5. International Congress on Social Sciences, Innovation and Educational Technologies 27-28 December 2024

PROCEEDINGS BOOK

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5 st International Congress on Social Sciences, Innovation and Educational Technologies

PROCEEDINGS BOOK

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CONGRESS PROGRAM

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5 st International Congress on Social Sciences, Innovation and Educational Technologies
27-28 December 2024 (Bangalore/India)
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CONGRESS PROGRAM

With **47 papers-79 academics/researchers from 10** countries:

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2. INDIA	7.VIETNAM
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4.PAKISTAN	9. NIGERIA
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Abstract Papers: India:16, **Malaysia:** 1, **Türkiye:** 9, **Brazil:** 3**, Pakistan:** 2, **Vietnam**: 2, **Belarus:**1, Nigeria: 1, **Azerbaijan**:9, **Indonesia:** 3

Total Abstract Papers: 47

Researchers: Malaysia: 3, **Türkiye:** 8, **Brazil:** 5, **Indonesia:** 4, **Pakistan:** 4, **India:** 3**4**, **Nigeria:**5, **Azerbaijan:**13, **Vietnam:** 2, **Belarus:**1

Total Researchers: 79

Full Text Papers: Malaysia: 1, **Türkiye:** 9, **Brazil:** 3**, Pakistan:** 2, **Vietnam**: 2, **Belarus:**1, **Nigeria**: 1, **Azerbaijan**: 5, **Indonesia:** 3, **India: 16**

Total Full Text Papers: 43

Presentations will be in Turkish, English, Arabic, Italian, French, Russian.
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27 December 2024 **Friday** **09:50-10:00**	**5 st International Congress on Social Sciences, Innovation and Educational Technologies** **27-28 December 2024 (Bangalore/India)** **27 December 2024** **10:00 a.m. Istanbul** **Zoom Meeting** **Topic**: 5. ICSSIET 2024 27.12.2024 **Join Zoom Meeting** **https://us04web.zoom.us/j/76253561545?pwd=PPZ7N54kTlrtYUEMMJd94muGNX91cX.1** **Meeting ID**: 762 5356 1545 **Passcode**: 570895
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13:00-17:30	Online Sessions
28 December 2024 **Saturday** **09:30-12:00**	Online Sessions **5 st International Congress on Social Sciences, Innovation and Educational Technologies** **27-28 December 2024 (Bangalore/India)** **Time: December 28, 2024 09:30 AM Istanbul** **Topic**: 5. ICSSIET 2024 28.12.2024 **Join Zoom Meeting** **https://us04web.zoom.us/j/77902432034?pwd=lbBtNE9NmRGWAsQyXL3fYvpEHTgcq2.1** Meeting ID: 779 0243 2034 Passcode: 779 0243 2034
12:00-13:00	Coffee Break- Lunch
28 December 2024 **Saturday** **13:00-17:00**	Online Sessions
17:00-17:30	**Closing Session**

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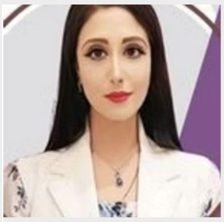

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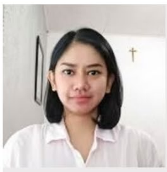

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Room-I	27 December 2024 Friday	Moderator
	13:00-17:30	Assoc. Prof. Aytekin Zeynalova
Room-II	**28 December 2024 Saturday**	**Moderator**
	09:30-17:30	Assoc. Prof. Aytekin Zeynalova

Friday, 27 December 2024 Room I

Room-I	Friday, 27 December 13:00-17:30	Moderator	Assoc. Prof. Aytekin Zeynalova

1. **Assist. Prof. Lt Nudrat Bano, Dr. Ijaz Yusuf, Assoc. Prof. Mr. Shahzad Ahmed**-Consumer Perspective in Mass Transit Project: A Case Study of OLMT (Pakistan)
2. **Dr. Ijaz Yusuf, Ms Ammber Nosheen**- Innovative Educational Technologies and Impact on Student Learning (Pakistan)
3. **Christian Osita GODSON DBA, Benneth Uchenna EZE PhD, Festus EKECHI PhD, Iyabode Abisola ADELUGBA, Oluyemisi AGBOOLA**-Optimizing Technopreneurship for Entrepreneurship Development in Nigeria (Nigeria)
4. **Emil Raul oğlu Ağayev**-Organizing Methodology of the Classroom Question-Answer Process in Fine Arts Teaching (Azerbaijan)
5. **Prof. Dr. Hikmat G. Hasanov, Ismayil M. Zeynalov, Ph.D**.- Manifestation of Nuclear Fallout Considering Climatic Characteristics and Implications for Business in the Territory of Azerbaijan (Azerbaijan)
6. **Assoc. Prof., Ulker Kh. Mahmudova-** Assessment of Hydrochemical Composition of the Kura River for Sustainable Business Practices (Azerbaijan)
7. **Assoc. Prof., Habil T. Hakverdiyev, Mahbuba S. Fatullayeva**- The Role of Climatic and Geographical Factors in Assessing the Development of Tourism and Business Opportunities in Karabakh (Azerbaijan)
8. **Gülsüm AKBAŞ & Assoc. Prof. Dr. Derya GİRGİN**-Applicability of Technology Integration in Flipped Learning Model: Teacher Opinions (Türkiye)
9. **Hasan Enes GÜMÜŞ & Assoc. Prof. Dr. Derya GİRGİN**- Differentiated Teaching Practices: Analysis of Lesson Plan Designs for Educational Levels (Türkiye)
10. **Helin AKÇAY & Assoc. Prof. Dr. Derya GİRGİN**—Examination of Mathematics Teachers' Opinions on Skill-Based (Next Generation) Mathematics Questions (Türkiye)
11. **Assist. Prof. Dr. Alime Aslı İLLEEZ**-Gold Mine in Textile and Leather Industrial Waste (Türkiye)
12. **Assist. Prof. Dr. Alime Aslı İLLEEZ**-Smart Production Technologies Used in the Clothing Industry (Türkiye)
13. **Ezgi AKKUŞ & Nilüfer OKUR AKÇAY**- The Effect of STEM-Based Practices on the Scientific Process Skills of Primary Teacher Candidates (Türkiye)
14. **Ezgi AKKUŞ & Nilüfer OKUR AKÇAY-** The Views of Primary Teacher Candidates on the STEM Education Approach (Türkiye)
15. **Dr. Serkan ÇİFTCİ**- Examination of Teachers' Opinions on the Use of Educational Technologies In Special Education (Türkiye)
16. **Dr. Serkan ÇİFTCİ-** An Investigation of Teachers' Opinions on the Use of Educational Technologies In Preschool Teacher Training (Türkiye)
17. **Assoc. Prof. Dr. Aytekin ZEYNALOVA**-Munich Security Conference—a platform according to diplomatic initiatives for Azerbaijan (Azerbaijan)
18. **Dr.Beatriz Lucia Salvador Bizotto, Dr. Maria Emilia Camargo, Dr. Mariane Camargo Priesnitz, Mr. Santosh Kumar Singh, Me. Vilma da Luz Barbosa-** Educating for Sustainability: A Map of the Interconnections Between Education, Health, Legislation and Sustainable Entrepreneurship (Brasil)
19. **Dr.Beatriz Lucia Salvador Bizotto, Dr. Maria Emilia Camargo, Mr. Santosh Kumar Singh, Me. Vilma da Luz Barbosa**- Financial Education In Brazil: Advances, Gaps And Prospects For A More Conscious Society (Brasil)
20. **Dr.Beatriz Lucia Salvador Bizotto, Dr. Maria Emilia Camargo, Mr. Santosh Kumar Singh, Me. Vilma da Luz Barbosa**-The Role of Female Entrepreneurship as a Tool for Transformative Change: An Examination of the Challenges and Impacts on Economic Empowerment (Brasil)
21. **Assoc. Prof. Aynur Nasirova**- Characteristics of Live Broadcast on Sports Channels (Azerbaijan)

22. **Assoc. Prof. Xatirə Hüseynova**- Perspectives on Common Media Platforms in the Turkish World (Azerbaijan)
23. **Izzatli Sabina Vagif**-The Future of News: Exploring New Media Formats in Journalism (Azerbaijan)
24. **Assoc. Prof. Konul Q. Niftaliyeva**—The Development Dynamics of the Typological System of Mass Media (Azerbaijan)
25. **Imron Wakhid Harits & Alifia Dinda S.D-** African-American in Black Art Movement Perspectives in The Poem “Let America Be America Again” By Langston Hughes (Indonesia)
26. **Olga Ipatova**- The potential of the intellectual property system to overcome gender inequality in innovation and business (Belarus)

Saturday, 28 December 2024
Room-II

Room-II	**28 December 2024**	**Moderator**
	09:30-17:30	Assoc. Prof. Aytekin Zeynalova

Saturday, 28 December 2024 Room-II

Room-II	**Saturday, 28 December 2024 09:30-17:30**	**Moderator**	Assoc. Prof. Aytekin Zeynalova

