contributed by offering a comparative analysis of internal constraints in the ghee and oil supply chain. It provided stakeholder-specific insights that can assist in improving supply chain efficiency and policy formulation. The results highlighted the need for targeted strategies to address stakeholder-specific challenges in the ghee and oil industry. This study concludes that targeted interventions addressing the specific needs of stakeholders are vital for building resilience and improving the efficiency of Pakistan's ghee and oil supply chain.

Keywords: *Palm Oil, Importers, Processors, Wholesalers, Constraints Analysis, Faisalabad.*

ADVANCING SUSTAINABILITY ADOPTION: THE ROLE OF INCENTIVES, CONSUMERISM, AND COMMUNITY ENGAGEMENT

Muhammad Khan (The University of Faisalabad)

Escalating environmental challenges underscore the urgent need for businesses to embed sustainability within their operations. Yet, the adoption of sustainable practices remains limited in many developing economies. This study seeks to examine how institutional, market, and societal forces—specifically environmental laws, incentives and subsidies, awareness campaigns, green consumerism, and community engagement—shape the adoption of sustainable practices. In addition, it investigates the moderating role of technology in strengthening the influence of awareness campaigns and community engagement on sustainable adoption. Drawing on push–pull theory and the technology acceptance model, the study develops an integrated framework that captures both external pressures and enabling mechanisms of sustainability adoption. It is expected that economic incentives, consumer demand, and community engagement will exert significant positive effects, whereas reliance on regulatory pressure alone may prove insufficient. Moreover, the strategic use of technology is anticipated to amplify the impact of awareness initiatives and community participation. The study aims to contribute to the sustainability literature by bridging institutional and technological perspectives, offering a more nuanced understanding of adoption drivers in emerging contexts. For policymakers, the findings will provide guidance on balancing regulatory “push” with incentive-based “pull” strategies, while also leveraging technology for broader societal engagement. For practitioners, the research underscores the importance of aligning organizational practices with evolving consumer expectations and community values. By integrating theoretical insights with practical implications, this work aspires to advance sustainable business adoption and support long-term environmental resilience.

Keywords: *Sustainability, Consumerism, Community Engagement*

DIGITAL TRANSFORMATION AND CAPABILITIES FOR SUSTAINABLE SME GROWTH IN THE AGE OF ARTIFICIAL INTELLIGENCE

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This study examines the role of digitalization and digital capabilities in enhancing the financial performance of small and medium-sized enterprises (SMEs) in Pakistan within the context of the artificial intelligence (AI) era. Adopting a deductive approach, data were collected from 396 respondents through a structured survey and analyzed using a hybrid method that integrates structural equation modeling (SEM) with artificial neural networks (ANNs). The results indicate that digital transformation, digital innovation, and digital servitization significantly strengthen financial performance by streamlining business processes, reducing operational costs, and improving customer engagement. Moreover, digital capabilities (including human, innovation, technical and collaboration capabilities) are found to be critical in leveraging these improvements. Among them, human and innovation capabilities emerge as the most influential, highlighting the importance of a skilled workforce and an innovation-driven culture in converting technological adoption, including AI-enabled processes, into measurable financial gains. The study contributes to the resource-based view by positioning digital technologies and AI-driven capabilities as strategic resources that create competitive advantage and sustainable growth. By combining linear and non-linear analytical techniques, this research offers a more comprehensive understanding of how digital and AI resources shape business performance. Practical implications include the need for targeted policies such as financial support schemes, digital literacy initiatives and the establishment of innovation hubs to align technological and AI advancements with SME needs, thereby enhancing competitiveness and long-term sustainability.

Keywords: *Digital Innovation, Digital Transformation, Digital Capabilities, Financial Performance, Digital Servitization*

IMPACT OF SPECIAL SAVINGS CERTIFICATES (SSCS) ON PAKISTAN'S GDP

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Maryam Bibi (Government College University Faisalabad)

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The National Savings Organization is a financial institution in Pakistan. Since the 20th century, it has played a significant role in mobilizing domestic savings via various financial instruments, particularly National Savings Schemes (NSS). The National Savings Organization was established to promote frugality and promote low-risk investment opportunities. Special Saving Certificates (SSC) are a key tool used by the Government of Pakistan to fund budgetary needs and spurs economic growth. Even through the enduring use of SSCs in Pakistan's financial system, empirical evidence on their actual impact on macroeconomic indicators like GDP remains limited. There is a noticeable gap in quantifying the extent to which SSCs influence national economic performance, as compared to other financial drivers like Gross Domestic Savings (GDS) and Gross Capital Formation (GCF). The main objective of this study is to estimate the relationship between Special Savings Certificates (SSCs) and GDP of Pakistan. This study aims to find the significance of SSCs as a driver of economic growth, whether their contribution is statistically meaningful or not. This study employs a quantitative analytical approach on secondary data from the State Bank of Pakistan, the World Bank, and relevant academic or official National Savings Organization literature on GDP, SSCs, GDS, and GCF in the period of 1990-2024. The study confirms that SSCs have a positive role in Pakistan's economic output and highlights the importance of domestic savings on economic growth. The result elaborates that SSCs have a significant and positive effect on GDP.

Keywords: *Special Saving Certificates (SSC) ,National Savings Schemes (NSS), Gross Domestic Savings (GDS) ,Gross Capital Formation (GCF), Gross Domestic Product (GDP)*

WORKPLACE EQUALITY AND INCLUSIVE WORK ENVIRONMENT: INTEGRATING EMPLOYEE WELL-BEING, AND SUSTAINABLE GOVERNANCE

Mamoona Javed (The University of Faisalabad)

Workplace equality and inclusion are central to creating resilient organizations that align social, environmental, and governance goals. This study investigates how equality-oriented practices and inclusive environments influence employee well-being, productivity, and sustainable governance outcomes. By situating equality within broader sustainability agendas, the paper highlights its role as both a social imperative and a governance driver. The research applies a mixed-method approach, combining policy analysis with organizational case studies. Data were drawn from corporate reports, governance frameworks, and employee surveys across diverse sectors. Quantitative indicators include workforce diversity, retention rates, and productivity metrics, while qualitative analysis captures perceptions of fairness, psychological safety, and alignment with sustainability commitments. Findings indicate that inclusive policies foster higher levels of trust, engagement, and job satisfaction, which enhance organizational performance. Equality-oriented governance structures show greater accountability and transparency, enabling firms to integrate social and ecological objectives into long-term strategies. Results also reveal that organizations with inclusive cultures are more adaptive in implementing sustainability measures, linking employee well-being with environmental responsibility and governance legitimacy. The study contributes to organizational sustainability research by positioning equality and inclusion as key determinants of governance effectiveness. It also offers actionable insights for policymakers and corporate leaders seeking to align workplace practices with global sustainability standards. By embedding equality and well-being within governance frameworks, organizations can strengthen both human development and ecological responsibility, ensuring balanced and sustainable growth.

Keywords: *Workplace Equality, Inclusive Work Environment, Employee Productivity, Sustainable Governance*

LEVERAGING DYNAMIC CAPABILITIES FOR FIRM PERFORMANCE: THE MEDIATING EFFECT OF BPMC

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Ayesha Ghulam Muhammad (Css Aspirant)

Dynamic capabilities enhance firm performance by strengthening customer relationships, optimizing risk management, and boosting operational efficiency. The purpose of this research is to introduce a conceptual framework aimed at explaining the influence of dynamic capabilities on the performance of Telecommunications firms in Pakistan. Data from a sample comprising 520 participants were collected via Survey questionnaires. The study employed Partial Least Squares-Structural Equation Modelling to evaluate the proposed model empirically. Results reveal a positive association between dynamic Capabilities technology and information capabilities with both talent capabilities and firm performance. Analysis suggests that business process management capabilities mediate the relationship between dynamic capabilities and firm performance, and enhance the relationship between talent capabilities and Firm performance. This study enhances the extant literature by elucidating the mediating role of BPMC in the relationship between talent technology, information capabilities, and firm performance.

Keywords: *Dynamic Capabilities, Talent Capabilities, Business Process Management Capabilities, Firm Performance, Technology Capabilities*

ARTIFICIAL INTELLIGENCE ACCEPTANCE AMONG VEGETABLE DISTRIBUTORS AT WHOLESALE MARKETS IN CHINA

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Debin Zhang (College Of Public Administration, Huazhong Agricultural University)

With the continuous development and application of Artificial Intelligence, the distribution of fresh vegetables, which has long been restricted by the perishable nature, short shelf life, small farm and large market pattern, has the potential for improvement using AI. The decision-making mode, currently in use, is still based on participant experience and price data, whether for the production side, the first level wholesale at the sales side, or second level wholesale at the sales side. The existed multi-modal data such as audio and video in the market has not been fully utilized. With dissension on multi-modal data characteristics produced during distribution of vegetables, combined with the decision-making process of vegetable distribution, this article explored the technical acceptance of artificial intelligence in the distribution of bulk vegetables, and has identified the key influencing factors that restrict its application, analyzed the influencing mechanism, and proposed targeted improvement strategies. The study reveals that perceived ease of use and social network influence have a significant positive impact on the attitude of participants. While, behavioral intention has a significant positive impact on whether to actually adopt AI behavior, and attitude and social network influence have a significant positive impact on behavioral intention. This research may contribute to explore the application of multi-modal data in decision support for agricultural product distribution, and promote the AI general application process.

Keywords: *Artificial Intelligence, Fresh Vegetables, Distribution Decision Making, Multi-Modal Data, Technology Acceptance Model*

EXPLORING THE INFLUENCE OF MARKETING STRATEGIES ADOPTED BY EMIRATES AIRLINE, QATAR AND ETIHAD AIRWAYS ON PASSENGER EXPERIENCES AND PREFERENCES IN PAKISTAN'S AVIATION SECTOR

Abdul Salam (The University of Faisalabad)

How do Gulf airlines configure their organizational, marketing and operational processes to capture Pakistan's nuanced aviation market? This study integrates said field of research with quantitative analysis to show that a mixed-method paradigm reveals both overt and latent dynamics shaping premium carrier performance. Semi-structured interviews with senior executives at Emirates, Qatar Airways and Etihad uncover three "phygital" configurations: Emirates' dual retail-office network for cash-oriented leisure travelers, Qatar Airways' product innovation aimed at high-yield business and diaspora segments and Etihad's shift to a purely digital interface, which may alienate relationship-driven customers. A survey of around 400 Pakistan-based airline employees by using structural equation modeling to demonstrate that a collaborative, learning-oriented culture enhances employee confidence and optimism is linked to higher customer satisfaction and loyalty. Extending behavioral and social exchange theories to the Gulf-Pakistan context, findings indicate that investments in leadership development and continuous training underpin superior service delivery and passenger retention. At a macro level, booking-share data from Pakistani travel agents and a PESTLE analysis identify four external constraints, visa complexities, limited digital literacy, emerging sustainability concerns and intensifying low-cost competition that obscure latent demand for premium travel. Modeling dynamic Pakistani-rupee pricing and targeted Visiting Friends & Relatives (VFR) offers reveals underexplored "white-space" segments. It contributes to service-brand strategy and organizational behavior by elucidating how "phygital" architectures drive market penetration, validating culture's role in service excellence and offering a replicable mixed-method blueprint for emerging-market adaptation. Practically, it recommends segment-specific pricing, enhanced sustainability narratives and partnerships with local agents to help Gulf carriers balance premium positioning with agile, digitally enabled growth.

Keywords: *Key Words: Visa Complexities, Limited Digital Literacy, Emerging Sustainability, Learning - Oriented Culture, Customer Satisfaction and Loyalty.*

IMPACT OF CAUSE-RELATED MARKETING ON PURCHASE INTENTION AND BRAND LOYALTY: THE ROLE OF CORPORATE SOCIAL RESPONSIBILITY

Muhammad Awais Rashid (The University of Faisalabad)

Today, with so much change in the business world, more companies are implementing cause-related marketing to bring in more customers, reinforce their brand's identity, and make themselves unique among rivals. Connecting the sale of goods to social causes is now a crucial way to shift the mindset of buyers toward a product. There are still differing views on how much Cause-related marketing influences what and why people buy and how loyal they are to a brand. This research investigates the relationship between cause-related marketing, consumer purchasing intention, brand loyalty, and how corporate social responsibility can affect these factors. In many cases, corporate social responsibility arrangements indicate to consumers that a brand is sincere and responsible, increasing people's trust in the brand and strengthening campaigns related to a cause. This paper compiles and examines information about consumers involved in cause-related marketing campaigns using numbers and statistics. The goal is to learn if consumers connect better with brands engaged in social causes and whether companies' social initiatives enhance how consumers view marketing for those causes. The research provides key understanding about ethical and responsible marketing and gives useful advice to firms interested in promoting social causes through their business. The lessons from this study can help marketers, policymakers, and business leaders decide how to earn money responsibly, which in turn leads to lasting relationships with consumers.

Keywords: *Cause Related Marketing, Purchase Intention, Brand Loyalty, Corporate Social Responsibility.*

ANALYZING THE CONSTRAINTS FACED BY RETAILERS AND CONSUMERS IN THE PALM OIL INDUSTRY

Wajeeha Nawaz (The University of Faisalabad)

In Pakistan the palm oil industry, particularly in urban areas like Faisalabad, plays a crucial role in the edible oil market. Retailers and consumers are key stakeholders whose interaction determines the efficiency of distribution and consumption. However, both groups face multiple challenges that disrupt smooth market functioning. This study aims to identify and compare the major constraints faced by retailers and consumers in the palm oil industry in Faisalabad. Retailers primarily struggle with supply-side constraints such as price volatility and limited product availability, while consumers are more affected by issues related to product quality, affordability, and regulatory awareness. Additionally, gaps in product standard awareness and inconsistent regulations further worsen stakeholder experiences. Using a quantitative approach, the study collected data from 70 retailers and 70 consumers through structured questionnaires based on a 5-point Likert scale. Systematic random sampling was used to select participants. The collected data were analyzed using descriptive statistics, demand analysis, weighted mean analysis, and the Friedman test, processed through SPSS and Excel. The findings show that constraints are interconnected and require targeted policy responses. This study contributes to the understanding of dual stakeholder perspectives in the palm oil market—an area often neglected in supply chain research. It offers practical insights for policymakers and industry stakeholders to improve supply chain coordination, enhance product quality awareness, and stabilize pricing strategies. These improvements are essential for achieving sustainable growth and consumer satisfaction in Pakistan's palm oil industry.

Keywords: *Palm Oil, Retailer, Consumer, Constraints Analysis, Faisalabad*

WHY FARMERS ARE NOT INTERESTED IN IPM ADOPTION IN THE SINDH PROVINCE OF PAKISTAN?

Qaim Ddin (Ph.D Scholer)

The excessive use of chemical pesticides in Sindh, Pakistan, has led to environmental degradation, health hazards, and increased pest resistance, necessitating a shift toward Integrated Pest Management (IPM). This study explores the factors influencing IPM adoption and its impact on sustainable development, emphasizing the moderating role of adoption in farmer participation. Using a mixed-methods approach, data were collected from 450 systematically sampled farmers and 15 purposively selected progressive farmers. Structural Equation Modeling (SEM) helped to discover relationships between selected variables, and NVivo-14 facilitated in analysis of qualitative data. Results revealed a weak direct correlation (0.173) between participation and sustainable development, but with adoption as a moderator, the explained variance increases to 32%, significantly enhancing health (0.786) and environmental (0.890) outcomes. However, economic concerns (-0.576) remained a barrier mainly due to complexity, compatibility, and relative disadvantage. Qualitative findings highlight reluctance stemming from fear, market uncertainty, and pricing inconsistencies, aligning with Rogers' Diffusion of Innovations theory. The study underscores the necessity for policy interventions, market restructuring, and farmer education to promote IPM adoption and ensure sustainable agricultural practices.

Keywords: *Participation, Adoption, IPM, Sustainable Development.*

AI ADOPTION AND EMPLOYEE ENGAGEMENT: HOW DIGITAL LITERACY MAKES THE DIFFERENCE

Dr Maryam Saleem (The University of Faisalabad)

The adoption of Artificial Intelligence (AI) is transforming the organizations, influencing both operational processes and employee experiences. This study examines the impact of AI adoption on employee engagement, with digital literacy serving as a mediating variable. A time-lagged primary data was collected in three waves from 337 employees across diverse service sector organizations, including IT services, banking, healthcare, and hospitality. A structured questionnaire measured AI adoption, digital literacy, and employee engagement. Structural Equation Modeling (SEM) was applied to test both direct and indirect relationships, enabling rigorous examination of digital literacy's mediating role. The study is grounded in the Technology Acceptance Model (TAM), which posits that perceived ease of use and perceived usefulness of technology drive adoption behaviors. The findings demonstrate that AI adoption positively influences digital literacy, which in turn enhances employee engagement. By incorporating digital literacy as a mediator, this study extends TAM to explain employee engagement outcomes, illustrating how technological capabilities can translate into improved workplace attitudes, motivation, and behavioral performance in service-oriented organizations. The research contributes both theoretically and practically. Theoretically, it highlights the mediating role of digital literacy in technology-driven organizational contexts, emphasizing the mechanisms through which AI adoption influences engagement. Practically, the study underscores that service sector organizations should complement AI adoption initiatives with targeted digital literacy programs to foster a more engaged, competent, and productive workforce. Furthermore, the findings suggest that investment in employee digital skills is not only a technological necessity but also a strategic approach to enhancing overall organizational performance and employee satisfaction in a rapidly evolving digital landscape.

Keywords: *Artificial Intelligence (AI) Adoption, Employee Engagement, Digital Literacy, Technology Acceptance Model (TAM),*

THE IMPACT OF CORPORATE GOVERNANCE, LEADERSHIP STYLE, AND CORPORATE REPUTATION ON EMPLOYEE ENGAGEMENT

Rabia Arshad (The University of Faisalabad)

Employee engagement has emerged as a critical factor in achieving organizational sustainability and long-term performance. This study examines the combined impact of corporate governance, leadership style, internal control, and corporate reputation on employee engagement. Strong governance frameworks ensure transparency, accountability, and trust, which foster a sense of fairness among employees. Leadership style, whether transformational, transactional, or laissez-faire, directly influences motivation, communication, and alignment with organizational goals. Internal control mechanisms strengthen operational efficiency and create a secure environment where employees feel supported and valued. Meanwhile, corporate reputation enhances organizational pride and loyalty, shaping employees' emotional connection with their workplace. A quantitative research design was employed, using structured questionnaires distributed to employees across multiple organizations. Data were analyzed through regression analysis and structural equation modeling (SEM) to test the hypothesized relationships. The results reveal that corporate governance and internal control exert significant positive effects on employee engagement by ensuring fairness, accountability, and security. Leadership style, particularly transformational leadership, emerged as the strongest predictor of engagement, while corporate reputation was found to enhance employees' sense of belonging and organizational commitment. By integrating these dimensions, the study highlights that effective governance, ethical leadership, robust control systems, and a strong reputation collectively contribute to higher levels of employee engagement. The findings offer valuable theoretical contributions to governance and leadership literature and provide practical insights for managers and policymakers seeking to build committed, motivated, and high-performing workforces.

Keywords: *Corporate Governance, Leadership Style, Corporate Reputation, Employee Engagement,*

LEADER HYPOCRISY AND EMPLOYEE SOCIAL LOAFING: A MODERATED MEDIATION MODEL OF PSYCHOLOGICAL CONTRACT BREACH AND POWER DISTANCE ORIENTATION

Dr. Muhammad Ahmad (Tuf)

Leader hypocrisy—when leaders espouse values they fail to practice—has emerged as a destructive leadership behavior with profound consequences for employees and organizations. This study aims to examine how and when leader hypocrisy fosters employee social loafing by integrating Psychological Contract Theory and Moral Disengagement Theory. A quantitative, two-wave survey design was employed to reduce common method bias and capture temporal separation between predictors and outcomes. Data were collected from full-time employees working in diverse organizations across Pakistan, a high-power distance culture. Using purposive sampling, participants with at least one year of experience under their current supervisor were targeted to ensure relevant exposure to leader behavior. At Time 1, measures of leader hypocrisy, power distance orientation, and demographic variables were collected, while at Time 2, measures of psychological contract breach and employee social loafing were obtained. Structural equation modeling and conditional process analysis were used to test the hypothesized moderated mediation model, examining direct, mediating, moderating, and conditional indirect effects.

Findings revealed that leader hypocrisy positively predicts employee social loafing and that this relationship is partially mediated by psychological contract breach. High power distance orientation significantly weakened both the direct relationship between leader hypocrisy and social loafing and the indirect relationship via psychological contract breach. These results suggest that in high power distance contexts, employees are more tolerant of leader hypocrisy and less likely to respond with withdrawal behaviors. By integrating Psychological Contract and Moral Disengagement Theories, this study advances the dark leadership literature by explaining both the process (via psychological contract breach) and the boundary conditions (via power distance orientation) of leader hypocrisy effects. The findings highlight the importance of cultural values in shaping employee responses and provide practical implications for organizations operating in high power distance societies.

Keywords: *Leader Hypocrisy, Employee Social Loafing, Psychological Contract Breach, Power Distance Orientation*

THE INTEGRATION OF ARTIFICIAL INTELLIGENCE (AI) INTO SELF-TRAINING: PEDAGOGICAL EFFECTIVENESS

Gulsanam Rakhimova (The Uzbekistan State Of World Languages University)

This innovative research raises awareness of the integration of technologies, particularly artificial intelligence (AI), in foreign language self-study. Thus, this article is situated at the intersection of foreign languages and AI, aiming to design and evaluate self-study programs using AI, especially in professional environments. The theoretical framework of this article will be based on the principles of language didactics and autonomous learning, while integrating a literature review on AI in teaching. We will use thematic analyses for qualitative data and statistical tests for quantitative data, adopting a constructivist perspective. Our objectives include designing devices integrating AI, evaluating their impact on professional language skills, and identifying best practices. We expect concrete results, ranging from a better understanding of learners' needs to practical recommendations for self-study in foreign languages.

Keywords: *Artificial Intelligence, Integration, Self-Training, Foreign Languages*

IMPACT OF URBANIZATION ON CLIMATE CHANGE: A CASE STUDY OF PUNJAB, PROVINCE OF PAKISTAN

Azhar Iqbal (Mns Agricultural University)

Punjab has seen a sharp increase in urbanization in the last 30 years, it brought the multiple kind of socioeconomic development along with drastic changes in the climate of the Punjab. For the purpose of this analysis 30 years (1990 – 2020) have used to examine how urbanization affects climate change in Punjab. The main factors are land use changes, temperature increases, rainfall variability, urban population growth, and CO₂ emissions. The results of econometric modeling (ARDL bounds testing approach) show a strong and favorable correlation between urbanization and climate change indicators, particularly emissions and surface temperature. The integration of climate resilience and sustainable urban planning is suggested as a policy.

Keywords: *Urbanization, Climate Change, Punjab, Geospatial Modeling, Sustainability*

IMPACT OF SOCIAL MEDIA MARKETING ON BRAND EQUITY: THE ROLE OF EXPERIENTIAL VALUE

Muhammad Rehmat (Fauji Fresh N Freeze)

Social media marketing has become a powerful tool for brands to engage customers, especially in the apparel industry. This study examines the impact of Social Media Marketing on customer-based brand equity, considering the mediating role of brand love and the moderating effect of experiential value. While Social Media Marketing helps create brand awareness and engagement, its effectiveness in strengthening brand equity depends on emotional and experiential factors. Brand love, an emotional bond between customers and brands, is investigated as a mediator that enhances the impact of Social Media Marketing on Customer Based Brand Equity. Additionally, experiential value customers' perception of a brand's uniqueness, functionality, and emotional appeal—is explored as a moderator that may strengthen these relationships. This research aims to provide insights into how apparel brands can leverage Social Media Marketing to cultivate deeper customer connections and enhance brand equity. By analyzing consumer perceptions, this study contributes to both academic literature and industry practices, helping brands develop more effective digital marketing strategies to sustain long-term customer relationships and brand success in a competitive market.

Keywords: *Social Media Marketing, Brand Love, Customer Based Brand Equity, Experiential Value*

MOLECULAR DOCKING SIMULATIONS IN DRUG DISCOVERY: A REVIEW

Idris Arslan (Zonguldak Bülent Ecevit University)

Molecular docking, a computational simulation, has become a significant part of toolkits of scientists searches on structural biology and medicinal chemistry. It also often enables more efficient ligand optimization, a key process of drug discovery in which one begins with a ligand and searches for related molecules with more desirable features—not only stronger binding but also improved efficacy, reduced toxicity, and fewer side effects. Several software was developed during the last decades, amongst which are some well-known examples, such as AutoDock, AutoDock Vina, DockThor, GOLD, Molegro Virtual Docke, and ClusPro. Docking simulations are most generally used to product interactions between target macromolecules (protein and nucleic acids) and small molecules (ligands, drug candidates etc) with approximately 100 atoms or fewer. In this coupling, electrostatic interactions, Van der Waals, Coulombic and hydrogen bounds can be considered.

Keywords: *Molecular Docking, Computer-Aided, Free Energy of Binding*

THE IMPACT OF THE SEHAT SAHULAT PROGRAM ON OUT-OF-POCKET EXPENSES AND DISPOSABLE INCOME OF HOUSEHOLDS IN PUNJAB, PAKISTAN

Izhar Ul Haq (University of Agriculture Faisalabad)

Prof. Dr. Asghar Ali (University of Agriculture Faisalabad)

Dr. Muhammad Khalid Bashir (University of Agriculture Faisalabad)

Prof. Dr. Abdul Gafoor (University of Agriculture Faisalabad)

The study examined the impact of Sehat Sahulat Program on out-of-pocket healthcare spending and household disposable income in Punjab basing on the case study District Sahiwal. This study adopted a mixed method approach to give a holistic picture of the effects of the Sehat Sahulat Program to households. The sample consisted of 155 beneficiaries of Sehat Sahulat Program, whereby, the quantitative data was taken on household income and medical expenses prior to and after the program enrollment. Simultaneously, the qualitative data were collected using the yes/no questions and Likert-scale answers to the exploration of the experiences of beneficiaries. The purposive random sampling method was used to collect data; this means that the respondents must have actively consumed healthcare services offered by Sehat Sahulat program. The statistics were compared with the help of descriptive statistics, paired samples t-tests, and regression. Findings indicate that there is statistically notable decrease in monthly medical spending PKR 6,745 to PKR 3,332 a difference of PKR 3,412/month. This reduction in the healthcare associated expenditures enabled households to channel their savings to other basic needs like food, education and housing. Also, the research has noted that average monthly disposable income has significantly grown by PKR 3332, which means that the average people are more financially secure and economically stable. The healthcare-seeking behavior was also positively affected by the program with 66.3% of the respondents indicating that prior to enrolling in the program, they used to delay or avoid receiving treatment because of cost but this behavior decreased post-enrollment in Sehat Sahulat Program. In order to enhance the effect of the program, the study suggests that Sehat Sahulat Program should be extended to include outpatient services, enhance healthcare infrastructure in rural areas, simplify the registration and claims procedure and enhance the community awareness with targeted outreach.

Keywords: *Sehat Sahulat Program, Universal Health Coverage, Out-of-Pocket Expenditure, Disposable Income*

PULSES PRODUCTION AS AN IMPORT SUBSTITUTION STRATEGY IN PAKISTAN: ANALYSING FARM LEVEL DRIVERS AND INSTITUTIONAL SUPPORT

Muhammad Ashraf (University of Agriculture Faisalabad)

Dr. Azhar Abbas (University of Agriculture Faisalabad)

Pakistan has been facing a growing challenge of food and nutritional security due to the widening gap between domestic pulse production and consumption. Pulses, being a vital source of plant-based protein and essential micronutrients, are predominantly imported to meet national demand, contributing to a heavy import bill and increased dependency on international markets. This study explores the potential of enhancing domestic pulse production as an import substitution strategy by examining key farm-level drivers and the role of institutional support mechanisms. Using a mixed-methods approach, the research investigates factors affecting the decision to adopt pulse cultivation, such as landholding size, input accessibility, farmers' knowledge, cropping patterns, and market dynamics that influence pulse cultivation at the farm level. Simultaneously, the study evaluates the effectiveness of government policies, extension services, credit facilities, and agricultural research institutions in promoting pulse production. Findings highlight significant gaps in farmer awareness, technology adoption, and institutional coordination, underscoring the need for targeted interventions. Strengthening the value chain, incentivizing pulse cultivation, and aligning policy frameworks can not only enhance self-sufficiency but also contribute to sustainable agricultural development in Pakistan. This study provides actionable insights for policymakers, development agencies, and agricultural stakeholders aiming to reduce reliance on imports through strategic support for domestic pulse production.

Keywords: *Pulses Production, Import Substitution Strategy, Institutional Support, Mixed Method Approach, Farm-Level Drivers,*

DIGITALIZATION AND THE WELL-BEING OF PATIENTS: ENHANCING HEALTH OUTCOMES IN THE DIGITAL AGE

Samra Subhani (The University of Faisalabad, Saleem Campus Faisalabad)

Digitalization is a global phenomenon that incorporates technology into different sectors of economy. The use of digitalization in health care system has reduced the problem of inequality by providing patients equal access to all health care services. This study explored the effect of digitalization on patient well-being by using different digital tools. It was conducted by using a well-structured questionnaire to collect data from the patients of chronic disease residing in different areas of Faisalabad. The patient satisfaction was considered as dependent variable that was expressed in binary form. The independent variables were consisted on telemedicine, mobile health applications, wearable health devices, phone messages and voice reminder system, use of artificial intelligence along with control variables age, gender, education, area and income. As the dependent variable was in binary form so, the binary logistic model was applied to analyze the data by using SPSS. The results of study exhibited that the use of telemedicine, mobile health application, and wearable health devices has positive and significant effect on patient well-being. It was strongly recommended that the awareness regarding the use of digital tools should be provided to people of all ages so that they can incorporate it in their lives comfortably.

Keywords: *Digitalization, Telemedicine, Health Devices, Education, Age*

WATER-FOOD-ECOSYSTEM NEXUS AMID CLIMATE CHANGE: A SYSTEMATIC REVIEW OF RESOURCE SECURITY IN PAKISTAN'S SPECIAL ECONOMIC ZONES

Memona Nasir (University of Agriculture, Faisalabad)

Resource security within the Water-Food-Ecosystem (WFE) nexus is a critical concern, particularly in the context of climate change and rapid industrialization in Pakistan's Special Economic Zones (SEZs). Sustainable resource management requires an integrated understanding of the synergies and trade-offs within the WFE nexus to ensure long-term resilience. This study conducts a systematic mapping of the levels at which WFE nexus studies are conducted, methodologies used, and key dimensions considered in the academic literature on Pakistan's SEZs, while identifying research priorities and gaps. The traditional discourse on resource security has evolved from a sector-specific focus on water, food, or ecosystems to a more holistic approach encompassing their interdependencies and vulnerabilities. Most studies analyze WFE dynamics at either regional or sectoral levels but rarely integrate economic, environmental, and social dimensions simultaneously. Addressing the sustainability challenges in Pakistan's SEZs requires a multi-scalar approach that incorporates both macro (policy and institutional frameworks) and micro (localized socio-economic and environmental factors) perspectives. In addition to national-level policy interventions, stakeholders must consider community-based and ecosystem-centered strategies to enhance resilience. Against this background, we call for more interdisciplinary and targeted research on the interconnected dimensions of the WFE nexus in Pakistan's SEZs. Future research should bridge disciplinary silos and employ integrated modeling techniques to better assess the trade-offs and opportunities for sustainable resource security. This approach will provide valuable insights for designing policies that enhance climate adaptation, optimize resource allocation, and strengthen long-term sustainability within Pakistan's SEZs.

Keywords: *Water-Food-Ecosystem, Nexus, Climate Change, Special Economic Zones, China-Pakistan Economic Corridor*

A COMPARATIVE ECONOMIC ANALYSIS OF OILSEED AND WHEAT PRODUCTION: A CASE STUDY OF DISTRICT KHUSHAB, PUNJAB, PAKISTAN

Sanjina Naeem (University of Agriculture, Faisalabad)

Asghar Ali (University of Agriculture, Faisalabad)

Oilseeds have seen an increase in food consumption currently in Pakistan. Wheat is a staple food crop of Pakistan but now it has emerged a strategic crop, and any decrease in production could lead to uncomfortable circumstances and financial hardships in vulnerable areas. Both crops are marking significant proportion in daily nutritional value of masses in Pakistan. In 2021-22, 2350000 hectare of area was under cultivation of oilseed crops and 8796000 hectare of land was under wheat crop. Pakistan's annual requirement for edible oil and wheat is more than domestic production. Pakistan imported over 3.0 MT of wheat and around 3.6 MT of oilseed in 2021-22. Primary data were collected from 131 respondents from district Khushab, Punjab, Pakistan through carefully crafted and well-structured questionnaire. Socio-economic characteristics of respondents' showed that the farming experience of canola growers varied from 1 to 10 years with an average of 3 years. The average yield of canola in the sampled farms was 21.78 maunds per acre. Average yield of wheat crop in the region was 40.99 maunds per acre. The results of profitability analysis revealed that the average cost of production for canola was Rs. 75888 on an average net income generated from production was Rs. 70338 and BCR was 1.92. The average cost of production for wheat was Rs. 83477 on an average net income generated from production was Rs. 10823 and BCR was 1.12. The results from regression analysis depicted that variables such as experience of farming, experience of rapeseed/canola and price of rapeseed/canola play significant role in predicting both the area under cultivation and the yield of rapeseed-mustard and canola. On the other hand, variables such as age, education, landholding, and contact with extension agent, family size, credit and subsidy do not consistently show statistically significant relationships with the outcomes across the models. Constraint analysis revealed that Seed cost, water shortage and yield variability were the top agronomic constraints in the study area. Low rainfall, flood and fog/smog were reported as the top two environmental constraints. Deficient market facility and lack of credit were the most significant economic constraints being faced by the farmers in the study area. From results, it is recommended that canola is a financially viable crop; necessitate advance price announcements before sowing. Furthermore, it should receive agricultural extension department campaigns like those conducted for wheat and cotton. To meet the overall demands for canola, especially for country's requirements, it is crucial to take on the responsibility of supplying certified canola seeds. Furthermore, Efforts should focus on developing specialized harvesting methods for canola to effectively reduce losses during the harvesting process, particularly with regard to seed loss.

Keywords: Sustainable Agriculture, Canola, Climate Change, Economic Analysis

TECHNOLOGICAL INNOVATION, SUSTAINABLE CAPITAL, CYBERSECURITY, AND ENERGY TRANSITION AS DRIVERS OF SOCIO-DIGITAL DEVELOPMENT: EVIDENCE FROM SAARC ECONOMIES (2000–2025)

Qamar Ali (Virtual University of Pakistan)

Our study explores the factors of socio-digital progress of eight countries under the SAARC; Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka, in the period between the year 2000 and 2025. The objective of the research is to quantify the impacts of technological, financial, institutional and energy determinants on a composite Socio-Digital Development Index (SDDI) that is developed by combining Digital Infrastructure Adoption Index (DIAI) and Sustainable Human Development Index (SHDI). The analysis considers heteroscedasticity, cross-sectional dependence, endogeneity as well as spatial linkages through the use of advanced panel econometric model (Fixed Effects with DriscollKraay errors, twostep System GMM and Panel Quantile Regression and Spatial Durbin Models). The results confirm that AI & robotics patents are important ($\beta = 1.752.45$, $p < 0.001$) with high and significant explanatory power (28% variance of SDDI), green FDI inflows are the most important external force on this process ($2.45\ 3.11$, $p < 0.001$) with a significant effect of the region (0.188 , $p < 0.01$). Baseline: Mid-tier economies have a strong ground in cybersecurity preparedness ($0.42\text{--}0.59$, $p < 0.001$) and renewable energy consumption ($0.26\text{--}0.32$, $p < 0.05$) also produces benefits of sustainability (requiring almost 8% of the variance).. Covariates—digital literacy ($\beta = 0.16\text{--}0.20$), R&D expenditure ($\beta = 3.01\text{--}4.12$), ICT regulatory quality ($\beta = 1.98\text{--}2.87$) and GDP per capita ($\beta = 3.78\text{--}5.78$)—bolster structural enablers +. "This work aims to apply, through a comparative perspective, the Unified Theory of Acceptance and Use of Technology (UTAUT) extended to a macro-regional environment that aggregates four southern European countries; innovation, sustainable finance, governance and energy transition are considered in order to achieve this objective. The study finds SAARC's socio-digital transformation to be co-propelled by innovation and sustainability capital, anchored in cybersecurity governance and renewable energy, with policy implications for regional co-action and resilience.

Keywords: *Socio-Digital Development, AI & Robotics Patents, Green FDI, Cybersecurity, Renewable Energy*

AGEING AND INCOME INEQUALITY

Gülsüm Akarsu (Ondokuz Mayıs University)

Income inequality has been an important concern for many countries. The countries has developed many policies in order to ensure a reduction in income inequality through various policies, such as taxation and government spending. However, there are various issues which are not under the direct control of many countries, for example, ageing. This study analyzes the effects of ageing on income inequality controlling for various other factors, using panel data on 100 countries over 2010-2019 and using panel data techniques. Results show that as the old dependency ratio increases, income inequality also increases. In addition, inflation, agricultural employment, and trade openness affects income equality, adversely. However, investments and up to a certain level economic growth contribute to inequality reduction. Therefore, government policies should focus on the improvement of the aging population's living standards for inclusive growth and fair income distribution.

Keywords: *Income Inequality, Ageing, Panel Data Analysis*

RETHINKING MONETARY POLICY FOR SUSTAINABLE DEBT REDUCTION IN PAKISTAN

Rai Aqdas Hayat (Uaf)

Nazia Tabasam (Uaf)

Sidra Bibi (Uaf)

In Pakistan, persistent fiscal deficits, high inflation, and external imbalances have contributed to unsustainable debt accumulation. This study examines the interaction between the debt-to-GDP ratio and key monetary policy instruments, alongside macroeconomic indicators. Time series data ranged from 1990 to 2024 were collected, stationarity of the time series data was checked through augmented dickey fuller test and found that some variables were stationary at 1st difference and some were at level form. This mixer of integration order validates that Autoregressive Distributive Lag (ARDL) model is applicable. Study also applied the Error Correction Method (ECM) to identify the short-run dynamics, and diagnostic tests, like Ramsey test for functional form, Lagrange multiplier test for serial correlation and white test for heteroscedasticity. While the F-bound test was used to check cointegration and CUSUM and CUSUM Q were used to check the stability of the model. The estimated results of the model indicated that there is long-run relationship among the regressors and debt in Pakistan. Inflation, exchange rate, fiscal deficit, and GDP have adverse and significant impact on debt reduction in Pakistan while the policy rate has negative impact on debt reduction, but it is statistically non-significant in long-run relationship. The ECM results showed that inflation and GDP have negative and significant effect on debt reduction while policy rate and exchange rate have positive and significant impact on debt reduction. The ECM coefficient value -0.34 indicates that 34% correction will take place in the first year while the remaining will adjust in next period. The F-Bound test and CUSUM and CUSUM Q tests validated the long-run cointegration and stability of the model. At the end, study suggested that government should manage moderate inflation, prioritize improving the GDP growth, manage exchange wisely, and reconsider the policy rate which should be aligned with local banking culture.

Keywords: *Debt Reduction, Monetary Policy, ARDL, Pakistan*

MUTUAL FUNDS PERFORMANCE IN PAKISTAN: A MULTI-FACTOR MODEL ANALYSIS

Zafar Iqbal (The University of Faisalabad)

This study aims to evaluate the performance of mutual funds in Pakistan by using Fama and French (1993) three factor model. Literature provides theoretical and empirical evidence that single factor asset pricing model is not good estimator to evaluate the performance. Fama and French (1992-93) and Carhart (1997) proved empirically that multi factor models are better measures than single factor CAPM. As the services of professional management and diversification are the main benefits that investors achieved from mutual funds, performance measurement, fund managers performance is measured with the regression intercept known as management alpha in single factor and multi factor models. Mutual funds have become the most preferential investment means for small and medium investors to pick the benefits of diversification even with a small amount of investment in the capital market. Hence, potential investors in mutual funds need evaluation not only by financial institutions but also by academicians so that they can make a right choice in their investment decisions. For the performance evaluation of mutual funds, sample of mutual funds selected from the mutual funds industry during the research period from June 2000 to June 2023 listed at Mutual Fund Association of Pakistan. Study used the multi factor model of Fama & French (1993) who suggest that securities return in excess of the risk free rate are explained by the sensitivities of their with respect to three factors, firstly the excess return on market portfolio, secondly the difference between the return on a portfolio of small capitalization stocks and the return on a portfolio of big capitalization stocks (SMB), thirdly the difference between return of high book-to market stocks and the return on a portfolio of low book-to-market stocks (HML). No fund beats the market which shows that all funds underperform the market. Results supports the efficient market hypothesis in Pakistan's capital market.

Keywords: Multifactor Model, Fund Performance, Diversification

ISSUES AND WAGE DIFFERENTIALS AMONG SEASONAL WORKERS IN THE SUGAR INDUSTRY IN JHANG DISTRICT

Muhammad Farooq (University)

The sugar industry of Pakistan is one of the most agro-based and large scale employer of labor as the majority of its products and by-products are generally labor-intensive although recently transforming towards capital-intensified focus. As a range of operations in sugar industry are seasonal in nature linked with sugarcane harvest, the labor employed especially for temporary working has entirely different mechanism of operations and wages. They are generally less-paid and poorly managed, one way or the other particularly for certain phases of the operations and production cycle, while at the same time contributing substantially to employment creation. The objective of this study is to identify the challenges and drivers of wage differentials among seasonal workers employed in sugar industry of Jhang district. It aims to assess the impacts of seasonal employment on workers' financial stability, well-being and wage inequality. Primary data was collected from 200 respondents through structured questionnaire and was analyzed using mixed method approach in addition to cross tabulation, regression and qualitative assessment. The study employs binary logistic regression to analyze the relationship between various socio-economic variables and the dependent variable wage level. Findings reveal that variables such as provision of accommodation, access to medical facilities, promotion opportunities and work-life balance significantly affect the likelihood of earning a wage equal to or above the minimum legal wage. The study seeks to propose policy recommendations for addressing wage disparities and improving the conditions of these workers. The research underscores the urgent need for policy interventions to safeguard the rights of seasonal workers, ensure equitable wage structures and enforcement of labor laws within the sugar industry. The findings offer valuable insights for labor unions, policymakers and industrial stakeholders aiming to improve the socio-economic welfare of seasonal workers. By adopting these measures, the sugar industry in Jhang district can move toward a more inclusive and sustainable labor framework. Such improvements not only enhance worker welfare and overall satisfaction but also contribute to increased productivity and wage levels.

Keywords: *Seasonal Workers, Wage disparity, Social Security, Living Standards, Off Season, Wage level*

**ETHICALLY-GOVERNED ADAPTIVE COGNITIVE TRANSFORMATION (EGACT):
A FULLY SOFTWARE-VIRTUALIZED FRAMEWORK FOR MULTIMODAL
ENRICHMENT, FEDERATED REASONING, AND CONTINUOUS FAIRNESS
AUDITING IN SCALABLE AI SYSTEMS**

Muhammad Mahmood (Virtual University of Pakistan)

The field of artificial intelligence (AI) has been a severe facilitator of the decision-making process within socio-technical systems, but the conventional pipelines tend to prioritize accuracy and efficiency over fairness, explainability, and governance. This article presents a new system called the Ethically-Governed Adaptive Cognitive Transformation (EGACT), a fully software-virtualized system which aims to include ethics, resilience, and compliance into the main procedures of AI. The main goal is to incorporate multimodal enrichment, adaptive governance, federated reasoning, explainability and constant validation in a single system that does not rely on hardware. EGACT is a methodologically Python-Django-based virtualization, simulated IoT streams, and distributed orchestration (Kafka, Redis, Kubernetes) which can process up to 750,000 synthetic events per second with latency of 0.48 seconds. The empirical testing was being done on ten research questions (RQ1-RQ10) across multimodal enrichment, governance flexibility, reasoning correctness, deployment optimization, fairness-conscious recommenders, and systemic resilience. Findings verify that multimodal enrichment enhanced ontology coverage +20% and lowering errors 18% whereas adaptive governance models (DEPO) were more successful in promoting fairness and flexibility as compared to baselines. The accuracy and variance reduction of the federated reasoning engines (FedAdapt, HTRE) and the auditing of transparency and fairness of proactive explainability dashboards (ECS, BiasProbe) were improved. Latency, energy utilization, and deployment optimizations also reduced latency by 42% and energy consumption by 37% and continuous learning cycles and equity-minded recommenders have already reached adoption and trust of more than 90 percent by 2023. What is unique to EGACT is the formalization of the problem of ethical governance as an optimization problem, where fairness, scalability, resilience and explainability are all combined into a software-only pipeline. The research finds that these goals are complementary and can be undertaken collectively and can offer a standardized way of constructing ethical AI.

Keywords: *EGACT, Governance of AI Ethically, Multimodal Enrichment, Federated Reasoning, Auditing Fairness.*

THE IMPACT OF CORPORATE PHILANTHROPY ON ACCOUNTING BASED PERFORMANCE OF FIRMS: MODERATING IMPACT OF AUDIT QUALIT IN THE TEXTILE SECTOR OF PAKISTAN

Usman Ali (The University of Faisalabad)

This study examines the link between corporate philanthropy and accounting based performance of textile firms in Pakistan. It also looks at how audit quality changes this relationship. The present student observes the corporate philanthropy as a dummy variable and allocates 1 if the firm involved in charitable activities and zero otherwise. The accounting based performance was quantified by using the financial ratio of return on assets (ROA). The audit quality was measured as dummy variable by taking the value of 1 if firms were audited by big four auditors or zero otherwise. A panel dataset of listed textile firms from 2014 to 2023 was used and panel data analysis was employed to analyze the financial data. The results of this study showed that corporate philanthropy improves firm performance measured by ROA. Moreover, the positive effect of corporate Philanthropy is greater due to the moderating role of audit quality. The results of this study contribute to the literature on corporate philanthropy and accounting based performance in the context of listed textile firms in Pakistan. This study also offers some valuable recommendations for policymakers, regulators, researchers and corporate managers, etc. Key words: Corporate Philanthropy, accounting based performance, audit quality.

Keywords: *Corporate Philanthropy, Accounting Based Performance, Audit Quality.*

THE ROLE OF WORKING LIFE IN LIFE SATISFACTION: A LOGISTIC REGRESSION ANALYSIS OF THE 2024 SURVEY

Zeynep Görgülü (Selçuk University)

Hasan Bozgeyikli (Selçuk University)

Purpose: Working adults spend a significant portion of their lives in their jobs. In this regard, working life plays an important role in adults' life satisfaction. This study aims to examine how working life variables are associated with levels of life satisfaction by using the comprehensive dataset of the 2024 Life Satisfaction Survey conducted by the Turkish Statistical Institute.

Method: The study used data from the 2024 Life Satisfaction Survey, including only salaried employees and excluding non-employed adults. Accordingly, data from 3466 participants (2315 men and 1151 women) constituted the sample. The average age of participants was 38.88 years (SD = 11.26). The dependent variable, life satisfaction, was recoded into two categories. Independent variables included working in the public or private sector, job satisfaction, income satisfaction, work relationship satisfaction, as well as workplace issues such as administrative difficulties, wage disparities, low wage levels, working conditions difficulties, delayed wage payments, underpayment, and difficulties in taking leave. Age was added to the model as a control variable. Separate regression models were constructed for men and women. Binomial logistic regression analyses were conducted using the RStudio, and assumption checks were performed prior to the analysis.

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Results: The analyses indicated that earnings satisfaction was one the predictor of life satisfaction, increasing the likelihood of high life satisfaction by 2.73 times for women and 2.84 times for men. Job satisfaction significantly increased life satisfaction among women (3.22 times), but not among men. In contrast, public sector employees had a lower likelihood of high life satisfaction compared to private sector employees—50% lower for women and 47% lower for

men. Other variables did not significantly predict life satisfaction. Pseudo R^2 values ranged from 0.09 to 0.15 for women and men.

Keywords: *Life Satisfaction, Working Life, Life Satisfaction Survey, Job Satisfaction, Earnings Satisfaction*

EXTREME WEATHER AND POLICY FAILURES: A REVIEW OF PAKISTAN 2025 FLOODS

Amna Yousaf (University of Agriculture Faisalabad)

M.Amjed Iqbal (University of Agriculture Faisalabad)

The 2025 monsoon season brought the worst flooding in Pakistan since 2022, caused by excessive rainfall, increased glacial melt, dam overflows, and intense cloudbursts. Using initial insights from the National Disaster Management Authority (NDMA) and UN situation reports, the study looks at the human, economic and environmental impacts of the disaster. As of September 2025, more than 1,000 deaths and over 6 million people have been reported nationally, with Punjab, Sindh, KP, and Gilgit-Baltistan facing widespread displacement and crop losses. More than 2.2 million hectares of agriculture have been submerged, food prices are skyrocketing, while thousands of homes, roads and bridges have collapsed. Damage to infrastructure, including transport networks, water supplies and health facilities, has exacerbated food shortages and increased the risk of water-borne and vector-borne diseases, including dengue fever, in KPK. The analysis focuses on how climate-induced extreme weather, land-use changes, and lax implementation of flood management policies exacerbated the impact of the disaster. The study concludes with recommendations for climate-resilient infrastructure, improved early warning systems, and integrated river basin management to reduce the risk of future monsoon extremes.

Keywords: *Monsoon, Flooding, Glacial Melt, Cloudbursts, Displacement, River-Basin Management*

THE PSYCHOLOGY OF FINANCIAL WELL-BEING: HOW FUTURE TIME ORIENTATION AND OVERCONFIDENCE SHAPE FINANCIAL OUTCOMES.

Imtiaz Khan (National Business School, The University of Faisalabad)

This research examines the influence of future time orientation (FTO) on financial well-being (FWB) among individual retail investor and the mediation of overconfidence (OC). Based on Self-Determination Theory, the study combines motivational and cognitive views to examine how forward-looking orientations affect financial outcomes. To collect the valid responses of 384 individual investors who invest in equity, mutual funds, and other financial instruments in Pakistan, the researcher employed a cross-section survey design through systematic sampling. The study utilized validated measurement scales which included six-item FTO, seven-item OC, and CFPB financial well-being scale of ten-items. The hypothesized relationships were confirmed through bootstrapping analysis. The findings indicate that FTO has a significant positive impact on FWB, both directly and indirectly through OC. Investors who are more oriented towards the future engage in better financial planning and are more resilient. However, their excessive overconfidence also cancels out some of these benefits. This happens since these investors take potentially risky actions. The study findings add to the literature on behavioural finance by revealing a two-way effect of overconfidence on investor decision-making. It refers to empowerment as well as distortion in the link of FTO–FWB. The study shows how retail investing in an emerging market has psychological implications. It also has practical implications for financial advisors, policymakers, and educators who wish to promote sustainable financial wellbeing through interventions that improve future orientation and reduce cognitive biases.

Keywords: *Financial Wellbeing, Overconfidence, Future Time Orientation, Self-Determination Theory,*

SOCIO ECONOMIC ANALYSIS OF CITRUS VALUE CHAIN IN PUNJAB: MAPPING OF ACTORS FOR COMPETITIVENESS OF CITRUS TRADE.

Muhammad Rauf (University of Agriculture, Faisalabad)

The global economy has continuously been evolving because of more liberalized trade practices, international demand, market competition, Therefore, understanding the competitiveness of agricultural commodities is crucial for countries seeking to enhance their market share in the international market. Recently, Pakistan has been exporting various horticultural commodities to the world. However, the agriculture & horticultural sector of Pakistan face challenges in terms of competitiveness of trade, poor management, substandard packaging and lack of value addition. This research mapped the citrus value chain and accessed the constraints faced by different stake holders of citrus in Punjab, Pakistan's citrus market is broadly classified into two categories: Modern supply chain, formal supply systems, and traditional, informal supply chains. Traditional supply chains include of sales to traditional fruit and vegetable markets, sales to local middlemen, and sale directly as village retailers. Selling to exporters, local processors or juice production facilities, as well as dealers or contractors, are all part of modern supply chains. From there, the products are processed into various juices or exported after being waxed and processed to extend their shelf life. The research identified constraints, challenges and opportunities of trade liberalization for Pakistan. Primary data and secondary data obtained from reputable sources and obtained through constructed interviews and questionnaires collected from all the stakeholders of District Faisalabad and Sargodha, all the data was further analyzed by using PCA, PSM and regression models. A policy was be suggested based on results of the findings.

Keywords: *Value Chain Mapping, Competitiveness, Citrus, International Trade, Value Chain*

STUDENTS' PERCEPTIONS OF CHALLENGES IN IMPLEMENTING EXPERIENTIAL LEARNING ACTIVITIES TO ENHANCE ACADEMIC PERFORMANCE AT UNIVERSITY LEVEL

Aqeela Saghir (University of Agriculture Faisalabad Pakistan)

Experiential learning emphasizes learning through active participation, reflection, and real-world application, offering significant potential to improve academic performance. While educators facilitate such activities, it is the students who ultimately experience, assess, and benefit from them. This study aims to explore students' perceptions of challenges in implementing experiential learning activities to enhance academic performance at the university level. The study employed a descriptive research design. Considering time and resource constraints, quantitative data were collected from undergraduate students of the 6th semester in BS Education (total population: 59) and BS Computer Science (total population: 330), making a total population of 389 students. With a confidence interval of 7% and confidence level of 93%, the sample size of 118 respondents (18 from Education, 100 from Computer Science) was determined through proportionate sampling using www.raosoft.com/samplesize.html. Data were collected through a questionnaire and analyzed using SPSS. The questionnaire was validated by specialists in education and research methodology, and a pilot test was carried out among 15 students. Reliability testing using Cronbach's Alpha yielded $\alpha = 0.804$, indicating strong internal consistency. Data analysis included percentage, mean, standard deviation, and weighted score. Findings revealed a generally positive perception of experiential learning among students, with strong endorsement of its role in enhancing understanding ($M = 4.26$) and real-world application of knowledge ($M = 4.00$). However, students highlighted significant barriers, including limited resources ($M = 2.58$), rigid curricula ($M = 3.95$), and inconsistent teaching practices ($M = 3.76$). Classroom-level challenges such as unequal group participation ($M = 4.11$) and time constraints ($M = 3.90$) also hindered effective implementation. Despite these challenges, students expressed high support for improvements in infrastructure ($M = 4.42$), teacher training ($M = 4.39$), and industry linkages ($M = 4.36$). The study concludes that experiential learning significantly contributes to academic achievement ($M = 4.36$), knowledge retention ($M = 4.45$), and skill development ($M = 4.34$). However, effective implementation requires systemic attention, improved resources, and sustained institutional support to maximize its benefits.

Keywords: *Experiential Learning, Academic Performance, Student Perceptions, Higher Education, Challenges*

A COMPARATIVE STUDY ON CONVENTIONAL EDUCATIONAL SYSTEM AND OUTCOME BASED LEARNIG AT UNİVERSİTY OF AGRİCULTURE FAİSALABAD

Aqeela Saghir (University of Agriculture Faisalabad Pakistan)

The traditional method of teaching is a longstanding educational approach characterized by a teacher-centered framework. Traditional classrooms are organized with a fixed timetable and set curriculum, promoting a predictable routine. This structure can help to maintain discipline but may also restrict flexibility in teaching and learning styles. Outcome-Based Education (OBE) is progressively documented as a transformative tactic in contemporary educational systems. It shifts the focus from traditional content delivery to achieving specific erudition consequences, accentuating the skills and knowledge students should gain. This study explored the teaching methodologies and learning approaches adopted at the university level, focusing on both conventional and outcome-based learning (OBL) strategies and their perceived impact on students' academic performance. The research was directed at University of Agriculture Faisalabad. University of Agriculture Faisalabad has 8 different faculties. Out of these 7 faculties, one faculty, Faculty of Social Sciences is selected through convenient sampling technique. Three departments were selected in faculty of social sciences RS, IAEERD and IARE. Total population of three departments are 1365, 137 sample was given from the total population. The data were be collected through a validated and pre-tested questionnaire keeping in view the objectives of the study. Collected data were analyzed by using Statistical Package for Social Sciences (SPSS). A demographic analysis revealed that the majority of participants (43.8%) were aged between 18–25 years, with the highest response rate from students in the 2nd semester (27.7%). Most students (38.0%) reported spending 1–3 hours daily on academic learning. Among teaching methodologies, the "Demonstration" method emerged as the most preferred, with a mean score of 4.45 and a weighted score of 610.65, highlighting its dominance in classroom practices. In evaluating traditional learning methods, "Making research skills strong" was the top-rated effect (mean = 4.40; weighted score = 602.80), indicating the enduring value of conventional instruction in fostering academic inquiry. On the other hand, outcome-based learning was highly rated for "Developing critical thinking and problem-solving abilities," achieving the highest mean of 4.50 and a weighted score of 616.50, emphasizing the cognitive benefits of this approach. However, findings also revealed several internal and external barriers to effective OBL implementation, including increased teacher workload, unclear learning outcomes, lack of training, limited institutional resources, and rigid administrative structures. Furthermore, the overemphasis on grades and performance metrics may hinder holistic student development. The study concludes by recommending regular teacher training in OBL, improved institutional support for diverse teaching methods, and a balanced evaluation approach that promotes comprehensive student growth.

Keywords: *Comparative Study, Conventional Education, Outcome Base Learning*

IMPACT OF INCOME INEQUALITY ON ECONOMIC GROWTH OF PAKISTAN

Farhana Gul (The University of Swabi)

Samiullah Khan (The University of Swabi)

The research attempts to examine the disparity in wealth at household level in Pakistan by using Household Integrated Economic Survey (HIES) 2018–2019 data. A sample of 24,804 households from the 4 areas of Pakistan; Punjab, Khyber Pakhtunkhwa, Sindh, additionally Baluchistan have included in the collection of information. Based on the data, the average annual family income in Punjab is the highest at PKR 406,507, while the lowest is in Sindh at PKR 341,973 annually. The analysis of distribution of income is done using a range of inequality measures, including the Atkinson index. It suggests a significant economic disparity and the Gini coefficient which indicates high inequality in income. Significantly higher Gini coefficients and associated ratings suggest that income. The level of disparities increases in rural than in cities. Significant differences in income between provinces are also shown by the analysis, with Punjab showing the highest levels of economic inequality. Probability tests like t-tests over matching meant & Levene's test over similarity of deviations, confirm substantial differences in income variance and mean incomes between groups. Policymakers need to implement strategies that foster inclusive economic growth, improve access to education and healthcare, and support marginalized communities to bridge the income gap and promote a more equitable society in Pakistan.

Keywords: *Income Inequality, Gini Coefficient, HIES*

KÜRESEL PİYASA KOŞULLARI ALTINDA ORTA ASYA'DA BÖLGESEL STRATEJİK İŞ BİRLİĞİ SAĞLAMAYA YÖNELİK BİLİMSEL İNOVASYON YAKLAŞIMI

Kamaldin Yunusov (Andijan State University)*

Bunlara ek olarak, bu Akademik Araştırma Grubu'nun akademik bilgi alışverişini teşvik etmek, bilimsel üretimi desteklemek ve akademik çevrelerde yenilikçi fikirlerin yayılmasını teşvik etmek amacıyla 2020 yılında kurulduğu ve bugün Türkiye'den 1.000 akademisyen ve dünyanın farklı ülkelerinden 300 bilim insanının aktif katılımıyla küresel bir akademik platform olarak faaliyet gösterdiği belirtilmelidir. Orta Asya'da sürdürülebilir bölgesel kalkınma sorunu, önemi ve önemiyle birlikte, mevcut küreselleşme koşullarında Orta Asya'da sürdürülebilir bölgesel kalkınmaya bilimsel ve yenilikçi bir yaklaşım gerektirmektedir. Bu bilimsel rapor bu soruna ayrılmıştır. Mevcut küresel piyasa koşullarında Orta Asya'da bölgesel stratejik iş birliğini sağlamak için, öncelikle stratejik öneme sahip bir dizi önlemin geliştirilmesi gerekmektedir. Bunlardan ilki, bu "Akademik Araştırma Grubu" çerçevesinde bir araya gelen bilim insanlarının bilimsel faaliyetlerinin sonuçlarıdır. 1992 yılından bu yana Özbekistan, Kazakistan, Azerbaycan, Afganistan, Kırgızistan, Tacikistan ve Türkmenistan'ın örgüte katılımıyla İİT'nin faaliyetleri önemli ölçüde daha aktif hale gelmiştir. Küresel pazar koşullarında, bu tür örgütler belirli bir bölgedeki ülkelerin sosyo-ekonomik kalkınması için büyük önem taşımaktadır. Özbekistan'ın Uluslararası Ekonomik Örgüt (IOP) çerçevesinde aktif katılımı, Orta Asya, Transkafkasya ve Güney Asya ülkeleriyle ekonomik iş birliğinin daha da artırılması, dış ekonomik ilişkilerimizin daha da gelişmesini ve genişlemesini sağlayacaktır. XXI yüzyılda, küresel pazar koşullarında, bölgesel stratejik iş birliği, sağlam bir ekonomik temel ve ciddi sosyo-ekonomik reformlar sağlanmadan Orta Asya'daki nüfusun tüm kesimleri için insanca yaşam koşulları yaratmak imkansızdır. Bu örgütün temel amaçlarından biri, üye devletlerinin karşılıklı iş birliği temelinde sosyo-ekonomik kalkınmasını sağlamaktır.

Yukarıdaki fikir ve değerlendirmelerden aşağıdaki sonuçlar çıkarılmalıdır. 1) Orta Asya bölgesinde bulunan Özbekistan, Kazakistan, Kırgızistan, Tacikistan, Türkmenistan ve Afganistan gibi bağımsız devletlerin yükseköğretim kurumlarında çalışan bilim insanları arasında uzmanlık alanlarında karşılıklı iş birliğinin sağlanması gerekmektedir. Akademik Araştırma Grubu'nun faaliyetleri bu bağlamda büyük önem taşımaktadır; 2) "Akademik Araştırma Grubu" sürdürülebilir bölgesel kalkınma konusunda ortak bilimsel araştırma, kalkınma planı ve bu plana dayalı araştırma çalışmalarının yürütülmesi; 3) "Akademik Araştırma Grubu" bünyesinde kurulan "Sosyal Araştırmalar Merkezi" çerçevesinde sürdürülebilir bölgesel kalkınma konusunda yıllık genel rapor toplantısı yapılması gerekmektedir.

Anahtar Kelimeler: Orta Asya, İslam İşbirliği Teşkilatı, Pakistan, Tacikistan, Türkmenistan, Türkiye

EFFECTS OF MEDIA ON DEVELOPMENT OF EATING DISORDERS IN YOUNG FEMALES

Anisa Riaz (University of Agriculture Faisalabad)

This study examined the effects of media on development of eating disorders in young females of Pakistan by analyzing eating disorder, weight-related issues and critically evaluating the factors, which lead to the eating disorders in females. This study was planned to investigate the causes of eating disorders in young female and media's implications on their life styles along with their cultural and socio-economic situation. To determine the opinions and behaviors pertaining to dieting and body size among 16 to 25-year-old females, a sample size of 300 was selected randomly from various colleges and universities. A comprehensive questionnaire was developed in the light of research objectives and was pretested to examine its workability. Descriptive and inferential techniques of analysis were used to analyze the data for exploring research objectives. Based on study, it is suggested that the occurrence of eating disorders and the number of young females who employ weight loss endeavors are increasing at an alarming rate. Efforts directed toward the impediment of eating disorders are needed to invalidate this tendency. The media, no doubt is creating awareness, changing the lifestyle, attitude, and behavior simultaneously, but on the other hand, it is also creating depression, anxiety and an increase in weight consciousness in adults generally and in young females particularly. As the literature suggest young females were more likely to affected from family, cultural and societal pressure. An empirical base to support the use of proposed factors; more sustained, stepwise research analyzing the eating disorder in females and rigorous programs that have sufficiently large sample size and lengthy follow-up periods to detect effects, will be more informative.

Keywords: *Eating Disorders, Young Females, Media*

EXPLORING THE CAUSAL RELATIONSHIP BETWEEN TIME USE BEHAVIOR AND RESIDENTIAL ELECTRICITY CONSUMPTION IN CENTRAL PUNJAB, PAKISTAN

Zahra Zafar (University of Agriculture Faisalabad)

This thesis investigates the causal relationship between time use behavior and residential electricity consumption in urban households of Central Punjab, focusing on Lahore and Faisalabad. With increasing energy demand and urbanization pressures, understanding how household routines and behavioral choices influence electricity use is essential for effective energy planning. Using data from 200 households, the study applies descriptive statistics and the Oaxaca–Blinder decomposition model to assess how time allocation across daily activities, appliance ownership as well as usage and energy-related awareness shape electricity consumption patterns. Findings show that prolonged home presence, gendered time allocation and peak-hour activities significantly drive residential energy demand, while households with higher awareness of energy-efficient appliances, proactive appliance management such as unplugging when not in use and adoption of solar panels consume comparatively less electricity. The Oaxaca–Blinder results reveal a notable consumption gap between Lahore and Faisalabad, largely explained by differences in household structure, behavior and appliance access, with unexplained variations linked to contextual and behavioral nuances. Sankey diagram analysis further visualized how household time flows particularly peak-hour routines and gendered patterns translate into distinct electricity demand pathways, highlighting critical leverage points for demand-side management. Overall, the study concludes that electricity use is determined less by income or appliance count and more by how households allocate and manage their time. These findings underscore the importance of integrating time-use behavior and behavioral interventions into residential energy policies to promote sustainable urban electricity consumption in Pakistan.

Keywords: *Time Use Behavior, Energy Consumption Behavior, Sankey, Oaxaca Blinder Decomposition, Punjab*

NEXUS BETWEEN GREEN INVESTMENT AND CORPORATE PERFORMANCE, THE CONDITIONAL EFFECT OF INSTITUTIONAL QUALITY: A SOUTH ASIAN PERSPECTIVE

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The increasing importance of environmental issues and the worldwide attention toward sustainability have positioned green investment as an essential part of corporate strategy. This study will investigate the effects of green investment on corporate performance in South Asian countries, emphasizing the ways in which these initiatives yield advantages through enhancements in efficiency, innovation, competitiveness, and improved stakeholder relations. This will be accomplished by using secondary data from the World Bank, which covers major indicators of institutional quality in South Asian countries. The study will be able to investigate how different governance environments impact the results of green investment because of these institutional indicators, which include voice and accountability, rule of law, political stability, government effectiveness, corruption control, and regulatory quality. Green investments greatly benefit from strong institutions, but their impact may be hampered by bad governance. This study will bring more understanding of how governance conditions impact the sustainability plans of the company by highlighting institutional differences throughout South Asian countries. The results will have been intended to add to the body of information on green finance and corporate performance and give practical advice to managers and policymakers on how to promote sustainable development in South Asian countries.

Keywords: *Green Investment, Corporate Performance, Institutional Quality, South Asian Perspective*

THE CAUSAL NEXUS BETWEEN TIME USE BEHAVIOR AND RESIDENTIAL ELECTRICITY CONSUMPTION IN CENTRAL PUNJAB, PAKISTAN

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Tahira Sadaf (University of Agriculture Faisalabad)

Ayesha Rouf (Institute of Agricultural and Resource Economics, University of Agriculture Faisalabad)

This study investigates the causal relationship between time use behavior and residential electricity consumption in urban households of Central Punjab, focusing on Lahore and Faisalabad. With increasing energy demand and urbanization pressures, understanding how household routines and behavioral choices influence electricity use is essential for effective energy planning. Using data from 200 households, the study applies descriptive statistics and the Oaxaca–Blinder decomposition model to assess how time allocation across daily activities, appliance ownership as well as usage and energy-related awareness shape electricity consumption patterns. Findings show that prolonged home presence, gendered time allocation and peak-hour activities significantly drive residential energy demand, while households with higher awareness of energy-efficient appliances, proactive appliance management such as unplugging when not in use and adoption of solar panels consume comparatively less electricity. The Oaxaca–Blinder results reveal a notable consumption gap between Lahore and Faisalabad, largely explained by differences in household structure, behavior and appliance access, with unexplained variations linked to contextual and behavioral nuances. Sankey diagram analysis further visualized how household time flows particularly peak-hour routines and gendered patterns translate into distinct electricity demand pathways, highlighting critical leverage points for demand-side management. Overall, the study concludes that electricity use is determined less by income or appliance count and more by how households allocate and manage their time. These findings underscore the importance of integrating time-use behavior and behavioral interventions into residential energy policies to promote sustainable urban electricity consumption in Pakistan.

Keywords: *Time Use Behavior, Energy Consumption Behavior, Sankey, Oaxaca Blinder Decomposition, Energy Efficiency Awareness*

ECONOMIC FEASIBILITY OF SOLAR TUBE WELLS FOR RICE IRRIGATION IN PUNJAB, PAKISTAN

Rahman Illahi (University of Agriculture Faisalabad)

Agriculture is vital to Pakistan's economy, employing over one- third of the workforce and contributing significantly to GDP. In Punjab, irrigation relies heavily on diesel tube wells, which face challenges from rising fuel costs, water scarcity, and unstable energy supplies. Given Pakistan's abundant solar energy, photovoltaic (Solar) tube wells offer a sustainable alternative to reduce irrigation costs and support climate- resilient agriculture. This study compares the economic feasibility and profitability of rice cultivation using diesel and solar tube wells in Punjab. Diesel tube wells impose high recurring fuel and maintenance costs, with average production costs of PKR 165,022 per acre dominated by irrigation costs (PKR 40,450). Diesel users achieve average yields of 39.75 maunds per acre, revenue of PKR 192,231, net income of PKR 27,209, and a Benefit-Cost Ratio (BCR) of 1.164. Although profitable, high variable costs constrain margins. Solar tube wells require higher upfront investments but have substantially lower operating costs due to zero fuel expenses. Solar users incur PKR 122,913 per acre in costs, achieve yields of 39.48 maunds, revenue of PKR 190,648, net income of PKR 67,635, and a BCR of 1.55. These lower operational costs make solar irrigation a viable, cost- effective alternative. Logistic regression shows that adoption increases with education, peer influence, and social media access, but decreases with larger landholdings and sole farming reliance. Major adoption barriers include high installation costs, fears of theft, malfunctions, maintenance expenses, and limited subsidies. Technical concerns like dust and technician availability are less critical, though reliability in cloudy weather needs improvement. Extension services had a positive but insignificant effect. Addressing financial barriers with better subsidies, strengthening technical support, and leveraging social and digital networks is crucial to promote solar tube well adoption. These measures can reduce irrigation costs, improve resource sustainability, and enhance farmers' livelihoods.

Keywords: *Solar Energy, Irrigation, Water Pumping, Benefit-Cost Ratio (BCR), Constraint Analysis.*

ROLE OF DIGITAL FINANCIAL LITERACY IN FINANCIAL INCLUSION OF FEMALE ENTREPRENEURS IN PUNJAB, PAKISTAN

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Financial inclusion is considered important for sustainable growth, poverty reduction, and gender equality, yet large sections of women entrepreneurs in developing countries remain excluded from formal financial systems due to structural, social, and knowledge-related barriers. The rapid growth of digital financial services offers opportunities to bridge these gaps, but the benefits can only be realized if entrepreneurs, particularly women, acquire sufficient digital financial literacy. In Pakistan, and particularly in Punjab province where small-scale enterprises dominate and socio-cultural restrictions are acute, women entrepreneurs face significant disadvantages in terms of digital access and usage. This study was designed to examine the effect of digital financial literacy on financial inclusion among entrepreneurs, with special focus on female-owned businesses.

The research was based on a primary survey of 237 entrepreneurs, including 137 male and 100 female respondents. Standardized indices were developed to measure financial literacy, digital financial literacy, and financial inclusion. Reliability analysis indicated high internal consistency, with Cronbach's Alpha values of 0.83 for the digital financial literacy index and 0.87 for the financial inclusion index. Digital financial literacy scores were normalized to a 0–100 scale while the financial inclusion index was constructed on a 0–1 scale. The analytical framework combined descriptive analysis, independent samples t-tests, chi-square association tests, and binary logistic regression to examine gender gaps and causal relationships. The findings reveal a moderate level of digital financial literacy among entrepreneurs overall, with a mean score of 57, but wide disparities exist across the sample. Nearly 21 percent of respondents had low digital financial literacy, 40 percent fell into the moderate category, and only 39 percent achieved high levels. The results highlight stark gender gaps: male entrepreneurs scored an average of 66.9, indicating moderate to high digital literacy, while females scored only 34.6, a level categorized as low. The difference between men and women was found to be highly significant. Categorically, 68 percent of men were classified as having high digital literacy, while none of the women reached this level; 41 percent of women had low literacy compared to just 6 percent of men. Statistical tests confirmed a strong and significant association between gender and digital financial literacy, reflecting a persistent digital divide. A similar pattern was observed for financial inclusion. The mean financial inclusion index value across all entrepreneurs was 0.69, suggesting moderate

levels of inclusion. Male entrepreneurs scored significantly higher (0.76) than female counterparts (0.59), and these differences were confirmed through t-tests. The categorical breakdown showed that 91 percent of male entrepreneurs were financially included compared to only 65 percent of females. Chi-square results revealed a significant relationship between gender and financial inclusion status, with women being more likely to be excluded from formal financial services. The regression analysis further demonstrated the critical role of digital financial literacy. Results from the binary logistic regression model showed strong explanatory power, with Nagelkerke R^2 of 0.577. Digital financial literacy emerged as a significant predictor of financial inclusion, with each unit increase in digital literacy raising the odds of financial inclusion by 12.1 percent. Gender also remained a significant factor, with women facing nearly five times higher odds of financial exclusion compared to men, controlling for other variables. Education was another important determinant: each additional year of schooling increased the likelihood of financial inclusion by 22 percent. In contrast, traditional financial literacy, age, household income, type of enterprise, and business experience were not significant predictors. This finding underscores the unique importance of digital financial literacy as a contemporary driver of financial inclusion, outweighing conventional financial knowledge or demographic characteristics. The results suggest that women entrepreneurs in Punjab are disadvantaged not only because of limited access to finance but also due to a lack of digital financial skills, compounded by structural and institutional barriers. These include limited collateral, discriminatory lending practices, gender biases within financial institutions, and broader socio-cultural constraints. Global evidence has emphasized that digital financial literacy is essential to overcome exclusion, but without addressing structural barriers, digital transformation alone may not guarantee equitable participation. For Pakistan, this implies the urgent need for gender-sensitive financial sector reforms and capacity-building programs that specifically target women entrepreneurs. The study recommends a multifaceted approach to narrow these gaps. Targeted digital financial education programs tailored to women should be designed, focusing on practical skills in mobile banking, digital payments, and online financial management. Such programs should be delivered through diverse platforms, including workshops, mentoring, vocational training, and e-learning systems. Public-private partnerships should be promoted to expand the development and adoption of digital financial services, including mobile money and fintech solutions, while banks and fintech firms should be encouraged to design inclusive financial products tailored to women's needs, such as collateral-free loans and flexible repayment structures. Mentorship and networking initiatives should be developed to connect female entrepreneurs with experienced business leaders, financiers, and peers, thereby expanding their access to knowledge and social capital. In addition, an inclusive policy framework is required to mainstream gender considerations into financial regulations and practices. Financial literacy, including digital financial literacy, should be integrated into school and vocational curricula to build capacity from an early stage. Technology-driven solutions should be leveraged to create user-friendly financial products that cater to women with limited literacy. Training programs for bank staff on gender-sensitive lending practices should be prioritized to minimize discrimination. Finally, effective monitoring and evaluation mechanisms must be established to assess the impact of these interventions, track progress in reducing gender gaps, and adjust policies accordingly. Overall, the study provides strong empirical evidence that digital financial literacy is a decisive determinant of financial inclusion among entrepreneurs in Punjab. However, the gender divide in

both digital skills and financial access poses a significant challenge. Unless deliberate measures are taken, the ongoing digital transformation of financial services risks deepening existing inequalities rather than reducing them. Bridging this gap requires more than just technological advancement; it necessitates inclusive policies, targeted education, structural reforms, and supportive ecosystems that enable women entrepreneurs to fully participate in financial systems. By addressing these challenges, Pakistan can enhance women's role in the economy, promote inclusive growth, and harness the full potential of entrepreneurship for development.

Keywords: *Digital Financial Literacy, Financial Inclusion, Women Entrepreneurs, Punjab, Pakistan*

IMPACT OF MINIMALLY INVASIVE TECHNIQUES ON POSTOPERATIVE INFECTIONS IN GENERAL SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS

Abdulloh Mo'Minov (Qo'Qon Universiteti Andijon Filiali)

To evaluate the impact of minimally invasive techniques (MIS) on postoperative infections in general surgery. Studies from 2020–2025 were selected from PubMed, Scopus, and Web of Science per PRISMA. Meta-analysis used a random-effects model; odds ratio (OR) and infection rate were measured. Seven studies were analyzed. MIS reduced infection risk by 24% (OR=0.76, 95% CI: 0.68-0.85, $p<0.01$). Infection rates: MIS 6-8%, open surgery 9-13% (Mo'minov, 2025; Jaschinsk, et al., 2020). MIS is effective in reducing postoperative infections , though limited by cost oath expertise.

Keywords: *General surgery , minimally invasive surgery , postoperative infections , SSI, meta-analysis*

BRIDGING THE DIGITAL DIVIDE: ENSURING EQUITABLE QUALITY OF LIFE IN THE DIGITAL ERA

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Digital transformation has emerged as one of the most powerful forces reshaping societies in the 21st century. From healthcare and education to governance, commerce, and social interaction, technology increasingly mediates access to opportunities and resources, making it a defining factor in determining quality of life. However, the benefits of this transformation are not evenly shared. The persistence of the digital divide manifesting through unequal access to infrastructure, affordability gaps, limited digital literacy, and inequitable engagement with technological platforms threatens to deepen existing socio-economic disparities. Those excluded from digital systems risk marginalization in critical domains such as healthcare delivery, educational attainment, and economic participation, further entrenching cycles of inequality. This paper critically examines the complex relationship between digital transformation and equitable quality of life, arguing that bridging the digital divide requires more than technological solutions. It calls for a holistic and multidimensional approach that integrates inclusive policies, capacity-building initiatives, and ethical governance frameworks. Digital inclusion must be re-envisioned as a matter of social justice and human rights, ensuring that digital progress empowers all rather than privileging a few. By analyzing both the opportunities and risks inherent in the digital era, this study emphasizes that the transformative potential of technology lies not simply in innovation but in its ability to foster equity, resilience, and sustainable development. Ultimately, bridging the digital divide is essential for creating digitally inclusive societies where quality of life is enhanced for all citizens, regardless of socio-economic or geographic differences.

Keywords: *Digital divide · Quality of life · Digital inclusion · Social justice · Sustainable development*

INSIGHTS ON AGRI-INNOVATIONS FOR CLIMATE RESILIENCE AND SUSTAINABILITY

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Addressing the interconnected challenges of climate change, water scarcity, and food security requires innovative approaches that enhance both productivity and ecological resilience. Two particularly promising domains of agri-innovation offer a synergistic path forward: the development of plant-based polymers and the advancement of climate-resilient crops. In the first domain, agricultural waste is being transformed into advanced biodegradable materials, such as superabsorbent polymers (SAPs). These polymers significantly improve soil water retention and nutrient-use efficiency, creating a more resilient root environment that buffers crops against drought and degradation. This technology not only mitigates waste but also provides a scalable solution to water and nutrient management challenges. Complementing this, the second domain focuses on breeding and integrating climate-resilient crops like industrial hemp, kenaf, and ramie into agricultural systems. These crops are naturally tolerant to abiotic stresses and can be cultivated with lower resource inputs. By establishing complete value chains for their use in fiber, food, and industrial applications, they diversify agricultural production and enhance economic stability for farming communities.

Keywords: *Climate resilience, abiotic stress tolerance, agricultural sustainability, resource conservation*

THE IMPACT OF HEALTH CAPITAL ON ECONOMIC GROWTH IN PAKISTAN

Shama Naz Manzoor Huss (Uaf)

Health is a crucial element of human development and plays a significant role in driving a nation toward long-term economic progress. In countries like Pakistan, where development challenges persist, sluggish economic growth is often associated with poor health outcomes and inadequate investment in healthcare services. While the importance of health in supporting economic advancement is widely recognized, there is still a lack of comprehensive empirical studies exploring this link specifically within the Pakistani context. This study aims to fill that gap by investigating how healthcare spending influences economic growth in Pakistan. The primary objective of this research is to analyze the impact of healthcare improvements—measured through indicators such as life expectancy, inflation rate, labor force participation, population, healthcare expenditure on Pakistan's economic performance from 1991 to 2023. Using time series data from reputable sources, such as the World Development Indicators (WDI) and the Economic Survey of Pakistan, the study uses a quantitative analytical methodology. The Augmented Dickey-Fuller (ADF) Unit Root Test was used to check for stationarity in all data series prior to estimation. The Ordinary Least Squares (OLS) regression technique was used to examine the relationship between health capital and economic growth after the findings verified that all variables were stationary at level. Government health spending and GDP growth have a statistically significant and positive association, according to the OLS results. According to this research, public spending on healthcare services, infrastructure, and accessibility significantly raises worker productivity and total economic output.

Keywords: *Health Expenditures, GDP Growth Rate, Inflation Rate, Labor Force Participation, Population GDP Inflation Population*

SALIENT OBJECT-FOCUSED IMAGE COMPRESSION USING ROI-BASED METHODS IN CONSTRUCTION SITE IMAGERY

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Zia Ud Din (Univesity Of Houston)

Efficient storage, transmission, and remote access of large-scale visual data have become critical challenges due to the rapid growth of image-centric applications across various domains, such as smart cities, video surveillance, medical imaging, and industrial automation. Limited bandwidth and storage present significant constraints. Thus, compressing visual data to save space while minimizing information loss is essential. Traditional image compression applies uniform compression to the entire image, but human vision focuses on specific regions. By preserving these Regions of Interest (ROI) at higher quality and compressing other areas more aggressively, this approach enables optimized compression while maintaining meaningful content and user experience. This study introduces an object-oriented, ROI-based visual compression method. The YOLOv5 object detection model automatically detects meaningful objects in the image (such as workers, machinery, etc.) and designates ROIs. Areas outside the ROI undergo preprocessing techniques like Gaussian Blur and Grayscale conversion and are subjected to lower-fidelity compression. In this manner, essential image components are preserved in high quality, while data size is reduced by compressing less significant areas. The method was applied to the Moving Objects in Construction Sites image dataset and evaluated with metrics including Mean Squared Error, Mean Absolute Error, Peak Signal-to-Noise Ratio for numerical assessment, and Structural Similarity Index for perceptual quality. The results demonstrate that ROI-based compression outperforms traditional methods in terms of efficiency while effectively preserving meaningful content. This study highlights the effectiveness of ROI-based compression for domain-specific images in systems with limited bandwidth and storage. Future work may enhance its use by combining it with different detection algorithms, deep learning-based adaptive compression, and hybrid approaches.

Keywords: *Construction Monitoring, MOCS Dataset, Object-Aware Compression, Region of Interest (ROI), YOLOv5.*

IMPACT OF MECHANICALLY TRANSPLANTED (MT) TECHNOLOGY ON RICE PRODUCTIVITY AND FARMER'S LIVELIHOODS IN PUNJAB, PAKISTAN

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This study explores the adoption and economic impact of Mechanically Transplanted Rice (MTR) technology among rice farmers in the Gujranwala district of Punjab, Pakistan. With rice being a major food and export crop, improving its production efficiency is vital for agricultural sustainability. Traditional manual transplanting is labor-intensive and time-consuming, whereas MTR offers a promising solution to reduce labor dependency and improve crop management. Data were collected through structured interviews with 120 rice farmers, evenly divided between MTR adopters and non-adopters. A combination of descriptive statistics, profitability analysis, and binary logistic regression was employed to assess the socio-economic characteristics, profitability differences, and key factors influencing the decision to adopt MTR. The findings reveal that MTR adopters achieved significantly higher yields, greater gross profits, and reduced labor costs compared to non-adopters. Regression analysis showed that variables such as yield, female labor involvement, machinery availability, labor cost, and training access were statistically significant in influencing adoption ($p < 0.05$). Despite these advantages, many farmers face barriers to adoption, including high machinery costs, lack of skilled operators, and limited access to mat-type nurseries. The study concludes that MTR has strong potential to improve rice productivity and farm income in the region. For wider adoption, there is a need for targeted policy interventions, such as training programs, rental subsidies, and access to shared machinery services, especially for small and medium-scale farmers. Promoting MTR can play a key role in modernizing Pakistan's rice sector and strengthening rural livelihoods.

Keywords: *Mechanically Transplanted Rice (MTR), Technology Adoption, Rice Productivity, Farm Profitability, Agricultural Mechanization, Rural Livelihoods, Policy Interventions, Sustainable Agriculture.*

ARTIFICIAL INTELLIGENCE FOR GREEN MATERIALS: ADVANCING BIODEGRADABLE PLASTICS TO SAFEGUARD PLANET AND PEACE

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The growing disaster of plastic pollution poses a threat to ecosystems, human well-being, and the global stability. Biodegradable plastics have become a hopeful alternative in this case but their wide implementation is challenged by the issues of cost, performance of the material, as well as compatibility with the environment. With the era of Artificial Intelligence (AI), superior computational aids are enhancing the discovery and optimization of sustainable materials and their implementation. The paper will explore how AI can be used to revolutionize the development of biodegradable plastics and make it a force of planetary health and peace. Predictive modeling and machine learning are also facilitating the speed at which polymer structures are screened to enhance biodegradability, as well as enhance strength and durability. The simulations of degradation pathways and environmental effects are predicted to make end-of-life disposal safer with the help of AI. Moreover, bioprocesses that are optimized using AI will make microbial fermentation and enzymatic recycling more efficient, which will lead to a decreased use of fossil-based plastics. With the incorporation of AI in material innovation, biodegradable plastics will be adjusted to the needs of the region, which will minimize the leakage of waste and eliminate the issue of resource-driven conflicts. This paper places biodegradable plastics within the context of a technological breakthrough and as a tool of peacebuilding, i.e., reducing pollution, safeguarding vulnerable groups, and encouraging international collaboration.

Keywords: *Artificial Intelligence (AI), Biodegradable Plastics, Sustainable Material Innovation, Environmental Restoration, Planetary Health and Peace*

IMPACT OF INTROVERSION AND EXTRAVERSION PERSONALITY TRAITS ON STUDENTS' LEARNING IN HIGHER EDUCATION LEVEL: A CASE STUDY AT UAF

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Different personality traits directly influence the students learning process and help the students to motivate in improving the academic performance of the students with social interaction and also help in improving the overall development of the students. The main aim of the study is to identify the impact of introversion and extraversion personality traits on students learning in higher education level. The current study entitled —the impact of introversion and extraversion personality traits on students learning in higher education level was conducted at University of Agriculture Faisalabad. The study was descriptive and quantitative type in nature. From all M.Phil. degree programs M.Phil. education were selected conveniently. There were total 277 students currently enrolled in M.Phil. programs. A sample size 115 respondents was selected with confidence level 95% and confidence interval 7% through www.surveysystem.com. A well-structured questionnaire was developed according to the study's objectives for data collection from selected respondents. After collection of data it were analysis by statistical package for social sciences (SPSS) to determine the mean, weighted score and standard deviation, furthermore bivariate relationship will be determined to check the association of variables. It is concluded that vast majority of the respondents were belong to the age group 20-23 and their fathers had intermediate qualification along the private job for the sources of income and earn 7-10 lacs annually. Amongst the different introversion personality traits, avoid small talk and prefer deep was at 1st in rank order according to the W.S.= 473 and mean 4.11 followed by notice things others might overlook at 2nd rank order with W.S.= 471 and mean 4.09 and laying between agree to strongly agree at five- point Likert scale but tending towards agree. Among the different impact of personality traits on students' academic performance, learn effective time management was at 1st in rank order according to the W.S.=491 and mean 4.26 followed by involve in group projects and teamwork at 2nd rank order with W.S.= 466 and mean 4.05 and laying between agree to strongly agree at five-point Likert scale but tending towards agree. According to the study results among the different impact of personality traits on students' leadership potential, prioritize teamwork and fairness was at 1st in rank order according to the W.S.= 458 and mean 3.98 followed by enhance long-term vision in leadership roles at 2nd rank order with W.S.= 456 and mean 3.96. In bivariate relationship the study results described that a positive correlation between the father's level of education and the likelihood of students exhibiting higher leadership potential influenced by their personality traits. This emphasizes the potential role of an educated home environment in fostering leadership qualities in students. It was recommended that teachers should implement differentiated instructional strategies to address the diverse personality traits of students. This includes varying teaching methods, using flexible grouping, and offering choices in assignments and assessments to match students' learning preferences and personality styles. Educators should create a classroom climate that fosters emotional safety, mutual respect, and positive teacher-student relationships. This is especially important for students with introverted or anxious tendencies, who may require encouragement to participate and express themselves.

Keywords: *Personality Traits, Introversion, Extraversion, University Of Agriculture Faisalabad*

SOLAR ENERGY POLICIES IN TURKEY AND COMPARATIVE LESSONS FROM EUROPE

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Turkey, with an annual average of 2,741 hours of sunshine, is among the European countries with the highest technical potential for solar energy. Nevertheless, the share of solar power in electricity generation remains limited. Installed solar capacity, which was only 40 MW in 2014, rose to 12.43 GW by the end of 2023; however, its share in electricity generation remained at 5.7%. Data for 2024 indicate an increase to 7.5%. This discrepancy between technical capacity and actual utilization highlights the structural barriers in the sector. The main support mechanisms applied in Turkey are YEKDEM and YEKA. While YEKDEM provides a fixed feed-in tariff, its Turkish lira-based design leaves investors vulnerable to currency fluctuations and high inflation. The YEKA model aims to promote technology transfer and local manufacturing, yet the production chain remains largely assembly-oriented. Comparative assessments clearly reveal this gap. As of 2024, the share of solar power in electricity generation reached 22% in Greece, 21% in Spain, 10% in Portugal, and 11.5% in Italy. In these countries, widespread participation has been achieved through net metering, energy communities, and tax incentives, with permitting completed within 1–4 months. In Turkey, however, procedures take 3–9 months, with coordination problems among TEİAŞ, TEDAŞ, and distribution companies causing significant delays. Based on the findings of this study, the following policy recommendations are proposed: First, automatic approval procedures through a digital one-stop-shop model should be introduced for rooftop systems below 30 kW. Second, micro-incentives such as income tax credits, low-interest loans, and accelerated depreciation should be applied for small-scale investments. Third, YEKDEM should be revised to include currency and inflation indexation, or a new model based on Contracts for Difference (CfD) should be piloted. Fourth, the legal basis for energy cooperatives and shared rooftop applications should be clearly established. Finally, grid and storage investments should be accelerated to overcome integration challenges. In conclusion, Turkey's solar energy potential is technically high; however, without simplification and greater predictability in the institutional and regulatory framework, fully realizing this potential remains difficult. If the proposed steps are implemented, solar energy could play a central role in Turkey's low-carbon transition.

Keywords: *Solar Energy, Renewable Energy Policies, Comparative Energy Policies, Energy Policy in Turkey, Solar PV Incentives*

THE IMPACT OF CLIMATE CHANGE AND AGRICULTURAL INPUTS ON WHEAT PRODUCTIVITY IN FAISALABAD DIVISION, PAKISTAN

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This study investigated the connection between agricultural inputs, climatic variables, and wheat productivity. For this purpose, three districts of the Faisalabad Division, including Faisalabad, Jhang, and Toba Tek Singh, from 2001 to 2021, were selected. The Panel Model of Fixed Effect (FE) was estimated at the district level for relationships of non-climatic variables, such as tube wells, tractors, fertilizer use, and irrigation area (area under wheat), and climatic variables such as temperature and rainfall observed from November through April, with wheat productivity. The conclusion of the study showed that non-climatic variables, such as the fertilizer consumption in each district, have a positive and statistically significant effect on wheat productivity, confirming its critical role in enhancing wheat yields. But other variables, such as tractors, tube wells, and irrigation area, were not statistically significant, though they displayed expected signs. Regarding climatic variables, the results reveal that November rainfall has a significant negative impact, possibly due to excess rain affecting early crop establishment. Similarly, December temperature showed a strong and significant negative effect, indicating that higher winter temperatures may disrupt key growth stages. In contrast, the March temperature had a positive and statistically significant effect, suggesting that warmer conditions during grain filling may boost wheat yields. The remaining temperature and rainfall variables, including those for January, February, and April, were statistically insignificant, indicating they may not critically influence wheat productivity in the study region. The finding suggested that not all months in the wheat season played the same role in affecting productivity and that consideration of month-related variability is important when making decisions for agricultural development. In summary, the results underlined the value of using better inputs (mainly fertilizer use) and special measures for climate-related events such as early-season rainfall and winter warming, while making the most of favorable spring weather.

Keywords: *Climate Change, Agricultural Inputs, Wheat Productivity, Faisalabad Division, Panel Data*

LINKING SMALLHOLDERS TO MARKETS: BARRIERS AND ENABLERS OF PRIVATE SECTOR PARTNERSHIPS IN PULSES VALUE CHAINS

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Smallholder farmers in Pakistan's pulses sector face persistent challenges in accessing structured markets, limiting their ability to benefit from agribusiness partnerships. This study explores the barriers and enablers shaping private sector engagement in smallholder pulses value chains in Chakwal District, Punjab. Using a qualitative case study approach, the research draws on focus group discussions with farmers in Kot Sarang and Lawa, alongside interviews with processors and agribusiness representatives.

Findings reveal that while direct supplies to agribusinesses such as Concave Agri and Chashma Super Store generated positive buyer feedback, farmer revenues were undermined by arbitrary deductions, price volatility, and weak infrastructure. Grading emerged as a key enabler, enhancing quality, buyer confidence, and farmer margins. Project interventions—including cost-sharing of cleaning and grading machinery, capacity building, and packaging support—helped lower entry barriers. Nevertheless, institutional gaps, including the absence of certification systems, weak farmer organizations, and limited regulation of processor practices, constrained the long-term sustainability of partnerships.

The study concludes that private sector engagement requires more than farm- and firm-level initiatives; supportive institutional and policy frameworks are critical to rebalancing relationships, fostering trust, and ensuring inclusiveness. Recommendations include the adoption of farmer–agribusiness contracts, transparent quality and certification systems, and the promotion of farmer clusters as vehicles for scaling sustainable and inclusive partnerships in Pakistan's pulses sector.

Keywords: *Pulses, Smallholders, Barriers, Enablers*

PERCEIVED EFFECTIVENESS OF INTRINSIC AND EXTRINSIC MOTIVATION ON ACADEMIC ACHIEVEMENTS OF STUDENTS AT UNDERGRADUATE LEVEL

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Purpose: This approach is anchored in Self Determination Theory, which posits that intrinsic motivation tied to curiosity and the innate need to learn promotes profound comprehension, analytical thought, and sustained academic achievement. Interestingly, extrinsic motivation, supported by rewards, grades, and external pressures, while it might help them perform well and achieve short-term goals, does not build long-term engagement and retention.

Methodology: This study was conducted at the University of Agriculture, Faisalabad, to investigate the impacts of intrinsic and extrinsic motivation on the academic achievement of students at undergraduate students. A random selection method was used to collect data from undergraduate students of the Institute of Agricultural Extension, Education and Rural Development (IAEERD). There were a total of 250 students in IAEERD enrolled in weekend programme. The sample size of 152 students was calculated using the <https://www.surveysystem.com> calculator at a 5% confidence interval and 95% confidence level. A well-designed questionnaire was created, and the Software SPSS was used to analyze the data collected, to provide insight into the significance of the relationship between motivation types and students' academic performance

Results: The findings reveal a significant positive relationship between both intrinsic and extrinsic motivation and academic achievement. Descriptive statistical analysis further indicated that intrinsic motivation is a more consistent predictor of academic success than extrinsic motivation. The study included 152 respondents, predominantly female (76.3%) and mostly within the 15-20 years' age group (98.7%). The vast majority were 1st-year students (98.0%), with only a small fraction from the 2nd year (2.0%). A high 90.1% believe both internal and external motivators together enhance cognitive performance, with 88.8% saying they work harder when recognition is possible. Around 86.2% feel personal interest is key to academic excellence, while 88.8% also study out of genuine interest. On the extrinsic side, 85.5% admit their performance could drop without rewards. Fear of failure motivates 73.7%, and 79.6% say pressure improves their performance. 80.9% work better when interested in the topic.

Conclusion: These findings highlight how both curiosity and external reinforcement shape academic effort. Intrinsic and extrinsic motivation both have critical roles to play in students' success. Finding the balance between them can ignite more profound interest while maintaining effort when difficulties occur. Knowing what motivates students allows teachers to assist their development more effectively.

Keywords: *Intrinsic Motivation, Extrinsic Motivation, Academic Achievements, Personal Satisfaction, Rewards*

DISSECTING DEPRIVATION IN PUNJAB, PAKISTAN: ZONAL DISPARITIES, GENDER DYNAMICS, AND EDUCATION'S ROLE IN MULTIDIMENSIONAL POVERTY

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Ending poverty by 2030 (SDG 1) requires precise, subnational evidence that reveals where and how deprivations cluster. Punjab, Pakistan's most populous province, exhibits strong intra-provincial heterogeneity that national aggregates obscure; understanding zonal, gender and education dimensions is therefore critical for targeted policy. This paper uses the Multiple Indicator Cluster Survey (MICS 2018; n = 53,840 households) and the Alkire–Foster Multidimensional Poverty Index (MPI) to map how place, gender and education shape poverty across Punjab's three zones (Northern, Central, Southern) and rural–urban settings. Results reveal marked spatial and social heterogeneity. Using Multiple Indicator Cluster Survey MICS 2018 (n=53840 households) and Alkire Foster Multidimensional Poverty Index (MPI) and to define the relationship between place (Northern, Central, or Southern region), gender, and education on poverty at various levels of rural-urbanity in the province of Punjab. Results argue for a high amount of spatial and social inequality. Disaggregation of data by zone, residence, household headship and school level allow for identification of intersectional vulnerabilities that are obscured in aggregated data. Comparative analysis of simulations in developed countries across several countries shows that single - track / area-wide programs are unlikely to reach a significant proportion of the population efficiently; rather broad scale interventions are required to tackle sanitation, energy, household, and child care (female-friendly) needs, quality education and improved service delivery in rural setting. These findings have direct relevance to SDG-1 of this province. Intra-provincial disparities can be reduced only by devising targeted and gender sensitive education-oriented policies aimed at fast-tracking and expanding inclusive poverty reduction.

Keywords: *Multidimensional Poverty, Zonal Nexuses, Rural Urban Disparities, Gender Dynamics, Education, Sanitation, Clean Energy, Regional Disparities, SDG 1: Policy Targeting, Punjab Comparative Analysis, Pakistan.*

IMPACT OF GENDERED TIME POVERTY ON NUTRITIONAL OUTCOMES IN PUNJAB'S AGRICULTURAL SECTOR

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This study examines the impact of gendered time poverty on nutritional outcomes in Punjab's agricultural sector, where time scarcity remains an underexplored dimension of deprivation. Time poverty, characterized by insufficient discretionary time for rest, self-care, and leisure, disproportionately affects rural women who combine farm work with extensive unpaid household and caregiving responsibilities. Drawing on feminist development and economic perspectives, this research aims to (i) quantify and compare men's and women's time allocation to productive (paid) and reproductive (unpaid) activities, (ii) measure the prevalence, intensity, and depth of time poverty among rural households, and (iii) assess the relationship between gendered time allocation and nutritional sufficiency using the Dietary Diversity Score (DDS). A multi-stage stratified random sampling of 662 male and female respondents was conducted across four districts Faisalabad, Jhang, Toba Tek Singh, and Chiniot using semi-structured questionnaires to collect data on time use, socio-economic characteristics, and dietary patterns. Descriptive statistics, time-use analysis, and Structural Equation Modeling (SEM) were applied to evaluate the relationships. Findings reveal that while men and women spend comparable hours in farm work, women shoulder far more unpaid labor, resulting in a substantially higher total workload and reduced time for rest, sleep, and recreation. SEM results indicate gender as the strongest predictor of time-use disparity and a negative association between unpaid activities and DDS, while leisure time shows a positive link with dietary diversity. These results underscore the dual burden faced by rural women and highlight time poverty as a critical but overlooked determinant of nutrition and well-being in Pakistan's agricultural communities.

Keywords: *Gendered Time Poverty, Nutritional Outcomes, Rural Women, Structural Equation Modeling (SEM), Time-Use Analysis*

SOCIO-ECONOMIC DETERMINANTS AFFECTING EDUCATIONAL ATTAINMENT AMONG RURAL AND URBAN FEMALE STUDENTS IN DISTRICT NANKANA

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Education is actually shaping the human body in its best form with the best combination of soul, spirit and mind. Education is greatly linked to females' capability to system social relations base for equivalence realize the main public good for self-possession. This is a general quotation "there is a female behind every successful male". Purpose of this exploration was to determine socio-economic determinants which had effect on educational attainments among female in rural and urban areas of district Nankana. In this research, 150 total respondents were selected from the study area for sample by simple random sampling technique. In the study only female respondents were included. Data was collected through a well-designed questionnaire. For the analysis of collected data, SPSS (statistical package for social sciences) software was used. Descriptive analysis was used to find out the frequency distribution, percentage of the socio-economic situation of the respondents. Cross-tabulation was used as bivariate analysis. Multiple regression was used to determine the impact of socio-economic determinants on the educational attainments among female students. The results were showed that marital status of respondents had strongly positive impact and significant relationship, locality of the respondents had positive impact but insignificant relationship, occupation of the household head had negative impact but significant relationship, distance from nearby University of respondents had positive impact but insignificant relationship, number of academies around the locality of respondents had positive impact but insignificant relationship, total income from all resources of household had positive impact but insignificant relationship, education of household head had strongly positive impact and significant relationship, social environment had negative impact but significant relationship, institution of respondents in which studied more (dummy1) showed negative impact and insignificant relationship, load of work at home (duummy2) during study period showed negative impact but significant relationship, good or bad health of respondents during study period (dummy3) showed negative impact but significant relationship on education of respondents at 5% level of significance.

Keywords: *Socio-Economic Determinants, Rural And Urban Areas, Female Education*

IMPACT OF DEMOGRAPHIC VARIABLES ON ECONOMIC GROWTH IN SOUTH ASIAN COUNTRIES: A PANEL DATA ANALYSIS

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Nisar Ahmad (University of Sargodha, Pakistan)

The relationship between demographic factors and economic growth is pivotal, with fertility and mortality rates playing key roles. Demographic dynamics, which involve changes in fertility and mortality, are central to understanding economic performance. In South Asia, countries such as Bangladesh, India, Pakistan, and Sri Lanka have witnessed significant demographic transitions, marked by a growing working-age population (15-64 years). This shift creates opportunities for economic growth, known as the demographic dividend, although poor management can lead to a demographic debt. Demographic transitions influence economic growth by expanding the labor force, increasing physical capital, enhancing human capital investment, improving labor productivity, and increasing savings. While the impact of demographic shifts on growth has been studied globally, South Asia's experience remains underexplored, especially regarding how fertility rates and life expectancy influence long-term GDP growth. The primary aim of Ahmad and Nayyab's (2021) study is to analyze the long-term relationship between demographic factors particularly fertility rates and life expectancy and economic growth across four South Asian countries. The study explores how changes in fertility and life expectancy affect GDP per capita, aiming to quantify these impacts to guide policy interventions. The authors use a balanced panel dataset from 1976 to 2017 and employ various statistical methods, including panel unit root tests, cointegration tests, and Fully Modified Ordinary Least Squares (FMOLS) for long-term relationship estimation. Their findings indicate that higher fertility rates negatively impact GDP growth, while increased life expectancy contributes positively to economic growth. The study concludes that demographic dynamics significantly shape economic outcomes in South Asia. Policies that promote family planning, healthcare advancements, and longer life expectancies are essential for sustainable growth. The results emphasize the importance of investing in healthcare, education, and demographic planning to boost economic development in these emerging economies.

Keywords: *Fertility Rate, Life Expectancy, Economic Growth, Panel Data, South Asia*

BUILDING CLIMATE-RESILIENT EDUCATION SYSTEMS IN RURAL PUNJAB: LESSONS FROM FLOOD- AND HEAT- PRONE COMMUNITIES

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The education sector of Pakistan is highly vulnerable to shocks by climate. Floods and heatwaves are particularly disrupting the educational proceedings, school infrastructure and displacing teachers and students alike. Rural, agriculture-dependent communities face the compounded challenge of climate-induced livelihood insecurity and educational disruption, which threatens long-term human capital development. Despite these risks, limited research has systematically examined how education systems can both absorb and respond to climate stresses. The purpose of this study is to investigate the impact of climate shocks on rural education in Pakistan and to identify pathways for building climate-resilient education systems. Guided by a Social–Ecological Systems (SES) framework, the research will pursue four objectives: (1) assess the extent and nature of climate-related educational disruptions; (2) analyze the adaptive capacities of schools and higher education institutions; (3) explore feedback loops between education and community resilience; and (4) co-develop actionable strategies for embedding resilience in education policy and practice. Using a mixed-methods, comparative case study design across flood-and heat-prone districts in Punjab and Khyber Pakhtunkhwa, the study will combine household and school surveys with focus groups and key informant interviews. The expected contribution is threefold: (i) empirical evidence on how climate shocks affect education systems in vulnerable rural settings, (ii) policy recommendations for climate-resilient infrastructure, governance, and curricula, and (iii) theoretical advancement by applying the SES framework to education–climate linkages. The findings will support national adaptation planning and contribute to global scholarship on education and climate resilience.

Keywords: *Social–Ecological Systems (SES), Disruption, Adaptation, Climate Resilience*

A COMPREHENSIVE QUANTUM CHEMICAL STUDY OF PARA-AMINOHIPPURIC ACID: GEOMETRY, ELECTRONIC PROPERTIES, AND REACTIVITY DESCRIPTORS

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In the present study, a comprehensive quantum chemical investigation of Para-aminohippuric acid (PAH) has been carried out using Hartree–Fock (HF) and density functional theory (DFT) methods. Initial geometry optimizations, including bond lengths and bond angles, are performed at both HF and DFT/B3LYP/6-31+G(d,p) levels, where DFT provided superior agreement with experimental data. Consequently, subsequent analyses were conducted exclusively using the B3LYP/6-31+G(d,p) approach. At this level of theory, the structural optimization (bond lengths and bond angles), electronic structure, UV–Vis spectra, dipole moment contributions, and fundamental thermodynamic properties of PAH are systematically examined. Molecular electrostatic potential (MEP) and electrostatic potential (ESP) surface maps, frontier molecular orbital (FMO) distributions, and global quantum chemical reactivity descriptors (chemical hardness/softness, ionization potential, electron affinity, chemical potential, electronegativity, electrophilicity index, and maximum charge transfer indices) are analyzed to elucidate intramolecular charge transfer pathways, identify electrophilic and nucleophilic regions, and provide insights into chemical reactivity. Additionally, energy band gap values and possible electronic transitions are explored to assess electronic stability and reactivity. In conclusion, the results confirm that PAH compound exhibits favorable electronic and structural characteristics conducive to intermolecular interactions and potential functional applications. The study not only demonstrates strong consistency between theory and experiment but also provides a comprehensive molecular-level characterization, offering valuable insights for future investigations and applications of PAH in drug and biological activity contexts.

Keywords: *Para-aminohippuric acid, DFT, UV–Vis Spectra, Electronic Structure, FMO, MEP, ESP*

DİSTRİBÜTÖRLÜK ANLAŞMALARININ ETİK BOYUTLARI VE TEDARİK ZİNCİRİ SÜRDÜRÜLEBİLİRLİĞİ: TÜRKİYE’DE BİR ACENTE TEORİSİ PERSPEKTİFİ

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Bu çalışma, etik ilkelerin (dürüstlük, adalet, güven ve şeffaflık) dağıtım sözleşmelerine açıkça dahil edilmesinin Türkiye’de tedarik zinciri sürdürülebilirliğini nasıl etkilediğini incelemektedir. Geleneksel dağıtım sözleşmeleri finansal ve operasyonel koşullara (örneğin fiyatlandırma, teslimat koşulları ve satış hedefleri) vurgu yaparken, sözleşmeye dayalı etiğin, müdürler (tedarikçiler) ve acenteler (distribütörler) arasındaki ilişkisel yönetimi güçlendirdiğini savunuyoruz. Vekalet Teorisine dayanarak, çalışma, açık etik maddelerin fırsatçı davranışları engellemek, farklı hedefleri uyumlu hale getirmek ve bilgi asimetrisini azaltmak için resmi güvenceleri tamamladığını varsaymaktadır. Karma yöntemli bir tasarım kullanılıyor. Nicel aşamada, Türkiye’de faaliyet gösteren tedarikçi ve dağıtım firmalarına yapılandırılmış bir anket uygulanacak; yanıtlar, etik sözleşme hükümlerinin güven ve iş birliği aracılığıyla çevresel, sosyal ve ekonomik sürdürülebilirlik sonuçları üzerindeki etkilerini değerlendirmek için çok değişkenli teknikler kullanılarak analiz edilecektir. Nitel aşamada, sektör profesyonelleriyle yapılacak yarı yapılandırılmış görüşmeler, nicel bulguları bağlamsallaştıracak ve derinleştirecek, etik yönetişimin uzun vadeli iş birliğini ve anlaşmazlıkların önlenmesini nasıl geliştirdiğine ışık tutacak mekanizmaları ortaya koyacaktır. Araştırma, gelişmekte olan bir pazar ortamında etikle güçlendirilmiş bir Acente Teorisi perspektifini test ederek literatüre katkıda bulunmaktadır

Anahtar Kelimeler: Etik, Distribütörlük, Tedarik Zinciri Sürdürülebilirliği, Acente Teorisi

DFT AND HF INVESTIGATIONS OF PARA-AMINOHIPPURIC ACID: STRUCTURAL, SPECTROSCOPIC, AND PHYSICOCHEMICAL ANALYSES

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In the present study, a comprehensive quantum chemical investigation of Para-aminohippuric acid (PAH) has been carried out using Hartree–Fock (HF) and density functional theory (DFT) methods. Initial geometry optimizations, including bond lengths and bond angles, are performed at both HF and DFT/B3LYP/6-31+G(d,p) levels, where DFT provided superior agreement with experimental data. Consequently, subsequent analyses were conducted exclusively using the B3LYP/6-31+G(d,p) approach. At this level of theory, the structural optimization (bond lengths and bond angles), electronic structure, UV–Vis spectra, dipole moment contributions, and fundamental thermodynamic properties of PAH are systematically examined. Molecular electrostatic potential (MEP) and electrostatic potential (ESP) surface maps, frontier molecular orbital (FMO) distributions, and global quantum chemical reactivity descriptors (chemical hardness/softness, ionization potential, electron affinity, chemical potential, electronegativity, electrophilicity index, and maximum charge transfer indices) are analyzed to elucidate intramolecular charge transfer pathways, identify electrophilic and nucleophilic regions, and provide insights into chemical reactivity. Additionally, energy band gap values and possible electronic transitions are explored to assess electronic stability and reactivity. In conclusion, the results confirm that PAH compound exhibits favorable electronic and structural characteristics conducive to intermolecular interactions and potential functional applications. The study not only demonstrates strong consistency between theory and experiment but also provides a comprehensive molecular-level characterization, offering valuable insights for future investigations and applications of PAH in drug and biological activity contexts.

Keywords: *Para-aminohippuric acid, Solvent Effect, Vibrational frequencies HF, DFT*

IMPLEMENTATION SMART FARMING BY DOCTOR PADDY TO CONTROL OF DOMINANCE PEST PADDY IN NORTHERN SUMATERA, INDONESIA

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The objective of this research was to apply Internet of Things (Doctor Paddy) based smart farming technology to improve farmers' knowledge and skills. The implementation method included preparation to know and learn about rice cultivation, pest control, disease control through detection and observation of the characteristics and symptoms of pest attacks, prevention and control (mechanical, biological and chemical). Furthermore, technology implementation, outreach and training, as well as mentoring and monitoring. This was conducted in a participatory manner, involving 12 farmers from the Organic Farmers Group in Lubuk Bayas Village, Serdang Bedagai. Based on identification and insects status, the variance of natural enemies recorded in paddy plantation, consist of *Agrocnemis femina*, *Agyneta conigera*, *Coccinella septempunctata*, *Coliuris pensylvanica*, *Harmonia octomaculata*, *Ischnura senegalensis*, *Microvellia atrolineata*, *Nephrotoma* sp, *Oxyopes javanus*, *Sibianor aurocinctus*, *Tabanus sudeticus*, and *Tetragnatha montana*. The main results showed that participants' understanding of the technology taught reached 80 percent, and the benefits gained included improved farmers' ability to detect and effectively control rice pests by Doctor Paddy application. Active community involvement in the application of modern agricultural technology is predicted to increase productivity and support the concept of sustainable Integrated Pest Management in rice field plantation.

Keywords: *Implementation, Doctor Paddy, Smart Farming, Rice Field, Northern Sumatera*

ÇALIŞAN ANNELERİN ÖZ ŞEFKAT VE EBEVEYN TÜKENMİŞLİĞİ DÜZEYLERİNİN FARKLI DEĞİŞKENLER AÇISINDAN İNCELENMESİ

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Bu araştırmanın amacı çalışan annelerin öz şefkat ve ebeveyn tükenmişlik düzeylerinin yaş, çalıştıkları sektör, çalışma süreleri, aile gelir durumu ve çocuk sayısı gibi değişkenler açısından farklılaşıp farklılaşmadığının incelenmesidir. Araştırmada betimsel ve ilişkisel tarama modelinden yararlanılmıştır. Araştırmanın çalışma grubu 25 yaş ve üzeri çalışan, 12 yaş ve altı çocuğa sahip 403 anneden oluşmaktadır. Verilerin analizinde SPSS 23 programından yararlanılmıştır. Yapılan normallik analizleri sonucunda “Öz Şefkat” değişkeninin normal dağılım gösterdiği, “Ebeveyn Tükenmişliği” değişkeninin ise normal dağılım göstermediği görülmüştür. Buna göre çalışan annelerin öz şefkat düzeyleri ile yaş, çalıştıkları sektör, çalışma süreleri, aile gelir durumu ve çocuk sayısı değişkenleri arasında anlamlı farklılık olup olmadığını belirlemek amacıyla ikili grup karşılaştırmalarında T Testi, ikiden fazla grup karşılaştırmalarında ise ANOVA testi kullanılmıştır. Çalışan annelerin ebeveyn tükenmişlik düzeyleri ile yaş, çalıştıkları sektör, çalışma süreleri, aile gelir durumu ve çocuk sayısı değişkenleri arasında anlamlı farklılık olup olmadığını belirlemek amacıyla ikili grup karşılaştırmalarında Mann Whitney U testi, ikiden fazla grup karşılaştırmalarında ise Kruskal Wallis testi kullanılmıştır. Tüm analizlerde istatistiksel anlamlılık düzeyi $p < 0,05$ olarak kabul edilmiştir. Yapılan analiz sonuçları incelendiğinde çalışan annelerin öz şefkat düzeyleri, yaş ve çalışma süresi değişkenine göre; ebeveyn tükenmişlik düzeyleri ise yaş, çalışma süresi, sektör, öğrenim düzeyi, aile gelir durumu ve çocuk sayısı değişkenlerine göre anlamlı düzeyde farklılık göstermektedir. Öz şefkat ile öğrenim düzeyi, sektör, aile gelir durumu ve çocuk sayısı arasında anlamlı düzeyde farklılık olmadığı görülmüştür.

Anahtar Kelimeler: Çalışan Anneler, Öz Şefkat, Ebeveyn Tükenmişliği

ABD PAKİSTAN İLİŞKİLERİNİN STRATEJİK ARKA PLANI

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Pakistan yer aldığı coğrafi konum, sahip olduğu nükleer kapasite, Afganistan ve İran gibi yer altı zenginliklerine sahip ülkelere olan komşuluğu, sahip olduğu nüfus potansiyeli bu ülkeyi ABD dış politikasında önemli bir aktör noktasına taşımıştır. Özellikle soğuk savaş döneminde Sovyetler birliğinin batı bloğu tarafından çevrelenmesi noktasında stratejik devlet olmuştur. Pakistan SEATO(Güneydoğu Asya Anlaşması Örgütü) gibi kuruluşlara üye olarak uluslararası alanda Sovyet ve komünizm tehdidine karşı batı bloğunda yer almıştır. Bu stratejik ortaklık ve geliştirilen ABD –Pakistan ilişkisi soğuk savaşın bitmesi sonucunda da devamlılık göstermiştir. ABD’nin 11 Eylül saldırılarından sonra izlemiş olduğu küresel terörizmle mücadele politikalarında Pakistan, özellikle Taliban’la mücadelede lojistik üs sağlamada önemli bir müttefik olmuştur. ABD’nin terörle mücadele ve güvenlik eksenli politikaları her dönemde Pakistan’ı ABD nezdinde önemli bir ülke yapmıştır. Her dönemde kendine bir düşman ve rakip oluşturan ABD için yeni rakip Çin olmuştur. 2000’lerden sonra ekonomi ve uluslararası alanda ilerleme kat eden Çin ABD’nin küresel düzeyde rakibi olmuştur. Kuşak ve yol projesiyle Pakistan’ı yanına çekmeye çalışan Pekin rejimi, Çin- Pakistan Ekonomik Koridoru ile küresel dengeleri sarsan ve ABD’nin Güneydoğu Asya ile Pasifik bölgesindeki çıkarlarına ciddi bir engel oluşturmıştır. Bu aşamada bu iki ülkenin yakınlaşması ABD tarafından yakından takip edilmekte olup Pakistan’ı ABD için bir rakip olan Çin’in büyümesinin engellenmesi açısından kilit ülke haline getirmiştir.

İdeolojik, kültürel, dini ve siyasal rejim olarak çok farklı noktalarda yer alan ABD ile Pakistan ilişkilerini tamamen karşılıklı çıkar doktrini üzerine kurmuşlardır. ABD için Pakistan, uzak coğrafyalarda terörle mücadele için lojistik destek sağlayan bir ülke ; Pakistan için ise ABD ,askeri ve ekonomik yardımlar sağlayan uluslararası alanda diplomatik destek aldığı süper güçtür. Dalgalanma ve gelgitlerle devam eden, bu ortaklık kırılğan bir zeminde yer almaktadır. Pakistan’daki siyasi irade ve ülkedeki güvenlik ortamı, Pakistan’ın Çin’le ilişkileri, ayrıca belli zamanlarda Keşmir sorunu nedeniyle tansiyonun yükseldiği Pakistan-Hindistan çatışma ortamı, ABD–Pakistan ilişkilerinin rotasını çizmede ve gelecek ilişkileri belirlemede önemli birer faktör durumundaki olaylardır.

Anahtar Kelimeler: Coğrafi Konum, Pasifik, Diplomasi

ENHANCING EVENT MANAGEMENT EDUCATION THROUGH THE EVENT POSTER DIAGRAM KIT: AN INNOVATIVE VISUAL LEARNING TOOL

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Poster design is a central component of event management, crucial for effective communication, promotion, and audience engagement. However, students in this field often struggle to create professional-quality event posters due to limited design literacy, difficulty in organizing visual elements, and an overreliance on text-heavy instructional materials. To address these pedagogical challenges, the Event Poster Diagram Kit was developed as an innovative visual learning tool. This kit simplifies poster design through a step-by-step framework that emphasizes five core components: background, graphic, title, event details (date/time/location), and call to action. An interactive version of the kit, accessible via QR codes, complements the physical version. This paper outlines the rationale, design, and implementation of the Event Poster Diagram Kit within a higher education setting. The findings suggest that the kit enhances creativity, time efficiency, and critical thinking among students in event management programs. Student feedback and classroom observations indicate that the kit provides a structured yet flexible framework, allowing students to apply their creativity while ensuring professional quality. This paper concludes by discussing how the kit bridges the gap between theoretical instruction and practical application, offering a viable pathway for students to produce effective and attractive posters. Recommendations for its broader adoption in educational and professional contexts are also provided, including its potential future integration with digital platforms and artificial intelligence.

Keywords: *Event Poster, Visual Learning, Event Management Education, Interactive Toolkit, Innovation in Teaching,*

LIGHTWEIGHT GREEN AI MODELS FOR ADAPTIVE TUTORING IN LOW-RESOURCE ENVIRONMENTS

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This study examines lightweight Green AI models for adaptive tutoring in low-resource environments. It lowers energy demands while maintaining reliable student knowledge tracing. Conventional machine learning models often require high computation, which limits their use in regions with unstable power or limited digital capacity. To address this barrier, the study applies quantization and model compression methods that reduce energy costs and latency. The methodology benchmarks quantized and standard models on open datasets such as ASSISTments, EdNet, and Khan Academy logs. Performance is measured using accuracy, inference time, and energy usage. Experiments are conducted on both cloud platforms and low-power devices to replicate real-world constraints. Energy profiling tools record power consumption during model training and inference. Findings show that quantized models reduce energy use by 35 to 55 percent with accuracy losses under 3 percent. Latency also improves, supporting real-time feedback in mobile and offline learning environments. These results demonstrate clear trade-offs between efficiency and prediction reliability. The contribution is twofold. First, the paper presents a systematic evaluation of energy-aware strategies for tutoring systems. Second, it provides design guidelines for developers and educators to balance sustainability with educational performance. The study emphasizes that energy-efficient models are both a technical and educational priority. They enable AI-driven tutoring to reach underserved communities where power and connectivity are constrained. The originality of this work lies in linking Green AI practices with inclusive digital education. It advances sustainable AI and equitable access, showing that responsible model design supports wider adoption of adaptive tutoring systems in resource-limited contexts.