1. **Dang-Thanh Nguyen-**A New-Age Movement's Solution to The Precarious Works in Vietnam (Vietnam)
2. **Van-Ha Luong Thi-** Exploring Ethnic Discourses on Social Media in Vietnam Over the Past Decade: The Influence of Western Decolonial Theories (Vietnam)
3. **Rizki Amalia Yanuartha & Putri Hergianasari**- The Fighting of Religious Identity Symbols as A Political Communication Tool in the Digital Era (Indonesia)
4. **Putri Hergianasari & Rizki Amalia Yanuartha**-Gender-Based Anti-Corruption Model: A Sociological Perspective with an Emphasis on Education (Indonesia)
5. **Ritu & Saranya T.S**.- Neuromarketing and Consumer Manipulation: The ethical implications of using brain data to influence Purchase Behavior (India)
6. **Rakshitha A, Shedge Anuja, Nandana V Menon, Saranya T.S. Gayathri Raj**- PTSD and the Subconscious: How AI-Powered Dream Hacking Aid in Psychological Recovery (India)
7. **Katepalli Gayathri Padmini, Yamini. A, Sumana. J , Musthab Shira S.-**Rorschach Inkblot Test Readings of People with Antisocial Personality Disorder (India)
8. **Bilha Binoy, Saranya T.S**- Psychological Safety and its Impact on Workplace Innovation (India)
9. **Preetha D V, Patra Raja Sulochana, Suhasini D. R., Swathi K M, Saranya T.S**. - The Role of Loneliness and Personality Traits in Shaping Parasocial Relationships: A Correlational and Regression Analysis (India)
10. **Mahek Doshi, Saranya T.S** - Social Media as a Stress Coping Mechanism: The Hidden Cost of Digital Escapism and Growing Obsession (India)
11. **Anushiya Mary M, Aswath Rubena R, Dharani Reddy R., Saranya T.S. & Musthab Shira S- Saranya T.S,** AI's Accuracy In Detecting Emotions For Risk Assessments (India)
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14. **Aiswarya Dinesh, Saranya T.S.**- From Burnout to Breakthrough: Addressing Decision Fatigue in High-Pressure Work Environments (India)
15. **Aiswarya Maya, Sandeep Kumar Gupta, Saranya T.S**.—Evolving Talent Management: HR and Psychological Approach from Millennials to Gen Z (India)
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20. **Neha Gupta**- Changing dynamic in the workplace in the era of AI (India)
21. **Md Dr. Harun Rashid & Wang Hui**- The Effect of Vocabulary Mind Mapping through Learning of Undergraduates with High and Low Motivation (Malaysia)

Consumer Perspective in Mass Transit Project: A Case Study of OLMT

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Abstract

Pakistan's strategic mobility in the current and ever-changing socio-economic scenario has pivoted greatly on prioritizing socio economic projects. This approach is critical to the Pakistan's meta-objective of rapid economic growth and diplomatic interaction on BRI. If sustainability is the central proposition for value then the need is of outcome based evaluation of such projects considering their absorption, reach and effectivity according to a consumers' perspective. For a result-based policy structure for management of integrated economic endeavors and their sociological structuring, the growing emphasis is on human conduct and dynamics. These are the critical factors in determining the projects' success, since the projects are managed as cognitive systems (CS). In the mass transit system on launch Orange Line Metro Train (OLMT) - Orange Metro Light Train (OMLT), is a pilot project and its Sociological Reach (SR) is fundamental to the successful implementation of its reference projects. The study builds research design to evaluate the systems and operations of OMLT as are used and understood by its consumer. It set forth denoted area of strategic concerns and required revisits to policy design. It also ratifies and

refreshes the sociological need of the project. Thus, consumers' amenities valuation (CAV), as an identified area of research, is much in need of exploration in academic investigation where evaluation of the human factor is ripe to germinate new dimensions to emerging social structure with revised valuation of amenities.

Keywords: *CS, CAV, OLMT, OMLT, SR.*

Introduction

The global research trend of valuing public transport consumer experience has categorized values for a range of amenity infrastructure including information, environment, access, customer facilities, and security amenities (Currie 2020). Pakistan since the start of 21st century have undergone significant transformation when it comes to migration to its cosmopolitan hubs from its rural settings. The transforming demographic configuration has resulted in challenges of exponential transformation of land for residential, commercial, industrial and transportation. The government of Pakistan developed a road map to address the issues of urbanization and environmental deterioration in the form of different socio-economic mega projects. To ensure their sociological reach the dire need is to better understand the undercurrents and factor them into proactive decision-making on public spending, infrastructure investments and urban design.

Overview

Orange Line metro train is one such socio-economic mega mass transit project. Its scope statement and outlined objectives in PC-1 documents the five points of concern i.e. information, environment, access, Security amenities and customer facilities. The study aims to evaluate Orange Line Metro Train (OLMT) post project socio□economic outcome-based evaluation following a Qualitative design. The current politico economic developments have rendered clear the importance of CPEC for Pakistan as viable project to bring about a new chapter in Pakistan's economic existence in the region as a potential actor in multiple states – both regional and extra regional, stakes. In this connection, the flagship project of BRI CPEC is worth exploring. Thus, substantial policy decisions are undergone to align the national policy with regional politico-economic developments. CPEC is a combination of sustained projectized activity that involves Pakistan from city to division to province and then state level nationally: and at regional and extra regional level globally. It is 8 majorly centered on building Lines of Communication in the form of Highways Railways and Light Rails. Applying the scientific tool the project viability against the global economic recession and rapidly changing business dynamics are measured yet it confronts issue of social reach and existential urgency (Ball 2019).

Orange Line Metro Train is Pakistan's first Light rail project that since its inauguration have borne the tangible effects of Covid 19 and South Asian Economic Crisis. All this have redefined the critical realities fundamental to the success and sustainability of these socio-economic projects' social reach. Moreover, with more informed public opinion on the rapid urbanization and national and global prioritization of environmental concerns is one really pertinent element that have greatly affected the socio-cultural reach and sustainability of socio-economic projects. Pakistan is on a fast track of urbanization while building for sustainable economic engagements to complement the increase economic prospects. Lahore is the largest cosmopolitan city of Punjab and second largest city of Pakistan. Rapid urbanization has changed the socio-economic dynamics with change in its city size, population size and new configurations of population distributions. These are important elements of newly coded patterns of sociological interaction and prioritization, which determine the policy effectivity for the urbanizing populace (Eaton et al., 1997).

In South Asia, Pakistan is among the grave economic centers with complex development of economic activity and highly burdened currency. It is rapidly urbanizing too. This configuration has undergone drastic evolution in mass transportation business dynamics and management preferences. The sociological 9 reach being a capital problem is affecting the project success dynamics. With the rise in population in urban areas of Pakistan from 17% to 37% since 1951 till 2010, it was forecasted that half of the population of Pakistan will live in urban areas in the next 10 to 15 years. This is the time when Lahore is living this aggregated forcast of the reality. The major reasons categorized as a prologue to urban growth are population growth and migration (Husain, 2014), employment, education and perceived better opportunities. OLMT is to address the raised need of an estimated population of 11,126,285 inhabitants (Pakistan census, 2017) of Lahore. When considering the user friendliness, Lahore has an extensive network of roads. The provincial highway department estimates around 1265 KM of roads in this city. Approximately around 4 million vehicles are registered with the Excise and Taxation Department of Lahore. Prime medium of transportation in Lahore city are Metrobus, rickshaws, taxis, cab services (Careem and Uber etc.), vans and busses (Sehar, 2017). OLMT is the pilot project of metropolitan railway network of reference three more light rail projects. Pakistan with its prospect pipelines and exchange trade route projects, engulfing it from its north to south and east to west, is a current hub of fast-tracking economic transformation of the region. Its concrete role in executing economic projects of Caucasian, Central Asian and Pacific regions is a serious call for well worked out policy decision making to secure Pakistan's state and public interest and keep intact its ideological autonomy. In these times, the impact of compromised social reach of its socio-economic projects in the wake of economy under critical loan debt load will have probable impact over its political and diplomatic amenity. Moreover, South 10 Asian economic recession and Covid 19's dynamics have redefined the past scale of consumers' prioritization and realities of sociological issues impeding projects social reach. Thus, to keep the public on the state agenda side it's normative to explore consumers' perspective of amenities and soft factor values and sociological issues impeding project social reach.

Research Gap

The fast-track changes happening in its city area, population size and new configurations of population distribution are critically important elements of newly coded patterns of sociological interaction and prioritization that determines now the policy effectivity for the urbanizing populace. The least explored area in this connection is a consumer's perspective of amenities and soft factor values. OLMT project being a pilot project is a blue print for its reference projects socio-economic effectivity. The valuation of costumers' perspective on factors that determine their view of amenities and soft factor values. Through benchmarking, it can help determine good practices and develop methodology to access future project propagated against their social delivery.

Problem Statement

End users are very important stakeholders and their satisfaction with product performance is of key importance once it comes to post project outcome-based evaluation (Deret HT. Walker, 2005). Moreover, the growing emphasis on human conduct and dynamics as critical factors in determining the success of projects (Dalcher, 2019). In this connection while determining the success of projects the most ignored area is the end users' consumers' perspective of the amenities and soft factor values against which the social delivery is acclaimed. This creates a huge valuation gap and often leaves sever pitfalls influencing the future project selection and planning impeding the dependable decision-making. Thus, the research problem of the study is structured around the elements that impede the sociological effective reach, adaptation and delivery of such socioeconomic projects. Orange Line Metro Train is one such project and its normative evaluation will help identify the potential gaps that will help in effective policy formation.

Literature Review

The global market trending project industry is heavily mantled on the construction industry and the massive investments are currently in the mass transit projects. In connection to this is one potential discipline of metro Light rail projects. The light rail projects are quite in the run since the start of the 21st century. The trend is getting pace and now Pakistan is on the stage too playing along china that has one the biggest light rails networks of the world. Categorized as the world's leader by numbers of 14 mass transit systems in 21st century as well as the major proprietor of the fastest growth of such projects. Pakistan had stepped in the filed with its first light rail getting into operation in 2020 with china as a major proprietor. A reflection on the global history of light rail the first of its kind in this direction was the 1863 United Kingdom London Metropolitan Railway also named as 2-penny rail due its low-cost travel fare. It was a n underground facility. It was built under ground. The next significant development s this industry came with the Beach Pneumatic Transit System in 1870 and was categorized as a failed attempt as developing the mass transit in New York. In 1890 came the electrified underground urban railway City and south London Railway. In 1893 came Liverpool Overhead Railway Coming to USA success series in mass transit came in 1972 USA Bay Area Rapid Transport (BART) San Francisco Bay Area Metropolitan Atlanta Rapid Transit Authority (MARTA) in 1972, Washington Metro in 1976 and the Baltimore and Miami in 1980. The list is entailed to but a question that why what was not successful in USA in 1870 took o whole century to work wonders today. Was its just the technical failure or it was also a new infrastructure project miss connived to identified delivery like the Aswan Dam that was in potential delivery was ahead that times sociological needs. The 3rd thing kept in consideration in this section of literature the trens of Mass transit projects and their success rate.

Research Methodology

This research follows a qualitative research design to explore the dimensions of Consumers' Amenities' Valuation (CAV) as it is evolving under changed socio economic dynamics affecting the sociological reach of the socio-economic mega projects. To collect data, the this research uses convenience sampling, semi structured questionnaire, focused group discussions, transit walk general observation techniques, interviews of the target sections of population benefitting from the project.

The subject study focus is Orange Line Metro Train consumers' perspective about the valuation of the project amenities as identified in PC 1 justification, scope and objectives: and how it affects the project sociological reach (PMA, 2015). The study relies on their user experiences and narratives so a phenomenological approach complements its qualitative research design that is structured around probing into the consumers perceptions through their live experience of the customer amenities as provided on site and as the consumer reflects these amenities are responding to his and greater population needs. The study thus identifies the impediments to the projects sociological needs.

The researcher use the multi coding projects data analysis Nvivo 11 plus version and used different working tabs for uploading and processing the data as follows: NPO Working Tab Function 1. Sources - Where the project materials are docked, Interviews, videos, audios, pictures pdfs: 2. Nodes - The anchor, parent, child and sibling node are created to through the process of coding references and subsequently these develop into Project frame work and themes: 3. Queries - Here is stored all the data generated using query tan in tool bar: 4. Reports - Reports folder is where all the coding summary by nodes/ source/ classification and node structure summary Project report summary are generated and stored: 5. Maps - Mind map, Project map, and concept maps are and different hierarchies created are created and stored: 6. Folders - Here all the folders lited above are placed plus results, extracts, map, annotations, memo links, search folder, case/ source classifications nodes, classification, sentiments, frame work matrices etc.

Research Objectives

- To explore sociological issues impeding the project reach with end user
- To evaluate the consumer's criteria of valuation of amenities and soft factor value

Research Questions

The paper addresses the following research questions:

RQ-1 Which sociological issues are impeding the project reach with end user and why?

RQ-2 How the consumers determine the criteria of valuation of amenities and soft factor value?

Results

The purpose of this qualitative study designed on the phenomenological approach was to explore the information, perceptions and priority patterns of the OMLT service consumer on the research objectives of consumers' amenities valuation (CAV). The second objective was to identify the internal and external instigating factor sociological design that impact the reach of the OMLT both negatively and positively. The sample selection was made from a diverse geography of location, age, gender, trade and disciplines. The study contributes in determining the consumers' amenities' valuation (CAV) and the factors affecting their valuation both at internal and external patterns of sociological design. The results of the study are presented briefly as under:

- Validates the point highlighted in the project appraisal as valid points for policy concern on sociological needs and consumer facilitation.
- High lights the agreed need for expanding the project by adding new routes and resources for efficient operation
- The communication gap present on the extended amenities and consumer right to the same.
- Systematic revisions on resources reinforcement and relocation. For enhanced connectivity and accessibility of the services to a greater population.
- The need for consumer education through organized awareness campaigns.

• The insistence on completing the reference projects and strategic synthetization of policy decisions to a bettered development of national cause and workable diplomacy at international fronts.

• Policymaking on developing economic hubs else the preset cosmopolitan centers and on diverting the migrating population flow to new epicenters to channelize those challenges of rapid urbanization.

Recommendations

1. Systemized Urban planning is the dire need in the current situation to manage the urban population flow.

2. The estimated probability of population growth and migration to urban hubs require strategic planning on demographic engineering and channelization of the contemporary current of migrating populace flow. The policy considerations are raised onto the development of new purpose build potential economic hubs and urban centers with good absorption of populace mas.

3. Policy decisions are needed onto the subject of traffic flow especially in connection to high trend of personal vehicle commute: the import of reconditioned vehicles: import of luxury vehicles: and the local market production of fuel non-efficient vehicles.

4. To manage traffic flow

5. To control fossil fuel consumption.

6. To channelize the potential resource allocation

7. A Project Management Office is proposed at provincial level to look after the public, policy and provincial government interest and to manage the social action plan of the Mega Projects on the subject of sociological delivery of OMLT

Conclusion

The research findings in current investigation exhibit that OMLT consumer faced a lot of issues due to the current compromised status on route infrastructure connectivity. The rising population is pressing hard on the resources enroute. Because of increased extensions of organized habitates the population is bound to raise even to new and massive count. Many routes ae yet in the waiting for speedo fleet to connect the relatively recent extension s of the city Lahore at the 360 degrees. The resources are where depreciating and operated in minus counts of feeder route buses; to keep the feeder routes running for connectivity to Mass Transit metro system will be the meta objective concern of the futuristic policy decisions. Thus, to address the massive urbanization the need is to start and run new feeder routes and to reinforce the existing one. Thus, commissioning of more speedo buses and feeder routes is in call. The existing infrastructure and service delivery is facing certain pitfalls due to communication gap between the services made available and consumers. The gap is in need to be built on two discreet dimensions i.e. first, the services and amenities are available but the consumer has little or no knowledge of it: second the intentional bypassing of the available amenities either due to the sociological taboos attached or the procedure is hassled or noisy or involve too many steps. 81 The decentralized administrative and operational structure OMLT stations needs a rigorous review after the recorded attacks on the Khatme Nabuwat and SalahuDin stations during TLP rally. The fall of man off the stairs sidewall due its technical non considerations of the probability of the falling off the passages and Chipping off roof ceilings are calling in for technical revisions in civil structure design material and maintenance.

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ORGANIZING METHODOLOGY OF THE CLASSROOM QUESTION-ANSWER PROCESS IN FINE ARTS TEACHING

TƏSVİRİ SƏNƏT FƏNNİNİN TƏDRİSİNDƏ SİNİFDƏ SUAL-CAVAB PROSESİNİN TƏŞKİLİ METODİKASI

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Xülasə

Orta məktəblərdə şagirdlərin təqdim edilən mövzuları dərindən mənimsəyib öyrənməsi üçün sinifdə sual-cavab prosesi təşkil edilməlidir. Təsviri sənət fənninin tədrisində müəllim şagirdlərə çəkdiyi rəsmlər barəsində sual verib kompozisiya barəsində fikirlərini ümumiləşdirməyi tapşırmalıdır. Həmçinin rəssamların yaradıcılığını təqdim edərkən müəllim açıq, məntiqi və yaradıcı suallar hazırlamalı, müqayisə bacarığını inkişaf etdirməlidir. Bu məqalədə təsviri sənət fənninin tədrisində sinifdə sual-cavab prosesinin təşkili metodikası təhlil edilmişdir.

Açar sözlər: Təsviri sənət, sual-cavab, metodika, rəng, obraz

Abstract

In secondary schools, a question-and-answer process should be organized in the classroom in order for students to learn and master the presented topics in depth. In the teaching of fine arts, the teacher should ask the students questions about the paintings and ask them to summarize their thoughts about the composition. Also, when presenting artists' works, the teacher should prepare open, logical and creative questions, develop the ability to compare. In this article, the method of organizing the question-answer process in the classroom in the teaching of fine arts was analyzed.

Keywords: Fine art, question-answer, methodology, color, image

Introduction

Hər bir fənnin tədrisində olduğu kimi təsviri sənətdə də şagirdlərin dərsi dərindən mənimsəmələri üçün sual-cavab prosesi düzgün qurulmalıdır. Bu proses zamanı şagirdə təqdim olunan hər bir rəssam yaradıcılığı və əsərləri barəsində düzgün düşünmək qabiliyyəti inkişaf etdirilir. Yaradıcı fənnin tədrisində daha çox kreativ suallar təqdim edilməli, tənqidi və dərində öyrənmə bacarığı ön plana çıxarılmalıdır.