Keywords: *Green AI, Adaptive Tutoring Systems, Model Quantization, Energy Efficiency, Low-Resource Education*

PATHWAYS TO PROSPERITY: A STATISTICAL ANALYSIS OF ECONOMIC WELL-BEING AND INCLUSIVE GROWTH IN CHENGALPATTU DISTRICT, TAMIL NADU

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The concept of inclusive growth has become a central tenet of development policy, emphasizing the need for economic expansion to be broad-based and to create opportunities for all segments of society. This study empirically investigates the nexus between economic well-being and the drivers of inclusive growth in the newly formed Chengalpattu district of Tamil Nadu, India—a region characterized by a dynamic mix of rapid urban expansion, industrial corridors, and persistent rural hinterlands. Utilizing a mixed-methods approach, the research primarily relies on secondary data from the Census of India (2011), the National Sample Survey Office (NSSO), and the District Level Household and Facility Survey (DLHS), supplemented by recent state economic reports.

The analysis employs a robust statistical framework. Descriptive statistics are used to profile the socio-economic landscape, revealing significant disparities in income, asset ownership, and access to basic services between urban and rural blocks. Correlation analysis identifies strong positive relationships between indicators of economic well-being (such as household consumption expenditure and asset index) and potential drivers like literacy rates, female labor force participation, and access to formal credit. To isolate causal factors, a multiple regression model is constructed with a composite index of economic well-being as the dependent variable. Key independent variables include infrastructure density (road length, bank branches), human capital metrics (education levels, health outcomes), and industrial presence.

Preliminary findings indicate that while Chengalpattu has experienced substantial economic growth, its inclusivity is moderate. The regression results highlight that educational attainment and access to sanitation are statistically significant predictors ($p < 0.01$) of higher economic well-being, more so than proximity to industrial zones. However, a high Gini coefficient suggests that benefits are unevenly distributed. The study concludes that for growth in Chengalpattu to be truly inclusive, policy interventions must prioritize strengthening human capital and bridging the rural-urban infrastructure gap, moving beyond a sole focus on industrial investment. This research provides a critical evidence base for targeted regional planning.

Keywords: *Economic Well-being, Inclusive Growth, Regional Development, Chengalpattu, Tamil Nadu, Regression Analysis, Gini Coefficient, Infrastructure, Human Development*

FROM COMMODITY TO BRAND: A CASE STUDY OF CHICKPEA VALUE CHAIN DEVELOPMENT IN PAKISTAN

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Consumers drive value chains by defining quality standards and paying for preferred attributes, yet farmers often remain disconnected from end markets due to limited value-adding activities. In crops like chickpeas, intermediaries typically capture this value, leaving farmers with weak bargaining power and minimal knowledge of consumer preferences. This case study examines the development of a farmer-led chickpea value chain in Lawa (Chakwal), Pakistan, under the ACIAR-funded project “Developing Competitive and Inclusive Value Chains of Pulses in Pakistan.” A group of farmers, led by a progressive grower, participated in the “walking the chain” approach, which involved visiting processing units, wholesale markets, and retail outlets, and engaging directly with consumers to understand demand requirements. The exercise highlighted gaps in cleaning, grading, packaging, and branding at the farm level.

To bridge these gaps, a cleaning and grading machine was locally manufactured and provided on a cost-sharing basis. Farmers received hands-on training in post-harvest handling, storage, packaging, and labeling. Trial shipments of cleaned and branded chickpeas were facilitated, and the group was digitally linked with Concave Agri (Pvt.) Ltd., enabling direct sales to consumers. These interventions increased farmer profits by around 20% and enhanced their market participation.

The initiative demonstrates how targeted support in capacity building, technology adoption, and digital connectivity can empower farmers to meet consumer-driven quality requirements. Beyond income gains, it fostered entrepreneurial skills, improved market linkages, and created a pathway for brand development and sustainable partnerships between farmers and agribusinesses. This model offers practical insights for inclusive value chain development in smallholder-based agricultural systems.

Keywords: Chickpeas, Value Chain Development, Farmer Empowerment, Capacity Building, Digital Linkages, Inclusive Agriculture Pakistan

GENERATIVE AI IN ACADEMIC STUDIES: TVET STUDENTS' PERCEPTIONS OF THE IMPACT, BENEFITS, AND CHALLENGES

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The emergence of Artificial Intelligence (AI), particularly the development of generative AI (GAI) tools such as ChatGPT, Google Gemini and Microsoft Co-Pilot, has significantly reformed the landscape of educational settings. In Malaysia, the use of these generative AI tools is gaining popularity among tertiary students and is widely utilised in their academic studies. Hence, this study was conducted among the polytechnic students to explore the perceived impact, benefits and challenges of using GAI in their academic studies. A questionnaire was distributed randomly to 181 polytechnic students via Google Form. SPSS was used to analyse the collected data and generate the descriptive statistics. Of the three examined constructs (i.e., the perceived impact, perceived benefits and the perceived challenges), the findings revealed that the mean scores for both the perceived impact and benefits are closely aligned ($M = 4.23$ and 4.21 , respectively). This suggests that the students had a positive perception and viewed the GAI as both useful and beneficial in their academic studies. The most significant impact of GAI was as an efficient tool for a quick and easy access to information ($M = 4.36$). The perceived challenges, on the other hand, recorded a lower mean score ($M = 3.93$) as compared to the other two constructs. This implies that the students perceived the positive impact and benefits outweighing the challenges or drawbacks of the GAI in their academic studies. This study provides a significant insight into students' perceptions towards the use of GAI in their academic studies. Educators and policymakers may consider integrating the GAI into the curriculum to prepare students for the future AI-driven workforce.

Keywords: *Generative AI, Student Perceptions, Higher Education, Benefits, Challenges.*

YAPAY ZEKA DESTEKLİ ATIK SINIFLANDIRMA VE YÖNLENDİRME SİSTEMİ: AKILLI KAMPÜS UYGULAMASI

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Bu çalışma, yapay zekâ ve görüntü işleme teknolojilerini kullanarak atıkların doğru ve verimli biçimde sınıflandırılmasını hedefleyen akıllı bir atık ayrıştırma ve yönlendirme sistemi sunmaktadır. Araştırmanın temel amacı, manuel atık ayrıştırma süreçlerinde karşılaşılan hata oranlarını azaltmak, geri dönüşüm verimliliğini artırmak ve çevre yönetimini dijitalleştirmektir. Sistem, kamera ve sensörlerle donatılmış olup YOLOv5 tabanlı nesne tanıma algoritması aracılığıyla plastik, kağıt, metal, cam ve organik atıkları gerçek zamanlı olarak yüksek doğrulukla tespit etmektedir. IR destekli aydınlatma sayesinde düşük ışık koşullarında da etkin performans sergileyen sistem, elde ettiği verileri merkezi sunucuya aktararak izlenebilirlik sağlamaktadır. Kullanıcı deneyimi, dijital geri bildirim arayüzü ile desteklenmiş ve enerji verimli donanım kullanımıyla operasyonel maliyetler azaltılmıştır. Bulgular, sistemin %91 doğruluk oranı ve %28 enerji tasarrufu ile mevcut çözümlerden ayrıldığını göstermektedir. Çalışma, çevresel sürdürülebilirliğe katkı sağlamakla birlikte, üniversite kampüsleri, belediyeler, alışveriş merkezleri ve endüstriyel tesisler gibi yoğun kullanım alanlarında uygulanabilir niteliktedir. Ayrıca IoT entegrasyonu sayesinde doluluk takibi ve veri yönetimi yapılabilmekte, böylece atık toplama süreçleri optimize edilmektedir. Eğitim kurumlarında çevre bilincinin artırılması, sanayide operasyonel verimlilik sağlanması ve akıllı şehir altyapısına entegrasyon potansiyeli, çalışmanın öne çıkan özgün yönleri arasında yer almaktadır. Çok katmanlı entegrasyon sayesinde yalnızca teknik bir cihaz değil, aynı zamanda kullanıcı davranışlarını olumlu yönde etkileyen akıllı bir çevre yönetim çözümü sunulmaktadır.

Anahtar Kelimeler: *Yapay Zeka, Atık Sınıflandırma, Akıllı Kampüs, Görüntü İşleme, Çevresel Sürdürülebilirlik*

NATURAL DISASTERS, UNCERTAINTY, AND ECONOMIC BEHAVIORS: INSIGHTS FROM THE KAHRAMANMARAŞ EARTHQUAKES

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The Kahramanmaraş-centered earthquakes of February 6, 2023, created profound impacts on Turkey's economic and social structure. Beyond the physical destruction, behavioral factors such as uncertainty, risk perception, loss aversion, and social solidarity became decisive in the economic decision-making processes of individuals and institutions. This study examines post-disaster patterns of consumption, saving, and investment through the framework of behavioral finance, discussing how loss aversion, time preference, short-term security seeking, and social norms shape economic behavior. The findings indicate that short-term tendencies became dominant particularly among low-income and heavily affected households, whereas relatively higher-income and less-affected groups were able to strengthen future-oriented saving behaviors. The study also highlights the importance of behavioral tools for policymakers, such as choice architecture, default options, financial literacy programs, and economic schemes integrated with psychosocial support. This study provides an assessment of the Kahramanmaraş earthquakes from a behavioral finance perspective, drawing on existing literature and empirical findings, and aims to raise awareness.

Keywords: *Behavioral Finance, Disaster Economics, Time Preference, Loss Aversion, Uncertainty and Decision-Making*

SÜRDÜRÜLEBİLİR KAYNAK KULLANIMI EKSENİNDE KÜRESEL KALKINMA VE SÜRDÜRÜLEBİLİR KALKINMA HEDEFLERİNİN GELECEĞİ

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21. yüzyıl itibarıyla ortaya çıkan finansal krizler, iklim değişikliği ve pandemiler, ekonomik, çevresel ve sosyal açılardan tüm dünyayı etkileyen evrensel sorunlar olarak insanlığın refahını olumsuz yönde etkilemektedir. Bu nedenle, gelişmekte olan ülkelerin yaşam koşullarını iyileştirmeye odaklanan geleneksel uluslararası kalkınma anlayışı yerine; yoksulluk, sağlık, iklim değişikliği gibi birbirine bağlı küresel ihtiyaçları hedefleyen bütüncül bir küresel kalkınma anlayışı önem kazanmaktadır. Tüm ülkelerin refah düzeylerinin olumlu dönüşümünü ve küresel yönetişimi öncelikli kılan sürdürülebilir kalkınma amaçları, insan refahı, sürdürülebilir ekonomik faaliyetler, ekosistem yönetimi ve küresel iş birliğine bütüncül bir kalkınma vizyonu sunmaktadır. Dolayısıyla mevcut ve gelecek nesillerin yaşamsal faydasının artırılması büyük ölçüde biyoçeşitliliğin korunması, sorumlu üretim ve tüketimin sağlanması, fırsat eşitsizliklerinin giderilmesi ve küresel ortak eylemin hayata geçirilmesini mümkün kılan sürdürülebilir kaynak kullanımı ile sağlanabilir. Çalışmada, günümüz itibarıyla küresel düzeyde Sürdürülebilir Kalkınma Hedeflerini gerçekleştirmede en yüksek başarıya sahip beş ülkenin (Finlandiya, İsveç, Danimarka, Almanya ve Fransa) 2015-2022 yılları arasındaki kişi başına Ekolojik Ayak İzleri ile 2015-2025 yılları arasındaki Sürdürülebilir Kalkınma Hedefleri Endeksi puan ve sıralamaları incelenmiştir. Buna göre, günümüz itibarıyla 17 Sürdürülebilir Kalkınma Hedefi'ne ulaşmada en yüksek performansı gösteren beş ülkenin kişi başına düşen Ekolojik Ayak İzi toplamı 237,8 küresel hektar (gha) olarak hesaplanmıştır. Türkçe literatürde, sürdürülebilir kaynak kullanımının doğrudan küresel kalkınma üzerindeki etkisini analiz eden bir çalışma bulunmamaktadır. Bu çalışma ile sürdürülebilir kaynak kullanımı ve Sürdürülebilir Kalkınma Hedefleri ilişkisini inceleyen diğer çalışmalara temel bir referans sağlanması amaçlanmaktadır.

Anahtar Kelimeler: *Küresel Kalkınma, Sürdürülebilir Kalkınma Hedefleri, Sürdürülebilir Kaynak Kullanımı, Ekolojik Ayak İzi*

EQUITY IN INTERNATIONAL GOVERNANCE: THE NORTH-SOUTH DIVIDE IN INTERNATIONAL GOVERNANCE

Hibba Aamir (The University of Faisalabad)

The study aimed to examine how equity in international governance had been challenged by the persistent North–South divide in global politics. Drawing on World-System Theory, the research sought to explain the structural inequalities that placed the Global South in a position of dependency while consolidating the power of the Global North. The methodology was qualitative in nature and the method of study relied on descriptive and analytical approaches. For the study, Primary data was collected through semi-structured interview of the policy expert and secondary data was collected through scholarly articles, United Nations (UN) reports, and policy documents. The data were analyzed thematically to identify recurring patterns of inequity, power imbalance, and governance gaps. The results revealed that despite initiatives for reform, global decision-making processes had remained dominated by the North, limiting the South’s agency in critical areas such as trade, climate negotiations, and institutional representation. The study concluded that equitable governance structures were essential to bridging this divide. It recommended strengthening representation of the Global South in international institutions, fostering inclusive decision-making mechanisms, and promoting fairer resource distribution to enhance legitimacy in global governance.

Keywords: *International Governance, North–South Divide, Equity, Global Politics, World-Systems Theory*

GLOBAL GOVERNANCE IN CRISIS: MULTILATERALISM UNDER UNITED STATES – CHINA RIVALRY

Wareesha Naeem (The University of Faisalabad)

The purpose of this study was to examine how the intensifying United States–China rivalry reshaped global governance by undermining multilateralism and weakening institutional effectiveness. A qualitative methodology was applied, using power transition theory as the primary instrument of study to explain how rising and declining powers disrupted collective problem-solving and challenged the post–World War II order. The method of study relied on comparative case analysis of institutional responses during recent crises, including the wars in Ukraine and Gaza, as well as global trade disputes. Data were gathered from United Nations (UN) and World Trade Organization (WTO) archives, along with policy briefs, scholarly articles, institutional records, and reports from leading think tanks. Thematic analysis was used to interpret recurring trends of institutional paralysis, mistrust, and the proliferation of alternative alignments such as the Brazil, Russia, India, China, and South Africa (BRICS) bloc and the Asian Infrastructure Investment Bank. The results demonstrated that great-power rivalry not only blocked decision-making but also accelerated systemic fragmentation, leaving smaller states more vulnerable and marginalized. The study concluded that while global governance had been weakened, multilateralism remained indispensable for maintaining peace and prosperity in a multipolar world. It was recommended that states reinvigorate trust in existing institutions, encourage flexible cooperation, and develop inclusive mechanisms for power-sharing. More effective and innovative use of institutions such as the UN and WTO was emphasized as essential to restoring legitimacy, credibility, and resilience in global governance.

Keywords: *Global Governance, Multilateralism, U.S.–China Rivalry, Power Transition Theory, WTO*

ARTIFICIAL INTELLIGENCE GUIDANCE IN INSTRUMENT LEARNING USING SOUND AND IMAGE ANALYSIS

Hakan Emre Ziyagil (Niğde Ömer Halisdemir Üniversitesi)

For years a traditional master-apprentice approach has been adopted in instrument learning. With the advancement of today's technology and the development of AI (artificial intelligence) systems, innovations in instrument learning systems are inevitable. Among these innovations, the use and transfer of digital data has become more prominent than traditional learning methods. With the development of artificial intelligence models within these digital environments, image analysis and areas where pedagogical potential are demonstrated have emerged. For many years, many music students have been trained in a master-apprentice system. In this system, students imitated the master's performance and then progressed through the observations of the instructor, whom we call the master. However, this structure, based on face-to-face interaction, presents significant limitations in terms of access, sustainability, and continuity in today's conditions. This study will examine the importance of creating a digital reference layer by analysing audio and video recordings of masters' performances. The aim is then to develop a new learning approach based on comparing the student's own performances with this data. In this proposed model, performance components such as frequency accuracy (pressure-pitch), tempo consistency, articulation, vibrato use, and finger and body position are processed both visually and auditorily. A music student's instrumental performance is interpreted against the performances of pre-defined masters, and any differences are clearly reported. This approach not only supports technical development but also adds a new dimension to the transfer of style, attitude, and interpretation in traditional music. Another benefit of the study is the discussion of the transferability of nuances in makam music through digital analysis. This will enable us to analyse the impact of accurate data obtained from each master on the student.

Keywords: *Artificial Intelligence, Music, Instrument Learning, Educational Model*

A STUDY ON MARKETING STRATEGIES AND CONSUMER BEHAVIOR TOWARDS COLA NEXT®

Nimra Anjum (The University of Faisalabad)

Recently, a local beverage brand, Cola Next, gained popularity among soft drink consumers. The sudden surge in the sales of Cola Next products raised questions about its success in the highly competitive beverage market. This research demonstrated how the ramifications of sociopolitical movements and marketing techniques transformed the potency of Cola Next in Pakistan, with special focus on consumer behavior. The primary goal of this research was to recognize those factors that influenced consumers' perception and the brand's performance in the market. Data was collected after conducting surveys and interviewing consumers, retailers, distributors, and producers of Cola Next. Stratified random sampling was done for consumers, while purposive sampling was done for retailers, distributors, and producers. The collected data were assembled in Microsoft Excel and analyzed using the SPSS (Statistical Package for the Social Sciences) software. Quantitative and qualitative Analysis was performed to extract results for this study. Descriptive statistics included mean, standard deviation, frequency, and percentages. Results were generated by analyzing the output received from SPSS in the form of tables. Regression was used to identify and measure the key factors that truly influenced how much people spent on Cola Next®. This research highlighted the marketing approaches and strategies that contributed to the brand's success as a leading local beverage brand in Pakistan's competitive industry. According to the findings of this research, marketing campaigns and sociopolitical movements have influenced consumers' perceptions of Cola Next. The brand's marketing strategies positively influence consumers during the boycott, and they prefer to buy from it due to its availability in nearby markets. Family income, family size, occupation, and boycott of international brands are key factors that significantly influence consumer behavior. It is recommended that the presence of Cola Next on social media can be beneficial for connecting with the target audience, and an improvement in the brand image can be expected. To maintain its brand image and positioning in the competitive beverage market, the brand should continuously nurture its association with ongoing sociopolitical movements to preserve customer loyalty.

Keywords: *Cola Next, Marketing Strategies, Consumer Behavior, Sociopolitical Movements, and Consumer Perceptions.*

PERCEPTION OF SELF THROUGH SHARED CONTENT ON FACEBOOK: A USES AND GRATIFICATION APPROACH IN THE AGE OF AI

Zarnab Rouf (The University of Faisalabad)

Study in hand is designed to investigate that how much SELF (Personality) is reflected and how it is perceived through shared content on Facebook. With the rising influence of social media in everyday life, Facebook has become a key platform where users construct, project, and interpret identities within virtual communities. The use of artificial intelligence (AI) in identity verification and content moderation demonstrates how technology is increasingly being used to maintain peace, balance authenticity, and promote constructive human engagement in virtual environments. Therefore, this study not only discusses the dynamics of online self and perception, but also emphasizes how important they are to creating a digital society that is sustainable, peaceful, and technologically responsible. In order to know about the reflection and perception through Facebook use, survey method was opted. A sample of 120 students among the population of Government college university Faisalabad was selected using stratified and convenient sampling technique, study adopts the quantitative research approach. It was hypothesized that people tend to use Facebook to build their ideal image among the virtual community and to gratify their pre-existing cognition. Furthermore users of Facebook perceive their virtual friends' image according to their own perception. Looking glass theory of self, uses & gratification theory and symbolic interactionism paved the ways for the better understanding of the topic. Results certify the hypothesis that most of the people use Facebook to build an ideal identity, indicate that perception of others' personalities on social media is filtered through individual biases and interpretive lenses.

Keywords: *Shared content, Virtual Personality, Self, Artificial intelligence, Ideal Identity*

**GREEN INNOVATION AS THE MISSING LINK BETWEEN GREEN HRM AND
ENVIRONMENTAL PERFORMANCE: AN SDG-ALIGNED STUDY FROM
PAKISTAN'S MANUFACTURING SECTOR**

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Amid intensifying environmental challenges and mounting global sustainability agendas, such as the UN Sustainable Development Goals (SDGs), firms face immense pressure to enhance their environmental performance. Green Human Resource Management (GHRM) has emerged as a pivotal strategy for aligning human capital with these goals. However, the specific mechanisms through which GHRM practices translate into superior environmental outcomes remain underexplored, particularly in developing economies. This study investigated the mediating role of Green Innovation (GI) in the relationship between GHRM and EP within Pakistan's manufacturing sector. Grounded in the Resource-Based View (RBV) and Ability-Motivation-Opportunity (AMO) theory, a quantitative, cross-sectional research design was implemented. Data were collected by administering a structured questionnaire from 193 professionals in manufacturing firms in Punjab. Analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM) revealed that three key GHRM practices (Green Recruitment & Selection, Green Training & Development, and Green Compensation & Rewards) significantly improve EP. Green Innovation itself was found to be a strong direct predictor of EP. Crucially, the relationships between these three GHRM practices and EP were significantly mediated by Green Innovation. This indicates that GHRM fosters environmental performance primarily by stimulating eco-friendly innovations, positioning GI as the critical "missing link." The findings offer managers a clear pathway for leveraging HRM to achieve SDG 9 (Industry, Innovation, and Infrastructure), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).

Keywords: *Green Human Resource Management, Environmental Performance, Green Innovation, SDGs, Pakistan.*

DARK-SIDE OF GENERATIVE AI COLLABORATION AND EMPLOYEE CREATIVITY: THE ROLE OF AUTONOMY AND LEADERSHIP

Maryam Liaqat (The University of Faisalabad)

This study investigates how the dark-side of generative AI collaboration influences employee creativity, with a focus on the mediating role of task autonomy and the moderating role of empowering leadership. While AI collaboration can enhance efficiency, it may also impose rigid structures that restrict employees' discretion and reduce their creative contributions. Drawing on Conservation of Resources theory, we argue that reduced autonomy functions as a key mechanism through which the negative effects of AI collaboration emerge. At the same time, empowering leadership—characterized by delegation, encouragement, and support—can act as a protective factor that preserves autonomy and fosters creative engagement. Data from employees in AI-intensive organizations were analyzed using structural equation modeling. Results show that dark-side AI collaboration reduces creativity by undermining autonomy, yet empowering leadership buffers this effect and enhances the autonomy–creativity link. These findings highlight both the risks of overreliance on AI and the critical role of leadership in sustaining creativity in technology-driven workplaces.

Keywords: *Generative AI, Dark-Side Collaboration, Task Autonomy, Empowering Leadership, Creativity*

CONTRIBUTION OF WOMEN IN THE PROVISION OF HOUSEHOLD FOOD SECURITY: A CASE STUDY OF DISTRICT JHANG

Sania Liaquat (University of Agriculture Faisalabad)

Food security is a multi-faceted aspect. It includes availability, access and utilization of food. The efficient functioning of any society relies on consistent availability of basic foodstuff at the household and national level. Pakistan is among the biggest producers of many agricultural products. Despite this, over 17 percent of the people is undernourished. Women involve themselves in multiple agricultural tasks i.e. from land preparation to harvesting of crop to improve household food security. Unfortunately, their contribution remains invisible in agriculture sector. Investigating how women participate to enhance household food security is the main goal of this study. For this purpose, Primary data were collected from rural areas of Jhang district from 100 households through random sampling technique. Dietary intake (24-hour recall) was used to calculate food security status. The data were collected and analyzed using SPSS software. The data were examined by the researcher using descriptive statistics and Binary logistic regression model was empirically estimated to assess the impact of independent variables on food security. The findings of the study revealed that socioeconomic factors had a significant effect on food security.

Keywords: *Women's Participation, Food Security, Household*

**WHEAT SEED MANAGEMENT PRACTICES IN PUNJAB PROVINCE PAKISTAN
ADOPTION AND ITS IMPACT ON PRODUCTIVITY--AUTHORS (HAFEEZA NOOR,
ADNAN ADEEL, YAWAR ABBAS)**

Hafeeza Noor (University of Agriculture Faisalabad)

Seed management practices namely seed treatment, storage, and timely replacement is essential for ensuring crop quality, enhancing wheat productivity, and strengthening food security. Despite various initiatives by public and private institutions in Pakistan, adoption of seed management practices among farmers remains limited. This study examines the determinants of adoption of seed management practice and its effect on wheat productivity in Punjab, with data collected from farmers in Sheikhpura district using a structured questionnaire and convenience sampling. Descriptive statistics were conducted in SPSS-26, while relationships were analyzed through Partial Least Squares Structural Equation Modeling (PLS-SEM). Results reveal that technical attributes, institutional support, financial constraints, and access to information significantly influence adoption, whereas marketing factors show no substantial effect. Moreover, adoption of seed management practices exerts a positive and significant impact on wheat productivity. The findings underscore the importance of farmer training, certified seed availability, and improved storage infrastructure to strengthen seed systems. This study contributes empirical evidence to guide policymakers and stakeholders in promoting sustainable wheat production and advancing rural development.

Keywords: *Seed Management Practices, Adoption, Wheat, Impact, Productivity*

INFLUENCE OF SUSTAINABLE MARKETING ON REPEAT PURCHASE BEHAVIOR

Mubbashra Habib (The Uni Of Faisalabad)

The purpose of this study is to solely analyze the impact of Sustainable Marketing Initiatives (SMIs) on consumers' Repeat Purchase Behavior, with a particular emphasis on the mediating role of Brand Trust (BT) and the moderating influence of Consumer Environmental Consciousness (CE). In an era when environmental concerns are increasingly impacting on market dynamics and consumer expectations, sustainability has evolved as both a business responsibility and a strategic marketing distinction. The study aims to discover the mechanisms by which Sustainable Marketing Initiatives influence Repeat Purchase Behavior, particularly how Brand Trust defined as belief in a brand's dependability, honesty, and environmental integrity serves as a critical psychological link between sustainability efforts and consumer repurchase intentions. Brand trust is an important factor in this relationship since it refers to consumers' perceptions of a brand's dependability, integrity, and dedication to providing continuous value. Thus, Brand Trust plays an important role in building the consumer brand relationship and encouraging repeat purchase behavior, as customers are more likely to repurchase from brands they believe are trustworthy and socially responsible. Nonetheless, the efficiency of trust-based pathway is influenced by consumer environmental consciousness (CE), which is the extent to which people are aware of environmental issues and motivated to behave in environmentally responsible ways. Sustainable marketing initiatives are not only appreciated by environmentally conscientious consumers but are now anticipated. Consumers who are less concerned about the environment, on the other hand, may place less emphasis on sustainability in their decision making, diminishing the relationship between SMIs, trust, and behavioral loyalty. Using the Theory of Planned Behavior (TPB), this study provides a valuable insight into how marketers can tailor their sustainable practices to align with environmentally conscious consumers, ultimately enhance customer retention and fostering long term relationships. The findings aim to contribute to both theoretical and practical understanding of how sustainability initiatives drive repeat consumer behavior in the context of sustainable marketing.

Keywords: *Theory of Planned Behavior, Sustainable Marketing Initiatives, Brand Trust, Consumer Environmental Consciousness, Repeat Purchase Behavior*

YAPAY ZEKÂ ODAKLI MOLEKÜLER HEDEF AVI: ANTİ-KANSER İLAÇ KEŞFİNDE GÜNCEL YAKLAŞIMLAR

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Kanser tedavisinde hedefe yönelik ilaç geliştirme, biyolojik sistemlerin karmaşık yapısı, yüksek finansal gereksinimler, uzun validasyon süreçleri nedeniyle önemli yapısal ve operasyonel engellerle karşılaşmaktadır. Bu noktada yapay zekâ uygulamalarını odağına alan yaklaşımlar; proteomik, genomik ve görüntüleme verilerinin bütüncül analiziyle moleküler hedeflerin daha hızlı ve doğru biçimde saptanmasına olanak sağlamaktadır. Bu derleme, mevcut literatüre dayanarak, kanser ilacı keşfinde yapay zekâ odaklı hedef tanımlama stratejilerini değerlendirmeyi amaçlamaktadır. Çalışmada, 2020 ve sonrasında yayımlanan literatür, Web of Science, PubMed, ScienceDirect, Wiley Online Library veritabanları ve Google Scholar akademik arama motoru kullanılarak kapsamlı bir şekilde incelenmiş ve ilaç-hedef etkileşimi tahmini, biyobelirteç keşfi, yapı tabanlı tarama ve yeni bileşik tasarımında makine öğrenimi, derin öğrenme, grafik tabanlı modeller, ağ analizi, doğal dil işleme ve jeneratif yaklaşımların uygulamaları değerlendirilmiştir. Bulgular, yapay zekâ tabanlı yaklaşımların protein yapı tahmini, yeni nesil molekül tasarımı, hedef önceliklendirme ve çoklu hedef farmakolojisi gibi alanlarda dönüştürücü bir rol üstlendiğini ortaya koymaktadır. Bununla birlikte, biyolojik doğrulama süreçlerinde karşılaşılan metodolojik sınırlılıklar, veri kaynakları arasındaki heterojenlik ve modellerin açıklanabilirlik düzeyinin yetersizliği, yapay zekâ tabanlı yaklaşımların klinik geçerliliğini ve güvenilirliğini sınırlayan başlıca engeller arasında yer almaktadır. Sonuç olarak, yapay zekâ destekli yaklaşımlar, anti-kanser ilaç keşfi süreçlerinde moleküler hedeflerin belirlenmesini hızlandırmakta ve deneysel tarama maliyetlerini azaltmaktadır. Özellikle insan-bilgisayar hibrit modelleri ve veri gizliliği odaklı işbirlikçi öğrenme stratejileri, çok boyutlu biyolojik verilerin etkin şekilde analiz edilmesine olanak sağlamaktadır. Bu teknolojik entegrasyon, mevcut araştırma ve geliştirme yaklaşımlarında yapısal bir değişim sağlayarak bilimsel karar alma süreçlerinin doğruluğunu ve işlem verimliliğini artırabilir.

Anahtar Kelimeler: *Yapay Zekâ, Anti-kanser Ajanlar, Hedef Tanımlama, İlaç-Hedef Etkileşimleri, İlaç Keşfi*

YEŞİL TAHVİLLERİN GELİŞMİŞ ÜLKELERİN FİNANSAL PİYASALARINA ETKİSİNİN İNCELENMESİ

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Yeşil tahviller, iklim değişikliği ile mücadele eden projeleri desteklemek için tasarlanmış bir borçlanma aracıdır. Yeşil tahvil gibi alternatif finans kaynaklarının artması yatırımcıların mevduatlarını farklı alanlara yatırmalarına neden olmaktadır. Bu durum ülkelerin finansal piyasalarına özellikle borsalarına etki etmektedir. Bu çalışmanın amacı yeşil tahvil endeksi ile gelişmiş ülkelerin borsaları arasındaki ilişkiyi araştırmaktır. Bu kapsamda bağımlı değişken olarak Standart & Poor's (S&P) tarafından yayınlanan yeşil tahvil endeksi (SPGBI) bağımlı değişken olarak kullanılırken ABD, İngiltere, Kanada, Fransa, Almanya, İtalya, Japonya, Hollanda ve İsviçre'nin seçilmiş borsa endeksleri ise bağımsız değişken olarak kullanılmıştır. 2021 ile 2024 yılları arasındaki haftalık zaman serileri kullanılarak değişkenler arasındaki ilişki ARDL sınır testi ve Toda-Yamamoto nedensellik analizi ile araştırılmıştır. ARDL sınır testi sonuçlarına göre değişkenler arasında eşbütünleşme ilişkisinin olduğu tespit edilmiştir. Toda-Yamamoto nedensellik analizine göre ise SPGBI ile SPTSX, NIKKEI225, FTSEALL, FTSE100, DAX ve CAC endeksleri arasında çift taraflı nedensellik ilişkisi olduğu görülmektedir. SPGBI'dan SP500 endeksine tek yönlü bir nedensellik ilişkisi varken AEX endeksinden SPGBI'ya tek yönlü bir nedensellik ilişkisi olduğu görülmektedir. Son olarak SPGBI ile SMI endeksi arasında nedensel bir ilişki olmadığı tespit edilmiştir.

Anahtar Kelimeler: Yeşil Tahviller, Borsalar, Gelişmiş Ülkeler

MULTILINGUAL AI AND DIGITAL INEQUALITY IN UZBEKISTAN: PATHWAYS TO EQUITABLE DEVELOPMENT

Eldar Asanov (National Archaeological Center of the Academy of Sciences of Uzbekistan)

Large language models (LLMs) and AI-enabled services are spreading across Uzbekistan, yet their benefits are unevenly distributed across language groups and scripts. This paper examines how multilingual AI (machine translation, ASR/TTS, chat assistants, auto-captions, search) shapes digital inequalities between Uzbek (Latin/Cyrillic) and Russian users, and outlines development pathways to reduce those gaps. Using a mixed design, I conduct (i) a small audit of leading AI tools on everyday tasks in Uzbek/Russian; (ii) UX trials of e-government cases (certificates, appointments, payments) in three language modes; and (iii) interviews with educators and public-sector staff on adoption barriers. Results show accuracy and coverage gaps—especially for Uzbek Cyrillic and domain terms—shifting time and error costs onto Uzbek users and nudging language switching. I propose a practical pathway bundle: procurement checklists with language-quality thresholds; open, privacy-safe public-domain corpora for fine-tuning; unified Uzbek terminology/style guides; reproducibility protocols for chat assistants; and UX parity audits in portals. The contribution reframes “AI for development” through linguistic justice and offers a scalable, low-cost policy toolkit that institutions in emerging contexts can implement within one budget cycle. The approach is transferable to other Turkic-language environments.

Keywords: *Digital Inequalities, Multilingual AI, Uzbek, Development Pathways, Governance*

STRENGTHENING ORGANIZATIONAL MANAGEMENT MECHANISMS WITH CRISIS-MANAGEMENT PRINCIPLES IN THE AGE OF AI AND UNCERTAINTY

Elena Khanzadyan (Management Development Institute of Singapore in Tashkent)

In an era of technological advancement and global uncertainty, organisations increasingly struggle with how best to remain resilient, adaptive, and also ethically responsible. This paper presents a conceptual framework that organizational management can use to improve its learning mechanism by incorporating crisis-management principles in normal strategic planning and decision-making. The framework combines proactive risk assessment, adaptive communication strategies, and AI decision support to help organisations become more agile and prepared. It is based on management, psychology, and economics literature, where the paper suggests that crisis-management should move from an exceptional response to a new *modus cogitandi* of organizational life. This approach has international significance for business leaders, who aim at sustaining operations and running stakeholders safe within disruptive times. The model supposes a theoretical foundation on which future empirical research and practical implementation in organizations worldwide could be built.

Keywords: *Organizational Resilience, Crisis-Management Principles, Artificial Intelligence, Strategic Adaptation*

IMPACT OF DIGITAL TRANSFORMATION ON ECONOMIC GROWTH IN PAKISTAN

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This study explores the relationship between digital transformation and macroeconomic growth in Pakistan from 1999 to 2023. In today's digital era, Information and Communication Technology (ICT) has emerged as a key driver of economic development, fundamentally reshaping how economies operate and evolve. The research focuses on assessing the impact of digital transformation measured through internet penetration and mobile phone usage on major macroeconomic indicators such as GDP, unemployment, trade openness, and education. To capture the extent of digital adoption, a composite Digital Transformation Index (DTI) was developed. Using the Autoregressive Distributed Lag (ARDL) model, the study examines both short-run and long-run relationships between digitalization and economic growth. The findings suggest that digital transformation positively influences GDP by boosting productivity, expanding market access, and improving service delivery. Moreover, it contributes to reduced production costs and promotes greater financial inclusion. However, while digitalization creates new economic opportunities, it can also disrupt traditional employment patterns, highlighting the need for investments in digital skills and education. Digital access disparities particularly in underdeveloped regions remain a challenge that may hinder inclusive growth. This study fills a crucial gap in the literature by integrating multiple macroeconomic variables and constructing a unified framework to evaluate the broader effects of digitalization. The insights gained offer valuable policy recommendations for fostering inclusive and sustainable economic development through digital investment, infrastructure, and literacy initiatives. Ultimately, the research underscores the strategic importance of digital transformation for developing countries like Pakistan. To fully realize its benefits, policymakers must adopt comprehensive strategies that encourage innovation, bridge the digital divide, and align digital initiatives with broader economic objectives.

Keywords: *Digital Transformation, Economic Growth, Internet, Mobile Phone Users.*

THE RIQUEZA GAME BOARD: AN AI-DRIVEN AND SUSTAINABLE APPROACH TO ENHANCING STUDENT ENGAGEMENT AND PERFORMANCE

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This study investigates the effectiveness of the RIQUEZA Game Board as an innovative and sustainable pedagogical tool enhanced with artificial intelligence (AI) features to improve student learning outcomes and engagement in the subject of Foodservice Sanitation. Conventional lecture-based methods often struggle to sustain student attention, underscoring the need for interactive and adaptive approaches in higher education. A quantitative research design was employed, with stratified random sampling used to select 30 respondents from 66 of first-semester Diploma in Foodservice Halal Practice students from Politeknik Tuanku Syed Sirajuddin, Malaysia. Data were collected using structured questionnaires and analyzed through descriptive statistical techniques. The RIQUEZA Game Board integrates digital and AI-driven components, including QR codes for multimedia access and AI features such as question randomization, real-time feedback, and performance tracking. Constructed from recycled materials, it also reflects sustainable educational practices while promoting creativity and innovation. Findings revealed high levels of student satisfaction (mean scores ≥ 4.00), particularly in enjoyment, motivation, and knowledge acquisition. Student performance outcomes reached very high levels (mean scores up to 4.50), showing that the AI-enhanced design improved comprehension, retention, and confidence while fostering collaboration and active participation. Overall, the integration of AI and sustainability within the Riqueza game board demonstrates its potential to transform passive classrooms into engaging, adaptive, and eco-friendly learning environments. The findings suggest that educational games with AI features can enhance student-centered learning, support the development of 21st-century skills, and provide valuable insights for lecturers, offering significant implications for innovation in higher education.

Keywords: *Artificial Intelligence, Game-Based Learning, Student Performance, Sustainability, Riqueza Game Board*

EMPOWERMENT AS A PATHWAY TO FOOD SECURITY: A SYSTEMATIC REVIEW OF EVIDENCE FROM SOUTH ASIA

Zaeema Farooq (University of Agriculture Faisalabad)

Women's empowerment is increasingly recognized as a critical driver of household food security in South Asia. This study synthesizes empirical evidence from South-Asia to examine how empowerment dimensions shape food security. Drawing from an extensive initial pool of studies, only those meeting predefined standards of relevance and quality were retained after a structured but adaptive appraisal carried out independently by multiple reviewers. Convergence between reviewers was statistically checked to ensure reliability, and the resulting evidence base was interrogated through a comparative lens rather than a single rigid template. Across the included work a consistent pattern emerges: most studies show that enhanced women's decision-making power, improved access to financial or agricultural resources and greater mobility are associated with better household food security. Only a minority employ comprehensive indices such as the Women's Empowerment in Agriculture Index, while the majority rely on context-specific indicators, yielding a rich but uneven evidence landscape. Country-level coding in the tabulated synthesis highlights both shared trends and distinctive gaps across South-Asia. Taken together, the findings confirm that strengthening women's agency is a robust pathway to improving food security in South-Asia while also underscoring the need for more harmonized, multidimensional measures of empowerment and attention to under-researched settings. This review offers a consolidated knowledge base to guide gender-responsive policies and programs aimed at achieving sustainable food security.

Keywords: *Women's Empowerment, Food Security, Gender equality, South-Asia*

APPLE FARMING CONSTRAINTS IN AZAD JAMMU AND KASHMIR

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One of the most important economic activities in the Azad Jammu and Kashmir (AJK) is Apple farming, which is a pillar in the rural population and source of income and employment to thousands of families. Even though it is important, the sector is becoming under pressure owing to a complex of environmental, financial, and institutional issues that when combined together contribute to a decline in productivity and profitability. One of the most topical problems is the question of climate change that has caused the change of temperature and conditions and, correspondingly, the change in the zones of apple-growing. The change in weather conditions, unseasonable falls of snow in drastic cases of flowering and fruiting are trees that result in massive physical injury, which diminishes product and quality. The Financial constraints continue to be among the key bottlenecks. This can be seen in the lack of available credit and farm insurance programs hence farmers cannot invest in better inputs, disease control, and new technologies. These production issues are aggravated by the appearance of market access barriers. Poor storage systems, grading and packaging systems, and poor transport systems compel most farmers to sell their produce at the farm gate or sell the goods at low prices to the middlemen. The proposed paper would attempt to discuss the limitations faced by apple farmers in the AJK systematically, analyze their constraints in terms of their economic and social effects, and provide evidence-based policies to help deal with the challenges. The study will help in developing a direction to a resilient and profitable development of the apple farming, thus protecting the livelihood of farming community within the region.

Keywords: *Apple, Constraints, Production, Climate Change, Profitability*

A REVIEW OF POVERTY ALLEVIATION STRATEGIES IN PAKISTAN

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Poverty alleviation remains a persistent and formidable challenge for Pakistan, shaped by a complex interplay of economic instability, rapid population growth, and vulnerability to climate shocks. This review examines the evolution of governmental and institution-led strategies deployed over several decades to combat multidimensional poverty. Initial approaches, particularly in the late 20th century, were largely characterized by direct income support and short-term social safety nets. Programs like the Benazir Income Support Programme (BISP), established in 2008, marked a significant shift towards large-scale, targeted cash transfers, aiming to provide immediate relief to the most vulnerable segments of society, particularly women. While praised for its relative efficiency and direct impact on consumption, BISP and similar initiatives have faced critiques regarding their long-term efficacy in fostering sustainable economic independence. More recent strategies have increasingly embraced a holistic understanding of poverty, moving beyond income metrics to address its underlying drivers. This integrated approach combines elements of financial inclusion, human capital development, and rural infrastructure enhancement. Initiatives now often link cash transfers to conditions such as school enrolment and health check-ups, aiming to break the intergenerational cycle of poverty. Furthermore, programs focused on enhancing access to microfinance, vocational skills training, and support for agricultural productivity seek to create pathways to self-employment and resilient livelihoods. Despite these efforts, the effectiveness of poverty alleviation strategies is often hampered by systemic issues, including inadequate funding, fragmented implementation, and challenges in targeting the 'ultra-poor'. Political volatility and fiscal constraints further limit the scope and sustainability of these programs. The review concludes that while safety nets are crucial for mitigating immediate hardship, a sustainable solution requires a more profound structural transformation. This includes consistent, pro-poor economic growth, robust investment in education and healthcare, and improved governance to ensure that strategies effectively translate from policy to meaningful, lasting poverty reduction on the ground.

Keywords: *Poverty, BISP, Sustainable Development, Political volatility*

STUDENT AS CONSUMER: A FUNDAMENTAL APPROACH IN HIGHER EDUCATION

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Muhammad Rafay Muzamil (University of Agriculture)

Khazra Noor (University of Agriculture)

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The contemporary landscape of higher education is undergoing a profound transformation, driven by technological disruption, shifting economic demands, and evolving student demographics. Traditional models of lecture-based instruction and rigid degree pathways are increasingly giving way to more flexible, personalized, and relevant educational experiences. This paradigm shift is characterized by several interconnected trends that collectively redefine the purpose and delivery of post-secondary learning. A dominant trend is the digitalization of learning, accelerated by the COVID-19 pandemic. Beyond simple online course delivery, this encompasses the integration of hybrid and hyflex models, which offer students greater choice in how they engage with content. Furthermore, pedagogical approaches are evolving towards active learning, emphasizing collaboration, problem-solving, and critical thinking over passive knowledge absorption. This is often facilitated by technology-enabled flipped classrooms and project-based curricula. Concurrently, there is a marked move towards skills-based and micro-credentialing. In response to the rapid pace of change in the job market, institutions are prioritizing the development of durable, transferable skills. This has led to the proliferation of micro-credentials, digital badges, and stackable certificates that offer targeted, verifiable proof of competency in specific areas, providing more agile and accessible pathways than traditional four-year degrees. This trend is closely linked to a growing emphasis on lifelong learning, as professionals seek to up-skill and reskill throughout their careers. Finally, the concept of the "student as consumer" is fostering a greater focus on holistic student support and equity. Institutions are leveraging data analytics to provide personalized academic advising and early-warning systems for at-risk students. There is also a renewed commitment to creating inclusive environments and ensuring educational equity, recognizing that success in the 21st century requires addressing the diverse needs of the whole student. These trends collectively signal a future for higher education that is more adaptive, accessible, and aligned with the complexities of a global, knowledge-based economy.

Keywords: *Higher Education Reforms, Policy Notes, Holistic Development*

SUSTAINABLE AGRICULTURE, FOOD AND ENERGY SYSTEMS

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In today's world, we face urgent challenges such as food security, energy sustainability, and environmental crises, exacerbated by growing populations and climate change. Sustainable Agriculture, Food, and Energy Systems provide an integrated approach to tackle these issues. For example, countries like India and Kenya have shown that integrating renewable energy in agriculture can reduce costs by up to 20%, improving the economic feasibility of smallholder farmers. Sustainable farming practices like agro-ecology and crop rotation restore soil health, save water, and support biodiversity, which not only guarantees long-term food security but also offers economic benefits by reducing farmers' reliance on expensive chemical inputs. However, agriculture alone cannot solve these global challenges. A sustainable food system requires efficient production, distribution, and consumption strategies, focusing on reducing food waste, optimizing supply chains, and ensuring access to nutritious food, especially in low-income nations. Shifting to renewable energy sources like solar, wind, and biomass in food production and distribution can significantly reduce greenhouse gas emissions, lower costs, and improve energy efficiency, leading to more resilient food systems. The economic implications are clear: investing in sustainable agriculture and energy solutions creates jobs, enhances local food sovereignty, and fosters inclusive economic growth, particularly in rural areas. With the right policies, investments, and a global shift toward sustainability, these systems can foster a cleaner, more equitable world.

Keywords: *Sustainable Agriculture, Food Systems, Renewable Energy, Food Security, Environmental Sustainability*

THE IMPACT OF FOREIGN AID ON ECONOMIC DEVELOPMENT: A CRITICAL ANALYSIS

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Pakistan, like the rest of the world's largest developing economies, faces enormous economic and politico-institutional problems. Persistent internal political disputes, long-standing trade imbalances, negligible foreign investment inflows, and the significant fiscal burden of regional conflicts have made the economy dependent on external assistance. Foreign aid, broadly defined as financial or material resources transferred from donor countries or institutions with no full repayment obligations, has traditionally played a pivotal role in bridging Pakistan's resource deficits and maintaining development initiatives. However, the benefits derived from such aid are often impaired by governance deficiencies and corruption, as well as political mismanagement (analogous to smugglers, but for commodities), thereby creating inefficiencies and significant resource wastage. The primary objective of the study was to assess the pattern of economic growth, which refers to the level of growth experienced by the country over a year, taking into account foreign aid. This study constructed two models: one to examine the relationship between foreign aid and economic growth, and the other to observe the relationship between Gross Domestic Product (GDP) and the trend variable. The multiple log-linear regression models were estimated using data from the period 1980-2024. Empirical results suggest that foreign aid has a consistently positive impact on economic growth and contributes to Pakistan's development. Both foreign aid (ODA) and time variables were found to be positively correlated with gross domestic product (GDP). The results indicated that foreign aid, when appropriately channeled to value-added and productivity-enhancing sectors, can make a substantial contribution to economic growth. Consequently, it has also been concluded that improving transparency and aligning the delivery of aid with national development priorities are key to ensuring its long-term growth impact.

Keywords: *Foreign Aid, Economic Development, Gross Domestic Product (GDP), Economic Growth, Government.*

DIJİTAL UÇURUM: GELİŞMEKTE OLAN ÜLKELERDE EŞİTSİZLİKLERİN AZALTILMASINA YÖNELİK POLİTİKA ÖNERİLERİ

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Bu çalışma, dijital uçurumu bilgi ve iletişim teknolojilerine (BİT) erişim ve kullanım fırsatlarındaki farklılıklar temelinde ele almakta; sorunun güncel boyutlarını geliştirmekte olan ülkeler odağında tartışmaktadır. Organisation for Economic Co-operation and Development (2001), dijital uçurumu, bilgi ve iletişim teknolojilerine erişim fırsatları açısından farklı sosyoekonomik düzeylerdeki bireyler, haneler, işletmeler ve coğrafi alanlar arasındaki uçurum olarak tanımlamıştır.

Dijital sermayesi güçlü kesimler ekonomik ve toplumsal alanlarda avantajlı konumlanırken, zayıf kesimler “enformasyon zenginleri–enformasyon yoksulları” ayrımını derinleştiren bir dışlanma riskiyle karşı karşıya kalmaktadır (Öztürk, 2005). Bu sorun hem bireysel düzeyde hem de ülkeler arası farklılıklar bağlamında belirgin bir durumdadır. Gelişmekte olan ülkelere uygulanabilir politika eksenleri beş başlık altında incelenecektir. İlk olarak, altyapı ve kapsayıcı bağlantı yatırımları incelenecektir. Bu bağlamda evrensel hizmet mekanizmaları ve dezavantajlı bölgelerde alternatif teknolojilerle kapsamanın genişletilmesi. İkinci olarak maliyetlerin azaltılması incelenecektir. Uygun fiyatlı erişim ve cihazlar; düşük gelirli hanelere yönelik destekler ve rekabeti güçlendiren düzenlemeler. Üçüncü olarak, erişilebilir dijital kamu hizmetleri. Kamu hizmetlerinin yaygınlaştırılması aynı zamanda alternatiflerin korunması ve erişilebilirlik standartlarının uygulanması. Dördüncü olarak, dijital beceriler ve okuryazarlık; yetişkin eğitimi ve kırılgan gruplara hedefli programlar ile talep tarafının güçlendirilmesi. Son olarak, uluslararası ve çok taraflı iş birliği; Birleşmiş Milletler, OECD, ve Dünya Bankası gibi platformlar üzerinden iyi örnek paylaşımı, standart uyumu ve finansman araçlarının etkin kullanımı; ihtiyaç halinde ikili kapasite geliştirme. Önerilen çerçeve, dijital uçurumun yapısal bariyerlerini azaltarak kamusal dijital hizmetlerin adil ve kapsayıcı biçimde yaygınlaştırılmasına katkı sunmayı amaçlar.

Anahtar Kelimeler: *Dijital Uçurum, Dijital Sermaye, Dijital Hizmet*

PAKİSTAN EKONOMİSİNDE MAKROEKONOMİK VE ENERJİ FAKTÖRLERİNİN EKONOMİK BÜYÜME ÜZERİNDEKİ ETKİLERİ: AMPİRİK BİR ANALİZ

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İktisat literatüründe temel tartışma konularından biri de ekonomik büyümeyi etkileyen faktörlerdir. Konu ile ilgili günden güne artan teorik ve ampirik çalışmalar ekonomik büyümenin birçok faktör tarafından belirlendiğini ortaya koymaktadır. Bu çalışmada da bazı makroekonomik göstergeler ve enerji faktörünün ekonomik büyümeye olan etkisi Pakistan için ampirik olarak incelenmiştir. Pakistan ekonomisine ait 1990-2022 yıllarına ait veriler Dünya Bankası veri tabanından yıllık veri seti olarak alınmış ve ARDL yöntemi kullanılarak analiz edilmiştir. Çalışmanın modelinde GSYH bağımlı değişken olarak ele alınırken, dış borç (DB), doğrudan yabancı yatırımlar (DYY), enflasyon (ENF), ihracat (İHR) ile alternatif ve nükleer enerji kullanımı (ENR) bağımsız değişkenler olarak seçilmiştir. ARDL modeli kapsamında yapılan uzun dönem analizi, DB ve ENF'nin GSYH üzerinde anlamlı ve negatif etkide bulunduğunu buna karşın DYY, ENR ve İHR değişkenlerinin ise ekonomik büyüme üzerinde pozitif ve anlamlı etkiler oluşturduğunu göstermektedir. Kısa dönem hata düzeltme modeli (ECM) sonuçları, önceki dönemde oluşan dengesizliklerin GSYH'ye etkisinin istatistiksel olarak anlamlı olduğunu ve sapmaların kısa sürede telafi edildiğini ortaya koymaktadır. Diğer bir ifadeyle söz konusu bulgular, hem kısa hem de uzun dönem analizlerinin güvenilir olduğuna ve Pakistan ekonomisinde DB ve ENF'nin ekonomik büyüme üzerinde olumsuz; DYY, ENR ve İHR'nin ise olumlu etkiler oluşturduğuna işaret etmektedir. Bu durum Pakistan'ın doğrudan yabancı yatırımlar, ihracat ve alternatif enerjiyi artıracak politikaları iyi belirlemesi ve incelemesi gerektiğini göstermektedir.

Anahtar Kelimeler: Makroekonomik Göstergeler, Ekonomik Büyüme, Enerji, ARDL Yöntemi

İKLİM DEĞİŞİKLİĞİ VERİLERİNİN SAĞLIK YÖNETİMİNDE KULLANIMI: YAPAY ZEKÂ İLE POLİTİKA KARARLARINI DESTEKLEMEK

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İklim değışikliğı, sağık sistemlerinin planlama ve müdahale kapasitesini doğrudan etkileyen önemli bir faktör haline gelmiştir. Bu çalışma, sağık yönetimini güçlendirmek ve politika kararlarını desteklemek amacıyla iklim verilerinin yapay zekâ ile entegrasyonunu incelemektedir. Çalışmada, güncel literatürden yararlanılmış ve seçilmiş yapay zekâ sistemleri örnekleri üzerinden, meteorolojik veriler (sıcaklık, nem, hava kirliliğı, afet riski) ile halk sağığı verilerinin karar destek mekanizmalarında nasıl kullanıldığı analiz edilmiştir. Özellikle sıcak hava dalgaları, vektör kaynaklı hastalıklar ve solunum yolu enfeksiyonları gibi iklimle ilişkili sağık tehditlerine karşı alınan önlemler değerlendirilmiştir. Bulgular yapay zekâ destekli iklim veri analizlerinin, sağık yöneticilerine erken uyarı, kaynak planlaması ve hizmet önceliklendirilmesi gibi konularda önemli avantajlar sunduğunu göstermektedir. Bununla birlikte, veri kalitesi, algoritma şeffaflığı ve etik yönetim gibi konuların politika düzeyinde ele alınması gerektiğı vurgulanmaktadır. Sonuç olarak, iklim verilerinin yapay zekâ ile işlenmesi, sağık yönetimi stratejilerinin geliştirilmesine önemli katkılar sunmaktadır. Bununla birlikte, halk sağığını iklim kaynaklı risklere karşı korumayı amaçlayan etkili politika yapım süreçlerinin desteklenmesinde de kritik bir rol oynamaktadır. Bu disiplinler arası yaklaşım, yapay zekânın çevre bilimi ve sağık politikası arasındaki boşluğu kapatmadaki kritik rolünün altını çizerek daha dirençli ve uyarlanabilir halk sağığı sistemlerine katkıda bulunmaktadır.

Anahtar Kelimeler: İklim Değışikliği, Yapay Zekâ, Sağık Yönetimi, Sağık Politikaları

BRIDGING INNOVATION AND INCLUSION: NEW DIRECTIONS FOR GLOBAL EDUCATION

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Education is undergoing a profound transformation as knowledge societies demand new skills, flexible learning pathways and inclusive participation. Recent trends highlight the central role of digital technologies in reshaping teaching and learning. Artificial intelligence (AI) and machine learning are increasingly embedded in e-learning platforms, enabling adaptive instruction, personalized content delivery and performance prediction. Studies show that successful adoption depends on user confidence, ease of use and institutional readiness, with implications for both pedagogy and policy. Another emerging trend is the expansion of micro-credentials and competency-based education. These flexible, short-form qualifications allow learners to continuously upgrade skills in response to evolving labour market demands, thereby supporting lifelong learning and employability. Complementing this, learning analytics is becoming integral in higher education, providing data-driven insights that enhance retention, support diverse learners and improve decision-making. However, the growth of knowledge societies also underscores persistent concerns of equity and inclusivity. Research indicates that access to digital infrastructure, connectivity and devices remains uneven across demographic groups, reinforcing inequalities in participation and outcomes. Addressing these challenges requires targeted strategies in teacher training, investment in infrastructure and policies that safeguard privacy, ethics and responsible use of educational technologies. Overall, these trends reflect a paradigmatic shift from traditional content delivery toward capability building, equipping learners not only with knowledge but also with critical thinking, adaptability and ethical awareness. As education systems continue to adapt, fostering inclusivity and resilience will be essential for advancing sustainable knowledge societies in the digital era.

Keywords: *Artificial Intelligence, E-Learning Platforms, Lifelong Learning, Micro-Credentials, Digital Infrastructure, Teacher Training*

ENSURING CIRCULAR ECONOMY THROUGH BIODIVERSITY CONSERVATION: A CONCEPTUAL OVERVIEW FOR POLICY AND PRACTICE

Azhar Abbas (University of Agriculture, Faisalabad)

Circular economy in its entirety is achieved through three diverse yet highly connected drivers viz. control of wastes and pollutants, circulation of products and materials and promotion of natural regeneration. Circular economy completely vests on continuous circulation of products through processes such as reuse, maintenance, recycling and composting. These processes entail effective tackling of climate change, biodiversity loss and pollution control by the decoupling of economic activity to conserve finite resources. Biodiversity being highly sensitive to increased consumption and commercial stimuli can well become sustained if the principles of circular economy are put into practice but this needs a strong policy framework and guidelines to promote regeneration of nature. On one side, the biodiversity conservation is an effect of the circular economy (cause). Yet there are voices that put the link the other way. Once a drive for biodiversity conservation is launched, there emerge many forward linkages mediating circular economy as the former would heavily rely on nature conservation and waste control thus complementing achievement of the later. Nevertheless, there are numerous challenges that hinder this realization – mainly emanating from business motives, consumption behavior with majority of masses having materialistic goals rather than utilitarian goals and environmental degradation through increased movements, excessive monoculture, specie-specific killing/slaughtering of fauna and deforestation to meet food/fuel demands. All these actions and interventions lead to compromised flora and fauna. The path to circular economy, thus, is heavily dependent on carefully conserved and smoothly nurtured biological capital of any ecosystem. With this in mind, excessive population pressure would still undermine any effort to promote biodiversity and hence circular economy in a wider context.

Keywords: *Sustainable Development, Ecology, Responsibility, Environmental Dividend*

SUSTAINING COMPETITIVENESS IN GLOBAL TEXTILE TRADE: A COMPARATIVE ANALYSIS OF PAKISTAN AND CHINA IN THE U.S. MARKET UNDER GREEN TRADE BARRIERS

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Textiles remain the backbone of Pakistan's economy, yet the country faces strong competition from China in the United States market, where sustainability requirements and green trade barriers increasingly shape global demand. This study assesses Pakistan's textile competitiveness relative to China by examining three key divisions SITC 26 (textile fabrics), SITC 65 (textile yarn), and SITC 84 (clothing) over the period 2000–2022. Using data from UN Comtrade, WITS, and national sources, the analysis applies the Trade Competitiveness Index (TCI), Revealed Comparative Advantage (RCA), and Seemingly Unrelated Regression (SUR) models to evaluate export performance. Results show that Pakistan retains a strong comparative advantage in cotton-based exports, with yarn (SITC 65) as its most competitive sector, while lagging in synthetics and high-value clothing where China dominates. The SUR estimates indicate that Pakistan's exports significantly enhance U.S. imports, particularly in yarn and fabrics, whereas China's exports exert a substitution effect, most evident in clothing. Energy shortages and rising costs continue to constrain Pakistan's competitiveness, although the post-MFA trade environment improved market access. The study highlights the need for Pakistan to modernize technology, diversify into synthetics and value added apparel, and strengthen compliance with Eco-labeling standards such as Oeko-Tex to overcome green trade barriers. Strategic investment in energy efficiency, innovation, and market diversification will be critical to sustaining long-term competitiveness. These findings provide valuable insights for policymakers, industry stakeholders, and international trade experts engaged in shaping sustainable textile trade in a highly competitive global environment.

Keywords: *Textile Trade, Competitiveness, RCA, SUR Model, Green Trade Barriers, Pakistan, China, U.S. Market*

EXPLORATION OF TVET STUDENTS' PERCEPTION OF GENERATIVE AI BASED ON TECHNOLOGICAL ACCEPTANCE MODEL (TAM)

Diana Lee (Politeknik Sultan Azlan Shah)

The rapid advancement of technology has shifted the world with the revolution of Artificial Intelligence (AI). This revolution has led to the emergence of generative AI tools like ChatGPT, Google Gemini and Microsoft Co-Pilot. These AI-powered tools have fundamentally reshaped the educational landscape globally. In Malaysia, these AI-powered tools have gained popularity among students and are widely adopted in their academic studies. Hence, this study has adopted the Technology Acceptance Model (TAM) framework to explore TVET students' perceived usefulness, perceived ease of use, attitude towards use, and intention to use generative AI in their academic studies. A total of 181 students who have experienced using generative AI in their academic studies were selected. The selected students were required to answer the 5-point Likert scale questionnaire distributed via Google Forms. The findings revealed that students have a strong positive attitude toward the use of Generative AI. They perceived the generative AI tools to be highly useful in their academic studies, particularly in generating ideas and improving task efficiency. Students showed high agreement on the ease of use, as the tools are not complicated and the interface is user-friendly. Overall, it can be inferred that the generative AI tools are well accepted among the TVET students. The findings of this study are essential to provide insight for educators and policymakers to strategically integrate AI into the curriculum. This would be a crucial step in preparing TVET students for the AI-driven workforce in the future. It is recommended that future studies cover a wider population with respondents from diverse educational levels for generalizability.

Keywords: *Generative AI, TVET Education, Technology Acceptance Model (TAM).*

ECONOMIC IMPLICATIONS OF DIABETES MELLITUS: A CASE STUDY OF THE COST OF ILLNESS IN PUNJAB, PAKISTAN

Sana Riasat

Diabetes mellitus (DM) is highly widespread and levies a considerable economic burden on individuals, there is existence of various diseases in the universe. Diabetes is a main matter of the twenty-first century, especially for low and middle-income countries. The prevalence of diabetes among adults in Pakistan was approximately 30.8 percent in 2021, with a projected increase to 33.6 percent by 2045. This research investigates both direct and indirect costs, including consultation costs, laboratory fees, medication cost and productivity losses. This study aims to estimate the economic burden of diabetes mellitus on patients, analyzes the socio-economic factors that influence their financial impact on household welfare, and offers policy recommendations to alleviate these impacts in Faisalabad and Sahiwal. Primary data were collected using a designed questionnaire and head-on interviews with 202 confirmed diabetic patients. A random sampling technique was employed to choose the sample size, and the data were analyzed using suitable econometric and statistical tools, including frequency distributions, correlation, and regression models, to assess the relationship between socio-economic and demographic characteristics and the cost burden of diabetes. The results revealed that diabetic patients face significant financial challenges, with a large portion of household income consumed by healthcare expenditures. The findings highlighted that scalable digital solutions, particularly mobile health platforms, could reduce global diabetes disparities. The study recommended policy interventions focusing on early detection, awareness programs, and affordable treatment options to mitigate the economic impact of diabetes on households and the healthcare system in Pakistan.

Keywords: *Cost of illness, Diabetes Mellitus, Direct Cost, Indirect Cost, Healthcare Cost, Economic Burden*

DIGITAL TRANSFORMATION ETHICS: FINDING A BALANCE BETWEEN PRIVACY AND INNOVATION

Khazra Noor (University of Agriculture)

Saira Khanm (University of Agriculture)

Gulfam Hasan (University of Agriculture)

The digital transformation has become one of the most significant features of the 21st century. It is changing economies, government, and social life. Big data, AI, and cloud-based technologies are being used more and more by businesses and governments to improve efficiency, competitiveness, and the user experience. These new technologies created huge chances for growth and fixing problems, but they also bring up moral concerns, especially about privacy, security, and digital rights. A review of current discussions and research shows that unchecked technology progress can hurt people's rights, make things un fair, and make people less trusting of digital systems. Therefore, ethical digital transformation requires establishing a careful balance between fostering innovation and preserving people's autonomy and dignity. Accountability in cases of misuse or data breaches, transparency in algorithmic decision-making, and informed permission in data collecting are all crucial ethical considerations. Additionally, inclusive systems of governance that protect marginalized communities from discrimination and digital exclusion are necessary for digital transformation. To create rules and standards that match innovation with human values, multistakeholder cooperation between legislators, technologists, and civil society is crucial. Achieving balance using technology to enhance society while protecting fundamental rights to freedom and privacy is the cornerstone of digital transformation ethics. Transparency, equity, and accountability must be given top priority in a responsible strategy to make sure that innovation doesn't jeopardize moral standards. Future research should further explore cross-cultural views on privacy and digital ethics, as well as evolving role of international law in prevailing digital zones.

Keywords: *Privacy, Digital Transformation, Innovation, Transparency, Digital Rights, ,*

CIVIL SOCIETY'S CONTRIBUTION TO THE ADVANCEMENT OF SOCIAL JUSTICE

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Saira Khanm (University of Agriculture)

Dr Gulfam Hasan (University of Agriculture)

Civil society has emerged as a vital force in shaping equitable and inclusive societies by advancing the principles of social justice. It encompasses a huge range of groups and movements together with non-governmental agencies (NGOs), network corporations, advocacy networks, religion-based corporations, and grassroots initiatives that perform outside the sphere of the nation and market. This paper review the function of civil society in selling social justice, especially in addressing systemic inequalities, advocating for marginalized groups, and protecting establishments responsible. Civil society acts as a bridge among residents and the kingdom with the aid of creating systems for collective voice, participatory dialogue, and policy engagement. Through awareness campaigns, criminal activism, and network mobilization, it challenges discriminatory practices and guarantees broader public get access to rights, resources, and possibilities. In contexts where governance structures are weak or exclusionary, civil society plays a corrective position through pushing for transparency, equity, and equity in selection making processes. Moreover, worldwide civil society networks increase impact of neighborhood struggles via linking them to transnational agendas inclusive of human rights, gender equity, weather justice, and sustainable development. However, civil society also faces challenges along with political repression, restrained funding, and inner fragmentation. The effectiveness of civil society in advancing social justice relies upon on its ability to maintain independence, construct large alliances, and undertake inclusive techniques that mirror the voices of the most prone corporations. Overall, civil society's transformative potential lies in its potential to democratize public, reshape power relations and advocate for systemic reforms that embody justice, equality, and human dignity.

Keywords: *Social Justice, Civil Society, Advocacy, Equity*

SOCIOECONOMIC FACTORS OF BRAIN DRAIN IN PAKISTAN; ITS IMPLICATIONS ON ECONOMIC GROWTH

Afeera Fatima (University of Agriculture, Faisalabad)

Brain drain refers to the large-scale migration of skilled and educated individuals from one country to another. While developed nations benefit from the inflow of professionals, developing countries such as Pakistan experience a severe loss of human capital in health, education, science, and technology. This study investigated the socioeconomic factors influencing brain drain in Pakistan and its impact on economic growth. The variables included investment expenditure, real exchange rate, unemployment, wage differentials, political stability, and standard of living. Annual time series data from 1990 to 2023 were analyzed. Stationarity tests showed that most variables became stationary at first difference, while one was stationary at level. Based on these results, the Autoregressive Distributed Lag (ARDL) model was applied, along with bounds testing and the Error Correction Model (ECM), to capture both short-run and long-run dynamics. The findings revealed that brain drain had a strong negative and statistically significant effect on long-term economic growth. Political instability, high unemployment, and wage differentials emerged as the most critical push factors. Remittances were found to provide only temporary relief, mainly through household income support and foreign exchange, but failed to offset the long-run economic losses. The error correction term further confirmed a stable long-run equilibrium relationship and showed that the economy adjusted back to equilibrium after shocks. The study concluded that reducing brain drain required political stability, high-quality employment opportunities, competitive wages, and better living standards. It also emphasized engaging overseas professionals through investment, knowledge transfer, and return migration to transform brain drain into a driver of development.

Keywords: *Brain Drain, Economic Growth, Socioeconomic Factors and Pakistan*

THE IMPACT OF SOCIAL, PRODUCT AND PHYSIOLOGICAL FACTOR ON BRAND LOYALTY

Hafeeza Noor (University of Agriculture Faisalabad)

The relationship between consumer-related factors and brand loyalty is regarded as imperative because loyalty reduce customer switching and ensure long-term competitiveness in the cosmetics industry. Recognizing this importance, the study was conducted to examine how product quality, brand trust, and self-esteem influenced brand loyalty with consumer satisfaction as a mediating variable. A semi-structured questionnaire was administered to 200 students from various universities and colleges, and the data were analyzed using SPSS and SmartPLS. The results revealed that product quality, brand trust, and self-esteem significantly enhanced consumer satisfaction, which in turn exerted a strong positive effect on brand loyalty. Among the predictors, product quality was the most influential factor, confirming that perceptions of safety and authenticity strongly shaped loyalty. Brand trust also emerged as a critical determinant, demonstrating that reliability and credibility reinforced commitment to cosmetics brands. Self-esteem positively affected satisfaction and loyalty, highlighting the psychological alignment between consumers and brands. Mediation analysis confirmed that consumer satisfaction played a decisive role in linking the three factors with loyalty. Overall, the model explained 25% of the variance in loyalty. These findings indicated that cosmetic brands could strengthen loyalty by ensuring high product quality, fostering trust, and resonating with consumer self-perceptions.

Keywords: *Brand Loyalty, Product Quality, Brand Trust, Self-Esteem*

AI DIGITAL SKILLS AND INNOVATION: THE ROLES OF KNOWLEDGE AND LEADERSHIP

Hammad Imran (The University of Faisalabad)

Muhammad Imran (The University of Faisalabad)

This study explores how employees' AI digital skills translate into innovative behavior, emphasizing the processes and conditions that enable this link. Drawing on Dynamic Capabilities Theory and Social Exchange Theory, we propose a moderated mediation model in which digital knowledge integration acts as a mediator and e-leadership support serves as a moderator. Survey data collected from employees in technology-driven organizations were analyzed using structural equation modeling. Results show that AI digital skills enhance employee innovation, but this effect operates primarily through digital knowledge integration, which ensures that technical competencies are applied across tasks and organizational contexts. In addition, supportive e-leadership strengthens these relationships by encouraging employees to utilize their skills effectively and integrate digital knowledge into creative solutions. The findings highlight that AI digital skills alone are not sufficient to foster innovation. Instead, organizations must invest in both knowledge integration practices and empowering digital leadership to fully realize the innovative potential of their workforce.

Keywords: *AI Digital Skills, Knowledge Integration, E-Leadership, Innovation, ,*

AI ETHICS: AN ANALYSIS OF TURKEY'S NATIONAL STRATEGY AND INTERNATIONAL DOCUMENTS

Elif Miray Kasap (İnönü Üniversitesi)

The study evaluates the use of artificial intelligence technologies in the public sector within the framework of public ethics, through important documents at the national and international levels. The role of artificial intelligence in public policy has increased with the advancement of technology, This situation raises the question of how artificial intelligence systems should be managed in the public sector in accordance with ethical principles. In this regard, the study compares documents that serve as guidelines for the ethical use and development of artificial intelligence. Within the scope of the research, the European Commission's Artificial Intelligence Act, the OECD Artificial Intelligence Guidelines, the Guide to Ethical Principles for Trustworthy Artificial Intelligence Systems, and the Montreal Declaration documents were examined in comparison with Turkey's National Artificial Intelligence Strategy in terms of artificial intelligence ethics. The study was conducted through document analysis, and the ethical values featured in the documents were systematically identified. The findings reveal that values such as transparency, accountability, equality, justice, and security are embraced as common denominators in the documents. The documents emphasize the importance of monitoring artificial intelligence systems and observing ethical obligations. However, it is observed that the documents prioritize different ethical values in terms of application and enforcement. The study shows that the Turkish National Artificial Intelligence Strategy document places less emphasis on algorithmic discrimination, human rights, and the deepening of inequalities, while prioritizing the protection of personal data. While transparency and accountability are shared ethical principles, security takes precedence in Turkey's National Artificial Intelligence Strategy.

Keywords: *Ethics, Public Administration, Artificial Intelligence, Artificial Intelligence Ethics.*

DEVELOPMENT OF FREEZIT EDUCATION CARD AS A TEACHING ASSIST IN HVAC EDUCATION

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Mohd Shazzany (Politeknik Kuching Sarawak)

This paper is present a Freezit educational card, STEM-based educational card game designed to support Heating, Ventilation and Air-Conditioning (HVAC) education. Freezit cards is convey basic component HVAC, technical problem, solution card and while action card which is related with Heating, Ventilation and Air-Conditioning (HVAC) and technical issue had was having in real. The development process four phase conceptual design, card development, playtesting and evaluation. Playtesting Freezit card with HVAC student demonstrated that the game improved engagement, encouraged collaborative learning and reinforced understanding of technical terminology. Evaluation through pre and post game, while student and lecture feedback highlighted the game ability to make complex concepts more accessible. Based on combining interactive play with educational objective, Freezit illustrates how gamification can improve knowledge and problem solving skills in HVAC education. Freezit is offering educational tool for classroom integration.

Keywords: *Freezit, STEM, HVAC*

**IMPACT OF CONSUMER ETHNOCENTRISM ON PURCHASE INTENTIONS:
MEDIATING ROLE OF BRAND PREFERENCE AND MODERATING ROLE OF
BRAND EQUITY.**

Rohail Jibran (The University of Faisalabad)

This research investigates the impact of consumer ethnocentrism on purchase intentions within the apparel industry of Pakistan, highlighting the mediating role of brand preference and the moderating role of brand equity. Consumer ethnocentrism, reflecting the tendency of individuals to prioritize domestic products over foreign alternatives, plays a significant role in shaping purchase decisions in emerging markets. The study applies structural equation modeling (SEM) to examine the proposed relationships. To explore these relationships, a quantitative research design was used. Data were collected through a structured survey questionnaire distributed among apparel consumers in major urban areas of Pakistan using a convenience sampling technique. Findings demonstrate that consumer ethnocentrism positively influences purchase intentions through the mediation of brand preference. Furthermore, brand equity strengthens this relationship, indicating that higher equity amplifies the effects of ethnocentric tendencies on consumers' apparel purchase behavior. The study contributes to marketing literature by integrating ethnocentrism, brand preference, and brand equity into a single framework, offering both theoretical insights and practical implications for apparel marketers in ethnocentric consumer segments.

Keywords: *Consumer Ethnocentrism, Purchase Intentions, Brand Preference, Brand Equity.*

LINGUISTIC JUSTICE AS SOCIAL JUSTICE: RE-EVALUATING PAKISTAN'S LANGUAGE POLICIES FOR REGIONAL LANGUAGES RIGHTS AND EQUITY

Katsiaryna Hurbik (The University of Faisalabad)

This study explores the intersection of social justice and language policies in Pakistan, focusing on the rights and status of the country's numerous regional languages. Language policies in Pakistan often prioritize the English language and Urdu for administrative convenience, resulting in the marginalization and extinction of indigenous and regional languages of Pakistan. The study argues that the denial of equitable status and support to regional languages constitutes a form of linguistic injustice, which is fundamentally a social justice issue. By employing a critical analysis of existing language policies in Pakistan, the work examines their impact on socioeconomic opportunities, cultural preservation, and political participation for speakers of languages such as Sindhi, Pashto, Balochi, Punjabi, Saraiki, and others. It employs a social justice framework to analyse language policies biases and advocate for reforms, arguing that national unity and equity can only be achieved by formally recognizing and promoting the country's linguistic diversity. The study recommends specific, actionable language policy changes that align with the notions of multilingualism, language rights, and inclusive governance to ensure equity of all ethnic groups of the country.

Keywords: *Social Justice, Regional Languages, Language Policy, Linguistic Justice*

ARTIFICIAL INTELLIGENCE AND RURAL FUTURES: OPPORTUNITIES AND CHALLENGES FOR DIVERSIFICATION

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As artificial intelligence (AI) reshapes global economies, rural transformation and livelihood diversification emerge as a key modus operandi for promoting sustainable development, social equity, and peace in rural areas. Recent studies show that digital ability significantly boosts livelihood diversification among rural households, particularly among low-income groups. In China, households with higher digital abilities measured through skill and access – are more likely to engage in both agricultural and non-agricultural work, across industries. Similarly, in Pakistan, households in rain-fed rural districts diversify income sources towards off-farm and non-farm activities in response to climate variability, market imperfections and limited credit. Education and infrastructure emerge as strong positive determinants of diversification. The role of agricultural extension services has been underscored in supporting diversification. A systematic review finds that extension can help rural households adopt new enterprises, manage natural resources better and build partnerships that reduce poverty and enhance livelihood resilience. In Bangladesh, infrastructure improvements, land rental arrangements and education contribute significantly to rural transformation by facilitating small-farm operations and non-farm economic linkages. Meanwhile, newer research explores AI and Internet of Things (IoT) tools, especially in precision agriculture and weather forecasting, as potential catalysts: AI-powered forecasting systems can help farmers anticipate climate shocks and adjust cropping and other livelihood strategies. However, challenges remain: illiteracy, lack of digital skills, infrastructure deficits, and issues of equitable access limit adoption. In conclusion, rural transformation in the 3Ps framework can be accelerated by combining AI-driven technologies, strong extension and education systems, infrastructural investment, and inclusive policies. Continued research is needed to assess long-term outcomes, manage ethical implications and guard against unintended inequality. The 3Ps framework — Planet, People, and Peace — is often used in academic and policy debates about sustainable development in the era of global challenges and technological change. It extends the more familiar “3Ps” of sustainability (Planet, People, Prosperity/Profit) or the UN’s 5Ps (People, Planet, Prosperity, Peace, Partnership) used in the 2030 Agenda for Sustainable Development.

Keywords: *Artificial intelligence, Diversification, Extension, Infrastructure, Resilience, Sustainability*

DIGITAL TRANSFORMATION AND HUMAN WELL-BEING: PATHWAYS TO A BETTER LIFE

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Digital transformation is highly advocated as a pathway to enhancing human well-being, reducing inequalities, and promoting sustainable development. Research demonstrates that the expansion of the digital economy and infrastructure improves access to healthcare services and helps break intergenerational cycles of health poverty. For example, recent studies in China show that digital platforms and telemedicine reduce disparities by enabling affordable and equitable health services, especially in underserved areas. In the sphere of governance, digitalization strengthens transparency, accountability, and efficiency of public service delivery. Evidence from Morocco indicates that digitized services improve fairness and responsiveness, fostering stronger trust between citizens and administrations. Likewise, in the workplace, digital transformation is associated with improvements in employees' quality of work life. A study on the Egyptian electricity utility sector finds that digital tools, coupled with fair compensation and a supportive culture, significantly improve job satisfaction, work-life balance, and performance. Beyond social and institutional domains, digital transformation contributes to environmental sustainability. It facilitates smart energy use, resource efficiency, and low-carbon innovations, supporting both ecological balance and economic competitiveness. Yet, scholars also emphasize critical risks: widening digital divides in access and skills, threats to data privacy and security, and potential exclusion of vulnerable groups if digital strategies are not inclusive. Taken together, evidence highlights that digital transformation when governed ethically and implemented inclusively can create a "better life" by improving health, strengthening governance, enhancing work conditions, and fostering sustainable societies. The challenge lies in ensuring equitable access, building digital skills, and addressing risks so that the benefits of transformation are shared widely across populations.

Keywords: *Digitalization, Well-being, Governance, Workplace, Sustainability, Innovation*

FACTORS INFLUENCING THE USE OF CHATGPT IN MALAYSIAN POLYTECHNIC COMMUNICATIVE ENGLISH CLASSROOMS: STUDENTS' PERSPECTIVES

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Research concerning the factors contributing to the adoption of Artificial Intelligence (AI) tools in higher education has grown significantly in recent years. This study investigates the factors influencing the use of ChatGPT as a tool in Communicative English classrooms at Malaysian polytechnics, focusing on students' perspectives. The study employs the Unified Theory of Acceptance and Use of Technology (UTAUT2) model developed by Venkatesh et al. (2012), extended with Trust, Perceived Risks, and Attitude toward ChatGPT. A quantitative research design was employed, with data collected through structured online questionnaires distributed to 273 Diploma students (from Semester 1 to 6), who are familiar with the use of AI tools, particularly ChatGPT, in Communicative English classrooms across Malaysian Polytechnics. The statistical analyses were performed using SPSS and SmartPLS, and the hypotheses were tested using Structural Equation Modelling (PLS-SEM). The findings reveal that Attitude and Habit significantly and positively influence Behavioural Intention to use ChatGPT, with Attitude emerging as the strongest predictor. Other major predictors, such as Performance Expectancy, Effort Expectancy, Hedonic Motivation, Facilitating Conditions, and Perceived Risks, however, show weak or non-significant effects on Behavioural Intention in this context. Trust and Social Influence exert significant positive effects on Attitude toward ChatGPT, despite denoting non-significant or rather weak relationships with Behavioural Intention. These results indicate that students' attitude and habitual use patterns are key drivers of their intention to use ChatGPT, while traditional technology acceptance factors may be less influential in this English as a Second Language (ESL) classroom context. The findings underscore the need for educators to foster positive attitudes, habitual engagement and more responsible use of AI tools in ESL classrooms while addressing perceived risks. The study contributes to the growing body of literature on AI integration in tertiary education, especially in language learning contexts.

Keywords: *ChatGPT, UTAUT2, ESL Classrooms, Technology Acceptance and Use, Malaysian Polytechnics*

AI-POWERED DIGITAL TRANSFORMATION: SHAPING A BETTER FUTURE FOR PAKISTAN

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In the age of Artificial Intelligence (AI), digital transformation presents an unprecedented opportunity for Pakistan to address its social, economic, and environmental challenges while improving the quality of life for its citizens. This research examines how AI can revolutionize key sectors in Pakistan, from healthcare and education to agriculture and governance, driving progress towards a more inclusive, sustainable, and prosperous future. The study focuses on several practical examples of AI-driven innovations that are already having a transformative impact in Pakistan. In the agricultural sector, AI-enabled technologies, such as smart irrigation systems and predictive crop management, are helping farmers optimize resources and increase yield, contributing to food security. The Cattle Health Monitoring System, which uses AI to track livestock health, is another prime example of AI's potential to enhance agricultural productivity while ensuring sustainability.

In the healthcare sector, AI-powered diagnostics and telemedicine platforms are bridging the gap between rural and urban healthcare access. Projects like Sehat Kahani, an online health service for remote areas, utilize AI to provide virtual consultations and medical advice, improving healthcare delivery for underserved populations. Similarly, AI-based tools in drug discovery and disease prediction are revolutionizing public health management in Pakistan. AI's impact is also seen in the education sector, where digital platforms such as EdTech are improving learning outcomes through personalized, adaptive learning models. These AI-driven platforms cater to diverse student needs and offer opportunities for skills development that align with industry demands, preparing the youth for the digital workforce. Moreover, AI is helping to strengthen governance and public administration. The Citizen Feedback Monitoring Program uses AI to analyse citizen complaints, identify patterns of corruption, and suggest improvements, thereby improving transparency and accountability in government services.

This research emphasizes the need for a national AI strategy that fosters innovation, addresses ethical concerns, and ensures that the benefits of AI are distributed equitably across society. By focusing on AI's potential to transform key sectors, Pakistan can achieve a future where technology contributes to economic growth, social equity, and environmental sustainability.

Keywords: *Digital Transformation, Artificial Intelligence, Pakistan, AI in Agriculture, Innovation.*

CSR-MIX AND SECTORAL SCORING: A FRAMEWORK FOR TRANSPARENT, INCLUSIVE, AND MEASURABLE CSR IN PAKISTAN

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In Pakistan, CSR is usually done as a basic result of philanthropy and compliance-based measures with limited measurement, poor transparency and less involvement of small and medium enterprises (SMEs). These actions are degrading to the potential of CSR as a source of sustainable development and competitiveness. This paper suggests a new model, the CSR Micro-Impact Exchange (CSR-MIX) together with a Sectoral Scoring Framework (CSSF) to redefine CSR as quantifiable, participatory, and impactful.

The CSR-MIX is conceived as an online marketplace that will allow NGOs and social enterprises to post development projects broken into fundable micro-units, like sponsoring student education, planting trees, or providing clean water. The small and medium-sized companies can invest in buying these units to boost the economy, and their transactions will be documented and authenticated by blockchain and third-party checks to ascertain transparency. This democratizes the process of CSR involvement, and guarantees that no rupee will be lost in an abstract social impact.

In addition to the exchange, the CSSF has added the scoring on points and on sectors. Every industry is evaluated by customized priorities e.g. fertilizers on water stewardship, pharmaceuticals on affordable medicine, textiles on worker welfare, and banks on financial literacy. Authenticated contributions are converted into CSR points, which are summed up to form a National CSR Index which ranks firms and creates a healthy competition.

The proposed model can turn the image of CSR in Pakistan as a figurehead practice into a transparent, accountable and measurable system based on the Sustainable Development Goals (SDGs). This framework can improve the social development and economic strength of Pakistan in the long term by providing more people with an opportunity to participate, increasing its credibility on the global stage, and ensuring that the corporate contributions made can meet the needs of the sectors.

Keywords: *Corporate Social Responsibility, CSR-MIX, Sectoral Scoring Framework, Sustainable Development Goals, Pakistan, SMEs, Social Impact Measurement*

AN ANALYSIS OF SPENDING BEHAVIOR AMONG THE UNIVERSITY STUDENTS: A CASE STUDY OF THE UNIVERSITY OF FAISALABAD

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During university life, students' behaviors shift in many dimensions, particularly in how they manage financial matters. This study was designed to examine the spending behaviors of university students with a nuanced focus on the impact of their income sources, peer group influence, and exposure to social media. Targeting university students, this quantitative study recruited 100 participants through multistage sampling. The University of Faisalabad was conveniently selected, and respondents were purposively recruited to collect data. Responses were gathered using a structured questionnaire. The results reveal that financial reliance on An Analysis of Spending Behavior among the University Students... 142 parents, combined with increasing trends of consumerism influenced by modern-day trends, significantly affects students' spending behavior. The findings highlight the importance of providing financial literacy to university students to help them distinguish between essential and non-essential spending, resist external influences, and adopt more sustainable financial practices.

Keywords: *University Students, Spending Behavior, Financial Literacy, Peer Influence, Social, Media Impact, Consumerism*

THE IMPACT OF MOBILE PAYMENT SYSTEMS ON CONSUMER SPENDING AND SAVING BEHAVIOR OF YOUTH IN FAISALABAD, PUNJAB, PAKISTAN

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This proposed study seeks to examine the impact of mobile payment systems on the spending and saving behavior of youth in Faisalabad, Punjab, Pakistan. The rapid expansion of digital financial platforms such as JazzCash and Easypaisa has transformed traditional modes of payment, offering enhanced convenience, efficiency, and security. However, this technological shift raises critical questions: Do mobile payments encourage impulsive consumer behavior by reducing the psychological restraint of cash transactions, or do they promote financial discipline through features such as budgeting tools and transaction tracking? Anchored in the Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM), the study will employ a quantitative research design. A structured survey will be administered to 200 university students who actively use mobile payment services, enabling the analysis of relationships between mobile payment adoption, discretionary spending patterns, and saving habits. The expected findings aim to uncover the dual role of mobile payments enhancing digital convenience while simultaneously posing risks to saving behavior. The research is closely aligned with the United Nations Sustainable Development Goals (SDGs), particularly:

SDG 8: Decent Work and Economic Growth by analyzing how digital finance influences youth financial practices.

SDG 9: Industry, Innovation, and Infrastructure by advancing understanding of fintech adoption in Pakistan's growing digital economy.

SDG 12: Responsible Consumption and Production by addressing the behavioral implications of mobile payments for sustainable financial decision-making.

By addressing these dimensions, the study aspires to provide meaningful insights for policymakers, financial institutions, and consumers, contributing to the advancement of responsible digital finance and sustainable economic growth in Pakistan.

Keywords: *Digital Payment Transformation, Youth Financial Behavior, Impulsive Spending vs. Financial Discipline, Fintech Adoption in Emerging Economies, Sustainable Digital Finance*

IMPACT OF LEADERSHIP STYLES ON EMPLOYEE PERFORMANCE AND ORGANIZATION GROWTH IN PAKISTAN

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The impact of managers' leadership styles on subordinates' performance within the Pakistani banking sector. Leadership style is a critical determinant of employee performance, satisfaction, and retention, particularly in industries facing high turnover and competitive pressures. Building upon existing literature, this study seeks to empirically investigate the relationship between transformational, transactional, and laissez-faire leadership styles and employee performance outcomes. The proposed research will collect primary data from full-time employees working in selected banks across Pakistan through structured questionnaires. The findings are expected to provide valuable insights into how leadership behaviors influence employee effectiveness, motivation, and satisfaction. This study will also highlight the negative consequences of ineffective leadership styles, such as laissez-faire, on employee outcomes. The results will contribute to developing practical recommendations for human resource departments and top management in the banking sector, enabling them to design effective leadership development programs, implement HRD initiatives, and establish strategies for employee retention and motivation. Ultimately, the research aims to provide a model that supports organizational growth and sustainable performance by aligning leadership practices with employee expectations and industry challenges.

Keywords: *Transformational Leadership, Transactional Leadership, Performance, Pakistan, Banking, Organizational Performance*

“AI-ASSISTED PERSONALIZED DIGITAL ADVERTISING AND CONSUMER BEHAVIOUR: A SYSTEMATIC REVIEW THROUGH THE LENS OF ETHICAL CONCERNS”

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The research examines the impact of personalised digital advertising with the help of artificial intelligence (AI) on consumer behaviour, especially regarding the choice of purchase, retention of customers, and ethical issues. It also addresses to harmonise the technological innovations in AI with ethical systems that are needed to have sustainable digital relationships in marketing. The quantitative survey-based design was used, with responses to 140 participants of various professions being collected. Statistical methods (regression analysis, chi-square analysis, and PROCESS Model (1 and 4) methods were used to test the effects of mediation and moderation in the proposed conceptual model. The results indicate that AI is an important tool to improve the efficacy of personalized advertising, which influences consumer purchasing behaviour. The mediation analysis shows that the association between AI assistance and consumer purchase decision is completely mediated by personalized advertisements. Though, ethical considerations are a balancing force, and they undermine the relationship in case of problems of trust and transparency. The research has some drawbacks that limit generalizability as it depends on convenience sampling and is within a small geographical area. Cross sectional design does not allow any inferences about cause-and-effect and therefore longitudinal and cross-cultural studies are important to extensively comprehend the variables interrelationship and to identify explicit variables holistically. The results are an invitation to marketers to add ethical protection, transparency protocols, and fairness to AI systems to establish trust among consumers and use personalization to enhance engagement and retention. By managing issues of privacy and algorithmic bias, companies can encourage responsible AI usage, which guarantees acceptance in the society and prevents consumer mistrust.

Keywords: *Artificial Intelligence, Personalized Advertising, Consumer Behaviour, AI Ethics, Data Privacy*

ASSESSMENT OF COLEOPTILE LENGTH AND SEMINAL ROOT ANGLE IN SOME TETRAPLOID WHEATS AT SEEDLING STAGE

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Seedling establishment, as the first stage of crop growth, relies heavily on seedling traits such as coleoptile length (CL) and seminal root angle (SRA) for efficient uptake of soil water and nutrients, particularly under deep sowing. Among tetraploid wheat wild species, *Triticum araraticum* ($2n=4x=28$, GGAtAt), a neglected wheat species, has not been explored for CL and SRA. Therefore, a panel of 79 *T. araraticum* and 10 *T. dicoccoides* genotypes, along with 5 commercial cultivars of *T. durum*, was phenotyped for CL and SRA at the seedling stage. Analysis of variance revealed statistically significant ($p < 0.01$) differences among the three tetraploid wheat species for both CL and SRA. Descriptive statistics showed that CL ranged from 3.96 to 9.01 cm in *T. araraticum*, 4.67 to 8.11 cm in *T. dicoccoides*, and 4.37 to 5.49 cm in *T. durum*. The minimum average CL (5.01 cm) was recorded in *T. durum*, followed by *T. araraticum* (5.51 cm), while the maximum average CL (6.49 cm) was observed in *T. dicoccoides*. In contrast, SRA ranged from 27.0° to 125.5° in *T. araraticum*, 43.1° to 93.9° in *T. dicoccoides*, and 66.3° to 131.1° in *T. durum*. On average, *T. dicoccoides* exhibited the narrowest SRA (74.7°), followed by *T. araraticum* (84.2°), while the widest SRA (98.4°) was observed in *T. durum*. Based on these findings, it can be concluded that, alongside *T. dicoccoides*, *T. araraticum* possesses valuable untapped genetic diversity for CL and SRA and can serve as a potential genetic resource in pre-breeding programs aimed at improving drought tolerance in wheat.

Keywords: *Wheat, Drought, Root System Architecture.*

TURKEY'S 2025 AREAL RAINFALL FORECAST

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Turkey has begun to experience the global climate crisis deeply in recent years. The crisis has been exacerbated by the significant decrease in precipitation associated with rising temperatures. According to the National Security Directorate (MGM) data, an average of 7.9 mm of precipitation was recorded across Turkey in August. August precipitation was 47% below the long-term average (1991-2020) of 14.8 mm. The precipitation decrease, approaching 50%, also serves as a warning. Compared to 2024, August precipitation was 43% below the 13.9 mm average. While there was a decrease of over 80% in the areas surrounding Edirne, Istanbul, Çanakkale, Balıkesir, Yalova, Bilecik, Kocaeli, Sakarya, Manisa, Izmir, Aydın, Muğla, Antalya, and Mersin, as well as in the Central and Western Black Sea regions, Eskişehir, Çankırı, Yozgat, Gümüşhane, Eastern Anatolia, and Southeastern Anatolia, an increase of over 60% was observed in the areas around Afyonkarahisar, Denizli, Konya, Niğde, Nevşehir, Aksaray, and Karaman. Across the region, all regions received below-normal precipitation, with the largest decrease of 76% in the Southeastern Anatolia region. August precipitation in the Mediterranean and Southeastern Anatolia regions reached its lowest level in 12 years. The decrease in precipitation necessitates the development of new plans and the pursuit of new approaches, particularly in terms of planting, production, and productivity in crop production. The significant and significant decrease in precipitation in Southeastern Anatolia and Central Anatolia regions is particularly concerning.

This study will explain the rainfall situation across Turkey and provide insights into potential future scenarios. While the necessary actions may appear different for each region, the underlying reality is the same: preventing water waste and being mindful of its consumption. Considering that water is a key determinant of food supply, this issue becomes even more crucial. However, simply solving the drought with nationwide measures alone will not be sufficient. In addition, cooperation with neighboring countries will be necessary. With the population rapidly increasing, particularly due to migration, and problems becoming unbearable, much more serious and decisive measures are necessary. If temperatures continue to rise at this rate and the necessary measures are not taken, Turkey could experience even more serious and detrimental developments within the next five years.

Keywords: *Rainfall, Temperature, Climate Change, Türkiye*

TURKEY'S 2025 AREAL TEMPERATURE STATUS

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Turkey has begun to experience serious problems under changing climate conditions. The ongoing temperature increase, coupled with a decrease in precipitation, has begun to create both expected and unexpected problems. According to MGM data, average temperatures in August 2025 were around seasonal norms in the Marmara Region, the North Aegean Region, Bodrum, Muğla, Datça, Dalaman, Antalya, Anamur, Antakya, Finike, Kaş, Acıpayam, Korkuteli, Sivas, Kırıkkale, Yozgat, Kırşehir, Gemerek, Cihanbeyli, Nevşehir, Zara, the Western and Central Black Sea Region, Rize, Artvin, Şanlıurfa, Batman, Viranşehir, Birecik, and Akçakale regions. However, they were above seasonal norms in other regions. Considering the long-term average (1991-2020), the average August temperature was 25.1°C, and the August temperature in 2025 was 26.5°C. In other words, the average temperature increased by 1.4°C. August 2025 was recorded as the fourth hottest August in the last 55 years. While temperature increases manifested themselves differently across provinces and districts, the greatest impact was seen on health and agricultural production. From a health perspective, temperature increases have caused serious problems, especially for those aged 65 and over, and have also led to the emergence of certain diseases, including skin diseases, in those who must work outdoors. In terms of agricultural production, the increase in temperature has begun to cause serious hybridization problems, particularly in C4 type plants and summer-grown vegetables and fruits. Plants generally cannot carry pollen above 36°C. When pollen is not carried for extended periods above 40°C, grain/fruit production cannot occur, leading to a decrease in yield. Furthermore, the increase in temperature increases the evaporation rate from dams. The decrease in rainfall and water levels in dams, along with the increase in evaporation, leads to a decrease in reserves. When the fact that nearly 15 million immigrants and illegal immigrants are operating solely for consumption within the country is eliminated, it becomes clear that much greater problems may arise in the future. In addition to this, the increase in water consumption by humans and animals also leads to an increase in temperature-related diseases. This study assesses the temperature for 2025 using a long-term average and offers recommendations on what the future holds and what needs to be done. It is important that the recommendations are feasible and acceptable to administrators.

Keywords: *Temperature, Climate Change, Diseases, Türkiye*

DEVELOPMENT OF SYNTHETIC BREAD WHEAT BY USING WILD EMMER (T. DICOCOIDEOS) AND DURUM WHEAT (T. DURUM)

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Synthetic wheat, derived from interspecific hybridization, enhances the genetic diversity of bread wheat, supporting breeding programs for climate resilience and food security. Keeping in view the importance of synthetic wheat, this study was conducted to develop synthetic bread wheat lines by crossing selected genotypes of wild emmer (*Triticum dicoccoides*) and durum wheat (*Triticum durum*) with *Aegilops tauschii* during the 2023-24 and 2024-25 growing seasons under field conditions, with subsequent greenhouse cultivation for chromosome doubling. During the two growing seasons, a total of 132 crosses were performed, involving 3956 pollinated flowers, which produced 152 seeds and 66 plants. From wild emmer $\times$ *Ae. tauschii* crosses, 2306 flowers yielded 54 seeds and 28 plants, while durum wheat $\times$ *Ae. tauschii* crosses produced 98 seeds and 38 plants from 1650 flowers. Chromosome doubling was successful in only one cross (*Aeuro* $\times$ TOWWC0022), which enabled the development of a synthetic bread wheat line. These findings confirm the potential of wild emmer and durum wheat as parental lines for synthetic wheat development. However, low success rates underscore the need for optimized protocols, such as improved pollination techniques and enhanced chromosome doubling methods, to increase efficiency in future experiments.

Keywords: *Wild Emmer, Durum Wheat, Synthetic Wheat*

EVALUATION OF THE POTENTIAL OF SAINFOIN (*ONOBRYCHIS VICIIFOLIA*) IN SUSTAINABLE AGRICULTURE: AGRONOMIC, GENETIC, AND ARTIFICIAL INTELLIGENCE PERSPECTIVES

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Sustainable agriculture is broadly defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs. In this context, sustainable agriculture not only aims to satisfy increasing food demands but also seeks to preserve natural resources, improve soil health, and maintain ecosystem balance. Sainfoin (*Onobrychis viciifolia*) is a perennial legume forage crop with significant potential for use in sustainable agriculture practices. The scope of this review is to provide an integrated evaluation of sainfoin's agronomic contributions, its nutritional quality and nutraceutical properties in animal feeding, its genetic background, and the prospects of artificial intelligence applications for future research. For this purpose, the ecological, agronomic, and nutraceutical aspects reported in the literature were examined. Furthermore, recent cytogenetic and genomic studies have revealed insights into sainfoin's karyotype structure, the organization of repetitive DNA elements, and the genetic basis of proanthocyanidin biosynthesis. In addition, artificial intelligence-based phenotyping, drone imaging systems, and IoT-based sensor networks, which have shown promise for sustainable agriculture in other legumes. Notably, such approaches have not yet been applied to sainfoin. This study discusses the ecological, genetic, and technological dimensions of sainfoin, identifying current gaps and future research opportunities. Therefore, the review aims to contribute to the more effective utilization of sainfoin within the framework of sustainable agriculture and food security.

Keywords: *Onobrychis Viciifolia, Sainfoin, Sustainable Agriculture, Artificial Intelligence, Genetics*

SEED TRAITS AND YIELD RELATIONSHIPS IN SOYBEAN (GLYCINE MAX L.) LINES GROWN AS A SECOND CROP UNDER CUKUROVA CONDITIONS

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Mehmet Alper Gökçe (Cukurova University)

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Soybean (*Glycine max* L. Merr.) is an essential oilseed cash crop grown worldwide and consumed as protein, oil, and food by humans and feed by animals. Seed size (length, width, thickness, weight) and shape (length/width ratio, etc.) are key morphological traits that play an important role in determining both yield and quality. Therefore, this study was conducted to investigate the relationships between seed morphology and yield traits in 8 commercial cultivars and 73 advanced soybean [*Glycine max* (L.)] lines grown as a second crop under Cukurova conditions. Seed parameters including seed area, perimeter, length, width, 100-seed weight, and seed yield were evaluated across two years. The largest seed area was observed in HA1/3A (40.82 mm²) in 2022 and in C-3/4 (43.78 mm²) in 2023. C-3/4 also exhibited the highest perimeter (25.31 mm), length (8.13 mm), and width (6.86 mm). The highest length/width ratio was recorded in HA9/22 (1.26) in 2023. The greatest yield and 100-seed weight were obtained from B-2/27 (447.50 kg/da; 19.65 g). Analysis of variance revealed significant differences among genotypes ($p < 0.05$, $p < 0.001$), particularly for length/width ratio, 100-seed weight, and yield. Correlation analyses showed strong positive associations among seed morphological traits but weak relationships between these traits and yield parameters. This indicates that morphological traits are highly heritable and likely controlled by the same or closely linked genomic regions, whereas yield, due to its polygenic nature and sensitivity to environmental conditions, is difficult to improve through direct selection. In conclusion, C-3/4 and HA1/3A were superior in terms of morphological traits, B-2/27 showed high yield potential, and HA9/22 stood out with its length/width ratio. These genotypes represent promising candidates for second-crop soybean production and breeding programs.

Keywords: Soybean, Second Crop, Seed Morphology, 100-Seed Weight, Yield

SARCOIDOSIS OR TUBERCULOSIS – OR BOTH?

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Sarcoidosis and tuberculosis are two granulomatous diseases that exhibit significant overlap in clinical, radiological, and histopathological features. In particular, distinguishing between them becomes challenging in endemic regions and among migrant populations. Although both diseases involve granulomatous inflammation, sarcoidosis typically presents with non-caseating granulomas, while tuberculosis often shows caseating necrosis—making cytopathological evaluation crucial. Nonetheless, atypical histological appearances in both diseases may hinder diagnosis. Endobronchial and transbronchial biopsies, supplemented by surgical procedures (e.g., VATS, mediastinoscopy), are essential in obtaining representative samples. From a microbiological standpoint, Ziehl-Neelsen staining, culture techniques, and molecular PCR-based tests remain the cornerstone of tuberculosis diagnostics. However, their sensitivity may be limited in paucibacillary conditions. Newer tools like IGRA assist in differentiating latent from active infection. In sarcoidosis, the absence of a specific microbiological marker emphasizes the role of exclusion criteria in diagnosis.

High-resolution computed tomography (HRCT) provides valuable imaging features—such as perilymphatic nodules and fibrotic bands—that support the differential diagnosis of sarcoidosis. When integrated with cytological and microbiological findings, imaging can enhance diagnostic accuracy and help prevent inappropriate treatments such as unnecessary anti-tuberculosis or corticosteroid therapy.

This study aims to emphasize the importance of a multidisciplinary diagnostic strategy that integrates cytopathology and microbiology to support clinical decision-making.

Keywords: *Sarkoidoz, Tüberküloz, Granülom, Sitopatoloji, Mikrobiyoloji*

TRUST LEVELS OF PHILANTHROPISTS IN NGOS: ANALYZING FUND UTILIZATION TRANSPARENCY IN PUNJAB, PAKISTAN

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This study investigated how financial transparency impacts the trust levels of philanthropists toward NGOs Working in Punjab, Pakistan. NGOs heavily depend on donor contributions; however, concerns regarding financial mismanagement, limited disclosure, and a weak accountability system have raised skepticism among donors. Using a quantitative approach with data collected from 100 philanthropists through structured questionnaires, the study reveals that donors place crucial importance on transparent fund utilization, independent audits, and accessible financial reporting. The findings demonstrate a strong positive relationship between financial transparency and donor trust levels, suggesting that greater openness in financial matters can enhance philanthropists' trust and encourage continued philanthropic support. This research highlights the importance of improving governance and transparency practices to ensure the sustainability and credibility of NGOs in the region.

Keywords: *Trust Levels, Philanthropists, NGOs, Fund Utilization, Transparency.*

DESIGN AND DEVELOPMENT OF AN AUTOMATED TYRE PATCHING TOOL FOR ENHANCED EFFICIENCY AND SAFETY IN VEHICLE MAINTENANCE

Herman Nordiadi Abd Wahab (Politeknik Kuching Sarawak)

Nurul Nisa Mohd Nasir (Politeknik Kuching Sarawak)

The development of a smart tyre repairing tool for automotive workshops represents an important step toward improving efficiency, safety, and ergonomics in the vehicle maintenance industry. Conventional tyre patching methods are often labor-intensive, requiring workers to manually stretch, hold, and stabilize tyres during the repair process, which not only consumes excessive time but also demands considerable physical effort. These repetitive and strenuous tasks can lead to fatigue, decreased productivity, and potential health issues among workshop staff. To address these challenges, a smart and semi-automated tyre repair tool was fabricated with the primary objective of reducing manpower requirements and minimizing time constraints in daily workshop operations. The tool integrates an automatic switching mechanism, allowing workers to operate it with ease and reducing the physical strain typically associated with manual tyre patching. In addition, stability and safety were prioritized in the design through the inclusion of a solid base structure and an integrated clamping system that securely locks the tyre in place, preventing unnecessary movement during repair. These features collectively enhance both the precision and reliability of the process, ensuring that patches can be applied more effectively. By improving operational workflow, the tool empowers workshops to handle a greater number of repairs within a shorter timeframe, thereby improving customer satisfaction while reducing occupational risks for workers. Beyond its immediate application in tyre maintenance, the tool also highlights the broader potential of introducing smart, ergonomic, and cost-effective innovations into the automotive service sector. Its design not only supports more sustainable workshop practices but also demonstrates how simple automation can bridge the gap between traditional labor-intensive methods and modern industrial requirements. The successful fabrication of this tool lays the groundwork for future enhancements, such as incorporating Internet of Things (IoT) applications for monitoring usage or predictive maintenance, further strengthening its role in advancing automotive workshop technology.

Keywords: *Smart Tyre Repair Tool, Automotive Workshops, Ergonomic Design, Automation in Maintenance, Occupational Safety*

PUBLIC PERCEPTION TOWARDS A NEW ECONOMY AND FINANCIAL SYSTEM MODEL

Levent Sumer (Bogazici University)

This study aims to examine the public perception of a new economy and financial system model proposed by Levent Sumer in his work "The World Economy and Financial System: A Paradigm Change Offering a Sustainable Approach," which is structured on four main pillars (developing, balancing, saving, and sharing) and thirteen sub-parameters. The research is based on data from a survey conducted with 284 participants regarding the parameters of this model. The participants were asked to indicate their agreement or disagreement with the 13 sub-parameters proposed, using a Likert scale. The results of the analysis revealed that participants generally held a highly positive view of the model's fundamental elements. Establishing a production society perspective, utilizing technology as a tool, and achieving work-life balance emerged as the parameters with the highest mean scores. Correlation analysis indicated moderate positive and significant relationships among the model's components, suggesting that the model is perceived as a coherent whole. The results demonstrate that the proposed human-centric, balance-oriented, and productivity-emphasizing system resonates with the public and provides policymakers with valuable insights on which areas to prioritize during the economic transformation process.

Keywords: *New Economy Model, Financial System, Sustainable Development, New World Order, Paradigm Change*

DESIGN AND IMPLEMENTATION OF A WEB-BASED NEWS PORTAL SYSTEM FOR EFFICIENT DIGITAL CONTENT MANAGEMENT

Nurul Nisa Mohd Nasir (Politeknik Kuching Sarawak)

Herman Nordiadi Abd Wahab (Politeknik Kuching Sarawak)

The rapid growth of digital technologies has transformed the way information is produced, managed, and consumed, creating an urgent need to replace traditional paper-based records with comprehensive online systems. In response to these developments, this study presents the design and implementation of a fully functional online news portal system equipped with an intuitive user interface and integrated management tools. The proposed portal serves as a centralized web-based platform that allows users to access real-time news updates while enabling administrators to efficiently manage and publish content across multiple categories. The system was developed with a clear objective of improving accessibility, reliability, and interactivity in the dissemination of information. Unlike conventional news outlets constrained by time and physical distribution, this portal offers dynamic updates that can be instantly accessed by a global audience, ensuring minimal delay in news delivery. Administrators are responsible for curating and updating daily content, including breaking news, sports, cultural events, and entertainment segments such as anime or K-drama releases, thereby catering to diverse user interests. Furthermore, the system supports interactive features that encourage active user engagement, such as the ability to comment on articles, fostering a more participatory news environment. Its modular structure allows for scalability, making it adaptable to expanding user demands and technological advancements. The design emphasizes usability, ensuring that even non-technical users can easily navigate the portal, while backend processes are optimized to maintain accuracy and efficiency in content management. This project not only addresses the inefficiencies of paper-based systems but also provides a sustainable, user-oriented solution that aligns with global trends in digital media consumption. Ultimately, the online news portal demonstrates the potential of web technologies to enhance information dissemination, promote user interaction, and support the transition toward more sustainable and efficient modes of communication in the digital era.

Keywords: *Online News Portal, Information Management, Digital Media, User Interface, Content Dissemination*

DESIGN AND DEVELOPMENT OF A WEB BASED LAUNDRY BOOKING SYSTEM FOR ENHANCED OPERATIONAL EFFICIENCY: A CASE STUDY OF POLIKU LAUNDRY

Nurul Nisa Mohd Nasir (Politeknik Kuching Sarawak)

Herman Nordiadi Abd Wahab (Politeknik Kuching Sarawak)

This paper presents the design, development, and evaluation of a web-based laundry booking system aimed at addressing operational inefficiencies in Poliku Laundry's manual framework. Frequent customer complaints regarding the absence of real-time machine availability updates, reliance on paper-based records, and inefficiencies in walk-in booking processes motivated this study. An Agile methodology was employed to iteratively develop a responsive solution using HTML, CSS, JavaScript, PHP, and MySQL. The system integrates key features such as real-time slot visibility, online reservations, automated digital receipts, and secure role-based authentication for customers and administrators. Unit testing conducted across core modules, including login, booking, order history, and logout, achieved complete success, indicating functional reliability and stability. The implemented system enhances transparency, reduces unnecessary customer visits, minimizes paper usage, and improves service efficiency. Overall, this project demonstrates the potential of adaptive web technologies in optimizing small-scale service operations and provides a scalable model aligned with Sustainable Development Goals (SDGs) related to innovation and sustainable consumption.

Keywords: *Web-Based Application, Laundry Management System, Online Booking, Operational Efficiency, Agile Development*

DESIGN AND DEVELOPMENT OF MULTIFUNCTION FLUID PUMP FOR AUTOMOTIVE WORKSHOPS

Herman Nordiadi Abd Wahab (Politeknik Kuching Sarawak)

Nurul Nisa Mohd Nasir (Politeknik Kuching Sarawak)

Small scale automotive workshops often face financial constraints that limit the adoption of advanced automated equipment, forcing reliance on manual methods for critical fluid exchange tasks such as brake bleeding and transmission servicing. These conventional techniques are inefficient, time-consuming, and physically demanding, while also creating safety risks due to fluid spills that cause slippery work environments. In addition, incomplete drainage during manual handling increases the risk of cross-contamination, where old, degraded fluid mixes with new fluid, reducing the performance and lifespan of key vehicle systems. This project addresses these challenges through the design, fabrication, and testing of a multifunction automotive fluid pump that emphasizes cost effectiveness and ease of use. The developed prototype integrates a centralized control interface and a three-way ball valve to perform both evacuation of waste fluids, including brake and power steering fluid, and precise delivery of manual or automatic transmission fluid. Built under a strict material cost cap of RM 500, the system operates on a 12V DC power source with a maximum consumption of 100 watts, ensuring compatibility with small workshop resources. The results demonstrate that the prototype improves efficiency, reduces ergonomic risks, and minimizes cross-contamination compared to manual practices. By providing an affordable and user-friendly solution, the multifunction fluid pump enhances workshop productivity, promotes safer working conditions, and supports more reliable vehicle maintenance outcomes.

Keywords: *Multifunction Fluid Pump, Small-Scale Automotive Workshop, Cost-Effective Maintenance, Brake and Transmission Servicing, Ergonomic Workshop Equipment*

TURİZMDE ÜRETKEN YAPAY ZEKANIN İKİLİ DOĞASI: DEĞERİN BİRLİKTE YARATIMI VE YIKIMINA YÖNELİK BÜTÜNSSEL BİR YAKLAŞIM

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Üretken yapay zekânın (GAI), özellikle ChatGPT gibi büyük dil modellerinin (LLM) turizmdeki hızlı yükselişi, literatürde genellikle teknoloji odaklı ve parçalı bir yaklaşımla ele alınmaktadır. ChatGPT'nin belirli uygulamalarına yönelik mevcut araştırmalar incelendiğinde bulguları bütünlükten ve üretken yapay zekâ kategorisinin genel dinamiklerini açıklayan teorik bir çerçeve eksikliği olduğu görülmektedir. Araştırmanın amacı, Service-Dominant Logic teorisine dayanan ve GAI etkileşimlerinde gözlemlenen "Değerin Birlikte Yaratımı" ve "Değerin Birlikte Yıkımı" süreçlerini bütünsel bir yaklaşımla ele alan özgün bir kavramsal çerçeve sunmaktır. Dolayısıyla araştırma, üretken yapay zekânın turizm paydaşları için değeri, nasıl eş zamanlı olarak hem yaratma hem de yok etme potansiyeli taşıdığını ortaya koymaktadır. GAI kişiselleştirilmiş seyahat deneyimleri sunma, operasyonel verimliliği artırma ve pazarlama iletişimini güçlendirme yoluyla önemli bir değer yaratımı potansiyeli bulundurmaktadır. Ancak diğer yandan, bağlamsal anlama ve kültürel hassasiyetleri yakalama sınırlılıkları bulunan üretken yapay zekânın yanlış bilgi üretme, otantikliği zedeleme ve insan etkileşiminin derinliğini azaltma gibi değer yıkımı risklerine yol açtığı gözlemlenmektedir. Bu iki yönün birlikte değerlendirilmesi bütünsel yaklaşım açısından önem taşımaktadır. Araştırmada ele alınan kavramsal çerçeve, bahsedilen ikili paradoksal süreci bütüncül bir yaklaşımla birleştirmektedir. Aynı zamanda ChatGPT odaklı ampirik bulguları sistematik olarak organize etmekte ve GAI kategorisine genellemektedir. Böylece araştırma turizm işletmelerine GAI teknolojilerini statik bir fayda-zarar listesi olarak değil, stratejik olarak yönetilmesi gereken dinamik bir değer dengesi olarak ele almaları gerektiğini önermektedir. Araştırma, sürdürülebilir değer yaratımının, yapay zekanın analitik gücü ile insanın deneyimsel anlayışı arasında denge kuran insan-yapay zekâ iş birliğine dayandığını öne sürmekte ve "Yapay Zekâ Çağında İşletme Yönetimi" temasına yöneticiler için stratejik öneriler sunmaktadır.

Anahtar Kelimeler: Üretken Yapay Zekâ, ChatGPT, Turizm Yönetimi, Değerin Birlikte Yaratımı, Değerin Birlikte Yıkımı, Service-Dominant Logic

ANALYZING THE RELATIONSHIP BETWEEN MACROECONOMIC FORCES AND STOCK MARKET PERFORMANCE OF PAKISTAN

Mariam Naeem (The University of Faisalabad)

This research aims to analyze the association among macroeconomic forces and stock returns of the Pakistan Stock Exchange (PSX) in the recent economic turmoil faced by Pakistan. Monthly time series data have been used from 2016 to 2024. Stock Market returns have been used to identify the performance of stock market. Inflation, Interest Rate, Money Supply (M2), Exchange Rate and Oil Price, and Gold Price data has been taken from various data source. Unit Root, VECM and ARDL model has been used. The ARDL indicated that, Money supply (M2), Oil price, Gold price and Interest rate have long-run relationship with KSE-100. While VECM, reflected significant short-term relationship among the variables, with lag length of exchange rate, oil price and inflation showing significant impacts on various dependent variables. The stock returns will be a good opportunity for investors to invest their money. The current study will help to provide in-depth and detailed information about Macroeconomic indicators and stock market performance of an economy; furthermore, it will enable the policymakers and government officials to make new strategies for the supply of money in the money market to control the inflation rate. Lastly, this study will be helpful for domestic and global investors in terms of safe investment in the oil and gold market to earn maximum returns.

Keywords: *Macroeconomic Forces, M2, Stock Market Performance, Granger Causality, ARDL*

IMPACT OF ARTIFICIAL INTELLIGENCE ON CORPORATE GOVERNANCE AND FINANCIAL ACCOUNTABILITY

Asma Firdous (International Maarif School, Islamabad)

The swift growth of Artificial Intelligence (AI) is leading to a change in the global business landscape, particularly with respect to corporate governance and financial accountability. The research aims to analyse how AI-enabled tools, which include predictive analytics, natural language processing, and blockchain technology, are reformulating governance structures to increase transparency and enhance financial oversight, while also introducing new risks and complexities. This research is based on the early research and corporate case studies that have developed AI-integrated systems, and comparative research on governance embedding AI in developed and developing economies. It will help us to identify patterns, opportunities, and challenges. The anticipated findings suggest AI can make a significant contribution in reducing information asymmetries, facilitate better decisions by boards of directors, and increase accountability through automated auditing mechanisms, anomaly detection in real time, and stronger risk assessment frameworks. However, the research may highlight critical challenges regarding ethical accountability, algorithmic bias, data privacy, and a lack of ability to assign accountability for decisions rendered by AI. This research is significant as it will suggest the future researchers that integrating AI within the framework of business management will require a benchmark of harnessing its analytical support, coupled with ethical guidelines and regulatory safeguards. The main contribution of the paper is to enhance our understanding of the dual role of AI as an enabler of transparency and efficiency, and as a source of complexity in governance, providing practical guidance for managers, policy makers, and regulators who aim to use AI in responsible ways for sustainable corporate governance and long-term trust with stakeholders.

Keywords: *Artificial Intelligence, Corporate Governance, Financial Accountability, Blockchain, Transparency*

VOLUMETRIC INSIGHTS INTO THE AMYGDALA ACROSS MAJOR PSYCHIATRIC DISORDERS

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Seyma Toy (Seyma)

The amygdala, as a fundamental component of the limbic system, is located within the temporal lobe and plays a central role in the regulation of emotional processing, memory, motivation, and social behaviors. Comprising multiple nuclei, the amygdala fulfills diverse functions through its bidirectional connections with cortical and subcortical regions. These connections, particularly mediated by the basolateral and central nuclei, are crucial for the modulation of adaptive behaviors and associative learning processes.

Recent neuroimaging studies have demonstrated that alterations in amygdala volume not only affect emotional regulation in healthy individuals but are also closely associated with the pathophysiology of neuropsychiatric disorders such as depression, bipolar disorder, and schizophrenia. In depression, reductions in the right amygdala subnuclei have been reported prior to treatment, whereas volumetric increases have been observed following electroconvulsive therapy. Findings regarding amygdala volume in bipolar disorder remain heterogeneous, with some studies reporting decreases, others increases, and some showing no significant differences. In schizophrenia, the general trend indicates volumetric reductions in both amygdalae, although certain subnuclei appear to be more sensitive. With respect to sex differences, most studies have not identified significant effects. This heterogeneity across findings is thought to arise from variations in sample size, patient characteristics, and segmentation methodologies. In conclusion, volumetric alterations of the amygdala may serve as a potential biomarker for understanding the biological underpinnings of neuropsychiatric disorders. Nevertheless, to establish this relationship more clearly, further large-scale, longitudinal, and methodologically standardized studies are warranted.

Keywords: *Amygdala, Neuropsychiatry, Depression, Bipolar Disorder, Schizophrenia*

VERİ ODAKLI GASTRONOMİ SİSTEMLERİ: YAPAY ZEKÂNIN YÖRESEL MUTFAK MİRASININ KORUNMASI VE TOPLUMSAL BÜTÜNLEŞMEYE ETKİSİ ÜZERİNE BİR İNCELEME

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Bu çalışma, veri odaklı gastronomi sistemlerinin ve özellikle yapay zekâ (YZ) uygulamalarının, küreselleşme baskısı altındaki yöresel mutfak mirasının korunması ve kültürel farklılıkların beslenme yoluyla toplumsal bütünleşmeye olan potansiyel etkilerini araştırmaktadır. Gıda tüketim alışkanlıkları ve tarif geleneklerinin hızla değiştiği bir çağda, YZ'nin salt operasyonel bir araç olmanın ötesinde, kültürel bir arşiv ve aktarım mekanizması olarak hizmet edebileceği hipotezini merkeze almaktadır.