Təsviri sənət fənninin tədrisində sual-cavab prosesi effektiv şəkildə əhəmiyyətliliyi ilə seçilir. Bu zaman aşağıdakı məqsədlər dərsin tədrisində isifadə edilməlidir:

-V sinif təsviri incəsənət fənnində "Xalq geyimləri" mövzusunda şagirdləri ilk növbədə təlim prosesinə cəlb etmək lazımdır;

-"Xalq geyimləri" mövzusunda öyrədilən məlumatları şagirdlər albom vərəqlərində işləməlidirlər;

-bu mövzu barəsində əvvəlki sinifdə keçdikləri bilikləri xatırlamaq;

-şagirdlərin xalq geyimlərinə fikirlərini öyrənmək;

-şagirdlər təqdim edilən xalq geyimlərini öz fantaziyalarına uyğun ornamentlərlə bəzəyirlər.

Təsviri sənət fənninin tədrisində sual-cavab prosesinin effektiv şəkildə təşkil edilməsində mühüm addımlardan biri sinifdə şagirdlər arasında sualvermə mədəniyyətinin yaradılmasıdır. Dərsin planlaşdırılması zamanı metodik baxımından effektivlik ön plana çıxarılmalıdır. Şagirdlərə müxtəlif sual növləri təqdim edilə bilər:

Test tipli variantlı suallarda sadədən mürəkkəbə doğru tapşırıqlar təqdim edilməlidir. Təsviri sənət fənnində V sinif dərsliyində "Keramika" mövzusunda aşağıdakı suallar şagirdlər tərəfindən cavablandırılmaq üçün işlədilə bilər:

1.Rəngli gildən hazırlanan və xüsusi sobalarda bişirilən məmulatlar adlanır:
A)batika B)keramika C)qobelen D)xalçaçılıq E)bədii metal

2. Fikirlər bu dekorativ-tətbiqi sənət növünə aiddir:
a.otaqların bədii tərtibatı üçün tətbiq edilir
b.materialın yeni plastik imkanlarını üzə çıxarır

3.rəng və faktura zənginliyi aşkara çıxarılır
A)batika B)keramika C)qobelen D)xalçaçılıq E)bədii metal
3. Mayolika adlanır:
A)saxsı B)farfor C)fayans D)terrakota E)kaşı

4.Sobada “bişirilən”,üzərinə şirə çəkərkən parlaq və yaraşıqlı görünən dulusçuluq məmulatı adlanır:

A)saxsı B)farfor C)fayans D)terrakota E)kaşı

5.Mayolika haqqında fikirlərdən biri yanlışdır:

A)mayolika həmçinin kaşı adlanır

B)mayolika texbikasında dekorativ pannolar,qab-qacaq hazırlayırlar

C)mayolikada məmulatın səthinə əvvəlcə şir (emal) yaxılır

D)mayolikaya sonra rəsm çəkilərək sobada bişirilir

E)mayolika xovsuz divar xalçasıdır

6.”Qovrulmuş” torpaq adlanır:

A)saxsı B)farfor C)fayans D)terrakota E)kaşı

7.Rəssam bəzən bir əşyada öz fikrini çatdıra bilməyəndə bir neçə əşyanı vahid kompozisiyada birləşdirərək adlandırır:

A)solo B)duet C)ansambl D)sekunda E)prima

8.Fikirlər bu dekorativ-tətbiqi sənət növünü aiddir:

a.məmulatları bilərəkdən əyri və əzilmiş formada olur

b.məmulatlar üzərində cızıq və çatlar qoyaraq göstərməyə çalışırlar

A)şüşə B)metal C)cecim D)keramika E)batika

9.Gildən hazırlanmış dulusçuluq məmulatları adlanır:

A)şüşə B)metal C)cecim D)keramika E)batika

Təsviri sənət fənninin tədrisində açıq sualları şagirdlərə verən zaman müəllim daha çox müqayisə tipli, məzmunu düşündürücü olan sual tipləri istifadə edə bilər. Bütün bu sualları təqdim edərkən müəllim mütləq gözləmə vaxtıda verməlidir. Fənnin tədrisini maraqlı etmək üçün şagirdlər bir-birlərinə suallar təqdim etməlidir. V sinif dərsliyində “Azərbaycan tikmələrində kompozisiya” mövzusunda şagirdlər tikmələrin fədi xüsusiyyətini, rəng həllini, müqayisələrini bir-birlərindən sual formasında soruşa bilərlər. Bu sual-cavab üsulu zehni inkişafı, müzakirə aparmaq bacarığını şagirdlərdə formalaşdırır.

Təsviri sənət fənninin tədrisi metodikasında həmçinin müəllim sualların cavablandırılmasında aşağıdakı strategiyalardan da istifadə edə bilər:
-Müəllim təsviri incəsənətdən mövzuları sual-cavab edərkən vaxta düzgün riayət etməlidir;
-məntiqi-yaradıcı suallara üstünlük verməlidir;
-sinifdə müstəqil tədqiqat yönümlü fikirlər formalaşdırmalıdır.
Hər bir fənnin tədrisində olduğu kimi sual-cavab prosesinin təsviri sənət fənninin tədrisindəki əhəmiyyəti şagirdlərdə estetik-yaradıcı düşüncələrə əsaslanmalıdır.

ƏDƏBİYYAT SİYAHISI:

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THE FIGHTING OF RELIGIOUS IDENTITY SYMBOLS AS A POLITICAL COMMUNICATION TOOL IN THE DIGITAL ERA

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Abstract

The era of digital society is a sign of the industrial revolution 4.0. In Indonesia, political contestation utilizes digital media. Candidates use New Media such us What's App, Twitter, Facebook and Instagram to gain sympathy and votes from the public. The year 2014 until now was the peak of the use of social media for political communication. This study aims to analyze the practice of symbolizing religious identity in political communication on New Media using a qualitative descriptive approach. There are 3 research objects from the implementation of political contestation in Indonesia, such us General Election 2014 in Indonesia, DKI Jakarta Regional Head Election 2017 and General Election 2019 in Indonesia. Data obtained through study literature and media documentation. Using Pierre Bourdieu's theory, mapped capital in four forms, namely economic, cultural, social, and symbolic. In Bourdieu's framework, cultural or religious capital is a strong enough condition to accumulate other capital. Because cultural or religious capital is the result of a long process of accumulation and has historical consequences that are difficult to avoid. Socio-Cultural Capital Religion is often the initial capital for candidates to advance in the election arena. The results showed that the intensity of the practice of using symbols of religious identity in the media was quite high. The religious symbols used are published in caption format, photos on social media, this practice is the development of power relations formulated with the presence of biopolitics. Biopolitics is an intrinsic element in the analysis of sovereignty and its role in regulating what constitutes a state of exclusion. Analysis of political communication based on "Symbolic Capital Connectivity" by touching the socio-religious and emotional space of voters, through political language such as politics #jokowicina, #jokowikristen, #prabowochina, #AhokKafir, #PenjarakanPenghinaAlQuran, which are found in new media. Identity Negotiation Construction to deal with stigma, labeling, and stereotypes as people outside the group who try to reject them from the arena of political competition. Discourse dissemination to the public is carried out strategically through new media. Generation Z and millennials who are digitally literate must understand fake news, hoaxes, and lies. Thus, the negative narrative about identity politics must be abandoned.

Keywords: Identity Politics, Symbols, Political Communication, New Media

INTRODUCTION

Elections are the ideas of John Locke who call democracy as the principle of freedom, justice and equality for every individual. In democracy there are sovereign values that are upheld, obeyed and carried out by every citizen and state instruments, namely state institutions that run the government. In the implementation of the general election, the community has the opportunity to play an active role and be part of the democratic process.(Locke, 1997)

Indonesia is a country that adheres to a democratic system. One form of democratic principles is reflected in the implementation of elections. Usually every election is held, each presidential candidate and vice-presidential candidate will intensively campaign to attract people's votes to vote for him. In fact, identity politics is often used as a tool to bring down opponents.(Kiftiyah, 2019)

The fall of the centralized New Order regime in Indonesia in 1998 marked the rise of identity politics. The new democracy began with the introduction of the Regional Autonomy system. This decentralized system opens up space for determining leaders in each region. The small "kings" in the area take a big role in determining the fate of their "people".(Syaf, 2017) The 2017 Jakarta Capital Special Region Head Election event has shown the decline of democracy in Indonesia. because there has been a practice of identity politics that threatens pluralism. The mobilization of identity politics that occurs can be seen from the high practice of politicizing ethnic, religious, and racial issues in political campaigns. This phenomenon shows that the politics of religion and race issues are important issues in the contestation.(Arung Triantoro, 2019). The research entitles Political Identity and Challenge for Democracy Consolidation in Indonesia shown that the emergence of the phenomenon of political identity will disrupt the future of democracy in Indonesia. Moreover, the actors who use political identity are carried out by several elites and civil society who incidentally are the main actors for the consolidation of democracy in Indonesia.(Romli, 2019) the research entitles How Political Identity Shapes Customer Satisfaction shown that the used of political identity and customer satisfaction are attenuated when trust in external free will is weakened, choices are limited, or the consumption experience is highly positive.(Fernandes et al., 2022) Research with the title Political Identity: Threats to the Unity and Unity of the Nation in the Pancasila State analyzes to maintain national unity, strategic thinking is needed from the state to manage national diversity, pluralism, and reorganize the dynamic relationship between Islam and Pancasila through strengthening state ideology and the spirit of nationalism more creatively and effectively. The state must be able to carry out its function actively in protecting and protecting the entire Indonesian nation.(Al-Farisi, 2018)

Identity politics doesn't just happen in Indonesia. Identity politics has become a concern in social science research. the dynamics of identity politics in the East Asia and Southeast Asia region which has ethnic and cultural diversity, so that it has the opportunity to raise political problem’s identity. Global politics will be marked by the rise of politics of civilization, domestic politics will bring up what he calls the rise of politics of ethnicity. Huntington stressed that the rise of ethnic politics will be felt by the 'country consisting of a diversity of nations, ethnic and racial differences, will become a source of new conflicts within the State.(Huntington, 1996) Identity politics is able to bring about tolerance and freedom, but also creates destructive patterns, verbal violence and ethnic conflicts. Two currents that have multiple definitions show that identity politics is not only bad for the survival of democracy, because Identity politics also works not only on election contestation but also works on social spaces and it creates a sense of mutual cooperation and tolerance among others.(Santoso, 2019)

This study aims to analyze the practice of symbolizing religious identity in political communication on New Media using a qualitative descriptive approach. There are 3 research objects from the implementation of political contestation in Indonesia, such us General Election 2014 in Indonesia, DKI Jakarta Regional Head Election 2017 and General Election 2019 in Indonesia. Data obtained through study literature and media documentation. Using Pierre Bourdieu's theory, mapped capital in four forms, namely economic, cultural, social, and symbolic.

LITERATURE REVIEW

Identity Politics

Identity politics as a political concept and movement whose focus is on differences as a major political category. After a major narrative fiasco, the idea of difference has promised a freedom, tolerance and free play, although then new threats emerge. The politics of difference has become a new name for identity politics. The emergence of ethnic politics begins with the growth of awareness that identifies them as belonging to a particular ethnic group or group. This awareness then gave rise to group and national solidarity. Ethnic politics refers to the politics of “ethnic groups” and “small minorities”, while the interpretation of ethnic groups may include ethnic nations. The identity politics movement basically rebuilds the "big narrative"' which they reject in principle and builds a theory that controls the biological factors that make up the basic differences as the reality of life. When power cannot be conquered and power sharing is not achieved as the goal of the movement, secession and self-exclusion are taken as a way out; The weakness of the identity politics movement is the attempt to create special groups.(Mach, 1993)

Cressida Heyes defines identity politics as a sign of political activity in a broader sense and theorization of the discovery of the experience of injustice experienced by members of certain social groups. Identity politics is considered important to further strengthen the 'self' as well as to attribute that 'others' are not important because they are not connected to 'authenticity', 'non-natives', 'not of the same religion', and so on. Identity politics is an effective way to massively mobilize those who are seen as aligned to achieve political and economic gains. Often used as a manipulator of consciousness in reaping electoral politics.(Heyes, 2007)

Biopolitics or biopower, as summarized by Foucault, is about the subjugation of the body and the control of society. It is a form of power that spreads through society as an effective tool in power relations for the normalization of social actions and behavior of the population. Biopolitical theory is an analytical framework that links biology and politics. Biopolitics sees society as an object of political calculation and a mechanism for disciplining with various instruments of power with race, ethnicity inherent in it as a controlling tool. (Foucault, 2008)

Political Communication

Talking about political communication, it leads understanding into two different concepts, communication and politics. Communication is the activity of delivering messages from source to receiver and politics is an activity to achieve a goal. Both communication and politics indicate the existence of processes and activities taking place in them (Yanuartha et al., 2022) . Communication and politics have something in common other than as a process and activity. Another similarity is the process of exchanging messages and there is a certain purpose. Mark Roelofs said that *Politics is talk, political activity is speaking activity. And Communication is political activity.*(Hoffert, 1975)

According to Meadow, Political communication consists of the exchange of symbols or messages that are part, consequences, and functions of the political system.(Meadow, 1985) In addition, Syarbaini and friends also stated that politics is a conversation by exchanging political symbols,(Syarbaini et al., 2021) Windlesham said that political communication a communication process that contains a political message and has a purpose, where the recipient will behave in a certain way. (Windlesham, 1973)So that the purpose of political communication according to Tabroni Political communication is closely related to political messages, namely to convey political information, form a political image, form public opinion, and can handle the opinions or accusations of political opponents, and can attract public sympathy to increase political participation in accordance with their interests.(Tabroni, 2012)

Bourdieu Theory

In the communication process, there is another important element, namely the use of media to convey political messages. Signal is a medium for conveying messages. The map can be a symbol. Language is a series of symbols, both verbal and nonverbal. Language can also be expressed in textual or contextual form. (De Saussure, 1959) Pierre Bourdieu said that structural linguistics is trapped in what he calls "linguistic illusions", that is, the view that language skills are evenly and precisely distributed among all individuals in the speaking community. In fact, language skills are never evenly distributed among individuals. On the other hand, structural linguistics prioritizes the analysis of abstract languages and thus ignores the concrete use of language as a means of seizing and exercising power. According to Bourdieu, what circulates in linguistic exchanges is not simply "language" solely in the sense of langue, but rather the practice of language or socially marked discourse, both in its production and in its acceptance.(Bourdieu, 1993) The map also changes from time to time. Especially in interpreting the map itself. In addition, the provision of delivery is also identified as hard-hitting. The interpretation of symbols as a language can also be seen from the medium itself. Marshall Mc Luhan said that "the medium is the message" (Mc Luhan & Fiore, 2005) which means a message can be interpreted through the medium itself. Media in this sense is dynamic depending on the development of the media itself.

In the history of human-to-human communication, (Christians et al., 2009) there are four main determining points, among others; Found Language (verbal & nonverbal) as a means of interaction; Found the Art of Writing/Drawing as the art of speaking with Language; Reproduction of Words written through printed means and eventually encouraged the birth of mass communication; and the Birth of Electronic Communication. From this determinant point, it can describe how humans develop, starting from being able to create communication with other people (using language and other visual symbols), interpreting the language (from the perception of himself and others), and how humans adapt to himself to nature, as well as creating and using tools/ technology to overcome his environment.

Everett M. Rogers suggests that there are four eras of communication: the Era of Writing, the Era of Print Media, the Era of Telecommunications Media and the Era of Interactive Communication Media the last era, new media connected to the internet was born. In Nasrullah it is mentioned that there are about eleven types of new media, including: websites (web sites), e-mails, bulletin boards, blogs, wikis, messaging applications, internet broadcasting, peer-to-peer, the RSS, MUDs and social media.

METHOD

This study aims to analyze the practice of symbolizing religious identity in political communication on New Media using a qualitative descriptive approach. There are 3 research objects from the implementation of political contestation in Indonesia, such us General Election 2014 in Indonesia (With presidential and vice-presidential candidates Joko Widodo-Jusuf Kalla and Prabowo Subianto-Hatta Rajasa), DKI Jakarta Regional Head Election 2017 (With with candidates for governor and deputy governor Agus Harimurti Yudhoyono-Sylviana Murni, Basuki Tjahaja Purnama-Djarot Saiful Hidayat and Anies Baswedan-Sandiaga Slahuddin Uno) and General Election 2019 in Indonesia (With presidential and vice-presidential candidates Joko Widodo-Ma'ruf Amin and Prabowo Subianto-Sandiaga Uno). Data obtained through study literature and media documentation. Using Pierre Bourdieu's theory, mapped capital in four forms, namely economic, cultural, social, and symbolic.

The method of thinking used is an inductive method, namely from data or facts to a higher level of representation. From the representation then analyzed and concluded as the answer to the problem. The author examines the phenomenon of identity politics in Indonesia and then analyzes it using evaluative and argumentative analysis techniques.

The evaluative analysis technique is an analytical technique that looks at the problems of various opinions related to the object of discussion, while the argumentative analysis technique is the author's argument to answer the problem by looking at the concepts and facts on the research object.(Paul Gee, 1999)

RESULT AND DISCUSSION

One of the processes of implementing political activities in Indonesia is general elections. As explained above that political activity includes political communication has certain goals to be achieved. Everything is done to achieve this goal. In general, political communication in elections aims so that the nominated political actors can be elected. The method can be in the form of image formation and/or dropping the opponent's image. Both to shape and destroy the opponent's image, one of them uses the issue of identity politics as a message. The message here will push to the stage of achieving the goals of political communication.

Judging from several aspects inherent in the political communication process, the following is the commodification of political identity as a political communication message using Bourdieu's theory on three elections in Indonesia.