Makale, YZ destekli algoritmaların, nadir veya unutulmaya yüz tutmuş geleneksel tariflerin malzeme, pişirme tekniği ve kültürel bağlam verilerini dijitalleştirerek nasıl koruduğunu analiz etmektedir. Ayrıca, bu sistemlerin kültürel farklılıkları ve diyet kısıtlamalarını harmanlayabilme yeteneği sayesinde, farklı sosyal grupları bir araya getiren "ortak sofralar" yaratma potansiyelini ele almaktadır. Bu hem kültürel kimliklerin ayrışmasını engellemeyi hem de beslenme aracılığıyla toplumsal uyumu güçlendirmeyi hedefler. Sonuç olarak çalışma, YZ'nin mutfak pratiğine getirdiği yeniliklerin salt teknolojik verimlilikten ibaret olmadığını, aynı zamanda kültürel antropoloji ve sosyal bilimler açısından da derin sonuçları olduğunu savunmaktadır. Bulgular, gastronomi sistemlerini tasarlayanlara ve kültürel miras kurumlarına, YZ'yi aktif bir koruma ve bütünleşme aracı olarak kullanmaları yönünde etik ve pratik çerçeveler sunmaktadır.

Anahtar Kelimeler: Veri Odaklı Gastronomi, Yapay Zekâ (YZ), Dijital Gastronomi, Gastronomi ve Teknoloji

DATA SCIENCE AND ARTIFICIAL INTELLIGENCE CONTRIBUTION TO THE GLOBAL ECONOMIC DEVELOPMENT: SCIENCE MAPPING WITH R

Gökhan Türköz (Turkish Gendarmerie General Command)

Scientific knowledge of data science (DS) brought humanity to an era of which artificial intelligence (AI) technology is used actively to replace human ability. Can this technology help us in global economic development? This research aims to reveal past researchers' endeavor to understand how to create a solution to economic problems with the help of DS and AI. There is a comprehensive literature about economic growth, economic development, poverty alleviation strategies related with DS and AI. In accordance with Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) and science mapping workflow methodologies, a sample of articles, proceeding papers, books, and book chapters within last decade were gathered from Web of Science Clarivate and Scopus databases. In order to focus on research area, selected keywords were linked with 'AND' logical operator to each keyword of 'data science' and 'artificial intelligence' for discrete searching sessions in article title, abstract, keywords, and author keywords. Selected search keywords are 'economic growth', 'economic development', 'inclusive growth', 'poverty alleviation', 'poverty alleviation strategies', 'poverty reduction' and 'social safety nets'. The bibliometric big data about totally 27.760 research papers were analyzed and science-mapped with bibliometrix R package. 8.273 papers are from WoS Clarivate and 19.487 from Scopus databases were included in this research. According to science mapping workflow, scientific knowledge and knowledge structure were inspected in three levels of analyses as sources, authors, and documents. As a result, researchers are eager to propose creative use cases of DS and AI technology to prevent poverty and to enhance economic development all around the planet.

Keywords: *Data Science, Artificial Intelligence, Economic Development, Poverty Alleviation, Science Mapping.*

NAVIGATING DIGITAL TRANSFORMATION STRESS: THE ROLE OF PSYCHOLOGICAL CAPITAL AND SUPERVISOR SUPPORT IN SHAPING JOB INVOLVEMENT IN PAKISTAN'S HEALTHCARE SECTOR

Tariq Jamil (The University of Faisalabad)

This research work investigated the impact of digital transformation stress on employees job involvement. Mediating role of psychological capital was investigated between the relationship of digital transformation stress and job involvement. Moreover, the study examined how supervisor support moderates the relationship between digital transformation stress and psychological capital. This study used deductive approach and closed ended questionnaires to collect the data. The data was obtained the employees working in healthcare sector of Pakistan by using the convenience sampling technique. The SPSS software was used to analyze the primary data. The current study showed that digital transformation stress has a detrimental impact on job involvement with the mediating role of psychological capital. Moreover, the study explored that impact of digital transformation stress on psychological was lessened by higher supervisor support. The results are helpful for management of hospitals. This study provided conclusions, discussed implications, recognized limitations, and recommended guidelines for future research.

Keywords: *Digital Transformation Stress, Supervisor Support, Psychological Capital, Job Involvement*

STRATEGIES TO REDUCE POVERTY IN DEVELOPING COUNTRIES

Semih Aktuğ (Siirt University)

This research examines in detail the strategies implemented to reduce poverty in developing countries. The research aims to examine the impact of policy areas such as economic growth, education, healthcare, social security, rural development, financial inclusion, tax justice, and international cooperation on combating poverty and to assess the link between regional development and poverty through Turkey's GAP experience. The study is based on a qualitative literature review. Current reports and data from organizations such as the World Bank, UNDP, OECD, and TÜİK (Turkish Statistical Institute) were examined in detail. A comparative analysis was also conducted with examples from Brazil, Bangladesh, Turkey, and South Korea. The findings are supported by tables and graphs. The research results reveal that poverty is not merely an economic phenomenon but a multifaceted phenomenon. Education and health investments, social protection projects, and rural development efforts stand out as the most effective methods for reducing poverty. Furthermore, tax policies and international cooperation play a significant role in ensuring the sustainability of social policies by increasing financial resources.

The main finding of this study is that poverty reduction cannot be achieved solely through economic growth. The need for comprehensive, multidimensional, and holistic strategies is clear. Strengthening social protection systems, investments in education and health, and the integrated implementation of rural development projects are critical to tackling persistent poverty. This research provides an integrative framework by blending data from international reports with country examples. It also makes an original contribution by examining the relationship between poverty and regional development through the GAP experience in the Turkish context. Thus, practical recommendations have been developed and presented for both the theoretical literature and policymakers.

Keywords: *Developing Countries, Türkiye, Poverty.*

MOBİL SAĞLIK UYGULAMALARINDA KULLANICI DENEYİMİ: E-NABIZ ÜZERİNE BİR İÇERİK ANALIZI

Fikret Işık (Alanya Alaaddin Keykubat Üniversitesi)*

Bu çalışma, Türkiye’de Sağlık Bakanlığı tarafından geliştirilen e-Nabız mobil sağlık uygulamasına yönelik kullanıcı deneyimlerini analiz etmeyi amaçlamaktadır. Dijital sağlık teknolojilerinin yaygınlaşması, sağlık hizmetlerine erişimde fırsatlar sunarken; teknik altyapı, veri güvenliği ve kullanılabilirlik gibi konularda çeşitli sorunlar barındırmaktadır. Literatürde, mobil sağlık uygulamalarının hasta merkezli bakım, kronik hastalık yönetimi, maliyetlerin azaltılması ve hasta-hekim iletişiminin güçlendirilmesi gibi olumlu etkiler sunduğu belirtilmektedir. Ancak kullanıcı deneyimi ve şikâyetlerine ilişkin sistematik bulgular sınırlıdır. Bu araştırma, 2025 yılı içerisinde Google Play Store’da e-Nabız uygulamasına dair yapılan kullanıcı yorumlarının içerik analizi yoluyla değerlendirilmesine dayanmaktadır. Çalışmada nitel araştırma yöntemi benimsenmiş, kullanıcı şikâyetleri tematik kodlama aracılığıyla sınıflandırılmış ve frekans analizleriyle yorumlanmıştır. Bulgular, kullanıcıların en çok veri eksikliği, arayüz karmaşıklığı, performans sorunları ve güvenlik endişeleri üzerinde yoğunlaştığını göstermektedir. Ayrıca, kullanıcıların geri bildirimlerinin dikkate alınmamasının uygulamanın sürdürülebilirliğini olumsuz etkilediği tespit edilmiştir. Bununla birlikte, uygulamanın test sonucu görüntüleme, reçete erişimi ve randevu alma gibi temel işlevlerinin kullanıcılar tarafından faydalı bulunduğu gözlemlenmiştir. Çalışmanın sonuçları, kullanıcı odaklı tasarımın önemini vurgulamakta ve dijital sağlık uygulamalarında geri bildirim mekanizmalarının geliştirilmesi gerektiğine işaret etmektedir. Bu bağlamda, araştırma hem teorik olarak dijital sağlık literatürüne katkı sağlamakta hem de uygulamaya yönelik kanıt temelli öneriler sunarak hizmet kalitesinin artırılmasına yönelik politika yapıcılar ve geliştiricilere yol göstermektedir.

Anahtar Kelimeler: *Kullanıcı Deneyimi, E-Nabız, Mobil Sağlık Uygulamaları, İçerik Analizi, Dijital Sağlık*

FROM WILLINGNESS TO ACTION: SOCIO-ECONOMIC AND BEHAVIORAL DETERMINANTS OF RENEWABLE ENERGY ADOPTION IN PUNJAB, PAKISTAN

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Saria Jabeen (University of Agriculture Faisalabad)

The paper will examine socio-economic and behavioral concepts that define household willingness to pay (WTP) of rooftop solar energy system in Punjab, Pakistan. In Faisalabad District, a structured contingent valuation survey was carried out in late 2024 and 400 households were surveyed; following cleaning, 248 valid responses provided by non-adopters were analyzed. The study estimates knowledge of renewable technologies and pro-environmental practices as having a significant positive effect on WTP using a combination of binary logistic regression, ordered logistic regression and ordered probit models, which find income, property ownership, knowledge of renewable technologies, pro-environmental practices and social influences to be significant positive drivers of WTP. On the other hand, family size, joint household, and an increased level of indebtedness, more children, and an aged household head are more likely to decrease WTP. Findings indicate that homeownership and greater income have a significant positive effect on adoption probability, and ordered response models support these trends at the WTP levels. The results highlight the relevance of the specific subsidy programs, financing tools, and educational programs to increase the pace of household-scale renewable uptake in energy transition in Pakistan.

Keywords: *Willingness to Pay (WTP), Renewable Energy Adoption, Solar Energy Systems, Household Determinants, Punjab, Pakistan*

SAĞLIK OKURYAZARLIĞI NEDEN ÖNEMLİ

Ufuk Karadavut (Karabük Üniversitesi)

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Okuryazar olmanın sadece bir şeyleri okumak anlamına gelmediği anlaşılmıştır. Özellikle sağlık alanında yapılan insanların sağlıklarını koruma ve geliştirme uygulamalarının etkilerini çok iyi görebilmek gerekmektedir. Kendilerine verilen sağlık hizmetlerini anlamaları, hizmeti tanımaları, fayda ve zararlarını bilmeleri, sağlıkları açısından önemli olanın ne olduğunu çok iyi kavramaları ve sorumluluk sahibi olmaları için gerekenler yapılabilirdir. Son yıllarda özellikle sanal medyanın gelişmesiyle birlikte okuryazarlık öne çıkmaya başlamıştır. İnsanlara verilen bilgilerin ne derece doğru ve gerçekçi oldukları hakkında ciddi şüpheler ve kaygılar bulunmaktadır. İnsanları yönlendirme ve gerçeklikten uzaklaştırma yaklaşımları her geçen gün artmaktadır. Yanlış sağlık uygulamalarının olması ve sonu ölüme kadar giden reklamların olması sağlık alanında daha ciddi şekilde sağlık kültürü oluşturulması gerekliliğini otaya koymaktadır. Bunun içinde bir sağlık okuryazarlığı bize yol gösterici olabilecek potansiyele sahip gözükmektedir. Sağlık okuryazarlığı sadece bu konuda bilgi almak isteyenlere değil aynı zamanda bilgi vermek isteyenlerde yardımcı olabilecektir. Sağlık alanında çalışan uzmanların mesleki olarak tatmin olmaları, doğru iletişim ve bilgilendirme sağlamalarına ve klinik beceriler için katkı sağlayabilmektedir. Sağlık hizmeti alanlarda ise; alınan bilgilerin sağlıklı ve güvenilir olması, anlaşılabilir olması, sağlık hizmetinin kaliteli olmasını ve sağlık uygulamalarına katılımı sağlamakta yardımcı olacaktır. Çünkü sağlık okuryazarlığı doğru bilgiye ve doğru hizmete ulaşma becerilerinin gelişmesine yardımcı olabilir. Bunun dışında sağlık hizmetlerinin doğru şekilde kullanılmasını ve sağlık hizmetlerinin doğru şekilde anlaşılmasını sağlayabilecektir. Sağlık okuryazarlığı; Sağlıklı yaşam süresinin ve kalitesinin artırılmasını, Sağlık alanında görülen eşitsizliklerin giderilmesini ve sağlık ile ilgili olarak doğru kaynaklara ulaşılmasını sağlayabilecektir. Okuma, Dinleme, Analiz etme, Karara katılma, Karar verme ve Hayata uyarılma olmak üzere altı kısımdan oluşan sağlık okuryazarlığı aynı zamanda sağlıklı kalmanın yollarını bizlere gösterecektir. Hepimiz ilaç kullanırken öncelikle ilacın etkilerini ve yan etkilerini görmek isteriz. Ancak büyük kısmını anlamadığımızdan okuyamayız. İlaç kutularının içindeki bilgiye anlamak ve kavramak, tıbbi alanlarda yazılan eğitim ve bilgilendirme yazıları anlayabilme, doktorların bizlere söyledikleri teşhis ve tedaviye yönelik gayretleri ile sağlık hizmetlerinin bütüncül şekilde yerine getirilebilmesi için gerekli görülmektedir. Bunların sağlanabilmesi için görsel olarak okuryazarlık, bilgisayar gibi teknik ekipmanları ile okuryazarlık ve sayısal okuryazarlık yapılması gerekmektedir. Bu çalışmada sağlık okuryazarlığının neden gerekli olduğu ve neler yapılması gerektiği açıklanmıştır.

Anahtar Kelimeler: Sağlık, Okuryazarlık, Eğitim, Dezenformasyon, Sağlık bilgisi

HAYATIMIZDAKİ FİTOTERAPİ

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Tarihi çok eskilere dayanan Fitoterapi (phytos=bitki, therapy=tedavi) bitkilerle tedavi anlamına gelir. Bir Fransız hekimi olan Henri Lenclerc (1870-1953) bitkileri kullanarak hastalıkları tedavi etme yaklaşımını "fitoterapi" terimi ile ilk defa La Presce Medical adlı dergide kullanmıştır. Halbuki, tarih boyunca bitkilerin sağlık koruyucu ya da iyileştirici olarak her toplum tarafından kullanıldığını görmekteyiz. Fitoterapinin Kullanım Alanları: 1. Jinekolojik Hastalıklar, 2. Onkolojik Hastalıklar, 3. Nöropsikiyatrik Hastalıklar, 4. Kardiyovasküler Sistem Hastalıkları, 5. Dermatolojik hastalıklar (Akne, Yara ve Yanıklar, Viral enfeksiyonlar, Bakteriyel ve fungal enfeksiyonlar, Uyuz ve bitlenme, Dermatit, Psöriazis, Kronik venöz yetmezlik, Alopesi, Deri kanserleri, Hiperpigmentasyon, Antienflamatuvar etkili bitkisel tedaviler). Fitoterapi Amacıyla Kullanılan Bitkiler: Üç floristik bölgenin kesiştiği bir kesimde olan ülkemiz değişik iklim ve ortam koşullarına sahiptir. 8500 adet bitki türü ile bitki örtüsü açısından bayağı zengindir. Ancak drog olarak kullanılan bitkilerin sayısı 500'ü geçmemektedir (Acı bakla, Ada soğanı, Akamber, Alman papatyası, Anason tohumu, Anzarot, Arap zamkı, Ardiç katranı, Arpa, Asılbent, At kestanesi tohumu, Ayçiçeği, Ayva çekirdeği, Badem yağı, Bal, Bal mumu, Bamyacı çiçeği, Bergamot, Beşparmak otu, Beyaz lahana, Beyaz üzüm, Biberiye, Bit otu tohumu, Boy otu tohumu, Böğürtlen yaprağı, Civanperçemi, Çadırkuşağı, Çam katranı, Çemen, Çin herbal terapisi, Çiriş otu, Çitlembik yaprağı, Çöğen kökü, Çöpçini, Çörek otu tohumu, Dağ tütünü, Dam kuruğu, Defne tohumu, Defne yağı, Defne yaprağı, Defneyezit kökü, Devedikeni, Domates, Ebegümeci, Enginar, Fesleğen, Gece çuha çiçeği, Gelincik, Gotu kola, Göztaşı, Gül kuruğu, Gül suyu, Gül yağı, Hardal tohumu, Havlıcan, HavuçHint yağı, Hodan yağı, Hüsnüyusuf, Isırgan, Isırgan tohumu, İncir yaprağı, Kadıhindi, Kakao yağı, Kantaron, Karabaş otu, Karabiber, Karanfil, Karnabahar, Karnıyarık tohumu, Kayışkıran otu, Kekik yağı, Keten tohumu, Kereviz, Kına yaprağı, Kırımtartar, Kiltermeni, Kudret narı yağı, Küçük Hindistan cevizi yağı, Lavanta çiçeği, Limon kabuğu, Mayasıl otu, Maydanoz, Melek otu, Melisa yaprağı, Mercanköşk, Merzengüş, Meyan kökü, Mezvek, Mürdesenk, Mürver çiçeği, Nane yaprağı, Nar kabuğu, Nişadır, Palamut, Pamuk tohumu, Papatya, Safran, Saparna kökü, Sarımsak, Sarısabır, Sığırdili kuyruğu, Sinirli yaprak otu, Sumak, Susam, Şahtere otu, Üzerlik tohumu, Üzüm çekirdeği ekstresi, Yaban mersini, Yeşil çay, Ylang ylang yağı, Yulaf samanı, Zencefil, Zerdeçal).

Anahtar Kelimeler: Fitoterapi, Henri Lenclerc, La Presce Medical

MONITORING IMPACT OF DIFFERENT LAND USE AND SEASONAL RAINFALL VARIATIONS ON GROUNDWATER QUALITY PARAMETERS IN BAHAWALPUR CITY

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Groundwater quality plays an important role in environmental and public health management as a component of human consumption, agricultural productivity and ecosystem sustainability. An estimated 3.6 billion people, 71 % of the world's population, have not access to clean and safe drinking water, which only further compounds health challenges and socio-economic disparities. Groundwater quality with a focus on pre and post monsoon periods in Bahawalpur, Pakistan was investigated in this study. Quality fluctuations of groundwater, a source of drinking water and socio-economic activity in the region, results from hydrological changes, land use practices and human activities. These variations were assessed by the research through physicochemical parameters, major ions and heavy metal concentration (Arsenic, As), at three distinct sites: residential, agricultural and industrial. Pre and post monsoon season groundwater samples (10 samples from each site) were collected totaling a total of 30 samples to capture the seasonal dynamics and their effects on water quality. The results showed that the industrial sites mostly locations have high concentration of contamination (due to negatively affect the physicochemical properties, major ions and metal (Arsenic) concentrations in water then followed by the agricultural site locations and at the end residential site locations. Seasonal variation was also observed with toxic level of ions and metal recorded in post monsoon season. This finding illustrates how seasonal variations and land use have multiple bad impact on ground water quality and also the necessity for consistent monitoring and effective management of groundwater safety in Bahawalpur amidst seasonal fluctuations.

Keywords: *Water Quality, Contamination Data Analysis, Safe Limits*

THREE-DIMENSIONAL MAXWELL NANOFLUID FLOW OVER A BIDIRECTIONAL STRETCHING SURFACE WITH THERMAL RADIATION AND HEAT SOURCE/SINK EFFECTS

Sidra Naeem (The University of Faisalabad)

This work explores the three-dimensional flow of a Maxwell nanofluid over a bidirectionally stretched sheet embedded in a porous medium. Nonlinear thermal radiation, Brownian motion, and heat source/sink effects are incorporated into the model, with convective boundary conditions imposed on both temperature and nanoparticle concentration. The governing partial differential equations are transformed into similarity forms using appropriate similarity variables and solved numerically via the shooting method in MATLAB. The results show strong agreement with previously reported solutions, confirming the reliability of the adopted approach. It is observed that Brownian motion significantly affects temperature distribution and heat transfer performance. Moreover, the Deborah number strongly influences the system behavior: higher Deborah numbers reduce both fluid temperature and nanoparticle concentration, reflecting the viscoelastic characteristics of the Maxwell fluid. These findings enhance understanding of non-Newtonian nanofluid transport and provide valuable insights for applications in heat transfer enhancement, porous media flows, and industrial thermal systems.

Keywords: *Maxwell Nanofluid, Bidirectional Stretching Sheet, Nonlinear Thermal Radiation, Brownian Motion*

THE EFFECT OF INCORPORATING ARTIFICIAL INTELLIGENCE (AI) INTO ORGANIZATIONAL SYSTEMS: THE MEDIATING INFLUENCE OF EMPLOYEE RESKILLING AND ORGANIZATIONAL CULTURE

Safa Iftikhar (The University of Faisalabad)

The rapid development of technology and the integration of Artificial Intelligence (AI) into organizational systems, which are altering work structures, have raised concerns about the replacement of human labor. Adoption of AI increases productivity and efficiency significantly, but it also has the potential to disrupt the workforce and cause instability. With a focus on the intermediary roles of organizational culture and employee reskilling in the healthcare industry, this study examines the effects of AI integration on the replacement of the human workforce. Survey analysis of data (based on Likert-scale responses) was done to test the direct effects of AI on workforce outcomes as well as the mediating effects of society and reskilling. According to research, even though AI automates repetitive and routine tasks, employees urgently need to continuously reskill themselves in order to stay relevant by moving into new or enhanced roles. At the same time, by reducing resistance, boosting trust, and presenting AI as a cooperative partner instead of a threat, an innovative and adaptable organizational culture makes transitions easier.

Whether AI integration leads to workforce transformation or displacement depends on a number of factors, such as cultural adaptability and reskilling initiatives.

Keywords: *Artificial Intelligence (AI), Organizational Systems, Employee Reskilling, Organizational Culture, Workforce Transformation, Healthcare Industry*

BUILDING ETHICAL AI IN PAKISTAN: CHALLENGES AND GAPS IN THE NATIONAL POLICY

Shabnum Amanat

As artificial intelligence (AI) rapidly reshapes economies, societies, and governance structures worldwide, Pakistan's National AI Policy 2025 marks a significant step toward embracing this technological shift. While the policy outlines a broad vision for AI integration across sectors, it falls short of providing a comprehensive framework for ethical oversight, transparency, and accountability. This article critically examines the ethical dimensions of the National AI Policy, highlighting key challenges such as the absence of enforceable data protection laws, limited institutional capacity for AI governance, and the lack of detailed guidelines on algorithmic fairness, bias mitigation, and human rights safeguards. It explores how these gaps could lead to misuse, discrimination, or surveillance if left unaddressed. The paper further contrasts Pakistan's approach with emerging global ethical standards and offers policy recommendations to strengthen the ethical governance of AI. Building an ethical AI ecosystem in Pakistan will require more than vision—it demands enforceable regulation, interdisciplinary collaboration, and a sustained commitment to human-centric innovation.

Keywords: *Ethical Artificial Intelligence, AI Ethics in Pakistan, Responsible AI , Development, AI Governance, Ethical Framework for AI, AI Policy in Pakistan*

MULTI-TRAIT INDICES FOR THE SELECTION OF STABLE GENOTYPE

Maryam (Tuf)

Plant breeding programs rely on Multi-Environment Trials (METs) as a crucial tool to assess crop production and adaptableness in various environments. Essential steps in METs involve modeling the GEI and measuring genotypic stability for the selection and recommendation of genotypes. Despite the potential for greater efficiency in selection/recommendation based on several traits, recognizing genotypes that display both high performance and reliability across numerous traits remains a challenging task. The objective of this study is to analyze multi environment sugar cane data and selection of stable genotype using Multi-Trait Stability Index (MTSI) by calculating their mean performance. To measure the stability of sugar cane yield 14 genotypes grown at three different locations with 3 replications were taken from Sugarcane research institute Ayub agriculture research institute, Faisalabad during the year 2020-21. The multi trait index (MGIDI) index is used to evaluate genotypic performance across various traits, highlighting that CPF252, M42, and CPF251 are genotypes with stable and desirable characteristics. On the other hand, the Smith-Hazel index assesses genotypic performance by considering index coefficients, genetic worth, and selection gains. In this context, CPF253 and CPF252 emerge as stable genotypes with high genetic worth.

Keywords: Multi trait indices, MGIDI, Smith Hazel Index, FAI-Blup index

IMPACT OF SMOG ON LABOR PRODUCTIVITY AND HEALTH OUTCOMES; A CASE STUDY OF DISTRICT FAISALABAD

Sidra Firdous (University of Agriculture Faisalabad)

Smog is a significant form of air pollution. It is the mixture of smoke, fog and other harmful pollutants that are dangerous for both the environment and human health. Smog became a global issue with the rise of industrialization and increased burning fossil fuels in the 19th and 20th centuries. In Pakistan smog or air pollution has become a severe issue. During November 2024, (AQI) Air Quality Index was recorded as 405, 2135, 220, and 1165 for Faisalabad, Multan, Karachi and Lahore, respectively. Smog leads to air pollution, poor air quality and respiratory issues. This condition is higher in winter season. This study investigates the detrimental effects of smog on labor productivity and health outcomes in District Faisalabad, one of Pakistan's most industrialized urban centers. Utilizing a structured, quantitative, cross-sectional research design, data were collected from 150 respondents through a pre-tested questionnaire focusing on health symptoms, work productivity, and adaptive behaviors during smog seasons. Stratified random sampling ensured demographic, occupational, and geographic representation across urban and peri-urban areas. The study applies Multiple Linear Regression (MLR) analysis using SPSS to determine the causal relationships between smog exposure and key variables such as headache, eye irritation, breathing difficulty, fatigue, mental stress, and reduced working hours. Findings indicate that smog significantly exacerbates a wide range of health issues including respiratory problems, skin irritation, mental stress, and sleep disturbances. Moreover, these health effects translated into tangible productivity losses such as reduced working hours, absenteeism, delayed task completion, and lowered physical stamina. Economically, households faced increased medical expenses and decreased incomes, revealing a direct link between environmental degradation and economic vulnerability. The study concludes that smog not only threatens public health but also disrupts labor markets, undermining economic sustainability in urban industrial regions. Policy interventions are urgently needed to mitigate environmental hazards and protect human capital, particularly in high-risk areas like Faisalabad.

Keywords: *Smog, Air Pollution, Labor Productivity, Health Outcomes, Faisalabad*

KIRGIZİSTAN MÜCEVHER SEKTÖRÜNDE DİJİTAL PAZARLAMA STRATEJİLERİNİN İNCELENMESİ

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Günümüzde dijitalleşme eğilimleri, pazarlama iletişimi ve işletmeler ile tüketiciler arasındaki etkileşim biçimlerinde köklü değişimlere yol açmaktadır. Geleneksel olarak yüz yüze satış ve güven temelli ilişkilere dayanan mücevher sektöründe, dijital teknolojiler marka kimliğinin güçlendirilmesi, satış kanallarının çeşitlendirilmesi ve müşteri deneyiminin iyileştirilmesi açısından önemli fırsatlar sunmaktadır. Ancak, Kırgızistan mücevher sektöründe dijital pazarlama alanında sistematik akademik çalışmaların sınırlı olması, konunun daha derinlemesine incelenmesini zorunlu kılmaktadır. Bu çalışmanın temel amacı, Kırgızistan'daki mücevher işletmelerinde yürütülen dijital pazarlama stratejilerini tespit etmek, sistematik bir çerçeveye oturtmak ve uluslararası deneyimler ile yerel koşulları harmanlayarak gelişime yönelik öneriler sunmaktır. Araştırma, masa başı analiz yöntemine dayanmakta olup, akademik yayınlar, uluslararası raporlar, sektörel uygulamalar ile ülke içindeki önde gelen mücevher firmalarının web siteleri ve sosyal medya hesaplarının detaylı incelenmesini kapsamaktadır. Araştırmanın sonuçları, Kırgızistan'daki mücevher sektörünün dijital dönüşümüne rehberlik edecek stratejik bir yol haritasının geliştirilmesine katkı sağlaması açısından önem arz etmektedir.

Anahtar Kelimeler: Dijital Pazarlama, Mücevher Sektörü, Kırgızistan, Sosyal Medya, Çok Kanallı Stratejiler

TEACHERS AND PARENTS BEHAVIOUR ABOUT PRIVATIZATION OF PUBLIC SCHOOLS IN PUNJAB PROVINCE

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Aqeela Saghir (University of Agricultural Faisalabad)

Ijaz Ashraf (University of Agricultural Faisalabad)

Kanwal Asghar Awan (University of Agricultural Faisalabad)

Farkhanda Anjum (University of Agricultural Faisalabad)

This is the global trend known as privatization of education employees which has many more implications, and its impact especially on teachers of government schools and especially on parents of students studying in schools is of great importance. Therefore, understanding how teachers perceive the privatization of government schools in Punjab, Pakistan, is highly important. One of the most important factors for student success, even more than social status, family background, or school type, is parental involvement. While there is growing research on the privatization of education, there is still a major gap in understanding the unique experiences and opinions of teachers and parents regarding the privatization of government schools in Punjab. The main objective of this study is to examine the attitude of teachers and parents towards privatization of government schools especially in Tehsil Chak Jhumra, District Faisalabad Punjab. This study uses a mixed methodology. The researcher intends to consider 174 schools functioning in Chak Jhumra for this study. The total population of the study includes 1178 teachers in the selected 174 schools. Out of the total population (1178), a sample of 147 has been determined by using www.raosoft.com/samplesize.html, with a confidence interval of 7% and a confidence level of 93%. 20 Parents was the key informants and quantitative data was collected from them through an interview guide. While the tools for quantitative data collection was questionnaire and interview guide. The collected data was analyzed using Statistical Package for Social Sciences (SPSS). Findings reveal that majority of respondents (39.5%) were aged 25–35 years. Most respondents (57.8%) held a graduation degree. The highest percentage (40.8%) of respondents had a B.Ed qualification. The highest mean score was for the statement "Privatization improves infrastructure and facilities" with a mean of 4.40, showing strong agreement among stakeholders about the positive impact on physical conditions. "Privatization enhances accountability" followed closely with a mean of 4.30. The lowest-rated statement was "Privatization negatively impacts low-income students," with a mean of 3.60, suggesting a mixed perception about equity in access. It is concluded that the effects on students, privatization was seen as motivating competition among students and improving academic performance. The impact on reducing absenteeism was less strongly perceived. For teaching methods and learning outcomes, privatization was considered to significantly improve quality assurance and help identify learning gaps, though its role in supporting broader educational reforms received slightly less agreement. It is suggested that Teachers should stay up-to-date with the latest developments and research on school privatization. Teachers should advocate for the importance of public education and highlight potential risks of privatization.

Keywords: *Privatization of Schools, Parents Behavior, Government of Pakistan*

DIGITAL ADOPTION, FAMILY FIRMS, AND REGULATORY BARRIERS: TURNING CONSTRAINTS INTO DRIVERS OF CIRCULAR ECONOMY PRACTICES

Sohail Mansha (National Business School, The University of Faisalabad)

This study examines how digital adoption, family status, and regulatory barriers shape the adoption of circular economy (CE) practices in European SMEs. Drawing on survey data from over 10,000 firms across 26 countries, we integrate the Resource-Based View (RBV), Socioemotional Wealth (SEW) theory, and Institutional Theory to explore how tradition, technology, and regulation interact. Findings reveal that digital adoption (AI, IoT, BDA) significantly enhances CE practices, with IoT exerting the strongest effect, consistent with evidence that technology portfolios drive environmental sustainability. Family firms exhibit greater CE adoption, particularly when combined with digitalization, aligning with socio-spatial and SEW perspectives on circular practices. Interestingly, regulatory barriers—often perceived as constraints—act as catalysts when coupled with family status and digital adoption, echoing prior work on regulation-induced eco-innovation.

Keywords: *Digitalization, Family Firm, Institutions, Circular Economy, SME's*

YAPAY ZEKADA ETİK DÖNÜM NOKTASI: İNSAN ONURU VE DİJİTAL BARIŞ

Sabiha Kılıç (Hitit University)

Yapay zekâ (YZ) teknolojilerinin hızla gelişmesi, insan onuru ve dijital barış kavramlarını etik açıdan yeniden değerlendirmeyi zorunlu kılmaktadır. YZ'nin toplumsal, hukuki, kültürel ve bireysel düzeyde yarattığı dönüşüm, insan hakları, etik değerler ve toplumsal barış üzerinde derin etkiler bırakmaktadır. Çalışmada, disiplinlerarası bir bakış açısıyla, YZ etiğinde insan onurunun korunması ve dijital barışın sağlanması için ortaya çıkan etik dönüm noktalarının tartışılması planlanmaktadır. YZ'nin toplumsal, hukuki, kültürel ve bireysel düzeyde yarattığı dönüşüm, insan hakları, etik değerler ve toplumsal barış üzerinde derin etkiler bırakmaktadır. Avrupa'da geliştirilen yasal düzenlemeler ve etik ilkeler, insan haklarının ve dijital barışın korunmasında önemli bir referans noktası oluşturmaktadır. Küresel ölçekte ise, YZ'nin etik yönetiminde uluslararası iş birliği, şeffaflık, hesap verebilirlik ve insan onurunun korunması temel gereklilikler arasında yer almaktadır. Sağlık, bilim, sanat, kamu yönetimi, muhasebe, finans, eğitim, medya ve dijital oyunlar gibi farklı alanlarda ortaya çıkan etik sorunlar, insan onuru ve dijital barışın korunmasında yeni sınırların ve etik kuralların belirlenmesini zorunlu kılmaktadır. Bu bağlamda, YZ etiğinde insan onuru ve dijital barış, geleceğin dijital toplumunun sürdürülebilirliği açısından merkezi bir öneme sahiptir.

Çalışmada insan onurunu merkez alarak, dijital ve yapay zeka alanlarında etik temelli bir gelecek ve dijital barış konularında yapılan akademik çalışmalar derinlemesine analiz edilerek literatürün entelektüel eğilim yapısının belirlenmesi planlanmaktadır. Bu amaçla WoS Bibliyografik veri tabanında “artificial intelligence” ve “human dignity” anahtar kelimeleri kullanılarak yapılan tarama sonucunda 1995-2025 yılları arasında yayımlanmış 304 adet bilimsel esere ulaşılmıştır. İnsan onurunu merkeze alan yapay zeka içerikli akademik çalışmalarda güncel çalışma konuları, anahtar kelimeler, alana yön veren atıf performansı yüksek yazarlar, bilimsel eserler ve bu bilimsel eserlerin yayımladığı kurumlar ve ülkeler kapsamında ayrıntılı olarak incelenecektir. Çalışma geleceğin dijital toplumunun sürdürülebilirliği açısından politika önerilerinin geliştirilmesini de amaçlamaktadır.

Anahtar Kelimeler: *Yapay Zeka, İnsan Onuru, Dijital Barış, Etik, CiteSpace*

PARA ÜRETİM SÜRECİNDE FİRMA, BANKA VE MERKEZ BANKASI İLİŞKİSİNİN MUHASEBESİ: POST KEYNESYEN BAKIŞ

Özgür Özkan (YMM Ofisi)

Post-Keynesian economics is a school of economic thought that argues that the money supply is endogenous. More specifically, post-Keynesians argue that the money supply is determined by the demand for money. Furthermore, contrary to prevailing economic doctrine, the post-Keynesian school argues that banks' role within the financial system is not merely as financial intermediaries but as money-producing institutions. According to this economic view, the balance sheets of banks, including the Central Bank, operate from assets to liabilities. The causal relationship between banks' assets and liabilities runs from assets to liabilities. In other words, the growth of banks' assets also increases their liabilities. Post-Keynesian views express this idea as "credit creates deposits." Therefore, banks are defined not as institutions that collect deposits and provide loans, but as institutions that generate deposits, that is, money, by providing loans. In this context, the first stage of the credit creation process is the loan demand of firms or households. Banks' ability to meet these credit demands increases their assets, while the deposit accounts they open to their customers in exchange for these loans increase their liabilities—in other words, they create deposits by providing loans. Banks largely obtain the required reserve requirements for the deposits they create through lending from the Central Bank, thus maintaining reserves. This study attempts to explain the credit production process of post-Keynesian economic thought, summarized above, using examples from the balance sheets of firms, commercial banks, and the Central Bank. The study's findings suggest that the banking system's credit-deposit relationship supports post-Keynesian economic thought.

Keywords: *Government Policies and Regulations, Other Accounting Issues, Banking Sector, Bank Balance Sheet, Post-Keynesian Economics*

AIRLINE OMNI-CHANNEL EXPERIENCE AND RE-PURCHASING INTENTION: THE TASK OF AIRLINE CHOICE, WORD OF MOUTH, AND INNOVATION

Vahap Onen (İstanbul Topkapı University)

While airline travelers have omni-channel experiences, they are also influenced by service, product, and process innovations, as well as word-of-mouth. On the other hand, the airline's business model and brand name may also have an impact on the choice of airline and the decision to purchase a ticket for travel. Therefore, the purpose of this study is to examine the impact of omni-channel experiences of airline travelers on re-purchase intention and to determine whether airline innovation and word-of-mouth have a mediating effect on these relationships, on one hand, and whether airline choice plays a moderating role in these relationships, on the other hand. A structural equation model and related hypotheses were developed to investigate the research problem, and data, selected through convenience sampling, were collected via an online survey method. As a result of the analyses based on Smart-PLS 4.01 algorithms, the structural model was tested, and it was found that omni-channel experience has a positive and significant effect on re-purchase intention. Furthermore, airline innovation and word-of-mouth have a partial mediating effect between omni-channel experience and re-purchase intention. Additionally, airline choice plays a moderating role in the relationships between airline innovation, omni-channel experience, word-of-mouth, and re-purchase intention. In the air travel industry, the selected business model based on airline choice, word-of-mouth, and innovation, as showing moderation and mediation effects, can be said to be complementary dimensions of an omni-channel marketing program designed to engage re-purchase intention.

Keywords: *Omni-Channel Experience, Airline Choice, Airline Innovation, Word of Mouth, Re-purchasing Intention,*

ONE OF THE DYNAMICS OF THE HEALTH SECTOR IN OUR CENTURY: THE PLACE OF EXOSOMES IN DIAGNOSIS AND TREATMENT

Leyla Bahar (Mersin Üniversitesi)

In the 21st century we live in, the rapid Scientific and technological advances in the healthcare sector have positioned exosomes—key mediators of intercellular communication—as promising tools in both diagnosis and therapy. Exosomes carry biomolecules such as proteins, lipids, RNA, and DNA, thereby playing essential roles in regulating both physiological and pathological processes. These properties make them strong candidates for the early diagnosis, prognosis, and treatment of various diseases. The aim of this study is to comprehensively elucidate the biological characteristics of exosomes, their diagnostic and therapeutic potential, their current clinical applications, and future research directions.

Findings in recent studies indicate that exosomes hold significant clinical value both as diagnostic biomarkers and as drug or gene delivery systems. However, issues such as production standardization, purification challenges, and biosafety concerns must be addressed before their translation into clinical practice. In conclusion, exosomes possess a transformative potential to support the paradigm of personalized medicine in the healthcare sector.

Keywords: *Exosome, Health Sector, Biomarker, Therapy, 21st Century Innovation.*

DEEPPAKES, MISINFORMATION, AND MEDIA TRUST: EXPLORING THE ROLE OF SYNTHETIC VIDEOS IN SHAPING NEWS PERCEPTION ON SOCIAL MEDIA

Hudda Javaid Azeemi (The University of Faisalabad)

This study examines the growing influence of Artificial Intelligence and deepfake technology, focusing on how these technologies affect information dissemination, public trust in news, and audience perception. Deepfake technology, powered by AI algorithms such as Generative Adversarial Networks (GANs), generates hyper-realistic manipulated videos and audios that pose significant challenges to verifying the authenticity and credibility of online news. Based on Media Richness Theory, this study will position deepfakes as a “rich” communication medium whose combined visual and auditory realism is expected to enhance credibility and persuasive power beyond traditional text-based misinformation. Additionally, the Elaboration Likelihood Model (ELM) offers a framework that helps understand how audiences are likely to process such content mainly through peripheral routes, relying on realism and emotional appeal, which increases vulnerability to misinformation. A quantitative survey involving 500 participants will be designed to measure awareness of deepfakes, ability to detect them, trust in different media sources, and susceptibility to misinformation. Descriptive statistics, alongside correlation, regression, and group comparison analyses (t-tests, ANOVA), will be employed to identify demographic and media literacy factors that shape responses toward AI-generated synthetic media. The anticipated findings will contribute vital insights to inform journalistic ethics, regulatory policies, and the development of media literacy interventions. Ultimately, this study aims to address the urgent need to safeguard the integrity of information in an era characterized by advanced AI-driven media manipulations.

Keywords: *Deepfakes, Artificial Intelligence (AI), Misinformation, Media Trust, Media Literacy*

THE SOVIET GOVERNMENT'S POLICY OF STATE ACQUISITION OF MAJOR INDUSTRIAL SECTORS IN TURKESTAN

Sharofiddin Xoshimjonov (Andijan State University)

After the October Revolution, the Bolsheviks promised to change their national policy towards the Russian colonies and, to some extent, managed to implement it. In particular, in the spring of 1918, the first signs of a localization policy began to appear in governance. Important measures were taken, such as using local languages in administration and public services, and treating local population representatives equally to those of European nationalities. This helped increase sympathy for the Bolsheviks among the region's intelligentsia. However, national inequality was replaced by a new policy based on class inequality. The initial stage of this policy involved measures aimed at restricting the rights of landowners and property owners, and later, confiscating their property. The process of seizing owners' property was carried out in two stages. In the first stage, large industrial and service enterprises were gradually placed under state control, disguised as workers' control. Before this process was completed, the second stage began: first nationalizing enterprises already under state control, and then mass nationalization "for the benefit of the people."

All this began with the seizure of property from representatives of the propertied class who supported the Jadid movement - a force that could be a local competitor to the Bolsheviks. Saidnosir Mirjalilov, one of Turkestan's prominent merchants and a major representative of the Jadid movement who opened the first Jadid school, became the Bolsheviks' first target due to his political activities. On February 18, 1918, at a meeting of the Executive Council of Turkestan Soldiers', Workers', and Peasants' Deputies, the issue of registering and confiscating Saidnosir Mirjalilov's property was considered. Another large property owner persecuted by the Bolshevik-led Soviet government was the Andijan millionaire Mirkomilboy Mirmo'minboyev. On February 22, 1918, a trial was scheduled for him in the Skobelev District Court, but he was not brought to court. By that time, he had been shot. The incident related to Mirkomilboy's arrest alarmed Ahmadbekhoji Temirbekov, who, as an ally of the Jadids and an influential owner of large property, realized that his life was also in danger and decided to leave the region. It is evident that Ahmadbekhoji Temirbekov could have met the same fate as Mirkomilboy. In total, 758,000 rubles in compensation were planned to be collected from 53 large industrialists, entrepreneurs, and property owners in the Andijan district.

The Soviet government considered such large property owners its greatest enemies and made every effort to persecute them and confiscate their property. While the Soviet government's policy aimed at disrupting the traditional way of life and social relations in rural areas was initially unsuccessful, the nationalization of enterprises, factories, and plants belonging to the entrepreneurial class in industry and the service sector proceeded somewhat more easily than the nationalization of land.

Keywords: *Turkestan, Nationalization, Bolsheviks, Property Class*

APPLICATION OF TRANSIT SEARCH AND GOLDEN JACKAL OPTIMIZATION ALGORITHMS FOR DIRECTIONAL OVERCURRENT RELAY SETTINGS IN POWER GRIDS

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In electric distribution systems, effective coordination of directional overcurrent relays (DOCR) is essential for secure and selective fault isolation. This study introduces two advanced metaheuristic algorithms Transit Search Optimization (TSO) and Golden Jackal Optimizer (GJO) for the first time in DOCR coordination. The algorithms were applied to IEEE-based 3-bus and 8-bus test systems under identical short-circuit fault scenarios in MATLAB/Simulink. Performance was evaluated based on total relay operating time. In the 3-bus system, TSO achieved 0.31 seconds versus GJO's 1.49 seconds; in the 8-bus system, TSO reached 4.50 seconds compared to GJO's 4.69 seconds. Both algorithms outperformed several traditional methods in literature, offering faster and more efficient coordination. Overall, TSO demonstrated superior performance in minimizing relay operation time and enhancing selectivity, making it a more effective and reliable approach for DOCR coordination in both simple and complex distribution networks.

Keywords: *Metaheuristic Algorithm, Optimization, Power System Protection, Overcurrent Relays*

KURGAN VE YAPAY ZEKA: TÜRKİYE’DE VERGİ DENETİMİNDE DİJİTAL DEVRİM

Gümrah Başdağ (Gümrah Can Başdağ)

Günümüz dijital ekonomisinde vergi denetimi süreçlerinin etkinliği, büyük veri analitiği ve yapay zekâ tabanlı teknolojilerin entegrasyonu ile önemli ölçüde artmaktadır. Türkiye’de 1 Ekim 2025 tarihinden itibaren kullanılmaya başlanan Kurgan Sistemi, Hazine ve Maliye Bakanlığı’na bağlı Vergi Denetim Kurulu tarafından geliştirilen yapay zekâ destekli bir vergi denetim platformu olarak, bu dönüşümün somut bir örneğini oluşturmaktadır. Sistem; mükellef verilerini çok boyutlu analiz ederek risk odaklı denetim modeli sunmakta, olası vergi uyumsuzluklarını yüksek doğruluk oranıyla tespit edebilmekte ve denetim kaynaklarının etkin kullanımını sağlamaktadır. Bu çalışmada, vergi denetiminde yapay zekânın rolü ve Kurgan Sistemi’nin bu alandaki yenilikçi katkıları incelenmiştir. Ayrıca, sistemin vergi kayıp ve kaçaklarının önlenmesi, denetim süreçlerinde nesnellik ve şeffaflığın artırılması, maliye politikalarının veri temelli hale getirilmesi açısından sunduğu avantajlar tartışılmıştır. Çalışma, Türkiye’nin dijital dönüşüm sürecinde yapay zekâ tabanlı denetim sistemlerinin kamu yönetimi üzerindeki etkilerini değerlendirmekte ve gelecekteki uygulamalar için çıkarımlar sunmaktadır.

Anahtar Kelimeler: *Vergi Denetimi, Yapay Zeka, Kurgan Sistemi, Maliye Politikası, Dijital Devrim*

DIJİTAL İKİZ TEKNOLOJİLERİNİN DAYANIKLI KENTLER ÜZERİNDEKİ ROLÜ

Betül Ertoy Sarıışık (Ankara Hacı Bayram Veli Üniversitesi)

Özge Yalçın Ercoşkun (Gazi University)

Kentler, günümüzde artan iklim değişikliği etkileri, doğal afetler ve altyapı sistemleri üzerindeki yoğun baskılar nedeniyle giderek daha kırılgan hale gelmektedir. Kentsel dayanıklılığı değerlendirmek ve geliştirmek amacıyla kullanılan geleneksel yöntemler; yüksek maliyet, zaman gereksinimi ve uygulama zorlukları gibi sınırlılıklar taşımaktadır. Bu durum, kentlerin karmaşık dinamiklerini daha etkin biçimde analiz edebilecek dijital ve veri temelli yaklaşımlara olan ihtiyacı artırmaktadır. Bu bağlamda dijital ikiz (digital twin) yaklaşımı, fiziksel kentin dijital bir yansımını oluşturarak, sanal ve gerçek ortamlar arasında etkileşim kurmayı hedeflemektedir. Böylelikle risk senaryolarının modellenmesi, afetlere yönelik öngörülerin geliştirilmesi ve müdahale planlarının simülasyonlar yoluyla test edilmesi mümkün hale gelmektedir. Bulgular, dijital ikiz yaklaşımının özellikle risk analizlerinin doğruluğunu artırdığı, kaynak kullanımını azalttığı ve karar alma süreçlerini hızlandırdığı yönündedir. Dijital ikiz teknolojilerinin Türkiye’de dayanıklı kent politikalarına entegre edilmesi halinde, afet yönetiminde öngörü kapasitesini artırarak hem can hem de ekonomik kayıpların azaltılmasına katkı sağlayabileceğini ortaya koymaktadır. Bu çalışmada, dijital ikiz teknolojilerinin dayanıklı kent modellerine sağlayabileceği katkılar tartışılmaktadır.

Anahtar Kelimeler: *Dijital İkiz Teknolojisi, Kentsel Dayanıklılık, Afet Yönetimi, Akıllı Kentler, Veri Tabanlı Planlama.*

CORRELATION NETWORK ANALYSIS OF URBAN IMAGE COMPONENTS: THE CASE OF KAHRAMANMARAŞ

Ömer Büyükbaş (Ksü)*

Hamdi Ayyıldız (Ksü)

This study examines the interrelationships among the components that shape the urban image of Kahramanmaraş, Türkiye, through a correlation network analysis approach. Drawing on a comprehensive dataset derived from Büyükbaş's (2018) doctoral study, which measured perceptions of both residents and visitors, fourteen key variables were identified—spanning economic, infrastructural, cultural, and affective domains. Unlike traditional statistical approaches that analyze variables in isolation, this study employs network science to reveal the structural patterns and interdependencies underlying city image formation. The analysis demonstrates that Kahramanmaraş's image is governed by four interconnected clusters: (1) cultural–emotional, (2) functional–economic, (3) satisfaction-related, and (4) environmental–recreational. Culture and gastronomy emerge as central bridging variables that connect affective belonging with tangible urban qualities. These findings underscore the need for integrated urban marketing strategies that harmonize infrastructure, identity, and sustainability. The study contributes methodologically by demonstrating the utility of network analysis for place branding research and conceptually by highlighting Kahramanmaraş's resilience-based city identity.

Keywords: *City Image, Urban Marketing, Correlation Network Analysis, Kahramanmaraş, Place Branding, Resilience*

LEVERAGING ARTIFICIAL INTELLIGENCE TO ADDRESS LIVELIHOOD VULNERABILITY AND HOUSEHOLD DIETARY DIVERSITY IN DEVELOPING COUNTRIES: PATHWAYS TO RESILIENCE AND EQUITY

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Irfan Ahmed Baig (Mns University of Agriculture Multan)

Developing countries are facing an intensifying nexus of climate stress, livelihood vulnerability, and nutritional insecurity that disproportionately affects smallholder and marginalized farming communities. This study, derived from a systematic review of 23 global studies conducted across Sub-Saharan Africa, South Asia, and Latin America, examines the relationship between climate change, gender, and occupation in shaping household dietary diversity. Findings reveal that livelihood vulnerability exacerbated by droughts, floods, and socioeconomic inequalities significantly diminishes dietary diversity and food security, particularly among women-headed households and rain-fed farmers. Integrating Artificial Intelligence (AI) into climate adaptation and food system management offers transformative opportunities to mitigate these risks. AI-driven tools such as predictive climate models, satellite-based crop monitoring, digital extension platforms, and data analytics can enhance early warning systems, guide targeted interventions, and support decision-making for vulnerable households. By embedding AI within Climate-Smart Agriculture (CSA) and gender-sensitive livelihood programs, policymakers can improve adaptive capacity, reduce inequity, and ensure nutritional resilience. The study concludes that AI integration represents a critical pathway toward sustainable livelihoods and equitable food systems, aligning with the broader vision of promoting planetary health, empowering people, and fostering peace through technology-driven resilience.

Keywords: *Artificial Intelligence, Livelihood Vulnerability, Climate Change, Dietary Diversity, Food Security*

**APPLICATION OF VIRTUAL AND AUGMENTED REALITY (VR/AR)
TECHNOLOGIES IN THE EDUCATIONAL PROCESS AND DIGITALIZATION OF
PEDAGOGICAL PRACTICES FOR MEDICAL STUDENTS AT FERGANA MEDICAL
INSTITUTE OF PUBLIC HEALTH.**

Elyor Valitov (Ферганский Медицинский Институт Общественного Здоровья)

The integration of Virtual Reality (VR) and Augmented Reality (AR) technologies into medical education has transformed traditional teaching methods by creating immersive, interactive, and student-centered learning environments. At the Fergana Medical Institute of Public Health, the implementation of VR and AR tools plays a crucial role in enhancing students' understanding of complex medical concepts and improving their practical skills through simulation-based learning. These technologies allow medical students to visualize human anatomy, perform virtual dissections, and experience real-life clinical scenarios in a safe, controlled environment. The digitization of pedagogical processes further supports the modernization of the educational system. By applying digital learning platforms, electronic resources, and virtual laboratories, the institute ensures flexibility, accessibility, and efficiency in the learning process. The integration of digital assessment tools also enables personalized feedback and continuous progress monitoring. Moreover, the adoption of VR/AR technologies promotes active participation, collaboration, and critical thinking among students while reducing the dependency on physical models and limited laboratory resources.

However, the successful implementation of such technologies requires sufficient infrastructure, teacher training, and digital literacy development. The institute continues to invest in these areas to ensure that future healthcare professionals are equipped with the digital competencies demanded by modern medicine. In conclusion, the application of VR and AR technologies, together with the digital transformation of pedagogical processes, contributes significantly to improving the quality of medical education and preparing students for innovative clinical practice in a technology-driven healthcare environment.

Keywords: *Virtual Reality (VR), Augmented Reality (AR), Digital Learning, Medical Education, Pedagogical Digitization*

KADINLARDA SAĞLIK OKURYAZARLIĞI VE DİJİTAL GİRİŞİMCİLİK: KADINA YÖNELİK ŞİDDETLE MÜCADELEDE TEKNOLOJİ TABANLI UYGULAMALAR

Okan Koç (Balıkesir University)

Bu araştırma, kadınların sağlık okuryazarlığı düzeyi ile dijital farkındalık algısı arasındaki ilişkiyi belirlemek ve kadına yönelik şiddetle mücadelede kullanılan teknoloji tabanlı uygulamaların rolünü incelemek amacıyla yürütülmüştür. Çalışma, dijitalleşmenin kadınların sağlık davranışları ve toplumsal farkındalık süreçlerine etkisini ortaya koymayı hedeflemektedir. Araştırma nicel bir yaklaşımla, ilişkisel tarama modeli kapsamında gerçekleştirilmiştir. Evreni Balıkesir ili Paşalanı Mahallesi'nde yaşayan 18–65 yaş aralığındaki kadınlar oluşturmuş, kolayda örnekleme yöntemiyle seçilen 72 katılımcı araştırmaya dâhil edilmiştir. Veriler, Norman ve Skinner (2006) tarafından geliştirilen ve Uskun ve ark. (2022) tarafından Türkçeye uyarlanan E-Sağlık Okuryazarlığı Ölçeği (eHEALS) ile Karakuş ve Kılıç (2024) tarafından geliştirilen Dijital Farkındalık Algısı Ölçeği kullanılarak toplanmıştır.

Bulgulara göre katılımcıların büyük çoğunluğunun akıllı telefon kullandığı, ancak dijital şiddet ve teknoloji temelli kadın destek uygulamaları hakkında yeterli bilgiye sahip olmadığı belirlenmiştir. Katılımcıların önemli bir kısmı dijital teknolojilerde etik ve yasal sorumluluklar konusunda bilgi eksikliği yaşamaktadır. E-sağlık okuryazarlığı düzeyi genel olarak düşük bulunmuş, kadınların dijital araçları sağlık kararlarında etkin biçimde kullanamadıkları görülmüştür. Ayrıca katılımcıların çoğu, toplumsal sorunlara ilişkin yeterince desteklenmediklerini ve dijital alanlarda görünürlüklerinin sınırlı olduğunu ifade etmiştir. Araştırma, dijital sağlık okuryazarlığının artırılması ve kadınların teknoloji tabanlı farkındalık, güvenlik ve destek mekanizmalarına erişiminin güçlendirilmesine yönelik politika önerilerine katkı sağlamayı amaçlamaktadır.

Anahtar Kelimeler: E-sağlık okuryazarlığı, Dijital farkındalık, Kadına yönelik şiddet

DIJİTAL DÖNÜŞÜMÜN İŞ YAŞAMINA ETKİLERİ :ZOOM YORGUNLUĞU

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Dijital dönüşüm, iş yaşamının dinamiklerini kökten değiştiren bir süreç olarak örgütlerin yapısal, kültürel ve iletişimsel pratiklerini yeniden biçimlendirmektedir. COVID-19 pandemisiyle birlikte hız kazanan bu dönüşüm, uzaktan çalışma modellerinin yaygınlaşmasıyla yeni bir iş düzenini beraberinde getirmiştir. Zoom, Microsoft Teams ve Google Meet gibi video konferans araçları, mekân ve zaman kısıtlarını ortadan kaldırarak örgüt içi iletişimin temel bileşenleri haline gelmiş; aynı zamanda çalışma biçimlerinde kalıcı değişimlere yol açmıştır. Ancak bu dijital araçların yoğun kullanımı, “Zoom yorgunluğu” olarak tanımlanan yeni bir psikososyal olgunun ortaya çıkmasına neden olmuştur. Literatürde sanal iletişim araçlarının aşırı kullanımına bağlı zihinsel ve fiziksel tükenmişlik biçimi olarak ele alınan bu durum, çalışanların bilişsel yükünü artırmakta, dikkat, motivasyon ve performans üzerinde olumsuz etkiler yaratmaktadır. Özellikle uzun süreli video görüşmelerinde artan öz-farkındalık, sürekli göz teması, sınırlı fiziksel hareketlilik ve sözsüz ipuçlarının eksikliği yorgunluğun temel belirleyicileri arasında yer almaktadır. Bu çalışmada, dijitalleşme süreciyle birlikte iş yaşamında görünür hale gelen Zoom yorgunluğu olgusu, örgütsel iletişim, psikolojik iyi oluş ve verimlilik ekseninde ele alınmaktadır. Bulgular, dijital çalışma ortamlarında sürdürülebilir bir verimlilik için teknolojik adaptasyonun yanı sıra dijital ergonomi, bilişsel farkındalık ve esnek çalışma stratejilerinin gerekliliğini vurgulamaktadır.

Anahtar Kelimeler: *Dijital Dönüşüm, Uzaktan Çalışma, Video Konferans, Zoom Yorgunluğu, Örgütsel İletişim,*

CONTROL COMMUNICATION LATENCY, CLIENTS' DATA PRIVACY AND IMPROVE CONVERGENCE RATE IN IOT USING FEDERATED LEARNING

Sadia Razzaq (The University of Faisalabad)

Internet of Things (IoT) has gained significant attention in past few years. Its applications can be seen in smart healthcare, industry 4.0, smart transportation, and smart homes. Some of these are Artificial Intelligence (AI)/Machine Learning(ML) empowered applications, where most of the processing is centralized. However in scalable networks, the implementation of centralized AI/ML algorithms for IoT is a challenging task. Most of AI techniques work through central collection and central data processing to generate human like behavior in different IoT applications. Here data is collected from IoT devices and sent to a central repository for processing on a central server. This data transmission to central repository can lead to the risk of data leakage and certain privacy concerns specially in case of IoT networks scalability where data exists in bulks. These issues of Latency, privacy and low learning performance can be addressed through Distributed Collaborative Machine Learning (DCML). DCML is an architecture for ML models. It provides an easy access to the data distributed among several clients. DCML is known for not causing data leakages and maintaining data privacy. Federated Learning (FL) is the technique of DCML gaining importance in finance and health applications. FL is used on multiple clients and servers without sharing of raw data of one client with the other. Instead a server aggregates the weights of data and the weights so generated are distributed among clients and server for next round to get a fully trained global model. Through it, the model is trained among several distributed clients that range from two to millions in number, so do the parameters. To justify the work and performance of FL, simulation environment will be convenient where through constrained parameters of latency, privacy and convergence rate and a graphical representation of the FL scenario, ideal FL working environment can be identified.

Keywords: *Data Privacy, Distributed Collaborative Machine Learning, Data Leakage, Scalability, IoT*

AGENT-BASED MODELING & SIMULATION OF COOPERATIVE LEARNING STRATEGIES

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Dr Majid Hussain (The University of Faisalabad)

Ibrar Ahmad (The University of Faisalabad)

Cooperative Learning (CL) is well known pedagogical methodology that emphasizes knowledge sharing among students. The main strength of CL is acclaimed to enable students achieve better academic performance in short time compared to traditional learning. Sometimes, conventional teaching methods fall short of producing enough talent, both in number and quality, to meet the demands of modern economy. Many examples suggest that blending CL into conventional class room based teaching paradigm can get accumulated benefits. There are many variants of CL methodology with different pros and cons. Its application in traditional academic environment is not straight forward and requires significant time and resources. We propose to simulate different CL strategies based on an Ant Colony inspired agent based model. It provides in silico experimental framework to perform comparative analysis of different CL strategies. This comparison gives us interesting results that favor CL merging into conventional pedagogy.