Table 1. Commodification Of Political Identity in Elections Using Bourdieu's Theory

	General Election 2014	Jakarta Regional Head Election 2017	General Election 2019
Issue	Ethnic: Indigenous, non-Indigenous, Religion	Religion and Ethnic: Indigenous, non-Indigenous, Moslem, Non-Moslem	Religion: Moslem, Non-Moslem
Actors	political elite, candidate, campaign team	political elite, candidate, campaign team	political elite, candidate, campaign team, buzzer
Habitus	primordial	primordial	primordial
Capital	social, money	social, money	social, money
Field:	General Election of President and Vice President	General Election of Regional Heads of Governors and Deputy Governors	General Election of President and Vice President
Medium	web, social media	social media	social media

Source: was created by researchers

In the 2014 Indonesian presidential and vice-presidential elections, the political communication that took place here was based on aspects of Bourdieu's theory raising ethnic issues, namely natives, non-natives and religion. In this election, there were two pairs of presidential and vice-presidential candidates, namely Joko Widodo - M. Jusuf Kalla with the proposing parties including PDI-P, PKB, NasDem, Hanura and the one party supporting was PKPI. The second candidates, namely Prabowo Subianto-Hatta Rajasa with the proposing parties including Golkar, Gerindra, PAN, PKS, PPP, PBB and the supporting parties including the Demokrat and PA. The issues raised include: Jokowi-JK will appoint a minister of religion from a Shia Islamic group, Jokowi is accused of as a person non-muslim and ethnic Chinese, Ads appear the sorrow that declare Jokowi died with name Ir. Herbert Joko Widodo and if he wins will more defend group minority and not notice the interests of the people Muslim.

In the 2017 Jakarta Regional Head Election in Indonesia has various issues regarding conflict between people who carry religious identity (Moslem and non-Moslem). Manipulate a number of verses of the Qur'an, especially the popular one is Surah Al-Maidah verse 51 which some Muslims regard as "a prohibition from God to elect non-Muslim leaders. Playing religious and ethnic issues of Chinese descent to candidate Basuki Cahaya Purnama (Ahok). In this election, there were three candidates for Governor and Deputy Governor of DKI Jakarta, namely Agus Harimurti Yudhoyono (Democratic Party Cadre) - Sylviana Murni (Non-Party), with supporting parties including Democrats, PPP, PKB, PAN, and supporting parties including PMB, Labor, Pioneers, PKNU, PKDI, PPDI and Food Experts; the second candidates namely Basuki Tjahaja Purnama or Ahok (Non-Party)-Djarot Saiful Hidayat (PDI-P Cadre) with the proposing parties including PDI-P, Golkar, Hanura, NasDem and two supporting parties namely PKPI and PSI, and the third candidates namely Anies Baswedan (Non-Party) - Sandiaga Salahuddin Uno (Gerindra Party Cadre) with supporting parties including Gerindra and PKS as well as supporting parties namely PAN, Perindo and Idaman.

In the 2019 General Election in Indonesia, the politicization of religious symbols in online media in giving birth to presidential and vice-presidential candidates in the 2019 political contestation which led to the strengthening of hate politics. In this election, there were two pairs of presidential and vice-presidential candidates, namely Joko Widodo-Ma'ruf Amin with the proposing parties including PDI-P, Golkar, PKB, NasDem, PPP, Hanura, PKPI and with supporting parties including

Perindo, PSI and PBB. The second candidates namely Prabowo Subianto-Sandiaga S. Uno with proposing parties including Gerindra, Demokrat, PAN, PKS and with supporting Party Berkarya.

The following is a hashtag issue that is spreading on social media, Candidate 1: Jokowi PKI, Jokowi infidel, Jokowi China, Jokowi Chinese, Jokowi Christian, Jokowi Jew, Jokowi cheating, Jokowi fraud, Jokowi non-Muslim, Jokowi stooge, Jokowi foreign stooge, Jokowi bans call to prayer, Government Debt, China's debt toll road, Jokowi's Foreign Consultant, Jokowi legalizes adultery, Jokowi abolishes religious education, Jokowi legalizes same-sex marriage, Jokowi legalizes same-sex relationship, #jokowicurang, #jokowiPKI, #jokowikafir, #jokowichina, #jokowicina,N#jokowikristen, #jokowiaseng, #jokowiasing, #jokowicurang, #jokowipenipu, #Jokowiradikal

Candidate 2: Prabowo infidel, Prabowo China, Prabowo China, Prabowo Christian, Prabowo is Jewish, Prabowo is not Muslim, Prabowo is a faggot, Prabowo foreign stooges, Prabowo Khilafah, Prabowo HTI, Prabowo Radicals, Prabowo can't pray, Prabowo can't pray, Prabowo can't can pray, Prabowo can't recite the Koran, Prabowo can't recite the Koran, Prabowo cannot perform ablution, Prabowo cannot perform ablution, Prabowo is delusional, #prabowokafir, #prabowochina, #prabowocina, #prabowokristen, #prabowoyahudi, #prabowobukaislam, #prabowoaseng, #prabowoasing, #prabowokhilafah, #prabowoHTI, #praboworadikal.(Prasetyo, 2019), the issue is spread on social media, Twitter, Instagram. The following is evidence of religious and ethnic symbols being used as political tools on Twitter social media. The use of social media is dominated by generation z and millennials. Young people are valuable assets and are the target of political parties. This is because Generation Z and Millennial Generation are their own strengths that must be won in election contestations, whether in the election of state leaders, regional heads, or when choosing people's representatives. So, that the use of social media as a political communication tool is still used.(Zachara, 2020)

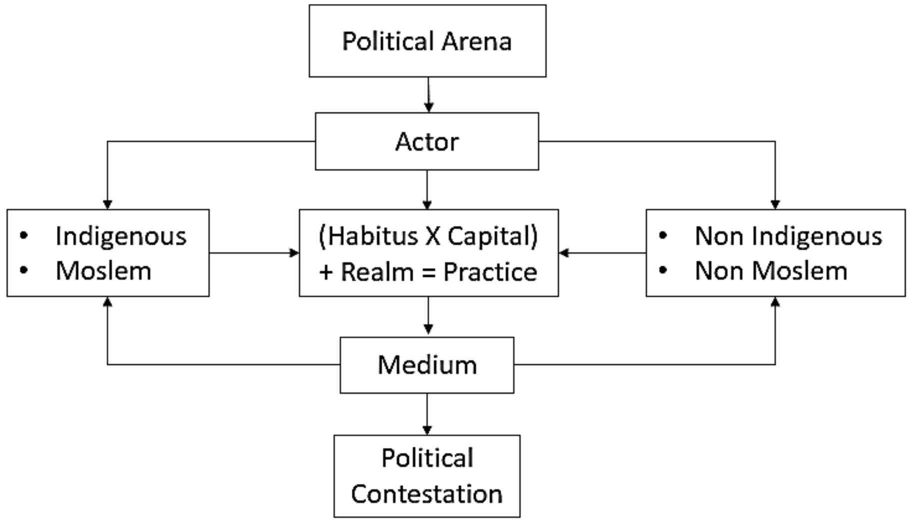
Picture 1. Religious and Ethnic Symbols Being Used as Political Tools on Twitter social media

Source: Twitter

Identity politics in Indonesia has various issues regarding conflict between people who carry nationalist identity and people who carry religious identity. In this issue a truth claim arises between the two regarding the superiority or exclusivism of each identity. Efforts need to be made to overcome social inequality in democratic life, namely through the reconstruction of political discourse, from idea-based politics to presence-based politics. The politics of presence is a political strategy that presents representatives of ethnic, religious, and ethnic identities of minorities and the majority so that they can appear together on the stage of democracy and government. Representatives of minority groups aim to bring out the aspirations of minority groups, so as to create social and political stability. However, on the other hand, presence-based politics tends to lead to identity politics because they no longer carry a common mission, but instead represent the flag of their respective ethnicity.

Instrument that should bind and process politics identity is a political party, the level of people's trust that continues to decline in this democratic institution should be processed into a new kind of branding to be more substantive in campaigns, programs and ideology in political communication. In the regional head election contestation in Jakarta there was a very strong identity political sentiment, where the natives specialized and rejected non-natives, this is related to when power cannot be conquered and power sharing is not achieved as the goal of the movement, secession, and self-exclusion are taken as a way out to bring down the other candidate pairs. While the positive thing that can be taken from identity politics is that there are efforts to continue to preserve the cultural values that characterize the group concerned so that the strengthening of culture will not fade and disappear. The strengthening of this identity arises when the identity that is conceptualized to accommodate it is felt to be unable to represent these groups. The strength of these groups also creates tension between groups to gain dominance from a concept to be built. The following is a figure of the use of symbols in elections.

Figure 1. The Use of Symbols in Elections



Source: was created by researchers

CONCLUSION

In political contestation, actors do everything they can to get votes. The issue of symbol identity in the struggle has become an interesting issue in Indonesia that is used in order to achieve the goal of political communication. Indonesian society is classified as a primordial society that is very sensitive, especially religious and ethnic issues. Thus, this issue is raised to be able to bring down political opponents and win the election. This identity symbol is distributed using digital media, where this media is connected to the internet which can spread political messages widely without limits. The emergence of identity politics in the very diverse political dynamics in Indonesia cannot be separated from the sense of injustice and equal rights claimed by each particular social group or class. In addition, differences that are the main benchmarks of diversity in Indonesia make identity politics in Indonesia increasingly emphasize these differences. Ignoring conflicts that are motivated by diverse identity politics will create state instability.

The results showed that the intensity of the practice of using symbols of religious identity in the media was quite high. The religious symbols used are published in caption format, photos on social media, this practice is the development of power relations formulated with the presence of biopolitics. Biopolitics is an intrinsic element in the analysis of sovereignty and its role in regulating what constitutes a state of exclusion. Analysis of political communication based on "Symbolic Capital Connectivity" by touching the socio-religious and emotional space of voters, through political language such as politics #jokowicina, #jokowikristen, #prabowochina, #AhokKafir, #PenjarakanPenghinaAlQuran, which are found in new media. Identity Negotiation Construction to deal with stigma, labeling, and stereotypes as people outside the group who try to reject them from the arena of political competition. Discourse dissemination to the public is carried out strategically through new media. Generation Z and millennials who are digitally literate must understand fake news, hoaxes, and lies. Thus, the negative narrative about identity politics must be abandoned.

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Gender-Based Anti-Corruption Model: A Sociological Perspective with an Emphasis on Education

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Abstract

The active participation of women in combating corruption may not yield significant efficacy in Indonesia due to entrenched issues within its political landscape. The nexus between female politicians and corruption is deeply embedded within an oligarchic framework characterized by patronage and clientelism. Women ascending to political positions are typically closely associated with established political dynasties. This study endeavors to construct a Gender-Based Anti-Corruption Model through a Sociological and Educational Lens. Employing a descriptive-analytical research approach, our findings underscore the potential of synergies among actors (comprising human, spiritual, and social capital), systems, and structures in fostering anti-corruption behaviors among individuals. Moreover, the educational aspect is essential in raising awareness and shaping values that promote integrity and transparency. Consequently, the gender dimension emerges merely as a societal stereotype contributing to the perpetuation of corrupt practices, with education playing a pivotal role in dismantling these stereotypes and reinforcing anti-corruption efforts.

Keywords: Educational Aspect, Gender, Anti-Corruption Model, Sociological Perspective

1. INTRODUCTION

The level of corruption in Indonesia is still relatively high. This can be seen from Indonesia's position which is not far from the position of a corrupt country as measured by the Corruption Perceptions Index calculated by Transparency International (TI) [1]. Corruption is very close to the position a person has, the higher a person's position, the more power he has to do something, including corruption. The perpetrators of corruption have various motives, including greed, opportunities, needs and exposures [2]. A person's motive for committing corruption is not only to gain power or material gain, but social status as well [3]. The issue of gender equality and corruption is an issue that often occurs in various countries in the world [4]. In addition to the involvement of women, the context of a democratic political system is theoretically also considered as an obstacle to the development of corrupt behavior, the assumption is that the more democratic a country is, the lower the corrupt behavior will be [5]. Theoretically, women's involvement in politics is believed to be a strategy that is quite powerful in preventing corruption. Academic writings that have appeared since the late 90's tend to build the belief that women are cleaner in terms of behavior corruption than men. This belief is based one of them on moral considerations, which consider women to have moral character, standards of ethical behavior and a better level of care than men [6].

Women are always associated with gender issues that differentiate between women and men. Gender refers to the social and cultural differences between men and women (as opposed to sex which emphasizes the biological, and therefore irreversible, differences between men and women) [7]. Therefore, gender is a social construct that is usually based on stereotypes about feminine and masculine behavior [8]. This difference strengthens the position of women who are always below men in every way [9]. For example, women in Javanese culture. There are several Javanese philosophies such as woman, *wadon, estri,* and *putri*. Woman comes from the Javanese language, *wani* and *tata*, there are two meanings [10]. *Wadon* comes from the *Kawi Language*, *wadu* which means servant where women are entrusted in this world as male servants. *Estri* comes from Kawi estren which means pusher, as the saying goes, a great woman beside a great man [11]. *Putri* is an acronym for breaking up *tri prekawis* or the three obligations of women, which include their obligations as women, *wadon*, and wife. These terms attached to women either directly or indirectly reinforce their role beside men [12]. Although in the sense of being brave to regulate the term woman, other terms reinforce that women have a position next to men and are not better than men [13]. A good woman is a "princess" who carries out three obligations to be governed by men, male servants, and male companions. The differences formed in such a way then result in the division of roles between women and men [14]. There are two different sectors, namely the public sector as the male area and the domestic sector as the female area [15]. From an early age, girls are socialized to act gently, not aggressively, delicately, dependently, passively, and not decision makers. On the other hand, men are socialized as aggressive, active, independent, decision-makers, and dominant. This characteristic has broad implications that reflect the position of more subordinate women, while men are more superior [16]. In addition, men are attached to actions that connote hard and aggressive and are allowed to become a public ruling group while women are in the domestic sector. Things like this prove that there are different gender roles between them [17]. Because of this, women's movements emerged that tried to fight this injustice [18].

The women's movement to be “freed” from the shackles of gender differences reaped results that did not disappoint. The involvement of women in the public sphere is a tangible result that can be seen physically as the embodiment of women's active role in the realm that has been closed to them. Examples of women's active role in the public sphere include several Western countries such as England led by Queen Elizabeth II, Germany with Angela Merkel as Chancellor, and South Korea which was once led by female president Park Geun-hye [19]. In Indonesia, R.A. Kartini fought for education for women during the colonial era [20]. Megawati Soekarno Putri served as the first female president in Indonesia in 2001-2004 [21], and in 2015 the appointment of nine women by President Joko Widodo as the Selection Committee for the selection of KPK (Commission of corruption Eradication) leaders [22]. The political world is a masculine public world. The world of politics is full of reflections of characters that are firm and straightforward, independent, rational, and capable of making decisions are attached to men, therefore, the political sphere is dominated by men. The nine heroines consisting of Destry Damayanti, Enny Nurbaningsih, Meuthia Ganie Rochman, Betti S. Alisjahbana, Yenti Garnasih, Supra Wimbarti, Natalia Subagyo, Diani Sadiawati, and Harkristuti Harkrisnowo were the determinants for selecting candidates for leaders of corruption eradication agencies in Indonesia in 2015 [23]. Of the nine members of this team, they have higher education backgrounds and expertise in different fields with central roles in each field, namely as main director, chairperson, or dean of faculties at a university. These examples are evidence that the barrier that separated the roles of women and men in the public sphere has begun to break down. Then based on this example the question also arises whether women tend to be less corrupt than men? so that President Joko Widodo entrusted the election of the head of the Anti-Corruption Commission to an independent team of cell committees who were all women in 2015.

If the hypothesis from the question is correct, women tend to be less corrupt than men. However, if you look at other realities, it shows that several women are involved in corruption cases. Is this hypothesis still relevant? The involvement of several women in corruption cases, including Sri Mulyani (Century case) [24], Nunun Nurbaeti and Miranda Goeltom (travelers check case), Wa Ode N. (case of accelerating regional infrastructure development), Angelina Sondakh, Mindorosalina M, Yulianis (Hambalang case), and Athiyah Laila and Hartati Murdaya (bribery case) [25]. Another example is the involvement of the Banten regent Ratu Atut in 2013 in a money laundering case which then involved his sister [26] and Karanganyar regent Rina Iriani in a housing project subsidy corruption case [27]. Therefore, this article discusses gender in corruption. The discussion will use literature studies by presenting several views and studies on women and politics with the specifications of existing acts of corruption. as well as creating a Gender-Based Anti-Corruption Model: A Sociological Perspective with an Emphasis on Education.

There have been many studies that examine women and corruption and examine the role of women in the context of eradicating corruption. Many have also studied the role of women in the context of eradicating corruption. As is the case with Kencono and Wardhana's research on women's tendency to engage in corruption in terms of leadership style, politics, religion, psychology, and culture [28]. In addition, there are also narrative reports from the Indonesian Women's Coalition for Justice and Democracy and UNODC regarding the knowledge and role of women in eradicating corruption [29]. Based on the research and report, show that the results of Kencono and Wardhana's research have answered the question of whether women tend to be less corrupt than men. The result is that women tend to be less corrupt than men and women have a stake in preventing and eradicating corruption. Based on the research by Chandan Kumar Jha and Sudipta Sarangi, has examined what roles women have in corruption by focusing on women's labor force participation and their presence in parliament. Provides strong evidence that the presence of women in parliament has a causal and negative impact on corruption [30]. Based on research conducted by Anand Swamy et al women are less involved in bribery and less likely to consent to accept bribes. Data across countries shows that corruption is less severe when women hold more parliamentary seats and senior positions in government [31]. Based on research by Mahmoud Salari et al increasing the share of women in parliament reduces the level of corruption in natural resources. The results have important implications for policymakers to increase the share of women in parliament [32]. Based on research by Monika Bauhr et al, shows that women and men have different perceptions of need vs greed and that women perceive corruption more as a need, while men perceive more corruption as greed [33]. According to research by David Dollard et al, the greater the representation of women in parliament, the lower the level of corruption [34]. Based on research by Cassandra E. DiRienzo et al., shows that a greater percentage of women in political power correlates with lower corruption [35]. According to Anne Marie Goetz, it shows that the nature of gender access from politics and public life forms opportunities for corruption. In addition, corruption can be experienced differently by women and men, who have implications for anti-corruption strategies [36].