Keywords: *Conventional, Pedagogy, Simulation, Learning Methodology, Agent Based Modeling*

PLANET-FRIENDLY ARTIFICIAL INTELLIGENCE STRATEGIES: A MODEL PROPOSAL FOR BUSINESS MANAGEMENT AND STRATEGY

Duygu Toplu Yaşlıoğlu (Istanbul University)

Climate change emerges as a global crisis that radically transforms businesses' understanding of sustainability and strategic orientations. In this context, artificial intelligence (AI) stands out as a critical tool in the development of planet-focused strategies, beyond being merely an efficiency-enhancing technology. This study proposes a strategy model that will allow businesses to systematically evaluate planet-friendly AI applications. The proposed model consists of four layers. First, the input layer includes the key drivers on the business, such as climate pressure, regulatory frameworks, technological infrastructure, and strategic vision. Secondly, the application layer reveals the usage areas of AI in energy optimization, carbon footprint management, circular economy and risk scenario analysis. Third, the business outcomes layer describes the impact of these practices on cost savings, competitive advantage, brand reputation and ESG (Environmental, Social, Governance) performance. Finally, the impact layer shows the contributions that businesses can make in the long term to combating climate change, sustainable use of resources and alignment with the United Nations Sustainable Development Goals (SDG 7,12,13).

This model contributes to the theoretical literature and offers a practical strategic framework for businesses. The study aims to strengthen the planet-centered management perspective in the age of artificial intelligence and offer a strategic roadmap for transitioning to sustainable business models.

Keywords: *Artificial Intelligence, Sustainability, Planet Friendly Strategy, Climate Change*

GENERATIVE AI MEETS THE SOCRATIC METHOD: TOWARD A SELF-EVOLVING LEARNING ENVIRONMENT FOR HIGHER EDUCATION

Sana Maqbool (The University of Faisalabad)

Majid Hussain (The University of Faisalabad)

Generative AI is rapidly transforming education by enabling scalable, interactive, and personalized learning experiences that were previously unattainable. However, while its potential to support higher-order thinking is widely recognized, most AI-based tools lack the structured questioning and reflective depth required to develop student critical thinking (CT) and self-regulated learning (SRL). The Socratic method has long been celebrated for fostering these skills, but its dependence on skilled human facilitators limits its scalability. This study addresses this gap by designing and evaluating a \emph{AI-Socratic learning system} that integrates Bloom's taxonomy-aligned prompts, deterministic reasoning pathways, and reflective triggers to deliver structured inquiry-driven dialogue at scale. A quasi-experimental design was implemented with $N = 60$ undergraduate students during a 12-week intervention. The Watson-Glaser critical thinking test and the SRL scale were administered before and after the intervention, complemented by qualitative analysis of 720 student–AI dialogue exchanges. Quantitative results revealed significant improvements in CT ($+12.4$ points, $t(59) = 8.45$, $p < 0.001$, $d = 1.15$) and SRL ($+0.9$ points, $t(59) = 6.82$, $p < 0.001$, $d = 0.98$). Qualitative thematic analysis showed that 65\% of the exchanges reflected \emph{Reflective Thinking} or \emph{Deeper Reasoning}, with a further 25\% demonstrating \emph{Real-World Application}, indicating that the system promoted both measurable cognitive gains and authentic knowledge transfer. The findings suggest that AI-Socratic dialogue can match or exceed the pedagogical benefits of human-facilitated Socratic questioning, offering a scalable, cost-effective pathway for cultivating higher-order thinking and learner autonomy. This work contributes to the emerging evidence base for pedagogically grounded generative AI in education and outlines practical and research directions for its broader adoption.

Keywords: *Generative AI, Socratic Method, Critical Thinking, Constructivist Pedagogy, Self-Regulated Learning, Large Language Models, Higher Education, Adaptive Tutoring.*

İŞYERİ NEZAKETSİZLİĞİNİN İŞ STRESİNİN ÜRETKENLİK KARŞITI İŞ DAVRANIŞLARINA ETKİSİNDE İŞ STRESİNİN ARACI ROLÜ

Mustafa Şeker (Nearest University)

Ahmet Alp Özbalci (Samsun University)

Bu araştırmanın amacı, işyeri nezaketsizliğinin çalışanların üretkenlik karşıtı iş davranışları üzerindeki etkisinde iş stresinin aracılık rolünü incelemektir. Modern örgütlerde giderek artan nezaketsizlik davranışları, çalışanların duygusal dayanıklılığını zedeleyen, örgütsel iletişimi bozan ve iş birliğini zayıflatan önemli bir problem alanı olarak görülmektedir. Nezaketsiz davranışlara maruz kalan bireyler, zamanla tükenmişlik, motivasyon kaybı ve psikolojik yıpranma yaşayarak örgütsel hedeflere uyum sağlamakta zorlanmaktadır. Bu durum, çalışanların üretkenlik karşıtı iş davranışlarına yönelmesine, iş ortamında olumsuz bir döngünün oluşmasına zemin hazırlamaktadır. Araştırma bu ilişkiyi iş stresi değişkeni aracılığıyla test etmeyi amaçlamıştır.

Çalışma, farklı sektörlerde görev yapan 400 katılımcıdan anket yöntemiyle elde edilen veriler üzerine kurulmuştur. Analizler SPSS 29 programında gerçekleştirilmiş; tanımlayıcı istatistikler, korelasyon ve aracılık analizleri yapılmıştır. Ölçeklerin güvenirlik katsayıları oldukça yüksektir (Nezaketsizlik $\alpha=.904$; Stres $\alpha=.828$; Üretkenlik karşıtı davranışlar $\alpha=.926$). Tanımlayıcı bulgular, katılımcıların orta düzeyde nezaketsizlik ve stres algısına sahip olduğunu göstermektedir. Korelasyon analizine göre değişkenler arasında pozitif ve anlamlı ilişkiler saptanmıştır ($p<.001$). PROCESS Model 4 aracılık analizinde iş stresinin kısmi aracılık etkisi anlamlı bulunmuştur (dolaylı etki $\beta=.13$; %95 GA [.071, .210]). Elde edilen bulgular, işyeri nezaketsizliğinin çalışan davranışlarını olumsuz yönde etkileyen temel faktörlerden biri olduğunu ortaya koymaktadır. İş stresinin bu ilişkide aracılık rolü üstlenmesi, örgütlerde psikolojik iyi oluşun önemini vurgulamaktadır. Nezaket kültürünün desteklendiği, stres yönetimi uygulamalarının yerleştiği kurumlarda üretkenlik karşıtı davranışların azaldığı öngörülebilir. Bu nedenle yöneticilerin çalışan ilişkilerinde empati, saygı ve adalet ilkelerini esas alan politikalar geliştirmesi, uzun vadeli örgütsel verimlilik açısından kritik bir gereklilik olarak değerlendirilmektedir.

Anahtar Kelimeler: İşyeri Nezaketsizliği, İş Stresi, Üretkenlik Karşıtı İş Davranışları, Aracılık Etkisi

WHAT MAKES USERS CLICK? INVESTIGATING THE LATENT FEATURES IN EDUCATION APP ICONS AND TITLES INFLUENCING DOWNLOADS

Ahmad Bilal (The University of Lahore)

Icons and titles are the first elements users encounter when browsing a smartphone application store, playing a critical role in capturing users' attention and influencing downloads. Existing research that applied data-driven methodologies to evaluate the effect of these first impressions on user responses, such as application downloads, is scarce and limited to individual elements, without investigating their combined effect or determining which of the two contributes most to increasing download rates. This lack of integrated investigation may also be attributed to the absence of datasets that contain both icons and titles within a single unified structure. Moreover, existing research may have generated broad insights that overlooked specific, discrete, and category-focused findings, which could be particularly relevant and useful for app creators. This research introduces an approach to construct a unified Google Play Store education apps dataset that comprises application icons, titles, and other relevant metadata within a single structure. Subsequently, a Machine Learning-based methodology is utilized to extract clear and actionable insights associated with higher download rates. The results indicate that both icons and titles are strongly correlated with download performance. For icons, lower visual clutter, less sharpness, symmetrical design, and moderate color variation are connected with higher downloads. In contrast, for application titles, better readability, capitalization of the first letter, and a greater number of nouns without repetition have a positive impact on downloads.

Keywords: *App icons, App titles, Google Play Store, Machine Learning, Download performance*

DİJİTEL LİDERLİK, OKUL İKLİMİ VE ÖĞRETMEN DİJİTAL ÖZYETERLİLİĞİ YAPAY ZEKÂ ÇAĞINDA DÖNÜŞÜM MODELİ

Mahmut Karakaya (Bağımsız Araştırmacı)

Yapay zekâ çağında eğitim kurumları, dijital dönüşümün merkezinde yer almakta; bu dönüşümün sürdürülebilir, kapsayıcı ve barış temelli biçimde yönetilmesi büyük önem taşımaktadır. Bu araştırmanın amacı, okul yöneticilerinin dijital liderlik rollerinin öğretmenlerin dijital özyeterlilikleri üzerindeki doğrudan ve dolaylı etkilerini ortaya koymaktır. Araştırmada geliştirilen model, dijital liderliğin etkilerini veri okuryazarlığı ve okul iklimi aracılığıyla açıklamayı hedeflemektedir.

Model kapsamında dijital liderlik (DL), veri okuryazarlığı (VO), okul iklimi (OI) ve dijital öğretmen özyeterliliği (DÖÖ) değişkenleri arasındaki ilişkiler LISREL 8.80 programı ile yapısal eşitlik modeli (SEM) aracılığıyla test edilmiştir. Bulgular, dijital liderliğin veri okuryazarlığını (H1) ve okul iklimini (H3) pozitif yönde etkilediğini; ayrıca öğretmen dijital özyeterliliğini hem doğrudan (H2) hem de VO ve OI aracılığıyla dolaylı olarak artırdığını göstermiştir.

Araştırma sonuçları, dijital liderliğin ve veri okuryazarlığının eğitimde yapay zekâ entegrasyonunun temel bileşenleri olduğunu ortaya koymaktadır. Güçlü bir dijital liderlik anlayışı ve veri temelli okul kültürü, hem öğretmenlerin yenilikçi teknolojilere uyumunu artırmakta hem de öğrenme ortamlarında iş birliği, güven ve barışçıl dönüşüm süreçlerini desteklemektedir.

Anahtar Kelimeler: *Yapay Zekâ, Dijital Liderlik, Veri Okuryazarlığı, Okul İklimi, Dijital Öğretmen Özyeterliliği.*

HİSTOPATOLOJİK TANIDA YAPAYZEKA: 21. YÜZYILIN YENİ ASİSTANI

Leyla Bahar (Mersin Üniversitesi)*

Yüzyılımızda, tıpta dijital dönüşümün en belirgin biçimde hissedildiği dönemlerden biridir. Özellikle histopatoloji alanında yapay zekâ (YZ) ve dijital görüntüleme teknolojilerinin birleşimi, tanı süreçlerinde yeni bir çağ başlatmıştır. Dijital patoloji sistemleri, klasik mikroskop temelli incelemelerin ötesine geçerek, yüksek çözünürlüklü tarayıcılar ve bulut tabanlı analiz platformları aracılığıyla büyük hacimli verilerin depolanmasını, paylaşılmasını ve incelenmesini mümkün kılmaktadır. Yapay zekâ algoritmaları—özellikle derin öğrenme ve konvolüsyonel sinir ağları (CNN)—hücre morfolojisi, doku mimarisi ve tümör mikroçevresi gibi karmaşık histolojik özellikleri otomatik olarak tanımlayabilmekte, tanı süresini kısaltmakta ve insan hatasını minimize etmektedir. Bu teknolojiler; meme, akciğer, prostat, beyin ve kolon kanserleri gibi pek çok malignitede yüksek doğruluk oranları ile sonuç vermektedir. Ayrıca, YZ destekli karar sistemleri; prognostik belirteçlerin analizi, tümör derecelendirmesi, mitotik indeks ölçümü ve lenf nodu metastaz tespiti gibi görevlerde patolojlara önemli katkılar sağlamaktadır. Bununla birlikte, algoritmaların eğitimi için gerekli büyük etiketli veri setlerinin oluşturulması, etik ve yasal düzenlemeler, standardizasyon eksikliği ve klinik entegrasyon süreçleri halen önemli zorluklar arasındadır.

Sonuç olarak, yapay zekâ, histopatolojik tanıda insan uzmanlığının yerini almak yerine onu tamamlayan, hız, doğruluk ve tutarlılık kazandıran “21. yüzyılın yeni asistanı” olarak öne çıkmaktadır. ,

Anahtar Kelimeler: Histopatoloji, Yapay Zeka, Diital Dönüşüm, Görüntüleme Teknikleri

MESLEKİ TÜKENMİŞLİĞİN İŞ DOYUMU ÜZERİNE ETKİSİ: BATMAN ÜNİVERSİTESİ ÖRNEĞİ

Cuma Sönmezsoy (Batman Üniversitesi)

Yavuz Elitok (Batman Üniversitesi)

Çalışma Batman Üniversitesinde görev yapan akademik ve idari personelin mesleki tükenmişlik düzeyi ile iş doyumunu arasındaki ilişki incelemeyi amaçlamaktadır. Modern çalışma hayatında yaşanan ağır iş yükü, stres faktörleri, kurumsal baskılar ve yoğun rekabet ortamı, bireylerde tükenmişlik sendromunun gelişimine yol açan temel etmenler olarak öne çıkmaktadır. Söz konusu tükenmişlik olgusu, duygusal tükenme, duyarsızlaşma ve kişisel başarı hissinde azalma boyutlarından oluşan çok boyutlu bir yapı sergilerken; iş doyumunu kavramı ise çalışanın işine ilişkin bütüncül tatmin ve memnuniyet düzeyini ifade etmektedir. Yapılan analizler, mesleki tükenmişlik düzeyinin iş doyumunu üzerinde istatistiksel olarak anlamlı bir negatif etkiye sahip olduğunu ortaya koymuştur. Duygusal tükenme düzeyindeki artışın, çalışanların hem işin içsel (işin doğası, anlamlılık, yaratıcılık) hem de dışsal (ücret, statü, çalışma koşulları) boyutlarından aldıkları doyumunu istatistiksel olarak anlamlı bir şekilde azalttığını ortaya koymaktadır. Bu durum, tükenmişliğin iş doyumunu üzerinde kapsamlı ve çok boyutlu bir olumsuz etkiye sahip olduğuna işaret etmektedir.

Anahtar Kelimeler: *Tükenmişlik, İş Doyumu, İçsel Doyum, Dışsal Doyum,*

ESTIMATING AGRICULTURAL INCOME TAX REVENUE IN PAKISTAN: CHALLENGES AND OPPORTUNITIES FOR INSTITUTIONAL IMPROVEMENT

Khadija Syed (Muhammad Nawaz Shreef University of Agriculture Multan, Pakistan)

Taxes are the primary means of generating revenue worldwide. Thus, income taxes could be a long-term and essential source of income for the government. Pakistan lags far behind other countries when taxing individual income, especially income from agriculture. This study evaluates tax collection under various scenarios and analyzes the institutional hurdles to collecting agricultural income tax through focus group discussions. Thus, the study results demonstrate that the estimation of tax collection done in this study, as agricultural income tax without differentiating lessors' income, may generate tax revenues of 65 billion rupees. With differentiated lessors, income may generate revenue of 68 billion. Therefore, other reasons, such as inadequate administrative structure, contribute to the insufficient collection of agricultural taxes. This can be improved through Cooperation among various government institutions for sharing information, which can enhance the capacity of the tax collection authorities.

Keywords: *Income Tax, Tax Collection, Institutional Hurdles, Administrative Structure*

DIGGING THEIR OWN GRAVE? EXPLORING TRADITIONAL ENTREPRENEURS' DIGITAL ENTREPRENEURSHIP AWARENESS

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Adalet Kötemen (Freelance)

This study aims to investigate the digital entrepreneurship awareness and knowledge levels of traditional entrepreneurs in Karaman, Turkey. The research examines two dimensions: digital entrepreneurship awareness and knowledge of digital entrepreneurship components. The awareness dimension measures participants' attitudes toward learning new digital technologies, perceiving opportunities offered by internet and mobile technologies, having an innovative mindset, planning digital businesses/platforms, and the role of social networks in business development. The knowledge dimension evaluates participants' understanding of key digital entrepreneurship concepts, including digital transformation, unicorn and decacorn ventures, big data, digital twin, domain/hosting, knowledge economy, virtual POS, blockchain, artificial intelligence, crowdfunding, and the Internet of Things. A total of 187 entrepreneurs participated in the study. Findings indicate that while participants generally demonstrate awareness of digital entrepreneurship concepts and technologies, factors such as risk perception, lack of resources and technical knowledge, and sector/market dynamics remain critical in maintaining traditional business models. The study emphasizes the importance of targeted training and awareness initiatives to support the transition to digital entrepreneurship within the local entrepreneurial ecosystem.

Keywords: *Digital Entrepreneurship, Traditional Entrepreneurs, Awareness, Digital Technology Knowledge, Karaman*

FROM RED AI TO GREEN AI: HOW WE CAN MAKE AI MORE SUSTAINABLE

Meenakshi Murugappan (University of Nottingham Malaysia)

Artificial Intelligence (AI) has become a transformative force shaping multiple sectors, including healthcare, manufacturing, education, and finance. However, the exponential growth of AI technologies has come with a substantial environmental cost, primarily due to the high computational power, energy consumption, and carbon emissions required for training large-scale models. The increasing size and complexity of modern algorithms such as GPT, BERT, and other deep learning architectures have raised critical concerns regarding the sustainability of AI practices. This situation calls for a shift in the way AI is developed, evaluated, and deployed to align technological innovation with global environmental goals.

The concept of Red AI refers to performance-driven systems that prioritize accuracy and model sophistication without considering their energy or ecological implications. This performance-centric approach, while responsible for major breakthroughs, has led to a widening gap between well-funded institutions and smaller research entities due to unequal access to computational resources. In contrast, Green AI, introduced by Schwartz et al. (2019), promotes a balanced and sustainable vision of AI one that values energy efficiency, carbon awareness, and environmental responsibility alongside model performance. Green AI challenges the notion that better results must come at the cost of greater resource use, emphasizing the principle of achieving “more with less.”

This paper examines the transition from Red AI to Green AI and explores various strategies for building sustainable AI ecosystems. Key technical approaches such as model compression, pruning, quantization, knowledge distillation, and energy-aware algorithm design are discussed as viable pathways to reduce computational waste and energy demand. Furthermore, the paper highlights the growing role of renewable-energy-powered data centers, green cloud computing, and hardware optimization in minimizing the ecological footprint of AI infrastructures. These efforts are complemented by emerging global initiatives and policies that advocate for sustainability reporting, carbon accounting, and responsible innovation in AI research and development.

Despite these advancements, several challenges hinder the widespread adoption of Green AI, including the absence of standardized metrics for measuring energy efficiency, limited awareness among practitioners, and the tension between accuracy and sustainability. The study underscores the need for interdisciplinary collaboration, transparent energy reporting, and education to cultivate a culture of environmental mindfulness among AI developers and users. By embedding sustainability into the entire AI lifecycle from data collection to deployment researchers can ensure that future AI progress aligns with the principles of ecological balance and social responsibility.

In conclusion, the transition from Red AI to Green AI represents not only a technological evolution but also an ethical and environmental imperative. The integration of sustainability into AI systems will enable equitable access to innovation while mitigating the environmental

consequences of computational expansion. Ultimately, the future of AI must be both intelligent and responsible advancing human progress without compromising the planet's well-being.

Keywords: *Green AI, Red AI, Sustainable Computing, Energy Efficiency, Environmental Responsibility*

EXPLORING THE IMPACT OF GAMIFICATION AND SOCIO-DEMOGRAPHIC FACTORS ON ADOLESCENTS' COMMUNICATION SKILLS AND INTERACTION ANXIETY: INSIGHTS FROM THE 'A DAY IN NATURE' PROGRAM

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Ali Balıkel (İstanbul Kent Üniversitesi)

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Fatih Ölçekciler (İstinye Üniversitesi)

Gizem Ölçekciler (İstinye Üniversitesi)

This study investigates the impacts of a structured, gamified nature-based educational program, “A Day in Nature,” on adolescents’ communication skills and interaction anxiety, considering socio-demographic factors. Utilizing a purposive sample of 312 adolescents (ages 13–15) divided equally into experimental and control groups, data were collected through structured questionnaires assessing socio-demographics, program impact perceptions, communication skills, and interaction anxiety. Results indicated significant improvements in communication abilities and reductions in interaction anxiety among participants, with particularly pronounced effects among female adolescents. These findings are consistent with existing literature emphasizing cooperative, narrative-driven gamification’s benefits, highlighting gender-specific responses to gamification elements. Additionally, the intervention demonstrated broad socio-demographic inclusivity, mitigating disparities typically observed in educational settings. It should be particularly noted that gamification can present disadvantages by being constructed in ineffective ways, and this requires caution. Therefore, future studies on gamification should develop the effect and framework of gamified constructions and provide qualified dimensions regarding the development of students and education.

Keywords: *Gamification, Adolescents, Communication Skills, Interaction Anxiety*

A COMPARISON OF SOCIAL ENTREPRENEURSHIP AND FOUNDATION VOLUNTEERING FROM A SOCIAL VALUE PERSPECTIVE

Oğuzhan Aytar (Karamanoğlu Mehmetbey Üniversitesi)

This study aims to provide a comparative analysis of two social value-oriented approaches, social entrepreneurship and foundation volunteering, within the context of Türkiye. The research examines how each model addresses social challenges, their approaches to sustainability, resource management, innovation levels, and methods for creating social impact. Social entrepreneurship emerges as a market-based, innovative model that can generate profits and reinvest them into social purposes, whereas foundation volunteering operates primarily through donations and volunteer engagement, representing a non-profit structure with community participation at its core. Findings indicate that both approaches aim to generate social value, but they differ in implementation methods, funding sources, and operational flexibility. Social entrepreneurship can provide rapid and innovative solutions through entrepreneurial and technological approaches, while foundation volunteering operates within more structured and regulatory frameworks. The study highlights the strengths and limitations of each approach from a social value perspective and offers practical recommendations for policymakers, NGOs, and practitioners. It provides insights into how social entrepreneurship and foundation-based volunteering can complement each other in creating social impact and advancing Türkiye's social innovation ecosystem.

Keywords: *Social Entrepreneurship, Foundation Volunteering, Social Value, Comparative Analysis, Türkiye*

THE TRANSFORMATION OF THE MAHALLA SYSTEM IN UZBEKISTAN

Manzuraxon Yunusova (Andijan State University)

This article explores the transformation of the mahalla system in Uzbekistan, emphasizing how the evolution of functions assigned to mahallas over a long historical development has elevated their institutional status. As a result, mahallas have increasingly become significant actors in addressing social issues as bodies of local self-governance. The strengthening of their political and institutional role as crucial subjects of public oversight has had a positive impact on socioeconomic development and the implementation of national programs. This study investigates these dynamics from the perspective of civic engagement and the local population's interest in the development of their own mahalla. The paper also presents scientific analyses on enhancing the role of mahallas in poverty reduction, and examines the potential of adapting China's experience in working with various social groups to the Uzbek context. Moreover, it explores the self-governance system in Japan, particularly its advanced models of financing, and proposes ways to improve the operations of self-governing bodies in Uzbekistan based on these international best practices. Furthermore, the study discusses the implementation of new models of social governance aimed at supporting and promoting civic initiatives within mahallas. These innovations are expected to broaden the opportunities for effectively implementing nationwide programs and improving the overall socio-economic conditions at the community level.

Keywords: *Mahalla, Self-Governance, Public Oversight Committee, Civic Monitoring, Social Governance*

RETHINKING DEVELOPMENT IN A CHANGING WORLD

To'lanboy Artikov (Andijan State University)

The dialectical doctrine is based on the understanding that all things, including society, state and governance, education and upbringing, and humans themselves, are in a state of constant change. It is known that the movement of things and phenomena occurs due to the interconnection and interrelation of renewal, change, and development. All things and phenomena surrounding humans - from galaxies and stars to various substances, plants, and animals, from human society to human intellect and thinking - are in a state of movement, change, and development. In essence, any change is movement. The world in which a person lives constitutes a single universe with all its existence, attractiveness, good and evil, complexity and problems. The world, first and foremost, reflects the space in which humans and their activities exist. The world is beautiful with humans, and it is a part of being that consists of elements perceived, known, and understood by humans - a manifestation of existence. Humans are biosocial beings, the existence of body and soul. They are also an integral part of the universe. Humans understand the reality of the universe, the actual existence and objectivity of things and events within it. They also manage to adapt their activities to the world.

Various conclusions have been drawn within the framework of the unity of the universe and humans. In the philosophical thought of ancient Greek scholars and Central Asia, reflections on existence and non-existence, permanence and transience, "this world" and "the next world" were subjects of heated debates. Views in this area were natural-scientific (Farabi, Beruni, Ibn Sina), Sufi, and theological in nature. The idea of emanation underlies the ontological teachings of Abu Nasr Farabi. In his work "The Virtuous City," he asserts that the only spiritual beginning is being, that is, Allah is the sole and highest level of perfection. As he teaches that all existence arises from it through emanation, he classifies types of existence. Material and spiritual entities, distinguished by their perfection, have their own levels. He explains that their forms are interconnected.

According to Ibn Sina, the universe is a single, complex entity. Due to the changeability of the world, new solutions and interpretations have been proposed. Development has never ceased in the world. Since both nature and humans are changing, new directions of development and solutions are continually being proposed in perfect form. This occurs within the framework of the unity of human-nature, reason, and intelligence.

Keywords: *Dialectical, Human, Movement, World*

ÜNİVERSİTE ÖĞRENCİLERİNİN STRESLE BAŞA ÇIKMA BECERİSİNİ GELİŞTİRMEDE BDT, ACT VE MINDFULNESS'İN ROLÜ: BİR DERLEME

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Mustafa Güler (Selçuk Üniversitesi)

Bu derleme çalışması, üniversite öğrencilerinin akademik, sosyal ve kişisel yaşamlarından kaynaklanan yoğun stresle başa çıkma becerilerini geliştirmede Bilişsel Davranışçı Terapi (BDT), Kabul ve Kararlılık Terapisi (ACT) ve Bilinçli Farkındalık (Mindfulness) temelli müdahalelerin rollerini ve etkinliklerini sistematik bir şekilde incelemeyi amaçlamaktadır. Üniversite dönemi, bireylerin artan sorumluluklar, sınav kaygısı, gelecek belirsizliği ve yeni sosyal çevreye adaptasyon gibi zorluklarla karşılaştığı, yüksek stres düzeylerinin gözlemlendiği kritik bir evredir. Etkili başa çıkma stratejilerinin geliştirilememesi, öğrenme performansını, psikolojik iyi oluşu ve genel yaşam kalitesini olumsuz etkilemektedir.

İlgili literatür incelendiğinde, BDT'nin stres yaratan durumlara yönelik işlevsiz düşünce kalıplarını tanıma ve değiştirme yoluyla öğrencilerin başa çıkma becerilerini güçlendirmede önemli bir etki gösterdiği belirlenmiştir. ACT ise, stresli düşünce ve duygulardan kaçınmak yerine, onları yargılamadan kabul etme ve bireyin değerleri doğrultusunda kararlı adımlar atma becerisini geliştirerek psikolojik esnekliği artırmaktadır. Mindfulness temelli uygulamalar ise, öğrencilerin şimdiki ana odaklanma ve deneyimlerini yargılamadan gözlemleme yeteneğini geliştirerek duygusal tepkiselliği azaltmakta ve stres algısını düşürmektedir.

Elde edilen bulgular, her üç yaklaşımın da üniversite öğrencileri popülasyonunda stres, kaygı ve depresyon semptomlarını azaltmada ve başa çıkma becerilerini iyileştirmede önemli potansiyel taşıdığını göstermektedir. Bu derleme, üniversite ruh sağlığı merkezleri ve rehberlik birimleri için öğrenci destek programlarının tasarımında kanıt temelli bir yol haritası sunmakta; özellikle entegre ve esnek müdahale yaklaşımlarının gelecekteki araştırmalar için öncelikli alanlar olduğunu vurgulamaktadır.

Anahtar Kelimeler: Üniversite Öğrencileri, Stresle Başa Çıkma, Bilişsel Davranışçı Terapi (BDT), Kabul ve Kararlılık Terapisi (ACT), Bilinçli Farkındalık (Mindfulness).

KURUMSAL YÖNETİM UYGULAMALARININ FİNANSAL BİLGİ KALİTESİ ÜZERİNE ETKİSİ: TEORİK BİR DEĞERLENDİRME

Selçuk Bali (Selçuk University)

Mehmet Ferhat Çelik (Selçuk University)

Bu çalışmanın amacı, kurumsal yönetim uygulamalarının işletmelerin finansal bilgi kalitesi üzerindeki etkisini teorik olarak incelemektir. Literatür taramasına dayalı olarak kurumsal yönetim yapılarının (örneğin yönetim kurulu büyüklüğü, bağımsızlık oranı, kadın yönetici oranı, denetim komitesi etkinliği) kazanç kalitesi gibi finansal raporlama unsurlarını nasıl etkilediği değerlendirilmiştir. Araştırmalar, iyi yönetim uygulamalarının sadece şeffaflığı değil, aynı zamanda sermaye piyasalarında güveni artırarak firma değerine de katkı sağladığını ortaya koymaktadır.

Anahtar Kelimeler: Kurumsal Yönetim, Finansal Bilgi Kalitesi, Kazanç Kalitesi, Şeffaflık

KRİZ DÖNEMİNDE ÖRGÜTSEL DAYANIKLILIKLA YENİDEN YAPILANMA: ÖRGÜTSEL ÖĞRENME YETENEĞİNİN İHRACAT FİRMALARININ ÜRÜN İNOVASYONU ÜZERİNDEKİ ETKİSİ

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Günümüzde, küreselleşmenin de etkisi ile artan rekabet dolayısıyla işletmelerin hayatta kalabilmek için ülke sınırları dışına açıldıkları görülmektedir. Artan küresel belirsizlik ve oluşan beklenmedik yıkıcı olaylar, bir yandan örgütleri kırılgan hale getirirken, diğer yandan da, inovasyonun ortaya çıkışını desteklemektedir. Özellikle pandemi, savaşlar ya da büyük ekonomik bunalımlar gibi beklenmedik yıkıcı olayların yaratmış olduğu kriz ortamlarında, işletmelerin örgütsel öğrenme yeteneklerinin artırılmasının, onların ürün inovasyonu yapabilme potansiyellerini olumlu yönde etkilemesi için, dayanıklılık kapasitesinin aracılık ve düzenleyicilik etkisinin katkı sağlayacağı düşünülmektedir. Bu çalışma, özellikle değişken koşullardan çok fazla etkilenen ihracat işletmelerinde, kriz dönemlerinde örgütsel öğrenme yeteneğinin ürün inovasyonuna etkisinin, örgütsel dayanıklılığa göre nasıl değiştiğini açıklayarak bu alandaki literatüre katkı sağlamayı ve bu firmaların gelişimi için yol gösterici bilgiler sunmayı amaçlamaktadır. Önerilen kavramsal modelin test edilmesi için saha araştırması, İstanbul ilinde İstanbul Tekstil ve Konfeksiyon İhracatçı Birlikleri (İTKİB) altında faaliyet gösteren ihracat işletmeleri çalışanları üzerinde yapılmıştır. Elde edilen veriler üzerinde, SPSS uygulaması kullanılarak faktör analizi, geçerlik, güvenirlik ve korelasyon analizleri yapılmış, Ayrıca aracılık analizi ve düzenleyicilik analizi testleri de SPSS PROCESS V.4 eklentisi ile yapılmıştır. Saha araştırmasından elde edilen ampirik bulgular, örgütsel öğrenmenin, ürün inovasyonu üzerinde anlamlı ve pozitif etkisi olduğunu, ayrıca örgütsel öğrenmenin örgütsel dayanıklılığı olumlu yönde etkilediğini, örgütsel dayanıklılık ve ürün İnovasyonu arasında anlamlı, pozitif yönlü bir ilişki olduğunu, örgütsel öğrenmenin, ürün inovasyonuna etkisinde, örgütsel dayanıklılığın düzenleyici (moderatör) etkisinin bulunmadığını fakat, tam aracılık etkisine sahip olduğunu göstermektedir.

Anahtar Kelimeler: *Örgütsel Öğrenme, Örgütsel Dayanıklılık, Ürün İnovasyonu, Dinamik Yetenekler Teorisi, Kriz Yönetimi,*

KURUMSAL YÖNETİM UYGULAMALARININ FİNANSAL BİLGİ KALİTESİ ÜZERİNE ETKİSİ: AMPİRİK UYGULAMA

Selçuk Bali (Selçuk University)

Mehmet Ferhat Çelik (Selçuk University)

Bu çalışmanın amacı, kurumsal yönetim uygulamalarının işletmelerin finansal bilgi kalitesi üzerindeki etkisini ampirik olarak incelemektir. Araştırma, Borsa İstanbul'da kurumsal yönetim derecelendirme notu açıklayan firmalardan oluşmaktadır. Finansal bilgi kalitesi; tahakkuk kalitesi (TAQ), kazanç sürekliliği (PERS) ve kazanç–nakit akışı ilişkisi (CFO) ile ölçülmüş; kurumsal yönetim yapısı yönetim kurulu büyüklüğü (BSIZE), bağımsız üye oranı (BIND), kadın yönetici oranı (WFEM) ve denetim komitesi etkinliği (AUDCOM) ile temsil edilmiştir. Panel veri analizi ve Driscoll–Kraay dirençli tahmincisi ile yapılan testler, kurumsal yönetim uygulamalarının finansal bilgi kalitesini anlamlı biçimde artırdığını göstermektedir.

Anahtar Kelimeler: Kurumsal Yönetim, Finansal Bilgi Kalitesi, Kazanç Kalitesi, Panel Veri Analizi, Borsa İstanbul

MOBİL BANKACILIKTA DİJİTAL SESLİ ASİSTAN HİZMET KALİTESİ, DENEYSEL BİR KARŞILAŞTIRMA

Özkan Çıtak (Akdeniz University)

Bu çalışmanın amacı, Türkiye’de faaliyet gösteren bankaların mobil bankacılıkta kullandıkları dijital sesli asistanların e-hizmet kalitesini boyutlar düzeyinde ölçmek, karşılaştırmak ve iyileştirme alanlarını belirlemektir. Araştırma deneysel bir tasarımla yürütülmüştür. 2024 yılı bilançolarına göre en yüksek ve en düşük faaliyet kârına sahip ikişer bankadan iki sesli asistan (SR1 ve SR2) seçilmiştir. Chen ve ark. (2022) tarafından geliştirilen Artificial Intelligence Chatbot Service Quality (AICSQ) ölçeği, Lin (2013)’ün mobil bankacılık kalite faktörleriyle uyarlanarak kullanılmıştır. Değerlendirmede, her bir hizmet boyutu (semantik anlama, yakın insan–YZ işbirliği, insansı özellik, sürekli gelişim, kişiselleştirme, kültürel adaptasyon ve verimlilik) için belirlenen komut setleri üzerinden doğruluk/uygunluk (1–5) ve yanıt süresi puanları hesaplanmıştır. Ortalama hizmet kalitesi puanları SR1 için 2,14, SR2 için 1,98 olarak bulunmuştur. Yanıt süreleri çoğunlukla 3–6 saniye arasında değişmektedir. Her iki sesli asistanda verimlilik boyutu görece güçlüdür. SR1, semantik anlama ve insansı özellikler boyutlarında SR2’nin önüne geçerken; SR2, yakın insan–YZ işbirliği ve kişiselleştirme alanlarında daha başarılıdır. Sürekli gelişim, kişiselleştirme ve kültürel adaptasyon boyutlarında zayıf performans gözlemlenmiştir. Yanlış anlama ve bağlam kaybı örnekleri, kullanıcı deneyimini olumsuz etkilemektedir. Mobil bankacılıkta dijital sesli asistanlar temel işlemlerde verimlilik ve hız avantajı sağlasa da, anlamlandırma, kişiselleştirme ve kültürel uyum gibi karmaşık etkileşimlerde henüz olgunlaşmamıştır. Bankaların bu teknolojileri yalnızca maliyet azaltıcı araçlar olarak değil, güven, empati ve kullanıcı dostu tasarım odaklı bir hizmet kalitesi bileşeni olarak değerlendirmeleri önerilmektedir.

Anahtar Kelimeler: Mobil Bankacılık, Dijital Sesli Asistan, E-Hizmet Kalitesi, Yapay Zekâ, Kullanıcı Deneyimi

YAPAY ZEKÂ DESTEKLİ TARIM TEKNOLOJİLERİNİN TARIM İŞÇİLERİ ÜZERİNDEKİ SOSYO EKONOMİK ETKİLERİ

Banu Özbucak Albar (Zonguldak Bülent Ecevit Üniversitesi)

Yapay zekâ destekli tarım teknolojileri, günümüzde “Tarım 4.0” kavramı ile birlikte üretim süreçlerinde köklü değişimler yaratarak tarımda verimliliği, sürdürülebilirliği ve karlılığı arttırma hedefiyle geliştirilmiştir. Bu kapsamda tarımsal otomasyon, sensör sistemleri, robotik teknolojiler ve akıllı sistemlerin yaygınlaşmasıyla birlikte, tarım sektörünün başrolünde yer alan tarım işçilerinin de çalışma koşulları üzerinde önemli değişiklikler olmuştur. Yapay zekâ destekli tarım teknolojilerinin iş sağlığı ve güvenliği, verimlilik artışı, yeni meslekler ve eğitim fırsatları gibi olumlu etkilerinin yanı sıra; özellikle düşük vasıflı tarım işçileri üzerindeki dijital uçurum, işgücü piyasasından dışlanma, istihdamın azalması, kentsel yoksulluk ve sosyal sorunlar gibi olumsuz etkileri de bulunmaktadır. Özellikle Türkiye’de yapay zekâ ve gelişen tarım teknolojisi üzerine çalışmalar artmakla birlikte, sektörün gölgesinde kalan tarım işçilerinin sosyo ekonomik durumunu ortaya koyan literatür sınırlı kalmaktadır. Bu kapsamda çalışmanın temel amacı, Türkiye’de yapay zekâ destekli tarım teknolojilerinin tarımsal işgücünün niteliğini, vasıf gerekliliklerini, istihdam yapısını, gelir düzeylerini ve çalışma koşullarını nasıl etkilediğini incelemektir. Bu doğrultuda tarım işçilerinin konumunu tehdit eden unsurlara karşı, uygun eğitim ve yeniden beceri kazandırma programları ile tarım politikalarının sadece teknolojik dönüşümleri değil, insan kaynağının dönüşümünü de kapsayacak biçimde yeniden yapılandırılmasına yönelik farkındalık oluşturulması hedeflenmektedir.

Anahtar Kelimeler: *Yapay Zeka, Tarım İşçisi, Tarım Teknolojisi*

LUNG INFLAMMATION (PNEUMONIA) AND ITS CONSEQUENCES

Yulduzoy Toxirjonova (Kokand University Andijan Branch)

This article describes the causes, clinical symptoms, diagnosis, and treatment methods of lung inflammation (pneumonia), as well as the serious health complications it can cause. Pneumonia is one of the most common respiratory diseases that affect people of all ages, especially children and the elderly. The study emphasizes the importance of early diagnosis, preventive measures, and appropriate medical care in reducing the mortality rate and complications of this disease.

Keywords: *Pneumonia, Lung Inflammation, Infection, Immunity, Respiratory System, Diagnosis, Treatment, Prevention*

GREEN ARTIFICIAL INTELLIGENCE IN BUSINESS: A BIBLIOMETRIC ANALYSIS

Tuba Bıyıkbeyi (Kilis 7 Aralık University)

The research aims to examine scientific trends, research collaborations, and key thematic focuses in the field of green artificial intelligence which has gained increasing importance in recent years. Growing awareness of the energy consumption, data intensity, and environmental impacts of artificial intelligence has necessitated the development of sustainable and environmentally friendly technologies. Accordingly, the Dimensions database contains 920 academic publications with the keyword “green artificial intelligence” published between 2018 and 2025. When the business, management, strategy, and organizational behavior filters were applied, 128 studies were identified. The data obtained from these studies were analyzed using bibliometric methods with VOSviewer software. The analysis results indicate that the number of publications on green artificial intelligence has increased rapidly, especially after 2020. China, the United States, and the United Kingdom were identified as the leading countries in terms of scientific productivity. Themes such as energy efficiency, sustainability, carbon footprint, and machine learning optimization were prominent in the keyword networks. Co-authorship maps highlight the interdisciplinary nature of the topic, revealing strong interactions among engineering, environmental sciences, and business disciplines. From a business and management perspective, Green Artificial Intelligence offers organizations new opportunities to integrate sustainability into decision-making processes, enhance operational efficiency, and develop environmentally responsible business strategies. A limitation of this study is that it relies solely on publications from the Dimensions database; more comprehensive results could be obtained by incorporating additional databases. The originality of this research lies in its systematic bibliometric analysis of the academic development of the green artificial intelligence concept within the business field.

Keywords: *Green Artificial Intelligence, Business, Management, Sustainability, VOSviewer*

AN OVERVIEW OF AUTOMOTIVE DEMAND FORECASTING METHODS

İlknur Tanrıverdi (Bursa Teknik Üniversitesi)

The automotive sector is one of the most critical industries in which demand forecasting plays a vital role due to rapidly changing customer preferences, global supply chain dependencies, and complex production processes. Although the topic has been widely studied from past to present, demand forecasting in the automotive sector remains an important area of research for both academia and industry. The rapid digital transformation has led to significant changes in forecasting practices, while traditional estimation methods continue to be used alongside advanced data-driven approaches. This study aims to analyze academic research on demand forecasting methods in the automotive industry within the context of marketing. In this context, a systematic literature search was conducted in the Web of Science (WOS) database using the keywords “Automotive,” “Demand,” “Forecasting,” and “Prediction” to explore the current state and trends of research in this field. The findings reveal that studies in this field have increased significantly since 2016, and that artificial neural networks—capable of addressing complex and nonlinear relationships—are increasingly preferred in recent research. This paper presents a comprehensive literature review on demand forecasting methods in the automotive sector and identifies current approaches. In addition, it offers insights and recommendations for improving future demand forecasting and inventory planning practices in the industry.

Keywords: *Demand Forecasting, Automotive, Forecasting Methods*

PRACTICAL ASPECTS OF BIOGAS PRODUCTION TECHNOLOGIES AND BIOFUEL ENERGY USE

Muxriddin Eshbekov (Termiz State University of Engineering And Agrotechnologies)

This in the article biogas working release technologies and biofuel from energy of use Scientific and practical aspects surrounding analysis In the study Uzbekistan under the circumstances village farm and industry organic from waste energy to take opportunities , this about advanced technologies , in particular , autogenerative high pressurized digestion (AHPD) and pressure under variable adsorption (PVSA) systems efficiency seeing Also , biogas energetic security supply , environment problems solution to grow and economic efficiency in progress place illuminated . Research results based on In Uzbekistan biogas sector develop according to practical recommendations working released.

Keywords: *Biogas , Biofuel , Recycling Recovering Energy , Waste Again Performance , AHPD, PVSA, Economic Efficiency*

KADIN ÜNİVERSİTE ÖĞRENCİLERİNDE DİJİTAL FARKINDALIK VE E-SAĞLIK OKURYAZARLIĞI İLİŞKİSİ: DEMOGRAFİK DEĞİŞKENLER AÇISINDAN BİR ANALİZ

Okan Koç (Balıkesir University)

Araştırma, kadın öğrencilerin dijital farkındalık düzeyleri ile e-sağlık okuryazarlığı arasındaki ilişkiyi demografik değişkenler açısından incelemeyi amaçlamaktadır. Dijitalleşme sürecinde kadınların bilgiye erişim biçimleri, teknolojiyi sağlık alanında kullanma kapasiteleri ve demografik özelliklere göre gösterdikleri farklılıklar analiz edilmiştir. Araştırma, Balıkesir Üniversitesi'nde öğrenim gören 76 kadın öğrenciden elde edilen verilerle yürütülmüştür. Veri toplama sürecinde Dijital Farkındalık Ölçeği, E-Sağlık Okuryazarlığı Ölçeği ve Demografik Bilgi Formu kullanılmış; analizler SPSS 26.0 programında yapılmıştır. Bulgular, öğrencilerin dijital teknolojilerin öğrenme ve yaşam süreçlerine katkısının farkında olduklarını, ancak güvenilir sağlık bilgilerine erişim ve değerlendirme konusunda yetersizlik yaşadıklarını göstermektedir. Katılımcıların çoğu dijital ortamlarda etik kuralların önemini farkındadır. E-sağlık okuryazarlığı açısından katılımcıların çoğu internetin sağlıkla ilgili karar süreçlerinde yararlı olduğunu düşünmektedir. Ancak güvenilir çevrimiçi sağlık kaynaklarına erişim ve bu bilgileri değerlendirme konularında yetersizlikler gözlenmiştir. Ayrıca öğrencilerin toplumsal sorumluluk ve dijital girişimcilik bulguları, öğrencilerin dezavantajlı gruplara yönelik yardım ve sosyal adalet konularında yüksek duyarlılığa sahip olduklarını, ancak sosyal girişimlerde destek eksikliği algıladıklarını göstermektedir. Sonuç olarak, kadın öğrencilerin dijital farkındalık düzeyleri yüksek, e-sağlık okuryazarlıkları ise orta düzeydedir. Bu durum, dijital sağlık okuryazarlığı ve toplumsal katılımı artıracak eğitim programlarının gerekliliğine işaret etmektedir.

Anahtar Kelimeler: *Dijital Farkındalık, E-Sağlık Okuryazarlığı, Kadın Üniversite Öğrencileri*

THE MEDIATING EFFECT OF WORKERS' SELF EFFICACY BELIEF BETWEEN THE PERCEPTION OF ORGANIZATIONAL HEALTH LEVEL AND SILENT QUITTING BEHAVIOURS

Pınar Çömez (Duzce University)

Ali Rokhman (Jenderal Soedirman University)

This study investigates the mediating effect of workers' self efficacy belief between the perception of organizational health level and silent quitting behaviours. To show the influence, it has been preferred to take the mediating factor analysis method offered by Baron and Kenny (1986). Although there are many studies on the concepts of perceived organizational health and self efficacy belief in the literature, there is limited literature combining them with silent quitting. Thus the study is original and contributes to the literature. This study carried out through the data collected from 368 private and public sector workers İstanbul. Results show that there are statistically significant relationships between workers' perception of organizational health and silent quitting level, the organization health perception and self-efficacy belief, and the belief of self-efficacy and silent quitting. Moreover, it is also pointed out that self-efficacy belief has intermediary variable effect upon perception of organizational health and silent quitting level. Self-efficacy, organizational health, silent quitting.

Keywords: *Self-efficacy, Organizational Health, Silent Quitting.*

YSA, SVR VE ARIMA MODELLERİYLE GÜNLÜK ENERJİ TAHMİNİ VE BELİRSİZLİK ANALİZİ

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Bayram Köse (İzmir Bakırçay Üniversitesi)

Ceyda Mülayim (İzmir Bakırçay Üniversitesi)

Günümüz sürdürülebilir enerji senaryosunda, yenilenebilir enerjinin optimize edilmiş kullanımı, şebekeden alınan enerji tüketimini en aza indirebilir. İnsanların erişilebilir, adil ve temiz enerji kullanımında yenilenebilir enerjinin katkısının doğru bir şekilde tahmin edilmesi ve planlamayı gerektirmektedir. Araştırmaların çoğu, doğruluk ve hata ölçütleri açısından uygun bir tahmin modeli bulmayı amaçlamaktadır. Ancak, bu tahminlerdeki belirsizlik ve değişkenlik de önemlidir. Bu çalışma, tahmin belirsizliği hakkında kapsamlı bilgi sağlamak için nokta tahmini ile aralık tahminini birleştirir. Bu çalışmada, yapay sinir ağları ve ARIMA kullanılarak güneş ışıınımı tahmini yapılmaktadır. Tahmin, otoregresif hareketli ortalama (ARIMA), destek vektör regresyonu (SVR) teknikleri kullanılarak yapılmakta ve performans değerlendirilmektedir. SVR modeli, ölçümyapılan aylar için 0,85 R2 değerleri ile en iyi performansı sergilemiştir. Bunu, tahmin hatası dağılım çalışmaları ve belirsizlik analizi izlemektedir. Belirsizlik çalışması güven aralıkları ve kapsama oranları kullanılarak gerçekleştirilir. Tüm aylar için çeşitli güven düzeylerinde mükemmel kapsama oranları elde edilir, bu da hata dağılımının uygun şekilde uyarlanmış olduğunu gösterir. Dar %85 güven aralığı ve %90 kapsama oranları elde edilmiştir. Çalışma, sistem güvenilirliğini artırma perspektifiyle, hata dağılım çalışmaları, tahmin hatalarının modellenmesi ve bunların güvenilir tahmin aralıkları sağlamadaki uygulamasının gerekliliğini vurgulamaktadır.

Anahtar Kelimeler: Yenilenebilir Enerji, Gün Öncesi PV Tahmini, Belirsizlik Analizi

THE ROLE OF PYROLYSIS TECHNOLOGY IN THE INTEGRATION OF AGRICULTURE, FOOD, AND ENERGY

Ayşe Açıkkapı (Karabük Üniversitesi)

Today, energy production and efforts to mitigate global climate change and its effects stand out as major environmental problems that directly affect each other and require urgent solutions. Pyrolysis is a method that enables the production of products such as biochar, bio-oil, and biogas through the thermochemical decomposition of biomass at high temperatures in an oxygen-free environment. This process allows the environmentally sensitive management of agricultural wastes while converting biomass into many valuable products such as fuels, chemicals, fertilizers, catalysts, and adsorbent materials, offering significant opportunities in terms of renewable energy production. Many studies in the literature focus on the efficiency of pyrolysis and the quality of products from different agricultural wastes. In addition, studies evaluating the use of biochar obtained as a result of pyrolysis as a soil improver, increasing water retention capacity, and carbon sequestration are noteworthy. Therefore, in this study, the role of pyrolysis technology in the integration of agriculture, food, and energy is addressed; current research results and future perspectives are discussed.

Keywords: *Agricultural Residues, Renewable Energy, Carbon Sequestration, Biochar, Sustainable Energy Generation, Pyrolysis*

THE POTENTIAL OF AGRICULTURAL WASTES IN THERMOCHEMICAL BIOMASS CONVERSION TECHNOLOGIES

Ayşe Açıkkapı (Karabük Üniversitesi)

The increasing energy demand caused by industrialization and the environmental problems resulting from the use of fossil fuels have made the transition to renewable and sustainable energy sources inevitable. In this context, agricultural wastes are considered an important biomass resource due to their wide availability in nature and organic composition. Thermochemical conversion methods used in energy production from agricultural wastes stand out with their high energy efficiency and potential to produce versatile products. Among these methods are processes such as hydrothermal carbonization, pyrolysis, gasification, torrefaction, and combustion. These processes enable the production of energy-rich products through the thermal decomposition of the main components of biomass, such as cellulose, hemicellulose, and lignin. These conversion technologies not only contribute to energy production but also offer significant advantages in terms of waste management and environmental sustainability. The conversion of agricultural wastes into energy provides multiple benefits, such as reducing greenhouse gas emissions, decreasing dependence on fossil fuels, and creating economic value in rural areas. This study aims to examine the thermochemical conversion processes of agricultural wastes and their energy potential, providing a comprehensive evaluation in terms of sustainable energy production and environmental impacts.

Keywords: *Hydrothermal Carbonization, Pyrolysis, Biomass, Agricultural Waste, Renewable Energy*

PHYSIOTHERAPY PRACTICES IN THE HEALTHCARE SECTOR IN THE 21ST CENTURY: THE EMERGING ROLE OF TELEREHABILITATION

Mert Uysal (Karabuk University)

As in all industries, the digitalization of the healthcare sector has accelerated in the 21st century and continues to expand. In particular, the emergence of artificial intelligence tools and the COVID-19 pandemic have driven changes in dynamics and the development of new service models in physiotherapy and rehabilitation practices, as in all areas of the healthcare sector. In this context, the concept of telerehabilitation emerges as an innovative approach that enables the delivery of physiotherapy services independently of time and location. Telerehabilitation refers to the provision of exercise training, counseling, and clinical follow-up services to individuals remotely via online platforms, mobile applications, wearable technologies, and/or video communication tools. It is widely applied in the management of neurological, orthopedic, geriatric, pediatric, and/or chronic conditions. Current literature on its clinical effectiveness indicates that it achieves therapeutic outcomes comparable to traditional face-to-face methods. Moreover, high patient satisfaction and treatment adherence support its applicability in clinical practice. Although telerehabilitation offers significant advantages such as accessibility, cost-effectiveness, continuity of care, and personalized follow-up, its widespread adoption requires addressing challenges related to data security, access to digital infrastructure, and user adaptation. Thus, telerehabilitation can establish itself as a safe and easily accessible alternative within healthcare in the new century. Looking ahead, the integration of artificial intelligence-based decision support systems, wearable sensor technologies, and/or personalized treatment algorithms is expected to further enhance both the effectiveness and inclusivity of telerehabilitation. In conclusion, the concept of telerehabilitation in physiotherapy represents a patient-centered, sustainable, customizable, traceable, and digitally adaptable service model, playing a significant role in the future of healthcare services.

Keywords: *Artificial Intelligence, Digital Health, Healthcare Innovation, Telehealth*

AGEING POPULATION IN THE 21ST CENTURY: HEALTHY AND ACTIVE AGEING

Mert Uysal (Karabuk University)

In the 21st century, the proportion of older adults worldwide is increasing rapidly, and this demographic shift significantly impacts health systems, social structures, and policy frameworks. According to the World Health Organization, the number of individuals aged 60 and above is projected to reach approximately 2.1 billion by 2050, representing 22% of the global population. In Turkey, the population aged 65 and older was reported as 10.2% in 2023, and it is projected to exceed 22% by 2060. Along with increased life expectancy, the prevalence of conditions such as cardiovascular diseases, diabetes, osteoarthritis, dementia, frailty, and sarcopenia is projected to increase among older adults. These conditions can lead to complications, including reduced functional capacity, increased risk of falls, decreased quality of life, and loss of independence. Therefore, health policies should not only aim to extend life expectancy but also focus on enhancing the quality of life to promote healthy ageing. Healthy ageing can be defined as a holistic process that enables individuals to maintain their physical, cognitive, and social functions at the highest possible level. Multidisciplinary approaches such as regular physical activity, balanced nutrition, early detection and effective management of chronic diseases, and support for cognitive and social engagement play a critical role in this process. Specifically, physiotherapy and rehabilitation interventions are essential for preserving muscle strength and balance, reducing fall risk, and maintaining functional independence. In conclusion, the growth of the older population is an inevitable reality. Implementing healthy ageing strategies, providing individualized interventions, and integrating technological innovations are crucial for improving older adults' quality of life and alleviating the burden on health systems.

Keywords: *Ageing, Physical Activity, Quality of Life, Walking*

KÜRTAJ YAPTIRAN KADINLARIN KARAR SÜREÇLERİNE, KÜRTAJ ANINA VE SONRASINA DAİR DENEYİMLERİNİN ARAŞTIRILMASI

Elif Kara (Sakarya University)

Gamze Özbayrak (İstanbul Üniversitesi-Cerrahpaşa)

Prof. Dr. Ömer Miraç Yaman (İstanbul Üniversitesi)

Bu araştırma, kadınların kürtaj karar verme süreçlerini ve deneyimlerini, feminist teori ve biyopolitika çerçevesinde, toplumsal cinsiyet ve beden politikaları bağlamında incelemeyi amaçlamaktadır. Nitel araştırma yöntemi ve fenomenolojik desenle 24 kadınla derinlemesine mülakatlar yapılmıştır. Katılımcıların kararlarını tıbbi ve ekonomik gerekçeler, ebeveynlik rolüne ilişkin tereddütler, toplumsal düzenin ve eğitim/kariyer hedeflerinin etkisi, plansız/evlilik dışı gebelikler, mutsuz partner ilişkileri ve dini inançlar gibi çok boyutlu faktörlerin şekillendirdiği belirlenmiştir. Kürtaj anında hastane personelinin yargılayıcı tutumları ve mahremiyet ihlalleri, partner desteği eksikliği ve yoğun olumsuz duygular (stres, korku, vicdan azabı, utanç) deneyimlenmiştir. Kürtaj sonrası süreçte ise bu olumsuz duyguların (pişmanlık, suçluluk, boşluk hissi) yanı sıra, partner ilişkilerinde bozulmalar, cinsel yaşam sorunları ve sosyal çevreden damgalayıcı tepkilerle karşılaşıldığı tespit edilmiştir. Bu bulgular, kürtaj sürecinin kadın bedeni üzerindeki biyopolitik iktidar dinamiklerini ve toplumsal normların etkisini göstermekte; kararın bireysel özgürlükten öte, derin toplumsal ve ilişkisel boyutlar taşıdığını vurgulamaktadır. Çalışma, üreme hakları ve kadın sağlığı politikalarına yönelik kapsayıcı ve yargılayıcı olmayan bakım modelleri geliştirilmesi için önemli katkılar sunmaktadır.

Anahtar Kelimeler: Kürtaj, Gebe, Karar, Kadın

EKOLOJİK AYAK İZİNİN MİNİMİZE EDİLMESİ: SIFIR ATIK PROJESİ VE ÇEVRESEL GÜVENLİK İLİŞKİSİ

Ibrahim Yıldız (Siirt Üniversitesi)

21. yüzyılda İnsan faaliyetlerinin çevresel güvenliği tehdit eden boyutlara varması ve bunun yanında doğal kaynakların hızla tükenmesi, küresel çevre krizlerinin temelinde yatan en önemli sorunlar arasında yer almaktadır. Bu açıdan, “ekolojik ayak izi” kavramı, bireylerin, çevreye ve doğaya olan yükünü ölçmek için kullanılan önemli bir kavramdır (Wackernagel and Rees, 1996). Dünya nüfusunda görülen hızlı artışın yanında kentleşme ve sanayileşme de doğal kaynakların tüketimini hızlandırmakta ve çevresel dengeyi bozmaktadır. Bu durum hem çevrenin sağlığını hem de toplumların sosyo ekonomik güvenliğini de tehdit etmektedir. Nitekim insanlarda görülen tüketim alışkanlıklarıyla artan atıklar ve fosil yakıt kaynaklarının tüketiminin bir yandan çevreye verdiği kirlilik, bir yandan da hızla tüketilmesi çevresel güvenliğin tehdit edildiği önemli çevresel sorunları beraberinde getiren sorunlar olarak kendini göstermektedir. İnsanların artan tüketim alışkanlıklarının çevre üzerindeki baskıyı artırdığı düşünülmekte, bu nedenle ortaya çıkan atıkların çevresel güvenliği tehdit ettiği kabul edilmektedir. Buna karşın çevresel kirliliğin azaltılması için yapılan çalışmaların da çevresel güvenliğin tesisinde rol almaktadır. 21. Yüzyılın ilk çeyreğinde gündeme sık gelen sıfır atık projesinin çevresel güvenliğe katkısını inceleyen bu çalışma ile sıfır atık projesinin ekolojik ayak izinin minimize edilmesindeki katkıları araştırılmaktadır.

Anahtar Kelimeler: Ekoloji, Sıfır Atık, Çevresel Güvenlik

COMPARATIVE ANALYSIS OF THALAMIC NUCLEI VOLUME ALTERATIONS IN SELECTED NEUROPSYCHIATRIC DISORDERS

Menşure Şahin (Menşure)

Necati Emre Şahin (Necati)

Şeyma Toy (Şeyma)

In this study, the aim was to examine thalamic subnuclei volume alterations in neurological and psychiatric disorders based on FreeSurfer-based studies. Accordingly, a literature review was conducted in the PubMed database, and findings from research articles investigating different neurological and psychiatric diseases were compiled. In these studies, 3-Tesla T1-weighted magnetic resonance images were predominantly used, and thalamic nuclei were analyzed either as functional clusters or as individual nuclei following segmentation. Disease-specific patterns were identified in epilepsy: in occipital lobe epilepsy, the total thalamic volume was preserved, while increases were observed in the right medial geniculate and supragenulate nuclei, and a decrease was detected in the parafascicular nucleus. In temporal lobe epilepsy, marked atrophy was detected particularly in ipsilateral anterior and lateral nuclear groups. In mesial temporal sclerosis, the smaller volumes of the ventral posterolateral and lateral pulvinar nuclei were associated with postoperative seizure persistence. In migraine, although total thalamic volume was preserved, volumetric increases in the anteroventral and medial geniculate nuclei and a reduction in the parafascicular nucleus were reported. In the schizophrenia spectrum, consistent reductions were found in the mediodorsal nucleus, pulvinar, and geniculate complexes; moreover, in patients experiencing auditory hallucinations, decreases in the medial and lateral geniculate nuclei were correlated with symptom severity. In multiple sclerosis, marked atrophy was observed in all nuclear groups except for the intralaminar nuclei, and these volumetric losses were associated with Expanded Disability Status Scale (EDSS) and Symbol Digit Modalities Test (SDMT) scores. In major depression, the left thalamic volume was significantly reduced, whereas in obsessive-compulsive disorder, the left posterior thalamic volume was decreased. These findings suggest that the thalamus exhibits disease-specific structural signatures and that volumetric measurements performed at the nuclear level may enhance the clinical predictive power.

Keywords: *FreeSurfer, Thalamic Nuclei, Neuropsychiatric Disorders*

COMMERCIALIZATION, SUSTAINABILITY AND WELL-BEING: EVALUATING CLUSTER FARMING IN PUNJAB (3PS LENS)

Farrukh Shahzad (Muhammad Nawaz Shareef University of Agriculture)*

Cluster farming in Punjab is widely promoted as a pathway to smallholder commercialization, but questions remain about whether it also advances environmental stewardship, equitable livelihoods, and cooperative rural institutions. This study proposes and applies a single, practical evaluation frame—Planet, People, and Peace (3Ps)—to assess cluster farming’s real-world performance using methods that are realistic for developing-country contexts. The design prioritizes appropriateness and cost control: simple farm and household surveys; basic cluster-level record-keeping of inputs, yields, prices, and water turns; and only those lightweight digital tools that clearly add value, such as feature-phone SMS/IVR advisories for irrigation timing and market days, community noticeboards for transparent information sharing, and periodic consultation of freely available satellite summaries from public portals rather than continuous, expensive monitoring. Impacts of cluster participation are estimated with pragmatic econometrics that can be replicated by local teams—propensity-score matching and selection-correction models—using feasible covariates including farm size, tenancy, water access, education, and distance to mandi. Outcomes are mapped to 3Ps with measurable indicators: for Planet, water productivity, input intensity, basic soil and energy proxies, and evidence of good agricultural practice adoption; for People, net margins, farm-to-market price spreads, income stability across seasons, skills uptake, women and youth participation, and simple, validated well-being scores; and for Peace, the strength of collective action (bulk buying/selling, shared machinery use), timely grievance resolution around water and inputs, trust in local information flows, and reduced disputes. Governance principles emphasize data minimization, shared ownership of results, local capacity building (farmer leaders and extension officers), and clear cost ceilings to prevent technology lock-in. The expected contribution is a frugal, scalable playbook that links cluster governance to commercialization while safeguarding resources and dignity, offering policymakers and universities a replicable method to track progress, compare districts, and make course corrections—so cluster farming in Punjab advances the 3Ps in practice, not just in promise.

Keywords: *Cluster farming, Sustainability, Well-Being*

AI ADOPTION AND SME PERFORMANCE IN THE DIGITAL ERA: UNPACKING THE ROLES OF STRATEGIC AGILITY, OPERATIONAL EFFICIENCY, AND DIGITAL LEADERSHIP

Riffut Jabeen (Ghazi University, D.G.Khan)

In the era of rapid digital transformation, Artificial Intelligence (AI) is emerging as a critical driver for Firm Performance (FP) particularly for small and medium type of businesses. The study examines AI adoption to improve firm performance in the SMEs of Pakistan, while exploring the mediating role of strategic agility and operational efficiency and moderating role of digital leadership. Using SEM, the analysis of data collected from 310 managers of SMEs revealed that AI adoption increases firm performance. The results revealed that the benefits of AI adoption are realized more effectively if the firms are strategically agile and operationally efficient. The results revealed that strong digital leadership enhance the ability of the firm to translate the AI adoption to strategic and operational capabilities leading to firm performance. The study contributes to the literature of digital transformation in emerging economies like Pakistan. The practical implications of the study highlight the need for SME leaders to invest in AI technologies and develop agile strategies and operational capabilities supported to maximize their firm's performance.

Keywords: *Artificial Intelligence Adoption, Strategic Agility, Operational Efficiency, Digital Leadership, Firm Performance, SMEs*

CLIMATE CHANGE AND HUMAN HEALTH WITH ARTIFICIAL INTELLIGENCE

Saeed Rahman (Ghazi University)

The pervasive effects of climate change pose a worldwide threat to human health. This research presents a thorough evaluation of scientific literature to examine the correlation between climate change, air pollution, and human health. The intricate connection between climate change and health profoundly affects all aspects of human existence. The effects may be direct (e.g., exposure to excessive heat, storms, floods, and air pollution) or indirect (e.g., displacement, food security, and fluctuations in water availability). The escalating global temperature may result in more severe health consequences due to climate change in the future. It is essential to implement rigorous climate measures to alleviate the risks of climate change and adapt to the existing consequences. Mitigation aims to reduce the velocity and intensity of climate change by decreasing greenhouse gas emissions. Adaptation strategies include. (i) Embedding Global Citizenship and Sustainability (ii) Integrate civic, environmental, and ethical education across subjects (iii) Using innovative building techniques. Investment in innovative or improved technology, infrastructure, and research is often necessary for adaptation. The review highlighted the necessity of evaluating both short-term and long-term adaptation strategies alongside mitigation efforts, which necessitate actions to tackle the underlying issue by prepare learners to act responsibly toward society and the planet. This study's findings provide valuable perspectives on adaption measures and mitigation techniques for decision-makers, public health specialists, and researchers in the domain of climate change and its impact on human health.

Keywords: *Climate Change, Human Health, Artificial Intelligence*

**"PHYTOREMEDIATION AND WATER QUALITY ENHANCEMENT FOR MANKA
CANAL: MODERN STRATEGIES FOR SUSTAINABLE WATER MANAGEMENT,
DERA GHAZI KHAN, PUNJAB**

Fatima Gulzar (Ghazi University)

By using sustainable phytoremediation techniques to purify the contaminated water of Manka Canal, the initiative seeks to readjust the ecological cycle and improve agricultural production in Dera Ghazi Khan. To absorb and filter out heavy metals and other pollutants, it plans on selecting local plants. This will ultimately mean better quality irrigation water as well as lessened risks for both the environment and people involved in water pollution. Long-term water retention and improvement of groundwater quality are the points on which the project also counts—the roots of deep-rooted, high-biomass plants contribute greatly to soil health and recharge the groundwater table. We use real-time monitoring of water quality with IoT technologies that are cost-effective, can be easily extended over wide areas and do not require long-term service contracts. This provides a scalable solution for water quality management that promotes sustainable agricultural practices and keeps public health at bay. Local communities will benefit from better agricultural productivity, fewer waterborne diseases, and environmentally sustainable development in the region.

Keywords: *Sustainable Water Management*

ENVIRONMENTAL POLLUTION AND ITS EFFECTS ON HUMAN HEALTH: A SOCIOLOGICAL STUDY IN DERA GHAZI KHAN CITY

Sharjeel Saleem (Ghazi University Dera Ghazi Khan)

Environmental pollution is a worldwide issue due to its impact on both the environment and human health. Environmental pollution is the act of introducing hazardous substances into the environment. These contaminants pollute the environment. Environmental contamination is a significant worldwide issue. It refers to the act of introducing contaminants into the environment. It may have a broad spectrum of detrimental impacts on human health. Expected health consequences of air pollution include respiratory ailments like asthma and bronchitis. Exposure to chemicals in water and soil can lead to cardiovascular disease. Certain chemicals and pollutants can cause cancer. Neurological problems can arise from exposure to heavy metals like lead. Additionally, certain chemicals and pollutants can harm the reproductive and developmental systems. The research aimed to achieve three objectives: firstly, to identify the societal impacts of environmental pollution; secondly, to examine the consequences of environmental pollution on human health; and thirdly, to provide recommendations for mitigating the effects of environmental pollution on human health. A total of 160 respondents were chosen for this research using a multistage sampling procedure. The findings revealed that a significant proportion (85.0%) of the participants were male. The majority of them fell within the age range of 28 to 47 years (61.9%). In terms of education, a majority had attained a level of education ranging from matric to intermediate (52.5%). The findings showed that the majority (80.6%) of people said that environmental pollution is prevalence in society either to a great extent or to some extent; (71.9%) of the respondents said that environmental pollution contributed to climate change; (68.1%) environmental pollution contributed to global warming; and environmental pollution badly effects human health (70.6%). The analysis determined that the hypothesis testing revealed a strong correlation between the prevalence of environmental pollution in society and the adverse impact it has on human health. The results of these hypothesis tests indicated that increased ecological disturbance, climate change, and global warming were significantly correlated with a higher frequency of environmental pollution in society. The hypothesis testing revealed a substantial correlation between higher levels of contamination in drinking water and adverse impacts on human health resulting from environmental pollution. The research recommended that community members should endorse groups that are dedicated to environmental conservation.

Keywords: *Environment, Human Health, Environmental Pollution, Health Problem*

**AI-DRIVEN FORECASTING OF MUNICIPAL SOLID WASTE GENERATION,
ENERGY RECOVERY, AND BIOCHAR PRODUCTION POTENTIAL IN DERA
GHAZI KHAN (2022–2050)**

Nosheen Mirza (Ghazi University)

Ayesha Tahir (Ghazi University)

This study presents a comprehensive analysis of municipal solid waste (MSW) generation trends, energy recover, and biochar production potential in Dera Ghazi Khan from 2022 to 2050. Using historical data from the Waste Amount Characterization Survey (WACS, 2022), an AI-assisted forecasting framework incorporating ARIMA time-series modeling and machine learning (ML) techniques was applied to predict future waste generation trends and associated energy potential. The study further evaluates biochar production from kitchen waste, which constitutes 61.45% of total MSW, estimating biochar yields and carbon sequestration potential up to 2050. The results indicate that waste generation will increase from approximately 222 tons/day in 2022 to around 570 tons/day by 2050, with corresponding energy recovery potential reaching 124 GWh per year. Biochar production from organic waste is projected to reach 26,000 tons/year by 2050, capable of sequestering over 90,000 tons of CO₂-equivalent annually. The findings underscore the importance of integrating AI-driven forecasting, waste-to- energy conversion, and biochar production in achieving sustainable waste management and carbon mitigation goals. Furthermore, EIRR analysis and Cost-Benefit Ratio (CBR) calculations demonstrate the financial viability of the project, with the EIRR for the waste-to-energy and biochar production model projected to be 38%, and the CBR estimated at 1.65, indicating a positive return on investment over the project lifespan.

Keywords: *Municipal Solid Waste, Forecasting, AI, ARIMA, Machine Learning, Waste-to-Energy, Biochar, Dera Ghazi Khan, Carbon Sequestration.*

LEVERAGING ARTIFICIAL INTELLIGENCE FOR OPTIMIZING POULTRY MANURE COMPOSTING AND ENHANCING SUSTAINABLE AGRICULTURE PRODUCTION

Nosheen Mirza (Ghazi University)

Shanza Gull (Ghazi University)

The present study evaluates the use of Artificial Intelligence (AI) tools and predictive models to optimize poultry manure composting for enhancing sustainable agricultural practices. By integrating microbial inoculants, bentonite, and zeolite into anaerobic poultry manure composting, this research aimed to improve soil quality, reduce harmful gaseous emissions, and enhance crop productivity, particularly in soybean cultivation. AI-based models, including machine learning (ML) techniques and predictive modeling, were used to forecast compost quality parameters (pH, EC, nutrient content) and their impact on soil fertility and crop growth. Results indicated that microbial and mineral amendments significantly improved compost stability, nutrient retention, and gas emission dynamics. AI tools such as ARIMA time-series forecasting and regression models demonstrated high predictive accuracy in forecasting compost maturity, soil nutrient enrichment, and crop performance. The combined treatment of poultry manure, microbes, bentonite, and zeolite produced the most favorable outcomes for crop growth, with significant improvements in plant height, biomass accumulation, and nutrient uptake. Furthermore, the integration of AI forecasting can aid in sustainable compost management, enhance food and energy systems, and contribute to eco-friendly waste management practices.

Keywords: *Artificial Intelligence, Poultry Manure, Composting, Microbial Inoculants, Bentonite, Zeolite, Sustainable Agriculture, Soil Fertility, Crop Growth, Machine Learning*

ARTIFICIAL INTELLIGENCE–DRIVEN INSIGHTS INTO BIOCHAR– NANOPARTICLE SYNERGY FOR ENHANCING ARSENIC TOLERANCE IN NEEM PLANT

Nosheen Mirza (Ghazi University)

Qaswar Abbas (Ghazi University)

Arsenic (As) contamination of soils, particularly in South Asia, poses a severe threat to food security and ecosystem stability. This study evaluated the effectiveness of biochar and iron-based nanoparticles (FeNPs) in enhancing arsenic tolerance in neem (*Azadirachta indica* L.) under greenhouse conditions. Six treatment combinations were tested in arsenic-spiked sandy loam soil to assess plant growth, arsenic uptake, and soil health indicators. Machine learning models (Random Forest and XGBoost) were applied to predict growth parameters and optimize amendment ratios. Results showed that Dalbergia sissoo biochar significantly alleviated arsenic stress, increasing biomass and chlorophyll content by 30–40%, while reducing shoot arsenic concentration by 45%. FeNPs further immobilized arsenic through Fe–As complexation, decreasing its bioavailability. Correlation and feature-importance analyses revealed that soil pH, EC, and TOC were the most influential predictors of plant resilience. The AI-driven framework effectively identified synergistic amendment combinations, offering a data-informed approach to sustainable phytoremediation. Overall, this study provides a scalable model for managing arsenic-contaminated soils, supporting SDG 15 (Life on Land) and sustainable agricultural practices.

Keywords: *Arsenic Tolerance, Biochar, Iron-Based Nanoparticles (FeNPs), Machine Learning, Random Forest Regressor, XGBoost, Sustainable Agriculture, Predictive Modeling, Environmental Remediation*

BRIDGING DIGITAL INEQUITIES THROUGH AI EDUCATION: THE IMPACT OF AI LITERACY ON REDUCING THE DIGITAL DIVIDE

Seyma Bozkurt Uzan (Beykent University)

In the age of digital transformation, technological advances offer new opportunities for individuals and societies while simultaneously exacerbating digital inequalities. These inequalities stem not only from disparities in access to technology but also from a knowledge gap in advanced digital skills such as artificial intelligence (AI). This study conceptually explores the role that AI literacy plays in narrowing the digital divide. Analyses of current literature, reports from organizations such as UNESCO, the OECD, and the World Economic Forum, and exemplary practices in higher education demonstrate that AI education is a strategic tool for strengthening digital inclusion. AI literacy enables individuals to transform not only into consumers of technology but also into actors who understand, produce, and critically utilize it. The study emphasizes that integrating AI education into curricula is critical for the sustainability of digital transformation policies in developing countries. Thus, it is argued that AI literacy is the foundation for building an inclusive and equitable digital future in education systems.

Keywords: *Artificial Intelligence Literacy, Digital Divide, Digital Inclusion, Higher Education, Digital Transformation, Technology in Education*

AR-GE TEŞVİKLERİNİN SANAYİ KATMA DEĞERİ ÜZERİNDEKİ ETKİSİ: TÜRKİYE 2009–2024

Ismail Koç (Sakarya Uygulamalı Bilimler Üniversitesi)

Recep Koç (Bağımız Araştırmacı)

Bu çalışma, Türkiye’de 2009–2024 döneminde uygulanan dolaylı Ar-Ge vergi teşviklerinin sanayi katma değeri üzerindeki etkisini incelemektedir. TÜİK’in “Dolaylı Ar-Ge Teşvikleri 2024” verileri, Dünya Bankası’nın sanayi katma değeri, enerji tüketimi, kamu maliyesi ve yönetim göstergeleriyle birleştirilmiştir. Enerji tüketimi, sanayi üretim fonksiyonunun girdisi olarak modele dâhil edilmiştir. Teorik çerçeveye göre Ar-Ge teşvikleri teknoloji ve verimlilik artışıyla sanayi katma değerini pozitif etkilerken, enerji tüketimi kısa vadede üretim artışıyla sanayi değerini yükseltmekte, uzun vadede ise verimlilik kanalıyla etkisini sınırlamaktadır. Ekonometrik analiz, log-dönüşümler ve ARDL sınır testi yöntemleriyle gerçekleştirilmiştir. Ön bulgular, Ar-Ge teşviklerinin sanayi katma değerinde belirgin artışlara yol açtığını göstermektedir.

Anahtar Kelimeler: Ar-Ge Teşvikleri, Sanayi Katma Değeri, Enerji Tüketimi, Türkiye, ARDL

PLANET, PEOPLE AND PEACE IN DEVELOPED COUNTRIES ,A HOLISTIC APPROACH TOWARDS HAPPINESS

Bushra Qaisrani (Ghazi University)

This paper examines the relationship between environmental sustainability (Planet), social wellbeing and equity (People), and political stability and safety (Peace) as foundational drivers of happiness in developed countries. Drawing on data from the World Happiness Report, the OECD Better Life Index, and the Happy Planet Index, the study explores how high-income nations that prioritize ecological health, inclusive social systems, and peaceful governance consistently rank higher in subjective wellbeing. Case studies from countries such as Finland, Denmark, and New Zealand illustrate that happiness is not merely a byproduct of economic prosperity, but a multidimensional outcome influenced by the interplay between clean environments, strong social support, and just, secure societies. The findings suggest that policies promoting sustainability, equity, and peace contribute significantly to long-term national wellbeing, offering a model for holistic development beyond GDP growth. Recommendations are provided for integrating the Planet–People–Peace framework into public policy to foster more resilient and content societies.

Keywords: *Peace,Happiness, Developed Countries*

PLANT, PEOPLE & PEACE (3PS) IN THE ERA OF AI

Muhammad Aslam (Ghazi University)

This article develops the 3Ps framework — Plant, People & Peace — to analyze how contemporary artificial intelligence (AI) technologies reconfigure socio-ecological relations and peace outcomes. We synthesize evidence from environmental peacebuilding, horticultural and therapeutic uses of plants, and emergent scholarship on AI's role in agriculture, environmental monitoring, and information ecosystems. The paper argues that AI operates as an amplifier: it can strengthen the 3Ps by improving sensing, resource efficiency, and communication for inclusive peacebuilding, but it also amplifies risks via inequality, extractive data practices, and information manipulation that can erode social cohesion and environmental stewardship. We propose a research agenda, policy prescriptions aligned with HEC ethical and publication principles, and an applied framework for designing AI interventions that are pro-plant, pro-people and pro-peace.

Keywords: *Plant–People–Peace, Environmental Peacebuilding, Horticultural Therapy, Artificial Intelligence, Data Governance, Rural Livelihoods, Urban Greening*

LEVERAGING ARTIFICIAL INTELLIGENCE IN AGRIPRENEURSHIP TO STRENGTHEN CLIMATE RESILIENCE AND SUSTAINABLE ECONOMIC GROWTH

Muhammad Sajjad Khan (Ghazi University Dera Ghazi Khan)

Pakistan is abundantly blessed with fertile land, a favorable climate, and a significant farming population that is essential to the national economy. Nevertheless, this potential is hindered by ongoing challenges in the agricultural sector, including low productivity, restricted access to technology, inadequate market systems, and escalating risks associated with climate change. It is crucial to perceive agriculture not merely as a means of subsistence but as a business opportunity that can foster sustainable growth and alleviate poverty. The notion of agripreneurship emerges as a solution, merging agriculture with entrepreneurship to foster innovation, create jobs, and add value within the agricultural sector. Agripreneurship advocates for the idea that farmers can transition into entrepreneurs, capable of embracing modern technologies, developing new products, and tapping into both local and international markets. Additionally, it underscores how agripreneurship contributes to building climate resilience by promoting sustainable farming practices, efficient resource management, and climate-smart technologies. By fostering initiatives led by the private sector, agripreneurship boosts agricultural productivity and facilitates value chain development from production and processing to marketing and export. These activities not only generate income and employment opportunities but also enhance food security and economic stability. Moreover, the incorporation of digital tools and innovative business models empowers farmers to better navigate environmental and market challenges. In conclusion, agripreneurship holds significant potential to transform Pakistan's agriculture into a climate-resilient and sustainable economic sector. It necessitates policy support, capacity-building initiatives, and further research to deepen the understanding of the relationship between agripreneurship, climate resilience, and sustainable development. Promoting youth involvement in agripreneurial endeavors will further expedite rural development and assist Pakistan in achieving long-term economic growth and resilience in the face of climate change.

Keywords: *Agripreneurship, Climate Change, Economic Growth, Sustainable Development, Pakistan*

AI FOR INCLUSIVE ENTREPRENEURSHIP: EMPOWERING WOMEN-LED STARTUPS TOWARDS SUSTAINABLE DEVELOPMENT

Saira Majeed (Ghazi University Dera Ghazi Khan)

Women business entrepreneurs in Pakistan can drive economic and social change. Yet, they still face hurdles like limited funds, tech access, digital know-how, and business connections. These issues often limit their growth and edge in the quick shifting digital space. In this study we find out how AI can foster fair business startups, enhance women run companies, and promote lasting growth in Pakistan. AI reshapes business worldwide with quicker, intense, and efficient operations. For Pakistan's women owners, it opens paths to beat old barriers and lift their ventures higher. Chatbots, auto marketing tools, forecast data, and customer trackers help these firms grasp buyer wants, refine goods, and reach fresh markets. Such tech lets women cut time, decrease costs, and choose smart steps, raising their shot at successful.

The research points out AI helps gender equality and economic reach, aligning with UN goals like equal rights for women, good jobs and growth, and less gaps. AI tools offer online classes, remote guidance, and sales sites. Women gain skills and links from far-off or village spots. This tech boost lets them join Pakistan's rising online economy more fully. The study emphasizes the need to create a supportive environment for women entrepreneurs. This means the government should provide plans, funding, and technology training, while schools, businesses, and leaders should work together. AI-based startup centers and mentorship groups can help women use technology effectively. Public and private partnerships can also develop affordable AI tools for small and women-led businesses.

This study shows that AI is a game-changer for women-led startups in Pakistan. Using AI helps women become smarter, more creative, and stronger in business. It supports the growth of their companies and contributes to Pakistan's goals of a stable economy, innovation, and equality. Empowering women through AI creates a fair, modern, and sustainable future.

Keywords: *Artificial Intelligence (AI), Women entrepreneurship, Inclusive growth, Sustainable Development Goals (SDGs), Economic empowerment, Gender equality, Innovation, Pakistan*

EARLY DIAGNOSIS AND STAGING OF LIVER CIRRHOSIS: THE USE OF MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

Betül Karabudak (Karabuk University)

Liver cirrhosis is a progressive stage of chronic liver diseases and constitutes a significant global health burden. The traditional diagnostic method, liver biopsy, has limited clinical use due to its invasive nature, high cost, and susceptibility to sampling errors. Therefore, in recent years, non-invasive, reliable, and low-cost alternative methods have started to be utilized. In this context, machine learning and deep learning approaches have emerged as prominent methods used in the early diagnosis and staging of liver cirrhosis. Studies in the literature present comparative analyses of different algorithms and demonstrate that especially ensemble methods, Random Forest, and gradient boosting models stand out with classification performances based on biochemical data, achieving over 90% accuracy and AUC values reaching 0.99. On the other hand, deep learning approaches have achieved remarkable accuracy rates in imaging data such as MRI and CT. The most important advantage of these models is their ability to reduce the need for biopsy, thereby providing clinicians with powerful decision support tools for early diagnosis. The aim of this study is to comparatively evaluate the applications of various machine learning algorithms used in the diagnosis of liver cirrhosis and to discuss the successes and limitations revealed by the current literature.

Keywords: *Liver Cirrhosis, Early Diagnosis, Staging, Machine Learning, Deep Learning*

MULTI-OMIC AND ARTIFICIAL INTELLIGENCE–ASSISTED APPROACHES FOR EARLY DIAGNOSIS OF LUNG CANCER

Betül Karabudak (Karabuk University)

Hacı Mehmet KAYILI (Karabuk University)

Lung cancer is among the malignancies with the highest mortality rate worldwide, and its early-stage diagnosis remains the most critical determinant of patient survival. The aim of this study is to comparatively evaluate the clinical and molecular methods used in the early diagnosis of lung cancer by reviewing recent research articles indexed in the PubMed database. Within this scope, traditional clinical imaging techniques such as low-dose computed tomography (LDCT), PET-CT, and bronchoscopy were compared with biomolecular approaches such as liquid biopsy, cell-free DNA (cfDNA) analysis, proteomic, and glycomic biomarker profiling in terms of sensitivity, specificity, cost, and invasiveness. Moreover, the contribution of artificial intelligence (AI)-based analyses to early diagnosis and their potential integration into clinical guidelines were discussed. Recent advancements at both the clinical and molecular levels have significantly enhanced early detection capabilities. Clinically, PET-CT is effective in differentiating malignant nodules by evaluating metabolic activity, though its cost remains high. Bronchoscopy provides histopathological accuracy but is invasive; thus, newer imaging modalities such as narrow-band imaging have been developed to improve sensitivity. On the molecular level, liquid biopsies offer non-invasive diagnostic opportunities, while proteomic and glycomic biomarker panels demonstrate high specificity and hold promise for early-stage disease detection. AI-driven algorithms applied to both imaging and biomarker data have achieved diagnostic performance exceeding 90% in terms of AUC, enhancing the precision and reliability of detection systems. Future research should focus on integrating multimodal diagnostic strategies to develop accessible, cost-effective, and highly accurate systems for the early detection of lung cancer.

Keywords: *Lung Cancer, Early Diagnosis, Biomarker, Multi-Omic, Artificial Intelligence*



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Tüm özetler bildiri özet kitabında yayınlanacaktır
SCOPUS, TRDizin ve uluslararası dergilerde yayın imkanı mevcuttur.

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**The title: ExperienCe Design
in Service Industries:
The Role of Technology**



Prof. Dr. Cihan obanoęlu

Prof. Dr. Cihan obanoęlu, lisans derecesini ukurova niversitesi'nden, yksek lisans ve doktora derecelerini Oklahoma Eyalet niversitesi'nden almıřtır. řu anda Kaliforniya'nın Irvine řehrinde bulunan Virscend niversitesi'nde Rektr Yardımcısı (Provost) olarak grev yapmaktadır. Ayrıca Amerika Birleşik Devletleri merkezli Kresel Eęitimciler Birlięi (AGE) Bařkanıdır ve Journal of Hospitality and Tourism Technology ile Journal of Global Business Insights dergilerinin kurucu editrlerindendir.

Dr. Cihan Cobanoglu is currently the Provost at Virscend University in Irvine, California. Previously, he served as the Dean and the McKibbon Endowed Chair Professor of the School of Hospitality and Tourism Management (SHTM) in the Muma College of Business at the University of South Florida (USF) from 2010 to 2025. Dr. Cobanoglu is a Fulbright Specialist (2018-2021) and a Certified Hospitality Technology Professional (CHTP). He serves as the Editor of the Journal of Hospitality and Tourism Technology, indexed with an Impact Factor of 6.4 in the SSCI. Additionally, he is currently serving as the President of the Association of Global Educators (AGE).



10TH INTERNATIONAL ACADEMIC STUDIES CONGRESS - OPENING SESSION RUNDOWN

Date: 16th October 2025

Venue: NBS Auditorium, Amin Campus, The University of Faisalabad

zoom: <https://us06web.zoom.us/j/86382248863?pwd=8D4m6LOuQPXXJtQ3bDVVpmZekRoJyS.1>

Time	Activity / Segment	Details / Description	Lead / Responsibility
9:00 – 9:30 a.m.	Reception of Guests	Welcoming of Guests of Honour, Delegates, and Participants at the venue entrance.	Reception Committee
9:30 – 9:35 a.m.	Recitation of Holy Quran	Opening with <i>asma ul husna</i> to formally commence the session.	Play on screen
9:35 – 9:38 a.m.	Naat Sharif	Recitation of <i>Naat</i> in praise of the Holy Prophet (PBUH).	Student
9:38 – 9:42 a.m.	National Anthem Pakistan	All participants and guests stand for Pakistan's National Anthem.	Played on screen
9:42 – 9:50 a.m.	Welcome Address	Chairman Board of Governors (BoG) formally opens the congress and welcomes all guests, dignitaries, and participants.	Chairman BoG
9:50 – 9:55 a.m.	Address by Rector, TUF	Brief remarks highlighting the vision and academic collaboration behind the congress.	Rector, TUF
9:55 – 10:00 a.m.	Address by Registrar, TUF	Acknowledgment of organizing efforts and overview of academic objectives.	Registrar, TUF
10:00 – 10:10 a.m.	Address by Congress Chair	Prof. Dr. Muhammad Ashfaq , Dean Faculty of Management Studies, introduces the congress theme — “ <i>People, Planet, Peace in the Age of A.I.</i> ”	Congress Chair
10:10 - 10:20	Address by Congress co- Chair	Prof. Selcuk Balı, Selçuk University	Congress co-Chair
10:20 - 10:40	Keynote Speech	Prof. Ashfaq Ahmad Chattha, VC Ghazi University	VC
10:40 - 11:00	Keynote Speech	Prof. Dr Cihan Çobanoğlu Provost Virscend University, Irvine, CA, USA	Rector, PVU
11:00 11:30	Messages from International Delegates	Prof. Winnie Lee USA, Prof. Logais and Prof. Azamat,	Moderator
11:30 a.m.	Closing Remarks & Transition to Tea Break	Session formally closed with a vote of thanks and invitation for tea.	Congress Secretary
11:30 – 12:00 p.m.	Hi-Tea / Networking Break	Refreshments served in the foyer / designated area.	Hospitality Committee



PROF. DR. SELÇUK BALI
DEAN OF AKŞEHİR,
SELÇUK UNIVERSITY



PROF. DR. HIMMET KARADA
BOLU ABANT İZZET
BAYSAL UNIVERSITY



MURAT CİHANGİR
DEPARTMENT HEAD
BATMAN UNIVERSITY



OSMAN YILMAZ
ASSOCIATE PROFESSOR,
BATMAN UNIVERSITY



PROF. DR. UFUĞ KARADAĞ
HEAD OF DEPARTMENT AT
KARABÜK UNIVERSITY



DR. TALHA TURHAN
DEPUTY DIRECTOR
ERCIYES UNIVERSITY



DR. GÖKBEN BAYRAMOĞLU
HİTİT UNIVERSITY



PROF. DR. SERPİL AĞCAKAYA
DOKUZ EYLÜL UNIVERSITY



PROF. DR. ZULFIQAR ALI
VICE CHANCELLOR,
UAF



PROF. DR. ASHFAQ AHMAD
VICE CHANCELLOR
GHAZI UNIVERSITY



PROF. DR. RAI ASIF
VICE CHANCELLOR,
MNS UNIVERSITY OF MULTAN



DR. NADEEM BHATTI
VICE CHANCELLOR,
LEADS UNIVERSITY LAHORE



PROF. DR. RASHID MASOOD
RECTOR,
NATIONAL TEXTILE UNIVERSITY



PROF. DR. MAZHAR HAYAT
VICE CHANCELLOR,
CHOLISTAN UNIVERSITY



English Online Session



ENGLISH ONLINE SESSION – SESSION 1

Thursday, October 16, 2025 at 1:00:00 PM GMT+3 – Thursday, October 16, 2025 at 2:30:00 PM GMT+3

Turkish Time: 16/10/2025- 11:00

English Online Session_1: <https://meet.google.com/hkn-aomt-kwh>

Session Chair: Dr. Logaiswari Indiran

- **ETHICALLY-GOVERNED ADAPTIVE COGNITIVE TRANSFORMATION (EGACT): A FULLY SOFTWARE-VIRTUALIZED FRAMEWORK FOR MULTIMODAL ENRICHMENT, FEDERATED REASONING, AND CONTINUOUS FAIRNESS AUDITING IN SCALABLE AI SYSTEMS (15M)**

Muhammad Mahmood (Virtual University of Pakistan)

- **BRIDGING THE DIGITAL DIVIDE: ENSURING EQUITABLE QUALITY OF LIFE IN THE DIGITAL ERA (15M)**

Ayesha Batool (University of Agriculture Faisalabad)

- **DIGITAL TRANSFORMATION ETHICS: FINDING A BALANCE BETWEEN PRIVACY AND INNOVATION (15M)**

Khazra Noor (University of Agriculture)

Saira Khanm (University of Agriculture, IAEERD)

Dr. Gulfam Hasan (University of Agriculture, Faisalabad)

- **DESIGN AND DEVELOPMENT OF AN AUTOMATED TYRE PATCHING TOOL FOR ENHANCED EFFICIENCY AND SAFETY IN VEHICLE MAINTENANCE (15M)**

Herman Nordiadi Abd Wahab (Politeknik Kuching Sarawak)

Nurul Nisa Mohd Nasir (Politeknik Kuching Sarawak)

- **DESIGN AND DEVELOPMENT OF A WEB BASED LAUNDRY BOOKING SYSTEM FOR ENHANCED OPERATIONAL EFFICIENCY: A CASE STUDY OF POLIKU LAUNDRY (15M)**

Nurul Nisa Mohd Nasir (Politeknik Kuching Sarawak)

Herman Nordiadi Abd Wahab (Politeknik Kuching Sarawak)

- **DEEPFAKES, MISINFORMATION, AND MEDIA TRUST: EXPLORING THE ROLE OF SYNTHETIC VIDEOS IN SHAPING NEWS PERCEPTION ON SOCIAL MEDIA (15M)**

Hudda Javaid Azeemi (The University of Faisalabad)

- **THE CAUSAL NEXUS BETWEEN TIME USE BEHAVIOR AND RESIDENTIAL ELECTRICITY CONSUMPTION IN CENTRAL PUNJAB, PAKISTAN (15M)**

Zahra Zafar (University of Agriculture Faisalabad)

Tahira Sadaf (Institute of Agricultural and Resource Economics, Faculty of Social Sciences, University of Agriculture Faisalabad)

Ayesha Rouf (Institute of Agricultural and Resource Economics, University of Agriculture Faisalabad)



ENGLISH ONLINE SESSION – SESSION 2

Thursday, October 16, 2025 at 1:00:00 PM GMT+3 – Thursday, October 16, 2025 at 2:30:00 PM GMT+3

Turkish Time: 16/10/2025- 11:00

English Online Session _2: <https://meet.google.com/own-ypia-woc>

Session Chair: Ts Dr Nick Cheah U-Meng

- **INEVITABLE ENROLLMENT DECLINE IN HIGHER EDUCATION INSTITUTIONS: POSSIBLE FUTURE DIRECTIONS (15M)**

Saira Khanam (University of Agriculture, Faisalabad)

- **PUBLIC PERCEPTION TOWARDS A NEW ECONOMY AND FINANCIAL SYSTEM MODEL (15M)**

Levent Sumer (Bogazici University)

- **DESIGN AND DEVELOPMENT OF MULTIFUNCTION FLUID PUMP FOR AUTOMOTIVE WORKSHOPS (15M)**

Herman Nordiadi Abd Wahab (Politeknik Kuching Sarawak)

Nurul Nisa Mohd Nasir (Politeknik Kuching Sarawak)

- **FARMER'S PERCEPTION AND ADAPTATION STRATEGIES APROPOS CLIMATE CHANGE: IMPACT AND IMPLICATIONS ON SMALL RUMINANTS IN BALOCHISTAN, PAKISTAN (15M)**

Wakeel Rehman (MNS University of Agriculture Multan)

- **BRIDGING DIGITAL INEQUITIES THROUGH AI EDUCATION: THE IMPACT OF AI LITERACY ON REDUCING THE DIGITAL DIVIDE**

Seyma Bozkurt Uzan (Beykent University)

- **DATA SCIENCE AND ARTIFICIAL INTELLIGENCE CONTRIBUTION TO THE GLOBAL ECONOMIC DEVELOPMENT: SCIENCE MAPPING WITH R (15M)**

Gökhan Türköz (Turkish Gendarmerie General Command)



ENGLISH ONLINE SESSION – SESSION 3

Thursday, October 16, 2025 at 2:30:00 PM GMT+3 – Thursday, October 16, 2025 at 4:00:00 PM GMT+3

Turkish Time: 16/10/2025- 12:30

English Online Session _1: <https://meet.google.com/hkn-aomt-kwh>

Session Chair: Ts Dr Nick Cheah U-Meng

• TECHNOLOGICAL INVESTMENT, HEALTHCARE INFRASTRUCTURE, AND ECONOMIC LEVERAGE: A COMPARATIVE PANEL ANALYSIS OF HEALTH OUTCOMES IN G7 NATIONS AND PAKISTAN (2000–2025) (15M)

Muhammad Mahmood (Virtual University of Pakistan)

• IMPACT OF MINIMALLY INVASIVE TECHNIQUES ON POSTOPERATIVE INFECTIONS IN GENERAL SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS (15M)

Abdulloh Mo'minov (Qo'qon Universiteti Andijon Filiali)

• ARTIFICIAL INTELLECT USING TO THE OPERATION PREPARATION SEE (15M)

Abdulloh Mo'minov (Qo'qon Universiteti Andijon Filiali)

• CONTROL COMMUNICATION LATENCY, CLIENTS' DATA PRIVACY AND IMPROVE CONVERGENCE RATE IN IOT USING FEDERATED LEARNING (15M)

Sadia Razzaq (The University of Faisalabad)

• PLANET, PEOPLE AND PEACE IN DEVELOPED COUNTRIES: A HOLISTIC APPROACH TOWARDS HAPPINESS

Bushra Qaisrani (Ghazi University)

• AGENT-BASED MODELING & SIMULATION OF COOPERATIVE LEARNING STRATEGIES (15M)

Sadia Razzaq (The University of Faisalabad)



ENGLISH ONLINE SESSION – SESSION 4

Thursday, October 16, 2025 at 2:30:00 PM GMT+3 – Thursday, October 16, 2025 at 4:00:00 PM GMT+3

Turkish Time: 16/10/2025- 12:30

English Online Session _2: <https://meet.google.com/own-ypia-woc>

Session Chair: Mr. Mohammad Azmin bin Zainal

- **WHY FARMERS ARE NOT INTERESTED IN IPM ADOPTION IN THE SINDH PROVINCE OF PAKISTAN? (10M)**

Qaim Ddin Bahalkani (Sindh Agriculture University)
Muhammad Javed Sheikh (Sindh Agriculture University)
Maryam Rajput (Sindh Agriculture University)
Qurat Ul Ain Memon (Sindh Agriculture University)
Muhammad Ali Shaikh (Sindh Agriculture University)
Faisal Karim Memon (Government Boys Primary School Panjmore, Matiari, Sindh.)
Samreen Memon (Sindh Agriculture University)

- **EXTREME WEATHER AND POLICY FAILURES: A REVIEW OF PAKISTAN 2025 FLOODS (10M)**

Amna Yousaf (University of Agriculture Faisalabad)
Dr. M. Amjed Iqbal (University of Agriculture Faisalabad, Pakistan)

- **INSIGHTS ON AGRI-INNOVATIONS FOR CLIMATE RESILIENCE AND SUSTAINABILITY (15M)**

Saddam Hussain (University of Agriculture Faisalabad)

- **THE IMPACT OF CLIMATE CHANGE AND AGRICULTURAL INPUTS ON WHEAT PRODUCTIVITY IN FAISALABAD DIVISION, PAKISTAN (15M)**

Mishal Anwar (University of Agriculture)

- **IMPLEMENTATION OF SMART FARMING BY DOCTOR PADDY TO CONTROL DOMINANCE PEST PADDY IN NORTHERN SUMATERA, INDONESIA (15M)**

Assoc. Prof. Ameilia Siregar, M.Sc, Ph.D (University Sumatera Utara (USU))

- **CONTRIBUTION OF WOMEN IN THE PROVISION OF HOUSEHOLD FOOD SECURITY: A CASE STUDY OF DISTRICT JHANG (15M)**

Sania Liaqat (University of Agriculture Faisalabad)



ENGLISH ONLINE SESSION – SESSION 5

Thursday, October 16, 2025 at 4:00:00 PM GMT+3 – Thursday, October 16, 2025 at 5:30:00 PM GMT+3

Turkish Time: 16/10/2025- 14:00

English Online Session _1: <https://meet.google.com/hkn-aomt-kwh>

Session Chair: Ts Liew Foong Ching

- **IMPACT OF CAUSE-RELATED MARKETING ON PURCHASE INTENTION AND BRAND LOYALTY: THE ROLE OF CORPORATE SOCIAL RESPONSIBILITY (15M)**

Muhammad Awais Rashid (The University of Faisalabad)

- **THE INTEGRATION OF ARTIFICIAL INTELLIGENCE (AI) INTO SELF-TRAINING: PEDAGOGICAL EFFECTIVENESS (15M)**

Gulsanam Rakhimova (The Uzbekistan State of World Languages University)

- **ENHANCING EVENT MANAGEMENT EDUCATION THROUGH THE EVENT POSTER DIAGRAM KIT: AN INNOVATIVE VISUAL LEARNING TOOL (15M)**

Faizal Abdul Razak (Politeknik Tuanku Syed Sirajuddin)

- **DESIGN AND IMPLEMENTATION OF A WEB-BASED NEWS PORTAL SYSTEM FOR EFFICIENT DIGITAL CONTENT MANAGEMENT (15M)**

Nurul Nisa Mohd Nasir (Politeknik Kuching Sarawak)

Herman Nordiadi Abd Wahab (Politeknik Kuching Sarawak)

- **EXPLORING THE IMPACT OF GAMIFICATION AND SOCIO-DEMOGRAPHIC FACTORS ON ADOLESCENTS' COMMUNICATION SKILLS AND INTERACTION ANXIETY: INSIGHTS FROM THE 'A DAY IN NATURE' PROGRAM (15M)**

Dr. Caner Yazıcıoğlu (Istanbul Topkapı University),

Dr. Ali Eren Balıkel (Istanbul Kent University),

Fatih Ölçekciler (Istinye University),

Gizem Ölçekciler (Istinye University),

Ercan Tutar (Istanbul Kent University).



ENGLISH ONLINE SESSION – SESSION 6

Thursday, October 16, 2025 at 4:00:00 PM GMT+3 – Thursday, October 16, 2025 at 5:30:00 PM GMT+3

Turkish Time: 16/10/2025- 14:00

English Online Session _2: <https://meet.google.com/own-ypia-woc>

Session Chair: Ms. Ung Ean Na

• PEACE APPROACHES IN INTERNATIONAL RELATIONS: THEORIES OF REALISM AND LIBERALISM (15M)

Üstün Yüksel (Academician Studies)

• IMPACT OF PARTICIPATIVE LEADERSHIP ON EMPLOYEES' READINESS FOR ORGANIZATIONAL CHANGE: MODERATING ROLE OF EMPLOYEES' OPENNESS TO EXPERIENCE (15M)

Natasha Sheikh (University of Wah)

• THE IMPACT OF CORPORATE PHILANTHROPY ON ACCOUNTING BASED PERFORMANCE OF FIRMS: MODERATING IMPACT OF AUDIT QUALITY IN THE TEXTILE SECTOR OF PAKISTAN (15M)

Usman Ali (The University of Faisalabad)

• BUILDING CLIMATE-RESILIENT EDUCATION SYSTEMS IN RURAL PUNJAB: LESSONS FROM FLOOD- AND HEAT-PRONE COMMUNITIES (15M)

Saira Khanam (University of Agriculture, Faisalabad)

• PLANET-FRIENDLY ARTIFICIAL INTELLIGENCE STRATEGIES: A MODEL PROPOSAL FOR BUSINESS MANAGEMENT AND STRATEGY

Duygu Toplu Yaşlıoğlu (Istanbul University)

• A REVIEW OF POVERTY ALLEVIATION STRATEGIES IN PAKISTAN (15M)

Dr. Gulfam Hasan (University of Agriculture, Faisalabad)

Khazra Noor (University of Agriculture)

Muhammad Rafay Muzamil (University of Agriculture Faisalabad)

Saira Khanm (University of Agriculture, IAEERD)



ENGLISH ONLINE SESSION – SESSION 7

Friday, October 17, 2025 at 9:00:00 AM GMT+3 – Friday, October 17, 2025 at 10:30:00 AM GMT+3

Turkish Time: 17/10/2025- 07:00

English Online Session_1: <https://meet.google.com/svo-otpb-hpt>

Session Chair: Dr. Yogeeswari Subramaniam

- **PLANT, PEOPLE & PEACE (3Ps) IN THE ERA OF AI**

Muhammad Aslam (Ghazi University)

- **LEVERAGING ARTIFICIAL INTELLIGENCE IN AGRIPRENEURSHIP TO STRENGTHEN CLIMATE RESILIENCE AND SUSTAINABLE ECONOMIC GROWTH**

Muhammad Sajjad Khan (Ghazi University Dera Ghazi Khan)

- **ARTIFICIAL INTELLIGENCE FOR GREEN MATERIALS: ADVANCING BIODEGRADABLE PLASTICS TO SAFEGUARD PLANET AND PEACE (15M)**

Ayesha Batool (University of Agriculture Faisalabad)

- **HARNESSING ARTIFICIAL INTELLIGENCE AND SOLAR ENERGY FOR SUSTAINABLE SME GROWTH: EVIDENCE FROM PAKISTAN (15M)**

Qaisar Abbas (University of Agriculture, Faisalabad, Pakistan)

- **GENERATIVE AI IN ACADEMIC STUDIES: TVET STUDENTS' PERCEPTIONS OF THE IMPACT, BENEFITS, AND CHALLENGES (15M)**

Diana Lee (Politeknik Sultan Azlan Shah)

- **FROM RED AI TO GREEN AI: HOW WE CAN MAKE AI MORE SUSTAINABLE (15M)**

Meenakshi Murugappan (University of Nottingham Malaysia)

- **CLIMATE CHANGE AND HUMAN HEALTH WITH ARTIFICIAL INTELLIGENCE**

Saeed Rahman (Ghazi University)



ENGLISH ONLINE SESSION – SESSION 8

Friday, October 17, 2025 at 9:00:00 AM GMT+3 – Friday, October 17, 2025 at 10:30:00 AM GMT+3

Turkish Time: 17/10/2025- 07:00

English Online Session_2: <https://meet.google.com/dib-cqbu-dxj>

Session Chair: Ms. Meenakshi Murugappan

- **THE IMPACT OF DIGITAL TRANSFORMATION ON SOCIO-ECONOMIC DEVELOPMENT: A STUDY OF ITS ROLE IN ENHANCING HUMAN WELL-BEING (15M)**

Mr. Aasheesh Kumar (CMP Degree College University of Allahabad)

- **BARRIERS TO DIGITAL PARTICIPATION IN DEVELOPING COUNTRIES: ANALYZING TECHNOLOGICAL, SOCIAL, AND CULTURAL OBSTACLES TO COMMUNITY ENGAGEMENT (15M)**

Sobia Maqsood (The University of Faisalabad)

- **INTEGRATING DIGITAL POLICY AND SUSTAINABILITY IN EDUCATION: INSIGHTS FROM PAKISTAN AND CHINA (15M)**

Sidra Ghulam Muhammad (The University of Faisalabad)

Alina Idrees (The University of Faisalabad)

- **LEVERAGING DYNAMIC CAPABILITIES FOR FIRM PERFORMANCE: THE MEDIATING EFFECT OF BPMC (15M)**

Hira Shafqat (The University of Faisalabad)

Rimsha Shahid (The University of Faisalabad)

Sidra Ghulam Muhammad (The University of Faisalabad)

Ayesha Sadiqa (The University of Faisalabad)

Hira Shafqat (The University of Faisalabad)

Alina Idrees (The University of Faisalabad)

- **A COMPARATIVE STUDY ON CONVENTIONAL EDUCATIONAL SYSTEM AND OUTCOME BASED LEARNING AT UNIVERSITY OF AGRICULTURE FAISALABAD (15M)**

Aqeela Saghir (University of Agriculture Faisalabad Pakistan)

- **DIGITAL TRANSFORMATION AND HUMAN WELL-BEING: PATHWAYS TO A BETTER LIFE (15M)**

Jawad Anwar (Price Control & Commodities Management Department, Government of Punjab)

Shagufta Rasheed (University of Agriculture Faisalabad, Pakistan)



ENGLISH ONLINE SESSION – SESSION 9

Friday, October 17, 2025 at 10:30:00 AM GMT+3 – Friday, October 17, 2025 at 12:00:00 PM GMT+3

Turkish Time: 17/10/2025- 08:30

English Online Session_1: <https://meet.google.com/svo-otpb-hpt>

Session Chair: Dr. Faradina Ahmad

• **ECONOMIC GROWTH, INEQUALITY, AND HUMAN DEVELOPMENT: A COMPARATIVE ANALYSIS OF THE USA, SWEDEN, CHINA, AND INDIA (2000–2023) (15M)**

Mr. Aasheesh Kumar (CMP Degree College University of Allahabad)

• **BRIDGING THE CLIMATE FINANCE GAP: THE ROLE OF GREEN FINTECH IN PAKISTAN AND CHINA'S DEVELOPMENT STRATEGIES (15M)**

Rimsha Shahid (The University of Faisalabad)

Sidra Ghulam Muhammad (The University of Faisalabad)

Hira Shafqat (The University of Faisalabad)

Alina Idrees (The University of Faisalabad)

Ayesha Sadiqa (BS-Bioinformatics (GCUF), CSS Aspirant)

Mahnoor Shahid (BSCS National Textile University)

Naveed Babar (Quetta Institute of Medical Sciences)

• **NEXUS BETWEEN GREEN INVESTMENT AND CORPORATE PERFORMANCE, THE CONDITIONAL EFFECT OF INSTITUTIONAL QUALITY: A SOUTH ASIAN PERSPECTIVE (15M)**

Mubashira Ali Khushi (The University of Faisalabad)

Sidra Ghulam Muhammad (The University of Faisalabad)

Rimsha Shahid (The University of Faisalabad)

• **SUSTAINING COMPETITIVENESS IN GLOBAL TEXTILE TRADE: A COMPARATIVE ANALYSIS OF PAKISTAN AND CHINA IN THE U.S. MARKET UNDER GREEN TRADE BARRIERS (15M)**

Komal Azhar (University of Agriculture, Faisalabad)

Tahira Sadaf (Institute of Agricultural and Resource Economics, Faculty of Social Sciences, University of Agriculture, Faisalabad)

Ayesha Rouf (Institute of Agricultural and Resource Economics, University of Agriculture Faisalabad)

• **AI FOR INCLUSIVE ENTREPRENEURSHIP: EMPOWERING WOMEN-LED STARTUPS TOWARDS SUSTAINABLE DEVELOPMENT**

Saira Majeed (Ghazi University Dera Ghazi Khan)

• **ANALYZING THE RELATIONSHIP BETWEEN MACROECONOMIC FORCES AND STOCK MARKET PERFORMANCE OF PAKISTAN (15M)**

Mariam Naeem (The University of Faisalabad)

• **THREE-DIMENSIONAL MAXWELL NANOFUID FLOW OVER A BIDIRECTIONAL STRETCHING SURFACE WITH THERMAL RADIATION AND HEAT SOURCE/SINK EFFECTS (15M)**

Sidra Naeem (The University of Faisalabad)

ENGLISH ONLINE SESSION – SESSION 10

Friday, October 17, 2025 at 10:30:00 AM GMT+3 – Friday, October 17, 2025 at 12:00:00 PM GMT+3

Turkish Time: 17/10/2025- 08:30

English Online Session_2: <https://meet.google.com/dib-cqbu-dxj>

Session Chair: Dr. Hanini Ilyana Che Hashim

- **MOLECULAR DOCKING SIMULATIONS IN DRUG DISCOVERY: A REVIEW (15M)**

Idris Arslan (Zonguldak Bülent Ecevit University)

- **THE IMPACT OF HEALTH CAPITAL ON ECONOMIC GROWTH IN PAKISTAN (15M)**

Shama Naz Manzoor Huss (UAF)

- **NAVIGATING DIGITAL TRANSFORMATION STRESS: THE ROLE OF PSYCHOLOGICAL CAPITAL AND SUPERVISOR SUPPORT IN SHAPING JOB INVOLVEMENT IN PAKISTAN'S HEALTHCARE SECTOR (15M)**

Tariq Jamil (The University of Faisalabad)

- **LUNG INFLAMMATION (PNEUMONIA) AND ITS CONSEQUENCES (15M)**

Yulduzoy Toxirjonova (Kokand University Andijan Branch)



ENGLISH ONLINE SESSION –SESSION 11

Friday, October 17, 2025 at 2:00:00 PM GMT+3 – Friday, October 17, 2025 at 3:30:00 PM GMT+3

Turkish Time: 17/10/2025- 12:00

English Online Session_1: <https://meet.google.com/svo-otpb-hpt>

Session Chair: Assoc. Prof. A. Gözde İyicil

• **IMPACT OF SOCIAL MEDIA MARKETING ON BRAND EQUITY: THE ROLE OF EXPERIENTIAL VALUE (15M)**

Muhammad Rehmat (Fauji Fresh n Freeze)

• **A COMPREHENSIVE QUANTUM CHEMICAL STUDY OF PARA-AMINOHIPURIC ACID: GEOMETRY, ELECTRONIC PROPERTIES, AND REACTIVITY DESCRIPTORS (15M)**

Asaf Ülgen (Şırnak Üniversitesi)

Ümit Erdem (Kirikkale University)

Gürcan Yıldırım (Abant İzzet Baysal Üniversitesi)

• **CLIMATE CHANGE AND HUMAN HEALTH WITH ARTIFICIAL INTELLIGENCE**

Saeed Rahman (Ghazi University)

• **DFT AND HF INVESTIGATIONS OF PARA-AMINOHIPURIC ACID: STRUCTURAL, SPECTROSCOPIC, AND PHYSICOCHEMICAL ANALYSES (15M)**

Asaf Ülgen (Şırnak Üniversitesi)

Ümit Erdem (Kirikkale University)

Gürcan Yıldırım (Abant İzzet Baysal Üniversitesi)

• **LIGHTWEIGHT GREEN AI MODELS FOR ADAPTIVE TUTORING IN LOW-RESOURCE ENVIRONMENTS (15M)**

Noureen Hameed (The University of Faisalabad, Amin Campus, Faisalabad, Pakistan)

Shakeel Saeed (Virtual University of Pakistan)

• **THE RIQUEZA GAME BOARD: AN AI-DRIVEN AND SUSTAINABLE APPROACH TO ENHANCING STUDENT ENGAGEMENT AND PERFORMANCE (15M)**

Rose Faida Ahmad Zabidi (Politeknik Tuanku Syed Sirajuddin)

• **COMMERCIALIZATION, SUSTAINABILITY AND WELL-BEING: EVALUATING CLUSTER FARMING IN PUNJAB (3PS LENS)**

Farrukh Shahzad (Muhammad Nawaz Shareef University of Agriculture)



ENGLISH ONLINE SESSION – SESSION 12

Friday, October 17, 2025 at 2:00:00 PM GMT+3 – Friday, October 17, 2025 at 3:30:00 PM GMT+3

Turkish Time: 17/10/2025- 12:00

English Online Session_2: <https://meet.google.com/dib-cqbu-dxj>

Session Chair: Dr. Miray Celepli Sütbaşı

•COGNITIVE ERGONOMICS AND MENTAL TOUGHNESS AS DRIVERS OF HUMAN CAPITAL SUSTAINABILITY FOR CLIMATE RESILIENCE (15M)

Fasiha Batool (TUF)

•STUDENT AS CONSUMER: A FUNDAMENTAL APPROACH IN HIGHER EDUCATION (15M)

Dr. Gulfam Hasan (University of Agriculture, Faisalabad)

Muhammad Rafay Muzamil (University of Agriculture Faisalabad)

Khazra Noor (University of Agriculture)

Saira Khanm (University of Agriculture, IAEERD)

• DEVELOPMENT OF FREEZIT EDUCATION CARD AS A TEACHING ASSIST IN HVAC EDUCATION (15M)

Muhammad Qusyairie (Politeknik Kuching Sarawak)

• FACTORS INFLUENCING THE USE OF CHATGPT IN MALAYSIAN POLYTECHNIC COMMUNICATIVE ENGLISH CLASSROOMS: STUDENTS' PERSPECTIVES (15M)

Radika Subramaniam (Politeknik Sultan Idris Shah)

• IMPACT OF SMOG ON LABOR PRODUCTIVITY AND HEALTH OUTCOMES: A CASE STUDY OF DISTRICT FAISALABAD (15M)

Sidra Firdous (University of Agriculture Faisalabad)



ENGLISH ONLINE SESSION – SESSION 13

Friday, October 17, 2025 at 2:00:00 PM GMT+3 – Friday, October 17, 2025 at 3:30:00 PM GMT+3

Turkish Time: 17/10/2025- 12:00

English Online Session_1: <https://meet.google.com/svo-otpb-hpt>

Session Chair: Prof. Dr. Hüseyin Özgür

- **BUILDING ETHICAL AI IN PAKISTAN: CHALLENGES AND GAPS IN THE NATIONAL POLICY (15M)**

Shabnum Amanat ((The University of Faisalabad))

- **PHYTOMEDIATION AND WATER QUALITY ENHANCEMENT FOR MANKA CANAL: MODERN STRATEGIES FOR SUSTAINABLE WATER MANAGEMENT, DERA GHAZI KHAN, PUNJAB**

Fatima Gulzar (Ghazi University)

- **INVISIBLE ECONOMIES: RURAL WOMEN'S FOOD DECISION-MAKING AND HOUSEHOLD SECURITY IN AGRARIAN PUNJAB, PAKISTAN (15M)**

Dr Madiha Naz (uaf)

- **WATER-FOOD-ECOSYSTEM NEXUS AMID CLIMATE CHANGE: A SYSTEMATIC REVIEW OF RESOURCE SECURITY IN PAKISTAN'S SPECIAL ECONOMIC ZONES (15M)**

Memona Nasir (University of Agriculture, Faisalabad)

- **LINKING SMALLHOLDERS TO MARKETS: BARRIERS AND ENABLERS OF PRIVATE SECTOR PARTNERSHIPS IN PULSE VALUE CHAINS (15M)**

Dr. M. Amjed Iqbal (University of Agriculture Faisalabad, Pakistan)

- **FROM COMMODITY TO BRAND: A CASE STUDY OF CHICKPEA VALUE CHAIN DEVELOPMENT IN PAKISTAN (15M)**

Dr. M. Amjed Iqbal (University of Agriculture Faisalabad, Pakistan)

- **ASSESSMENT OF COLEOPTILE LENGTH AND SEMINAL ROOT ANGLE IN SOME TETRAPLOID WHEATS AT SEEDLING STAGE (10m)**

Zain Ali (Çukurova Üniversitesi)

Melike Biçici (Çukurova Üniversitesi)

Mihriban Taş (Çukurova Üniversitesi)

Mehmet Alper Gökçe (Çukurova Üniversitesi)

Hakan Özkan (Çukurova Üniversitesi)

- **FROM WILLINGNESS TO ACTION: SOCIO-ECONOMIC AND BEHAVIORAL DETERMINANTS OF RENEWABLE ENERGY ADOPTION IN PUNJAB, PAKISTAN (15M)**

Tayyab Zeeshan Shahid (University of Agriculture Faisalabad)

Salman Waseem (The University of Agriculture Faisalabad, Pakistan)

Saria Jabeen (University of Agriculture, FSD)

- **LEVERAGING ARTIFICIAL INTELLIGENCE TO ADDRESS LIVELIHOOD VULNERABILITY AND HOUSEHOLD DIETARY DIVERSITY IN DEVELOPING COUNTRIES: PATHWAYS TO RESILIENCE AND EQUITY (15 m)**

Mohsin Raza (MNS University of Agriculture Multan)

ENGLISH ONLINE SESSION – SESSION 14

Friday, October 17, 2025 at 3:30:00 PM GMT+3 – Friday, October 17, 2025 at 5:00:00 PM GMT+3

Turkish Time: 17/10/2025- 13:30

Turkish Online Session_1: <https://meet.google.com/dib-cqbu-dxj>

Session Chair: Prof. Dr. İlhan EGE/ Mersin Üniversitesi

• **EFFECTS OF MEDIA ON DEVELOPMENT OF EATING DISORDERS IN YOUNG FEMALES (15M)**

Anisa Riaz (University of Agriculture Faisalabad)

• **IMPACT OF URBANIZATION ON CLIMATE CHANGE: A CASE STUDY OF PUNJAB, PROVINCE OF PAKISTAN (15M)**

Azhar Iqbal (MNS Agricultural University)

• **DISSECTING DEPRIVATION IN PUNJAB, PAKISTAN: ZONAL DISPARITIES, GENDER DYNAMICS, AND EDUCATION'S ROLE IN MULTIDIMENSIONAL POVERTY (15M)**

Salman Waseem (The University of Agriculture Faisalabad, Pakistan)

Qaisar Abbas (University of Agriculture, Faisalabad, Pakistan)

Saria Jabeen (University of Agriculture, FSD)

Tayyab Zeeshan Shahid (University of Agriculture Faisalabad)

• **CIVIL SOCIETY'S CONTRIBUTION TO THE ADVANCEMENT OF SOCIAL JUSTICE (15M)**

Khazra Noor (University of Agriculture)

Saira Khanm (University of Agriculture, IAEERD)

Dr. Gulfam Hasan (University of Agriculture, Faisalabad)

• **ARTIFICIAL INTELLIGENCE AND RURAL FUTURES: OPPORTUNITIES AND CHALLENGES FOR DIVERSIFICATION (15M)**

Jawad Anwar (Price Control & Commodities Management Department, Government of Punjab)

Shagufta Rasheed (University of Agriculture Faisalabad, Pakistan)

• **TRUST LEVELS OF PHILANTHROPISTS IN NGOS: ANALYZING FUND UTILIZATION TRANSPARENCY IN PUNJAB, PAKISTAN (15M)**

Muhammad Faizan (The University of Faisalabad)

Sidra Ghulam Muhammad (The University of Faisalabad)

Rimsha Shahid (The University of Faisalabad)

• **THE TRANSFORMATION OF THE MAHALLA SYSTEM IN UZBEKISTAN (15M)**

Manzuraxon Yunusova (Andijan State University)

• **PHYTOREMEDIATION AND WATER QUALITY ENHANCEMENT FOR MANKA CANAL: MODERN STRATEGIES FOR SUSTAINABLE WATER MANAGEMENT, DERAGHAZI KHAN, PUNJAB (15M)**

Fatima Gulzar (Ghazi University)

AIRLINE OMNI-CHANNEL EXPERIENCE AND RE-PURCHASING INTENTION: THE TASK OF AIRLINE CHOICE, WORD OF MOUTH, AND INNOVATION

Vahap Önen (İstanbul Topkapı University)

ENGLISH ONLINE SESSION – SESSION 15

Saturday, October 18, 2025 at 11:30:00 AM GMT+3 – Saturday, October 18, 2025 at 1:00:00 PM GMT+3

Turkish Time: 18/10/2025- 09:30

English Online Session _2: <https://meet.google.com/nvm-owzi-gex>

Session Chair: Dr Mazilah Abdullah

- **GLOBAL FINANCIAL INSTABILITY IN THE ERA OF AI TECHNOLOGIES (15M)**

Shameem Chalil (Koneru Lakshmaiah Education Foundation, Vijayawada, Andhra Pradesh)

- **STRENGTHENING ORGANIZATIONAL MANAGEMENT MECHANISMS WITH CRISIS-MANAGEMENT PRINCIPLES IN THE AGE OF AI AND UNCERTAINTY (15M)**

Elena Khanzadyan (Management Development Institute of Singapore in Tashkent)

- **EXPLORATION OF TVET STUDENTS' PERCEPTION OF GENERATIVE AI BASED ON TECHNOLOGICAL ACCEPTANCE MODEL (15M)**

Diana Lee (Politeknik Sultan Azlan Shah)

- **AI DIGITAL SKILLS AND INNOVATION: THE ROLES OF KNOWLEDGE AND LEADERSHIP (15M)**

Muhammad Imran (The University of Faisalabad)

- **AI ETHICS: AN ANALYSIS OF TURKEY'S NATIONAL STRATEGY AND INTERNATIONAL DOCUMENTS (15M)**

Elif Miray Kasap (İnönü Üniversitesi)

Nazlı Nalcı Arıbaş (İnönü Üniversitesi)

- **AI ADOPTION AND SME PERFORMANCE IN THE DIGITAL ERA: UNPACKING THE ROLES OF STRATEGIC AGILITY, OPERATIONAL EFFICIENCY, AND DIGITAL LEADERSHIP (15M)**

Riffut Jabeen (Ghazi University, D.G. Khan)



ENGLISH ONLINE SESSION – SESSION 16

Saturday, October 18, 2025 at 1:00:00 PM GMT+3 – Saturday, October 18, 2025 at 2:30:00 PM GMT+3

Turkish Time: 18/10/2025- 11:00

English Online Session _1: <https://meet.google.com/vyy-ypea-qaq>

Session Chair: Dr. Kağan Çavuşoğlu

• **NAVIGATING THE DIGITAL LANDSCAPE: ASSESSING THE IMPACT OF DIGITAL TECHNOLOGIES ON WELL-BEING (10M)**

Ananda Majumdar (North Central Theological Seminary, Kennedy University of Saint Lucia)

• **SALIENT OBJECT-FOCUSED IMAGE COMPRESSION USING ROI-BASED METHODS IN CONSTRUCTION SITE IMAGERY (15M)**

Sema Yıldırım (Selcuk University)

• **AI-POWERED DIGITAL TRANSFORMATION: SHAPING A BETTER FUTURE FOR PAKISTAN (15M)**

Abid Aziz (PTCL)

• **THE IMPACT OF MOBILE PAYMENT SYSTEMS ON CONSUMER SPENDING AND SAVING BEHAVIOR OF YOUTH IN FAISALABAD, PUNJAB, PAKISTAN (15M)**

Malaika Shahid (The University of Faisalabad)

Noor Amer (The University of Faisalabad)

• **GENERATIVE AI MEETS THE SOCRATIC METHOD: TOWARD A SELF-EVOLVING LEARNING ENVIRONMENT FOR HIGHER EDUCATION (15M)**

Sana Maqbool (The University of Faisalabad)

Majid Hussain (The University of Faisalabad)

AN OVERVIEW OF AUTOMOTIVE DEMAND FORECASTING METHODS (15M)

İlknur Tanrıverdi (Bursa Technical University)

• **THE MEDIATING EFFECT OF WORKERS' SELF EFFICACY BELIEF BETWEEN THE PERCEPTION OF ORGANIZATIONAL HEALTH LEVEL AND SILENT QUITTING BEHAVIOURS (10M)**

Pınar Çömez (Duzce University)

Ali Rokhman (Jenderal Soedirman University)



ENGLISH ONLINE SESSION – SESSION 17

Saturday, October 18, 2025 at 1:00:00 PM GMT+3 – Saturday, October 18, 2025 at 2:30:00 PM GMT+3

Turkish Time: 18/10/2025- 11:00

English Online Session _2: <https://meet.google.com/nvm-owzi-gex>

Session Chair: Dr. Pınar Çömez

- **DIGITAL TRANSFORMATION AND CAPABILITIES FOR SUSTAINABLE SME GROWTH IN THE AGE OF ARTIFICIAL INTELLIGENCE (15M)**

Muhammad Rizwan Ullah (The University of Faisalabad, Pakistan)

- **AI ADOPTION AND EMPLOYEE ENGAGEMENT: HOW DIGITAL LITERACY MAKES THE DIFFERENCE (15M)**

Dr. Maryam Saleem (The University of Faisalabad)

- **RETHINKING MONETARY POLICY FOR SUSTAINABLE DEBT REDUCTION IN PAKISTAN (15M)**

Rai Aqdas Hayat (UAF)

Nazia Tabasam (University of Agriculture Faisalabad)

Sidra Bibi (University of Agriculture Faisalabad)

- **IMPACT OF INCOME INEQUALITY ON ECONOMIC GROWTH OF PAKISTAN (15M)**

Farhana Gul (The University of Swabi)

- **PATHWAYS TO PROSPERITY: A STATISTICAL ANALYSIS OF ECONOMIC WELL-BEING AND INCLUSIVE GROWTH IN CHENGALPATTU DISTRICT, TAMIL NADU (15M)**

M. R. Ramesh (Indira Gandhi Centre for Atomic Research, Kalpakkam)

- **DARK-SIDE OF GENERATIVE AI COLLABORATION AND EMPLOYEE CREATIVITY: THE ROLE OF AUTONOMY AND LEADERSHIP (15M)**

Maryam Liaqat (The University of Faisalabad)



ENGLISH ONLINE SESSION – SESSION 18

Saturday, October 18, 2025 at 2:30:00 PM GMT+3 – Saturday, October 18, 2025 at 4:00:00 PM GMT+3

Turkish Time: 18/10/2025- 12:30

English Online Session_1: <https://meet.google.com/vyy-ypea-qaq>

Session Chair: Dr. Üstün Yüksel

- **ECONOMIC IMPLICATIONS OF DIABETES MELLITUS: A CASE STUDY OF THE COST OF ILLNESS IN PUNJAB, PAKISTAN (15M)**

Sana Riasat (University of Agriculture, Faisalabad)

- **IMPACT OF LEADERSHIP STYLES ON EMPLOYEE PERFORMANCE AND ORGANIZATION GROWTH IN PAKISTAN (15M)**

Tahreem Nawaz (The University of Faisalabad)

- **THE ROLE OF WOMEN IN ENSURING DOMESTIC FOOD SECURITY IN RURAL COMMUNITIES: A COMPARATIVE STUDY OF PUNJAB, PAKISTAN (15M)**

Dr. Madiha Naz (UAF)

- **ESTIMATING AGRICULTURAL INCOME TAX REVENUE IN PAKISTAN: CHALLENGES AND OPPORTUNITIES FOR INSTITUTIONAL IMPROVEMENT (15M)**

Khadija Syed (Muhammad Nawaz Shreef University of Agriculture Multan, Pakistan)



ENGLISH ONLINE SESSION – SESSION 19

Saturday, October 18, 2025 at 2:30:00 PM GMT+3 – Saturday, October 18, 2025 at 4:00:00 PM GMT+3

Turkish Time: 18/10/2025- 12:30

English Online Session _2: <https://meet.google.com/nvm-owzi-gex>

Session Chair: Assoc. Prof. Azamat Maksudunov

- **ANALYZING THE CONSTRAINTS FACED BY IMPORTERS, PROCESSORS AND WHOLESALERS IN GHEE AND OIL INDUSTRY (15M)**

Fatima Zahid (The University of Faisalabad)

- **ANALYZING THE CONSTRAINTS FACED BY RETAILERS AND CONSUMERS IN THE PALM OIL INDUSTRY (15M)**

Wajeeha Nawaz (The University of Faisalabad)

- **ISSUES AND WAGE DIFFERENTIALS AMONG SEASONAL WORKERS IN THE SUGAR INDUSTRY IN JHANG DISTRICT (15M)**

Muhammad Farooq (University)

- **ECONOMIC FEASIBILITY OF SOLAR TUBE WELLS FOR RICE IRRIGATION IN PUNJAB, PAKISTAN (15M)**

Rahman Illahi (University of Agriculture Faisalabad)

- **SOCIOECONOMIC FACTORS OF BRAIN DRAIN IN PAKISTAN; ITS IMPLICATIONS ON ECONOMIC GROWTH (15M)**

Afeera Fatima (University of Agriculture, Faisalabad)

- **FINANCIAL LITERACY AND MANAGEMENT AMONG THE HOUSEHOLD WOMEN IN FAISALABAD (15M)**

Noor Amer (The University of Faisalabad)

Malaika Shahid (The University of Faisalabad)

- **PRACTICAL ASPECTS OF BIOGAS PRODUCTION TECHNOLOGIES AND BIOFUEL ENERGY USE (15M)**

Muxriddin Eshbekov (Termiz State University of Engineering and Agrotechnologies)



ENGLISH ONLINE SESSION – SESSION 20

Saturday, October 18, 2025 at 4:00:00 PM GMT+3 – Saturday, October 18, 2025 at 5:30:00 PM GMT+3

Turkish Time: 18/10/2025- 14:00

English Online Session _1: <https://meet.google.com/vyy-ypea-qaq>

Session Chair: Dr.Ahmet Erkasap

- **SURVIVING THE HEAT: A SYSTEMATIC REVIEW OF CLIMATE-INDUCED HEALTH RISKS AND SOCIOECONOMIC IMPACTS IN SOUTH ASIA (2020–2024) (15M)**

Muhammad Nafees (The University of Faisalabad)

Farhana Nosheen (GC University Faisalabad)

- **ADVANCING SUSTAINABILITY ADOPTION: THE ROLE OF INCENTIVES, CONSUMERISM, AND COMMUNITY ENGAGEMENT (10M)**

Muhammad Khan (The University of Faisalabad)

- **LEADER HYPOCRISY AND EMPLOYEE SOCIAL LOAFING: A MODERATED MEDIATION MODEL OF PSYCHOLOGICAL CONTRACT BREACH AND POWER DISTANCE ORIENTATION (15M)**

Dr. Muhammad Ahmad (TUF)

- **AGEING AND INCOME INEQUALITY (15M)**

Gulsum Akarsu (Ondokuz Mayıs University)

- **STUDENTS' PERCEPTIONS OF CHALLENGES IN IMPLEMENTING EXPERIENTIAL LEARNING ACTIVITIES TO ENHANCE ACADEMIC PERFORMANCE AT UNIVERSITY LEVEL (15M)**

Aqeela Saghir (University of Agriculture Faisalabad Pakistan)

- **SOCIO-ECONOMIC DETERMINANTS AFFECTING EDUCATIONAL ATTAINMENT AMONG RURAL AND URBAN FEMALE STUDENTS IN DISTRICT NANKANA (15M)**

Habiba Amjad (UAF)

- **CSR-MIX AND SECTORAL SCORING: A FRAMEWORK FOR TRANSPARENT, INCLUSIVE, AND MEASURABLE CSR IN PAKISTAN (15M)**

Hafiz Hassan Amjad (The University of Faisalabad)



ENGLISH ONLINE SESSION – SESSION 21

Saturday, October 18, 2025 at 4:00:00 PM GMT+3 – Saturday, October 18, 2025 at 5:30:00 PM GMT+3

Turkish Time: 18/10/2025- 14:00

English Online Session _2: <https://meet.google.com/nvm-owzi-gex>

Session Chair: Assoc. Prof. Hakan Emre Ziyagil

- **ENVIRONMENTAL POLLUTION AND ITS EFFECTS ON HUMAN HEALTH: A SOCIOLOGICAL STUDY IN DERA GHAZI KHAN CITY**

Sharjeel Saleem (Ghazi University Dera Ghazi Khan)

- **DIGITAL AND CLIMATE-SMART PATHWAYS FOR SUSTAINABLE FOOD AND ENERGY SYSTEMS IN PAKISTAN: TIME TO ACT (15M)**

Ashfaq Ahmad (Ghazi University)

- **IMPACT OF INTROVERSION AND EXTRAVERSION PERSONALITY TRAITS ON STUDENTS' LEARNING IN HIGHER EDUCATION LEVEL: A CASE STUDY AT UAF (15M)**

Aqeela Saghir (University of Agriculture Faisalabad Pakistan)

- **BRIDGING INNOVATION AND INCLUSION: NEW DIRECTIONS FOR GLOBAL EDUCATION (15M)**

Shagufta Rasheed (University of Agriculture Faisalabad, Pakistan)

Nazia Tabasam (University of Agriculture Faisalabad)

Saria Jabeen (University of Agriculture, FSD)

- **AN ANALYSIS OF SPENDING BEHAVIOR AMONG THE UNIVERSITY STUDENTS: A CASE STUDY OF THE UNIVERSITY OF FAISALABAD (15M)**

Muhammad Faizan (The University of Faisalabad)

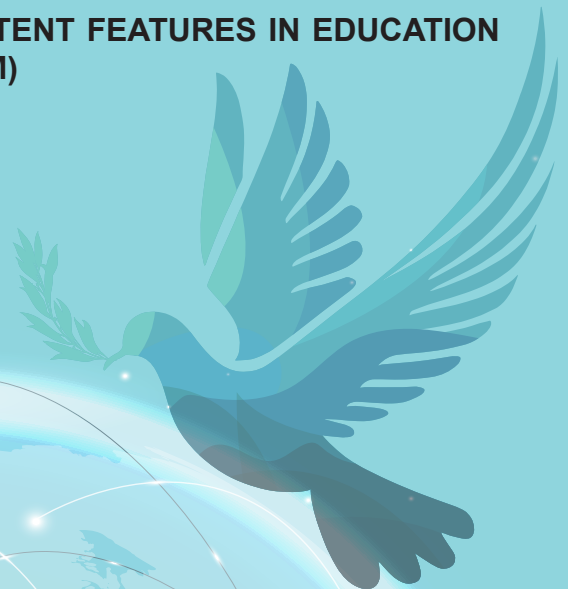
Sidra Ghulam Muhammad (The University of Faisalabad)

- **APPLICATION OF VIRTUAL AND AUGMENTED REALITY (VR/AR) TECHNOLOGIES IN THE EDUCATIONAL PROCESS AND DIGITALIZATION OF PEDAGOGICAL PRACTICES FOR MEDICAL STUDENTS AT FERGANA MEDICAL INSTITUTE OF PUBLIC HEALTH (15M)**

Elyor Valitov (Fergana Medical Institute of Public Health)

- **WHAT MAKES USERS CLICK? INVESTIGATING THE LATENT FEATURES IN EDUCATION APP ICONS AND TITLES INFLUENCING DOWNLOADS (15M)**

Ahmad Bilal (The University of Lahore)



ENGLISH ONLINE SESSION – SESSION 22

Sat Oct 18 2025 16:00:00 GMT+0300 (GMT+03:00)

Turkish Time: 18/10/2025-14:00

<https://meet.google.com/vyy-yypea-qaq>

Session Chair: Assoc. Reşat Arıca

- **ENVIRONMENTAL POLLUTION AND ITS EFFECTS ON HUMAN HEALTH: A SOCIOLOGICAL STUDY IN DERA GHAZI KHAN CITY (15M)**

Sharjeel Saleem (Ghazi University Dera Ghazi Khan)

- **AI-DRIVEN FORECASTING OF MUNICIPAL SOLID WASTE GENERATION, ENERGY RECOVERY, AND BIOCHAR PRODUCTION POTENTIAL IN DERA GHAZI KHAN (2022–2050) (15M)**

Nosheen Mirza (Ghazi University)

- **LEVERAGING ARTIFICIAL INTELLIGENCE FOR OPTIMIZING POULTRY MANURE COMPOSTING AND ENHANCING SUSTAINABLE AGRICULTURE PRODUCTION (15M)**

Nosheen Mirza (Ghazi University)

- **ARTIFICIAL INTELLIGENCE-DRIVEN INSIGHTS INTO BIOCHAR-NANOPARTICLE SYNERGY FOR ENHANCING ARSENIC TOLERANCE IN NEEM PLANT (15M)**

Nosheen Mirza (Ghazi University)

- **THE FUTURE OF LOGISTICS OPERATIONS IN BUSINESSES: THE IMPACT OF ARTIFICIAL INTELLIGENCE (15M)**

Ahmet Aydın (İstanbul Nişantaşı Üniversitesi)



A large, light blue globe composed of dots, showing the continents of Europe and Asia, positioned in the upper left background.

Turkish Online Session



TURKISH ONLINE SESSION – SESSION 2

Thursday, October 16, 2025 at 2:30:00 PM GMT+3 – Thursday, October 16, 2025 at 4:00:00 PM GMT+3

Türkiye Saati: 16/10/2025- 12:30

Turkish Online Session: <https://meet.google.com/nfp-chwh-qba>

Oturum Başkanı: Dr.Öğr.Üyesi Seda Bulut İstanbul Beykent Üniversitesi

• YÜKSEKÖĞRETİMDE DİJİTALLEŞEN DANIŞMANLIK: SANAL OFİS VE ASİSTAN UYGULAMALARININ DENEYİMSEL İNCELEMESİ (15M)

Nuran Öztürk Başpınar (Anadolu Üniversitesi)

Orkun Şen (Anadolu Üniversitesi)

• YAPAY ZEKÂ DESTEKLİ ATIK SINIFLANDIRMA VE YÖNLENDİRME SİSTEMİ: AKILLI KAMPÜS UYGULAMASI (15M)

Neşe Karçık

Dilara Kaymaz

Ayşe Meriç Yazıcı (İstanbul Gelişim Üniversitesi)

• DİJİTAL UÇURUM: GELİŞMEKTE OLAN ÜLKELERDE EŞİTSİZLİKLERİN AZALTILMASINA YÖNELİK POLİTİKA ÖNERİLERİ (15M)

Kevser Gündüz (Tokat Gaziosmanpaşa Üniversitesi)

Ahmet Özkiraz (Tokat Gaziosmanpaşa Üniversitesi)

• VERİ ODAKLI GASTRONOMİ SİSTEMLERİ: YAPAY ZEKÂNIN YÖRESEL MUTFAK MİRASININ KORUNMASI VE TOPLUMSAL BÜTÜNLEŞMEYE ETKİSİ ÜZERİNE BİR İNCELEME (15M)

Rukiye Saydam Şaşı (Kocaeli Üniversitesi)

Bilsen Bilgili (Kocaeli Üniversitesi)

• KURGAN VE YAPAY ZEKA: TÜRKİYE'DE VERGİ DENETİMİNDE DİJİTAL DEVRİM (15M)

Gümrah Can Başdağ (Gümrah Can Başdağ)

• MOBİL BANKACILIKTA DİJİTAL SESLİ ASİSTAN HİZMET KALİTESİ, DENEYSEL BİR KARŞILAŞTIRMA (15M)

Özkan Çıtak (Akdeniz Üniversitesi)

• KÜRESEL PİYASA KOŞULLARI ALTINDA ORTA ASYA'DA BÖLGESEL STRATEJİK İŞ BİRLİĞİ SAĞLAMAYA YÖNELİK BİLİMSEL İNOVASYON YAKLAŞIMI (15M)

KamaldinYunusov (Andijan State University)



TURKISH ONLINE SESSION – SESSION 3

Thursday, October 16, 2025 at 4:00:00 PM GMT+3 – Thursday, October 16, 2025 at 5:30:00 PM GMT+3

Turkish Online Session_1: <https://meet.google.com/nfp-chwh-qba>

Türkiye Saati: 16/10/2025- 14:00

Oturum Başkanı: Dr. Tuğçe Metin (Kahramanmaraş Sütçü İmam Üniversitesi)

• SÜRDÜRÜLEBİLİR KAYNAK KULLANIMI EKSENİNDE KÜRESEL KALKINMA VE SÜRDÜRÜLEBİLİR KALKINMA HEDEFLERİNİN GELECEĞİ (15M)

Sinan Şentürk (Süleyman Demirel Üniversitesi)

Serpil Ağcakaya (Süleyman Demirel Üniversitesi)

• NATURAL DISASTERS, UNCERTAINTY, AND ECONOMIC BEHAVIORS: INSIGHTS FROM THE KAHRAMANMARAŞ EARTHQUAKES (15M)

Tuğçe Metin (Kahramanmaraş Sütçü İmam Üniversitesi)

• YEŞİL TAHVİLLERİN GELİŞMİŞ ÜLKELERİN FİNANSAL PİYASALARINA ETKİSİNİN İNCELENMESİ (15M)

Abdullah Ferit Erol (Batman Üniversitesi)

Mutlu Ekinci (Batman Üniversitesi)

• OFİS ÇALIŞANLARININ CHATGPT KULLANIM DAVRANIŞLARI: KİŞİSELLEŞTİRME, GÜVEN VE TAVSİYE NİYETİ ÜZERİNE NİTEL BİR ARAŞTIRMA (15M)

Nuran Öztürk Başpınar (Anadolu Üniversitesi)

Orkun Şen (Anadolu Üniversitesi)

• PARAÜRETİMSÜRECİNDE FİRMA, BANKA VE MERKEZ BANKASI İLİŞKİSİNİN MUHASEBESİ: POST KEYNESYEN BAKIŞ (15M)

Özgür Özkan (YMM Ofisi)



TURKISH ONLINE SESSION – SESSION 4

Thursday, October 16, 2025 at 5:30:00 PM GMT+3 – Thursday, October 16, 2025 at 7:00:00 PM GMT+3

Turkish Online Session_1: <https://meet.google.com/nfp-chwh-qba>

Türkiye Saati: 16/10/2025- 15:30

Oturum Başkanı: Doç. Dr. Semih Aktuğ (Siirt Üniversitesi)

- **STRATEGIES TO REDUCE POVERTY IN DEVELOPING COUNTRIES (15M)**

Semih Aktuğ (Siirt Üniversitesi)

- **ONE OF THE DYNAMICS OF THE HEALTH SECTOR IN OUR CENTURY: THE PLACE OF EXOSOMES IN DIAGNOSIS AND TREATMENT (15M)**

Leyla Bahar (Mersin Üniversitesi)

- **HİSTOPATOLOJİK TANIDA YAPAYZEKA: 21. YÜZYILIN YENİ ASİSTANI (15M)**

Leyla Bahar (Mersin Üniversitesi)

- **TURKEY'S 2025 AREAL TEMPERATURE STATUS (15M)**

Burhan Bahadır (Tarım Orman)

Ufuk Karadavut (Karabük Üniversitesi)

- **MULTILINGUAL AI AND DIGITAL INEQUALITY IN UZBEKISTAN: PATHWAYS TO EQUITABLE DEVELOPMENT (15M)**

Eldar Asanov (National Archaeological Center of the Academy of Sciences of Uzbekistan)



TURKISH ONLINE SESSION – SESSION 5

Friday, October 17, 2025 at 11:30:00 AM GMT+3 – Friday, October 17, 2025 at 1:00:00 PM GMT+3

Turkish Online Session_1: <https://meet.google.com/nfp-chwh-qba>

Türkiye Saati: 17/10/2025- 09:30

Oturum Başkanı: Dr. Öğr. Üyesi İsmail KOÇ/ Sakarya Uygulamalı Bilimler Üniversitesi

• **AR-GE TEŞVİKLERİNİN SANAYİ KATMA DEĞERİ ÜZERİNDEKİ ETKİSİ: TÜRKİYE 2009–2024**

İsmail Koç (Sakarya Uygulamalı Bilimler Üniversitesi)

Recep Koç (Bağımız Araştırmacı)

• **TURİZMDE ÜRETKEEN YAPAY ZEKANIN İKİLİ DOĞASI: DEĞERİN BİRLİKTE YARATIMI VE YIKIMINA YÖNELİK BÜTÜNSEL BİR YAKLAŞIM (15M)**

Birsel Tepebaşı (İstanbul Nişantaşı Üniversitesi)

Bilsen Bilgili (Kocaeli University)

• **MOBİL SAĞLIK UYGULAMALARINDA KULLANICI DENEYİMİ: E-NABİZ ÜZERİNE BİR İÇERİK ANALİZİ (15M)**

Fikret Işık (Alanya Alaaddin Keykubat Üniversitesi)

• **İŞYERİ NEZAKETSİZLİĞİNİN İŞ STRESİNİN ÜRETKEENLİK KARŞITI İŞ DAVRANIŞLARINA ETKİSİNDE İŞ STRESİNİN ARACI ROLÜ (15M)**

Ahmet Alp ÖZBALCI (Samsun University)

Mustafa Şeker (Near East University)

• **EKOLOJİK AYAK İZİNİN MİNİMİZE EDİLMESİ: SIFIR ATIK PROJESİ VE ÇEVRESEL GÜVENLİK İLİŞKİSİ**

İbrahim Yıldız (Siirt Üniversitesi)



TURKISH ONLINE SESSION – SESSION 6

Friday, October 17, 2025 at 2:30:00 PM GMT+3 – Friday, October 17, 2025 at 4:00:00 PM GMT+3

Turkish Online Session_1: <https://meet.google.com/nfp-chwh-qba>

Türkiye Saati: 17/10/2025- 12:30

Oturum Başkanı: Dr.Şerife Karagöz (Avrasya Üniversitesi)

• **DİJİTAL LİDERLİK, OKUL İKLİMİ VE ÖĞRETMEN DİJİTAL ÖZYETERLİLİĞİ: YAPAY ZEKÂ ÇAĞINDA DÖNÜŞÜM MODELİ** (15M)

Mahmut Karakaya (Bağımsız Araştırmacı)

• **MESLEKİ TÜKENMİŞLİĞİN İŞ DOYUMU ÜZERİNE ETKİSİ: BATMAN ÜNİVERSİTESİ ÖRNEĞİ** (15M)

Cuma Sönmezsoy (Batman Üniversitesi)

Yavuz Elitok (Batman Üniversitesi)

• **DIGGING THEIR OWN GRAVE? EXPLORING TRADITIONAL ENTREPRENEURS' DIGITAL ENTREPRENEURSHIP AWARENESS** (15M)

Oğuzhan Aytar (Karamanoğlu Mehmetbey Üniversitesi)

• **A COMPARİSON OF SOCIAL ENTREPRENEURSHIP AND FOUNDATION VOLUNTEERING FROM A SOCIAL VALUE PERSPECTIVE** (15M)

Oğuzhan Aytar (Karamanoğlu Mehmetbey Üniversitesi)

• **ÜNİVERSİTE ÖĞRENCİLERİNİN STRESLE BAŞA ÇIKMA BECERİSİNİ GELİŞTİRMEDE BDT, ACT VE MİNDFULNESS'İN ROLÜ: BİR DERLEME** (15M)

Merve Gül Koçakoğlu (Konya Teknik Üniversitesi)

Mustafa Güler (Selçuk Üniversitesi)

• **KORUNGA (ONOBRYCHİS VICİİFOLİA) BİTKİSİNİN TARIMSAL, GENETİK VE YAPAY ZEKÂ AÇISINDAN SÜRDÜRÜLEBİLİR TARIMDA KULLANILMA POTANSİYELİNİN DEĞERLENDİRİLMESİ** (15M)

Sevim Döndü Kara Öztürk (Çukurova Üniversitesi)



TURKISH ONLINE SESSION – SESSION 7

Friday, October 17, 2025 at 4:00:00 PM GMT+3 – Friday, October 17, 2025 at 5:30:00 PM GMT+3

Turkish Online Session_1: <https://meet.google.com/nfp-chwh-qba>

Türkiye Saati: 17/10/2025- 14:00

Oturum Başkanı: Dr. Öğr. Üyesi Yasemin Özel (Kastamonu Üniversitesi)

• COMPARATIVE ANALYSIS OF THALAMIC NUCLEI VOLUME ALTERATIONS IN SELECTED NEUROPSYCHIATRIC DISORDERS

Menşure Şahin (Karabuk University)

Necati Emre Şahin (Karabuk University)

Şeyma Toy (Karabuk University)

• SARCOIDOSIS OR TUBERCULOSIS – OR BOTH? (15M)

Hatice Elmas (Institute of Pathology, University Medical Center Hamburg-Eppendorf UKE- and (ARCN), (DZL), Germany and Vocational School of Health Services, Malatya Turgut Ozal University)

Ayfer Kılıç (Vocational School of Health Services, Malatya Turgut Ozal University, Malatya, Türkiye)

• VOLUMETRIC INSIGHTS INTO THE AMYGDALA ACROSS MAJOR PSYCHIATRIC DISORDERS (15M)

Menşure Şahin (Karabuk University)

Necati Emre Şahin (Karabuk University)

Şeyma Toy (Karabuk University)

• YAPAY ZEKADA ETİK DÖNÜM NOKTASI: İNSAN ONURU VE DİJİTAL BARIŞ (15M)

Sabiha Kılıç (Hitit University)

• PHYSIOTHERAPY PRACTICES IN THE HEALTHCARE SECTOR IN THE 21st CENTURY: THE EMERGING ROLE OF TELEREHABILITATION (15M)

Mert Uysal (Karabuk University)

• AGEING POPULATION IN THE 21st CENTURY: HEALTHY AND ACTIVE AGEING (15M)

Mert Uysal (Karabuk University)



TURKISH ONLINE SESSION – SESSION 8

Friday, October 17, 2025 at 5:30:00 PM GMT+3 – Friday, October 17, 2025 at 7:00:00 PM GMT+3

Turkish Online Session_1: <https://meet.google.com/iwa-nbef-ceq>

Türkiye Saati: 17/10/2025- 15:30

Oturum Başkanı: Dr. Öğr. Üyesi Berrin Sarıtuğ

• **TÜRKİYE’DE 6-7 ŞUBAT DEPREMİ SONRASINDA GÖÇ EDEN BİREYLERİN SOSYAL UYUM ÇABALARI** (15M)

Ceylan Kardas (Batman Üniversitesi)

• **DEVELOPMENT OF SYNTHETIC BREAD WHEAT BY USING WILD EMMER (T. DICOCOİDES) AND DURUM WHEAT (T. DURUM)** (15M)

Melike Biçici (Çukurova Üniversitesi)

Zain Ali (Çukurova Üniversitesi)

Mehmet Alper Gökçe (Çukurova Üniversitesi)

Mihriban TAŞ (Çukurova Üniversitesi)

Hakan Özkan (Çukurova Üniversitesi)

• **KIRGIZİSTAN MÜCEVHER SEKTÖRÜNDE DİJİTAL PAZARLAMA STRATEJİLERİNİN İNCELENMESİ**

Tansuluu Usenalieva (Kyrgyz-Turkish Manas University)

Azamat Maksudunov (Kyrgyz-Turkish Manas University)

• **SEED TRAITS AND YIELD RELATIONSHIPS IN SOYBEAN (GLYCINE MAX L.) LINES GROWN AS A SECOND CROP UNDER CUKUROVA CONDITIONS** (15M)

Mihriban Taş (Cukurova University)

Zain Ali (Çukurova University)

Mehmet Alper Gökçe (Çukurova Üniversitesi)

Melike Biçici (Çukurova Üniversitesi)

Hakan Özkan (Çukurova Üniversitesi)

• **YAPAY ZEKÂ DESTEKLİ TARIM TEKNOLOJİLERİNİN TARIM İŞÇİLERİ ÜZERİNDEKİ SOSYO EKONOMİK ETKİLERİ** (15M)

Banu Özbucak Albar (Zonguldak Bülent Ecevit Üniversitesi)

• **YSA, SVR VE ARIMA MODELLERİYLE GÜNLÜK ENERJİ TAHMİNİ VE BELİRSİZLİK ANALİZİ** (15M)

Suleyman Kose (Izmir Katip Celebi University)

Bayram Köse (İzmir Bakırçay Üniversitesi)

Ceyda Mülayim (İzmir Bakırçay Üniversitesi)



• **THE ROLE OF WORKING LIFE IN LIFE SATISFACTION: A LOGISTIC REGRESSION ANALYSIS OF THE 2024 SURVEY (15M)**

Zeynep Görgülü (Selçuk University)

Hasan Bozgeyikli (Selçuk University)

• **AN ANALYSIS OF METROPOLIZATION VIA CLUSTERING IN REPUBLIC OF SOUTH AFRICA FOR INFRASTRUCTURAL EFFICIENCY (15M)**

Mehmet Kızıldaş (Istanbul Beykent University)

• **GREEN ARTİFİCİAL INTELLİGENCE IN BUSINESS: A BİBLİOMETRİC ANALYSİS (15M)**

Tuba Bıyıkbeyi Başdağ (Kilis 7 Aralık University)

TURKISH ONLINE SESSION – SESSION 9

Saturday, October 18, 2025 at 1:00:00 PM GMT+3 – Saturday, October 18, 2025 at 2:30:00 PM GMT+3

Türkiye Saati: 18/10/2025- 11:00

Turkish Online Session_1: <https://meet.google.com/iwa-nbef-ceq>

Oturum Başkanı: Dr. Öğr. Üyesi Şerife Karagöz

• **ARTİFİCİAL INTELLIGENCE GUIDANCE IN INSTRUMENT LEARNING USING SOUND AND IMAGE ANALYSIS (15M)**

Hakan Emre Ziyagil (Niğde Ömer Halisdemir Üniversitesi)

• **DİJİTAL İKİZ TEKNOLOJİLERİNİN DAYANIKLI KENTLER ÜZERİNDEKİ ROLÜ (15M)**

Betül Ertoş Sarıışık (Ankara Hacı Bayram Veli Üniversitesi)

Özge Yalçın Ercoşkun (Gazi Üniversitesi)

• **CORRELATION NETWORK ANALYSIS OF URBAN IMAGE COMPONENTS: THE CASE OF KAHRAMANMARAŞ (15M)**

Ömer Büyükbaş (KSÜ)

• **KADIN ÜNİVERSİTE ÖĞRENCİLERİNDE DİJİTAL FARKINDALIK VE E-SAĞLIK OKURYAZARLIĞI İLİŞKİSİ: DEMOGRAFİK DEĞİŞKENLER AÇISINDAN BİR ANALİZ**

Okan Koç (Balıkesir University)

• **KADINLARDA SAĞLIK OKURYAZARLIĞI VE DİJİTAL GİRİŞİMCİLİK: KADINA YÖNELİK ŞİDDETLE MÜCADELEDE TEKNOLOJİ TABANLI UYGULAMALAR (15M)**

Okan Koç (Balıkesir University)

• **İKLİM DEĞİŞİKLİĞİ VERİLERİNİN SAĞLIK YÖNETİMİNDE KULLANIMI: YAPAY ZEKÂ İLE POLİTİKA KARARLARINI DESTEKLEMEK (15M)**

Seçil Ergül (İstanbul Beykent Üniversitesi)

• **DİJİTAL DÖNÜŞÜMÜN İŞ YAŞAMINA ETKİLERİ :ZOOM YORGUNLUĞU (15M)**

Esra Akay (Bozok Üniversitesi)

• **THE KRA CANAL'S IMPACT ON THE SOCIO-ECONOMIC AND POLITICAL TRAJECTORIES OF MALAY MUSLIMS IN PATANI, SOUTHERN THAILAND: A HISTORICAL AND PROSPECTIVE ANALYSIS (10M)**

Musa Yavuz Alptekin (Journalism and Mass Communication University)

TURKISH ONLINE SESSION – SESSION 10

Saturday, October 18, 2025 at 2:30:00 PM GMT+3 – Saturday, October 18, 2025 at 4:00:00 PM GMT+3

Türkiye Saati: 18/10/2025- 12:30

Turkish Online Session_1: <https://meet.google.com/iwa-nbef-ceq>

Oturum Başkanı: Doç. Dr. Mücahit ÇAYIN (Batman Üniversitesi)

• EARLY DIAGNOSIS AND STAGING OF LIVER CIRRHOSIS: THE USE OF MACHINE LEARNING AND DEEP LEARNING ALGORITHMS

Betül Karabudak (Karabuk University)

• MULTI-OMIC AND ARTIFICIAL INTELLIGENCE- BASED APPROACHES IN EARLY DIAGNOSIS OF LUNG CANCER

Betül Karabudak (Karabuk University)

• YAPAY ZEKÂ ODAKLI MOLEKÜLER HEDEF AVI: ANTİ-KANSER İLAÇ KEŞFİNDE GÜNCEL YAKLAŞIMLAR (15M)

Seda Bulut (İstanbul Beykent Üniversitesi)

• PAKİSTAN EKONOMİSİNDE MAKROEKONOMİK VE ENERJİ FAKTÖRLERİNİN EKONOMİK BÜYÜME ÜZERİNDEKİ ETKİLERİ: AMPİRİK BİR ANALİZ (15M)

Muhammet Kerem Güneş (Batman Üniversitesi)

Bayram Kayantaş (Batman Üniversitesi)

Mücahit Çayin (Batman Üniversitesi)

• KÜRTAJ YAPTIRAN KADINLARIN KARAR SÜREÇLERİNE, KÜRTAJ ANINA VE SONRASINA DAİR DENEYİMLERİNİN ARAŞTIRILMASI (10m)

Elif Kara (Sakarya Üniversitesi)

Gamze Özbayrak (İstanbul Üniversitesi-Cerrahpaşa)

Ömer Miraç Yaman (İstanbul Üniversitesi-Cerrahpaşa)



TURKISH ONLINE SESSION – SESSION 11

Saturday, October 18, 2025 at 4:00:00 PM GMT+3 – Saturday, October 18, 2025 at 5:30:00 PM GMT+3

Türkiye Saati: 18/10/2025- 14:00

Turkish Online Session_1: <https://meet.google.com/iwa-nbef-ceq>

Oturum Başkanı: Seda BULUT (İstanbul Beykent Üniversitesi)

• **ABD PAKİSTAN İLİŞKİLERİNİN STRATEJİK ARKA PLANI (15M)**

İzzettin Kayapınar (Batman Üniversitesi)

• **APPLICATION OF TRANSIT SEARCH AND GOLDEN JACKAL OPTIMIZATION ALGORITHMS FOR DIRECTIONAL OVERCURRENT RELAY SETTINGS IN POWER GRIDS (15M)**

İbrahim Arslanoğlu (Karadeniz Teknik Üniversitesi)

İsmail Hakkı Altaş (Ostim Teknik Üniversitesi)

• **KRİZ DÖNEMİNDE ÖRGÜTSEL DAYANIKLILIKLA YENİDEN YAPILANMA: ÖRGÜTSEL ÖĞRENME YETENEĞİNİN İHRACAT FİRMALARININ ÜRÜN İNOVASYONU ÜZERİNDEKİ ETKİSİ (15M)**

Derya Çelik (Gelişim Üniversitesi)

Aybige Özer Koçak (İstanbul Beykent Üniversitesi)





Turkish In-Person



TURKISH IN-PERSON – SESSION 1

Thursday, October 16, 2025 at 1:00:00 PM GMT+3 – Thursday, October 16, 2025 at 2:30:00 PM GMT+3

Hall_1: 203- (TUF)

Doç. Dr. Gökben Bayramoğlu/ Hitit Üniversitesi

- **MEDENİYET GETİREN “YABANCI KRAL” OLARAK YAPAY ZEKÂ: “PERSON OF INTEREST” DİZİSİ ÜZERİNDEN KÜLTÜREL VE SİYASAL BİR OKUMA (15M)**

Gökben Bayramoğlu (Hitit Üniversitesi)

Nida PALABIYIK (Yozgat Bozok Üniversitesi)

- **INTEGRATION OF TURKISH PUBLIC ADMINISTRATION INTO DIGITAL TRANSFORMATION (15M)**

Muzaffer Bimay (Batman University)

- **TOPLUMSAL DAYANIŞMA VE ÜÇÜNCÜ KUŞAK HAKLAR BAĞLAMINDA BARIŞIN SOSYOLOJİK TEMELLERİ (15M)**

Talha Turhan (Erciyes Üniversitesi)

- **KURUMSAL YÖNETİM UYGULAMALARININ FİNANSAL BİLGİ KALİTESİ ÜZERİNE ETKİSİ AMPİRİK UYGULAMA (15M)**

Mehmet Ferhat Çelik (Selçuk University)

Selçuk Balı (Selçuk University)

- **KURUMSAL YÖNETİM UYGULAMALARININ FİNANSAL BİLGİ KALİTESİ ÜZERİNE ETKİSİ: TEORİK BİR DEĞERLENDİRME (15M)**

Mehmet Ferhat Çelik (Selçuk University)

Selçuk Balı (Selçuk University)

- **ÇALIŞAN ANNELERİN ÖZ ŞEFKAT VE EBEVEYN TÜKENMİŞLİĞİ DÜZEYLERİNİN FARKLI DEĞİŞKENLER AÇISINDAN İNCELENMESİ (15M)**

Mustafa Güler (Selçuk Üniversitesi)

Nevriye Şenses (Selçuk Üniversitesi)

- **PSİKOLOJİK DANIŞMADA YAPAY ZEKA KULANIMI:AVANTAJ VE DEZAVANTAJLARI**

Ayşe Bozgeyikli (Necmettin Erbakan Üniversitesi)

Selahattin Avşaroğlu (Necmettin Erbakan Üniversitesi)

- **DİSTRİBÜTÖRLÜK ANLAŞMALARININ ETİK BOYUTLARI VE TEDARİK ZİNCİRİ SÜRDÜRÜLEBİLİRLİĞİ: TÜRKİYE'DE BİR ACENTE TEORİSİ PERSPEKTİFİ**

Murat Atılgan (Batman üniversitesi)

Osman Yılmaz (Batman Üniversitesi)



TURKISH IN-PERSON – SESSION 2

Thursday, October 16, 2025 at 2:45:00 PM GMT+3 – Thursday, October 16, 2025 at 4:15:00 PM GMT+3

Hall_1: 203- (TUF)

Prof. Dr. Hasan Bozgeyikli (Selçuk University)

• DİJİTAL VATANDAŞLIK VE OKUL ÖNCESİ DÖNEMDE ETİK DEĞERLER: TEORİK BİR MODEL ÖNERİSİ (15M)

H. Buluthan Çetintaş (Necmettin Erbakan University)

• PREPARING YOUNG PEOPLE FOR UNCERTAINTY: CAREER AGILITY (15M)

Ayhan Ünal (Selçuk Üniversitesi)

Hasan Bozgeyikli (Selçuk University)

• SAĞLIK OKURYAZARLIĞI NEDEN ÖNEMLİ (15M)

Ufuk Karadavut (Karabük üniversitesi)

Mehmet Murat Şahin (Karabük Üniversitesi)

İlkay Karadavut (Bolu Abant İzzet Baysal)

• HAYATIMIZDAKİ FİTOTERAPİ (15M)

Mehmet Murat Şahin (Karabük Üniversitesi)

Ufuk Karadavut (Karabük üniversitesi)

Sinem Şahin (Hacettepe Üniversitesi)





English In-Person



ENGLISH IN-PERSON – SESSION 1 TUF

Thursday, October 16, 2025 at 2:00:00 PM GMT+3 – Thursday, October 16, 2025 at 3:30:00 PM GMT+3

Hall: 201

Pakistan Time: 16/10/2025: 14:00-15:30

Chairperson: Dr. Avais Tahir

• **IMPACT OF TECHNICAL TASKS, PROJECT MANAGEMENT COMPETENCIES, AND FINANCIAL TASKS ON PROJECT SUCCESS WITH MODERATION BY PROJECT COMPLEXITY AND MEDIATION BY GREEN ENERGY (15M)**

Dr. Muhammad Imran Majeed (The University of Faisalabad)

• **EXPLORING THE INFLUENCE OF MARKETING STRATEGIES ADOPTED BY EMIRATES AIRLINE, QATAR AND ETIHAD AIRWAYS ON PASSENGER EXPERIENCES AND PREFERENCES IN PAKISTAN'S AVIATION SECTOR (15M)**

Abdul Salam (The University of Faisalabad)

• **DIGITALIZATION AND THE WELL-BEING OF PATIENTS: ENHANCING HEALTH OUTCOMES IN THE DIGITAL AGE (15M)**

Samra Subhani (The University of Faisalabad, Saleem Campus Faisalabad)

• **PERCEPTION OF SELF THROUGH SHARED CONTENT ON FACEBOOK: A USES AND GRATIFICATION APPROACH IN THE AGE OF AI (15M)**

Zarnab Rouf (The University of Faisalabad)

• **INFLUENCE OF SUSTAINABLE MARKETING ON REPEAT PURCHASE BEHAVIOR (15M)**

Mubbashra Habib (The University of Faisalabad)

• **LINGUISTIC JUSTICE AS SOCIAL JUSTICE: RE-EVALUATING PAKISTAN'S LANGUAGE POLICIES FOR REGIONAL LANGUAGES RIGHTS AND EQUITY (15M)**

Katsiaryna Hurbik (The University of Faisalabad)

• **AI-ASSISTED PERSONALIZED DIGITAL ADVERTISING AND CONSUMER BEHAVIOUR: A SYSTEMATIC REVIEW THROUGH THE LENS OF ETHICAL CONCERNS (15M)**

Syed Ali (Beaconhouse International College)

• **MONITORING IMPACT OF DIFFERENT LAND USE AND SEASONAL RAINFALL VARIATIONS ON GROUNDWATER QUALITY PARAMETERS IN BAHAWALPUR CITY (15M)**

Muhammad Nadeem (The Islamia University of Bahawalpur Pakistan)



ENGLISH IN-PERSON – SESSION 2_TUF

Thursday, October 16, 2025 at 3:45:00 PM GMT+3 – Thursday, October 16, 2025 at 5:15:00 PM GMT+3

Hall: 201

Pakistan Time: 16/10/2025: 15:45-17:15

Chairperson: Prof Dr. Sofia Anwar

• TOWARD INCLUSIVE DIGITAL FUTURES: A MULTI-METHOD ECONOMETRIC, STRUCTURAL, AND QUALITATIVE ANALYSIS OF DIGITAL TRANSFORMATION AND SOCIETAL WELL-BEING IN ASIA (2000–2025) (15M)

Muhammad Mahmood (Virtual University of Pakistan)

• TECHNOLOGICAL INNOVATION, SUSTAINABLE CAPITAL, CYBERSECURITY, AND ENERGY TRANSITION AS DRIVERS OF SOCIO-DIGITAL DEVELOPMENT: EVIDENCE FROM SAARC ECONOMIES (2000–2025) (15M)

Qamar Ali (Virtual University of Pakistan)

Maryam Bibi (Government College University Faisalabad)

Hasan Zulfiqar (University of Agriculture Faisalabad)

• A STUDY ON MARKETING STRATEGIES AND CONSUMER BEHAVIOR TOWARDS COLA NEXT® (15M)

Nimra Anjum (The University of Faisalabad)

• AI-DRIVEN FORECASTING OF MUNICIPAL SOLID WASTE GENERATION, ENERGY RECOVERY, AND BIOCHAR PRODUCTION POTENTIAL IN DERA GHAZI KHAN (2022–2050)

Nosheen Mirza (Ghazi University)

• LEVERAGING ARTIFICIAL INTELLIGENCE FOR OPTIMIZING POULTRY MANURE COMPOSTING AND ENHANCING SUSTAINABLE AGRICULTURE PRODUCTION

Nosheen Mirza (Ghazi University)

• ARTIFICIAL INTELLIGENCE–DRIVEN INSIGHTS INTO BIOCHAR–NANOPARTICLE SYNERGY FOR ENHANCING ARSENIC TOLERANCE IN NEEM PLANT

Nosheen Mirza (Ghazi University)

• IMPACT OF ARTIFICIAL INTELLIGENCE ON CORPORATE GOVERNANCE AND FINANCIAL ACCOUNTABILITY (15M)

Asma Firdous (International Maarif School, Islamabad)



ENGLISH IN-PERSON – SESSION 3 UAF

Friday, October 17, 2025 at 10:30:00 AM GMT+3 – Friday, October 17, 2025 at 12:00:00 PM GMT+3

Hall: CAS

Pakistan Time: 17/10/2025: 10:30-12:00

China-Pakistan Economic Corridor: Addressing the Grievances of Pakistan's Marginalized Provinces Naveed Anjum (The University of Faisalabad)

Chairperson: Dr. Raza Ullah

- **A COMPARATIVE ECONOMIC ANALYSIS OF OILSEED AND WHEAT PRODUCTION: A CASE STUDY OF DISTRICT KHUSHAB, PUNJAB, PAKISTAN (15M)**

Sanjina Naeem (University of Agriculture, Faisalabad)

- **IMPACT OF SPECIAL SAVINGS CERTIFICATES (SSCS) ON PAKISTAN'S GDP (15M)**

Qamar Ul Islam (University of Agriculture, Faisalabad)

- **IMPACT OF DIGITAL TRANSFORMATION ON ECONOMIC GROWTH IN PAKISTAN (15M)**

Zainab Bibi (University of Agriculture Faisalabad)

- **TEACHERS AND PARENTS BEHAVIORS ABOUT PRIVATIZATION OF PUBLIC SCHOOLS IN PUNJAB PROVINCE (15M)**

Aqsa Munawar (University of Agriculture Faisalabad)

Aqeela Saghir (University of Agriculture Faisalabad Pakistan)



ENGLISH IN-PERSON – SESSION 4 UAF

Friday, October 17, 2025 at 10:30:00 AM GMT+3 – Friday, October 17, 2025 at 12:00:00 PM GMT+3

Hall: AFS

Pakistan Time: 17/10/2025: 10:30-12:00

Chairperson: Dr. Rakhshanda Kousar

• ASSESSING THE POPULATION, CLIMATE, AND URBANIZATION NEXUS IN SOUTHERN PUNJAB: A QUANTITATIVE ANALYSIS OF MIGRATION AND URBAN STRAIN (15M)

Shama Mushtaq (University of Agriculture Faisalabad)

Laraib Manzoor (The University of Faisalabad)

• PULSES PRODUCTION AS AN IMPORT SUBSTITUTION STRATEGY IN PAKISTAN: ANALYZING FARM LEVEL DRIVERS AND INSTITUTIONAL SUPPORT (15M)

Muhammad Qadeer Ashraf (University of Agriculture Faisalabad)

Azhar Abbas (University of Agriculture, Faisalabad)

• SOCIO ECONOMIC ANALYSIS OF CITRUS VALUE CHAIN IN PUNJAB: MAPPING OF ACTORS FOR COMPETITIVENESS OF CITRUS TRADE (15M)

Muhammad Rauf (University of Agriculture, Faisalabad)

• ROLE OF DIGITAL FINANCIAL LITERACY IN FINANCIAL INCLUSION OF FEMALE ENTREPRENEURS IN PUNJAB, PAKISTAN (15M)

Tahira Sadaf (Institute of Agricultural and Resource Economics, Faculty of Social Sciences, University of Agriculture, Faisalabad)

Ayesha Rouf (Institute of Agricultural and Resource Economics, University of Agriculture Faisalabad)

• IMPACT OF MECHANICALLY TRANSPLANTED (MT) TECHNOLOGY ON RICE PRODUCTIVITY AND FARMER'S LIVELIHOODS IN PUNJAB, PAKISTAN (15M)

Wisha Raza (University of Agriculture, Faisalabad)

Tahira Sadaf (Institute of Agricultural and Resource Economics, Faculty of Social Sciences, University of Agriculture, Faisalabad)

Ayesha Rouf (Institute of Agricultural and Resource Economics, University of Agriculture Faisalabad)

• PERCEIVED EFFECTIVENESS OF INTRINSIC AND EXTRINSIC MOTIVATION ON ACADEMIC ACHIEVEMENTS OF STUDENTS AT UNDERGRADUATE LEVEL (15M)

Sara Amber (University of Agriculture Faisalabad)

Aqeela Saghir (University of Agriculture Faisalabad Pakistan)



ENGLISH IN-PERSON – SESSION 5 UAF

Friday, October 17, 2025 at 2:00:00 PM GMT+3 – Friday, October 17, 2025 at 3:30:00 PM GMT+3

Hall: CAS

Pakistan Time: 17/10/2025: 14:00: 15:30

Chairperson: Dr. Amjad Iqbal

• THE IMPACT OF THE SEHAT SAHULAT PROGRAM ON OUT-OF-POCKET EXPENSES AND DISPOSABLE INCOME OF HOUSEHOLDS IN PUNJAB, PAKISTAN (15M)

IZHAR UL HAQ (University of Agriculture Faisalabad)

• IMPACT OF GENDERED TIME POVERTY ON NUTRITIONAL OUTCOMES IN PUNJAB'S AGRICULTURAL SECTOR (15M)

Ayesha Rouf (Institute of Agricultural and Resource Economics University of Agriculture Faisalabad)

Tahira Sadaf (Institute of Agricultural and Resource Economics, Faculty of Social Sciences, University of Agriculture, Faisalabad)

• IMPACT OF DEMOGRAPHIC VARIABLES ON ECONOMIC GROWTH IN SOUTH ASIAN COUNTRIES: A PANEL DATA ANALYSIS (15M)

Sara Nayyab Sara Nayyab (University of Agriculture, Faisalabad)

• EMPOWERMENT AS A PATHWAY TO FOOD SECURITY: A SYSTEMATIC REVIEW OF EVIDENCE FROM SOUTH ASIA (15M)

Zaeema Farooq (University of Agriculture Faisalabad)

• THE IMPACT OF FOREIGN AID ON ECONOMIC DEVELOPMENT: A CRITICAL ANALYSIS (15M)

Saria Jabeen (University of Agriculture, FSD)

Salman Waseem (The University of Agriculture Faisalabad, Pakistan)

Tayyab Zeeshan Shahid (University of Agriculture Faisalabad)

Shagufta Rasheed (University of Agriculture Faisalabad, Pakistan)

• ENSURING CIRCULAR ECONOMY THROUGH BIODIVERSITY CONSERVATION: A CONCEPTUAL OVERVIEW FOR POLICY AND PRACTICE (15M)

Azhar Abbas (University of Agriculture, Faisalabad)



ENGLISH IN-PERSON – SESSION 6 TUF

Friday, October 17, 2025 at 2:00:00 PM GMT+3 – Friday, October 17, 2025 at 3:30:00 PM GMT+3

Hall: 201

Pakistan Time: 17/10/2025: 14:00-15:30

Chairperson: Dr. Majid Hussain

• DIGITAL ADOPTION, FAMILY FIRMS, AND REGULATORY BARRIERS: TURNING CONSTRAINTS INTO DRIVERS OF CIRCULAR ECONOMY PRACTICES (15M)

Sohail Mansha (National Business School, The University of Faisalabad)

• SUSTAINABLE AGRICULTURE: ENTREPRENEURIAL PATHWAYS THROUGH CROP DIVERSIFICATION (15M)

Abdullah Hammad (The University of Faisalabad, Pakistan)

• EXPLORING THE CAUSAL RELATIONSHIP BETWEEN TIME USE BEHAVIOR AND RESIDENTIAL ELECTRICITY CONSUMPTION IN CENTRAL PUNJAB, PAKISTAN (15M)

Zahra Zafar (University of Agriculture Faisalabad)

• THE EFFECT OF INCORPORATING ARTIFICIAL INTELLIGENCE (AI) INTO ORGANIZATIONAL SYSTEMS: THE MEDIATING INFLUENCE OF EMPLOYEE RESKILLING AND ORGANIZATIONAL CULTURE (15M)

Safa Iftikhar (The University of Faisalabad)



ENGLISH IN-PERSON – SESSION 7 TUF

Friday, October 17, 2025 at 3:45:00 PM GMT+3 – Friday, October 17, 2025 at 5:15:00 PM GMT+3

Hall: 202

Pakistan Time: 17/10/2025: 15:45-17:15

Chairperson: Prof Dr. Irfan Ahmad Baig

• **ARTIFICIAL INTELLIGENCE ACCEPTANCE AMONG VEGETABLE DISTRIBUTORS AT WHOLESALE MARKETS IN CHINA (15M)**

Muhammad Rizwan (National Business School, The University of Faisalabad)

• **WORKPLACE EQUALITY AND INCLUSIVE WORK ENVIRONMENT: INTEGRATING EMPLOYEE WELL-BEING AND SUSTAINABLE GOVERNANCE (15M)**

Mamoona Javed (The University of Faisalabad)

• **THE IMPACT OF CORPORATE GOVERNANCE, LEADERSHIP STYLE, AND CORPORATE REPUTATION ON EMPLOYEE ENGAGEMENT (15M)**

Rabia Arshad (The University of Faisalabad)

• **EQUITY IN INTERNATIONAL GOVERNANCE: THE NORTH-SOUTH DIVIDE IN INTERNATIONAL GOVERNANCE (15M)**

Hibba Aamir (The University of Faisalabad)

• **GLOBAL GOVERNANCE IN CRISIS: MULTILATERALISM UNDER UNITED STATES–CHINA RIVALRY (15M)**

Wareesha Naeem (The University of Faisalabad)

• **RETHINKING DEVELOPMENT IN A CHANGING WORLD (15M)**

To'lanboy Artikov (Andijan State University)



ENGLISH IN-PERSON – SESSION 8 (UAF)

Friday, October 17, 2025 at 3:45:00 PM GMT+3 – Friday, October 17, 2025 at 5:15:00 PM GMT+3

Hall: CAS

Pakistan Time: 17/10/2025: 15:45-17:15

Dr. Azhar Abbas

- **“GREEN INNOVATION AS THE MISSING LINK BETWEEN GREEN HRM AND ENVIRONMENTAL PERFORMANCE: AN SDG-ALIGNED STUDY FROM PAKISTAN’S MANUFACTURING SECTOR” (15M)**

Laiba Azmat (University of Agriculture, Faisalabad)

- **WHEAT SEED MANAGEMENT PRACTICES IN PUNJAB PROVINCE PAKISTAN ADOPTION AND ITS IMPACT ON PRODUCTIVITY--AUTHORS**

Hafeeza Noor (University of Agriculture Faisalabad)

Adnan Adeel

Yawar Abbas

- **APPLE FARMING CONSTRAINTS IN AZAD JAMMU AND KASHMIR (15M)**

Sami Ullah (University of Agriculture Faisalabad)

Raza Ullah (University of Agriculture Faisalabad)

- **SUSTAINABLE AGRICULTURE, FOOD AND ENERGY SYSTEMS (150m)**

Javaria Tabassam (University of Agriculture Faisalabad)

- **THE IMPACT OF SOCIAL, PRODUCT AND PHYSIOLOGICAL FACTOR ON BRAND LOYALTY (15M)**

Hafeeza Noor (University of Agriculture Faisalabad)



ENGLISH IN-PERSON – SESSION 9 TUF

Friday, October 17, 2025 at 3:45:00 PM GMT+3 – Friday, October 17, 2025 at 5:15:00 PM GMT+3

Hall: 201

Pakistan Time: 17/10/2025: 15:45-17:15

Chairperson: Dr. Abdul Ghafoor

• **WHEAT SEED MANAGEMENT PRACTICES IN PUNJAB PROVINCE PAKISTAN: ADOPTION AND ITS IMPACT ON PRODUCTIVITY (15M)**

Hafeeza Noor (University of Agriculture Faisalabad)

Adnan Adeel (University of Agriculture Faisalabad)

Yawar Abbas (University of Agriculture Faisalabad)

• **APPLE FARMING CONSTRAINTS IN AZAD JAMMU AND KASHMIR (15M)**

Sami Ullah (University of Agriculture Faisalabad)

Raza Ullah (University of Agriculture Faisalabad)

• **SUSTAINABLE AGRICULTURE, FOOD AND ENERGY SYSTEMS (150M)**

Javaria Tabassam (University of Agriculture Faisalabad)

• **THE IMPACT OF SOCIAL, PRODUCT AND PHYSIOLOGICAL FACTOR ON BRAND LOYALTY (15M)**

Hafeeza Noor (University of Agriculture Faisalabad)





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