Gender refers to the social and cultural differences between men and women (as opposed to sex which emphasizes the biological, and therefore irreversible, differences between men and women). Gender is therefore a social construct, usually based on stereotypes about feminine and masculine behavior. Feminists typically emphasize this distinction to show that physical or biological differences (sexual differences) do not mean that women and men must differ in sexual roles and positions (gender differences).

2. METHOD

This article uses a descriptive-analytical research method. This study conducted a literature study to collect various data and information. The information and data collected are in the form of corruption data through journals, books, publications of related institutions, and news articles which are then studied from a sociological perspective and theory. collect previous research and see the results of previous research and relevant articles. The author makes a summary that has linked the results of one study to another to conclude to increase understanding of the phenomenon.

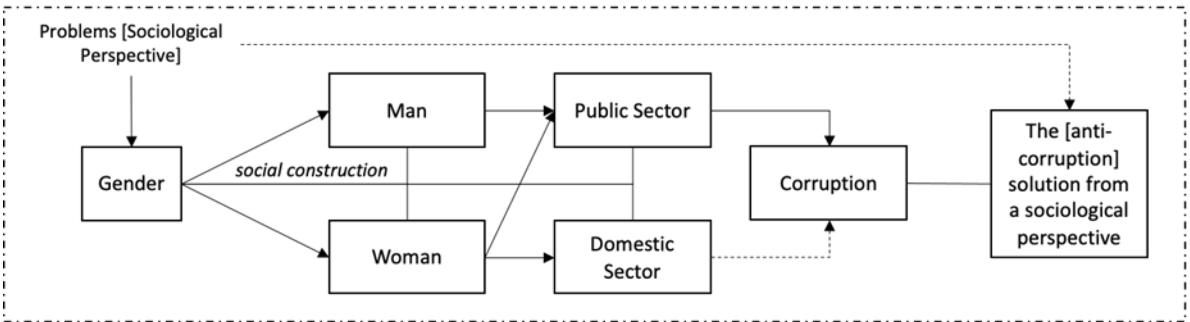

Figure 1. Theoretical Framework

Source: it was developed by the author

3. RESULTS AND DISCUSSION

The discussion about women becomes an interesting and sensitive topic if it is always associated with gender differences. The distinction of the role that is built socially, that is, women are always in addition to men have become their own identity attached to them. Guided by the identity inherent in women reflecting the position of women who are more subordinate to the role in their domestic sector. While men are superior in their role as public rulers. However, along with the times in various fields, starting with many women try to get out of their domestic zone to play an active role in the masculine world which has been considered incompatible for women. The proof has a lot of feminist movements that fight for liberation, rights, and equality for women. Other evidence is the emergence of women who have a central and important position in the public sector, for example in the political field. Whether the woman is the leader of a country, minister, or other strategic position [37]. The identity of the female gender is very diverse. The identity can include social class, ideology, political affiliation, education, access to resources, interests, and others. so there is a relationship between corruption and women [38]. During this time the political world is always inherent in men, so the discussion of this corruption. Not only that, the role of women who began to explore the world is also always associated with corruption, both their role as subjects and objects of corruption. Based on the results of several previous studies show that the tendency of women are no more corrupt than men by looking at the style of leadership, politics, religion, psychology, and culture. In addition, there are opinions about women who can be victims or perpetrators of corruption. The interesting thing is the position of the woman who is always in the realm of gray and is often blamed for the role that exists in her. For example, women are identified as having an important role in preventing corruption in the family. However, women because of their role in the family are also often considered a driving force for corruption.

Women with their hedonic nature who want to always live "beautiful", encourage men to commit acts of corruption. Even though the "beautiful" identity is also the impact of the stereotype formed in the social order since ancient times. Another example is when many women who serve in strategic sectors become victims of a corrupt system. Initially, women were recognized as having the same intellectual as even more men so they were allowed to sit in high seats, but instead, women also often entered and were trapped in the circle of corruption. Another piece of evidence is the involvement of the mass media in every report that presents the involvement of women in corruption cases. This news raises the same female stereotype as men in terms of corruption. In addition, there is still doubt among certain communities whether women are ready and able to carry out their functions and roles in the political arena. Finally, women at this time have shown their existence in terms of eradicating corruption, because of the roles that are played by women who encourage women to be as corrupt as men.

The first wave of feminism (which emerged in the mid-19th century to the 1960s) attempted to achieve gender equality in jurisdictions and political rights, especially the right to vote. Second-wave feminism (which appeared in the 1960s and 1970s) focused more radically on women's escapades, encompassing, and perhaps especially, the private sphere. The first “classic” attack on politicians stresses the relationship between power and corruption, most famously expressed in Lord Acton: “Power tends to corrupt; and absolute, absolutely corrupt. Gender as the difference between women and men based on social construction is reflected in social life that begins with the family. From an early age, girls are socialized to act gently, not aggressively, delicately, dependently, passively, and not decision makers. On the other hand, men are socialized as aggressive, active, independent, decision-makers, and dominant. Social control over women is much tighter than that of men. This characteristic is so strongly internalized that it is considered something that is taken for granted and carries broad implications that reflect the position of more subordinate women, while men are superior. Characteristics that lead to violent and aggressive connotations are attached to men; they are also allowed to become a group of public authorities while women are in the domestic sector. This proves that there are different gender roles between them. The dominance of men in the family is not limited to social power and control, but men's access to resources enters the public sector as a male domain. Regardless of the stigma of Indonesian women's identity that has long been formed in society, corrupt attitudes and behavior have become one of the "burdens" those women have to bear again. Even though women are still not free from discrimination, work feminization, and cultural constraints, women have consistently proven that their existence in the public sphere still exists and is needed. But previously, corruption itself when viewed from a sociological point of view was formed from several things. The following is an explanatory chart of the framework analysis:

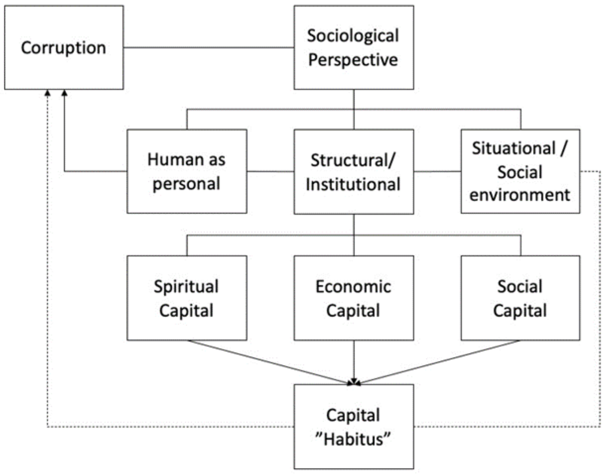

Figure 2. Chart of the Framework Analysis

Source: it was developed by the author

Power and corruption spring naturally from liberal assumptions about human nature. Humans are, first and foremost, individuals who tend to put their interests before those of others. Egoism plus power equals corruption. According to Acton's logic, corruption will increase when the scope of power of a politician is getting bigger. This analysis suggests that all politicians, and especially political leaders, cannot be trusted and that government, as Thomas Paine argues, is a necessary evil.

The fading of bonds in social capital is often caused by a decrease in existing trust values. Regarding corrupt behavior, it can be analyzed that trust is associated with corruption in such a way that people who are supposed to be trustworthy can misuse the trust given to them by engaging in corruption. Social capital, especially the element of trust, forms the basis of whether a person will become corrupt or not. If someone uses trust correctly and appropriately, they will not easily violate values and morals, because corruption is an immoral behavior, so they will not engage in corruption. Therefore, someone who does not abuse their authority with corrupt behavior will increase the level of trust they receive or are given.

3.1 Human as personal

Human Moralis

Talking about morality cannot be separated from its inherent subject and object, namely the human individual. Each characteristic can influence how moral decisions will be taken. Not only individual characteristics but also institutional characteristics and how each interacts are also factors that influence moral decisions. More deeply, there is a fact that the market system has the potential to reduce the moral behavior of different individuals [39]. Humans or individuals tend to choose in the form of a combination of selfishness and morality. Humans like this are called homo moralis and are like spectrum waves, at one end it is homo oeconomicus (effort for reward) and at the other end, it is homo antisepsis (doing the right thing) [40]. Homo moralists consider the most important value to be doing the right thing. As said before, at the other end of the spectrum on the continuum is Homo economicus, which represents individuals who wish to maximize their profits [41]. So, balance is needed, and homo donors are the main foundation of morality. This was revealed by Mauss, the balance of morality requires a combination of obligations and freedoms. In fact, in each individual's morality, there is spontaneous morality (biological, instinct, reflex) and morality of giving. And then how each individual plays out this morality respectively [42].

The foundation of morality is values, where each individual has their own set of values created to guide their thoughts and actions. Each person acquires values from their closest relatives since birth, values about what is considered good or bad, important or unimportant, right or wrong. Values can change due to changes in the individual themselves or external factors. Changes in values can alter an individual's morality, making it not permanent but subject to change. This is also conveyed by Yuhasnil that values can be reflected in the way people think, problem-solve, use resources, and manage human resources [43].

Human Venalis

Homo venalis refers to any individual who violates moral values or is called immoral. However, the focus point here is that society is indirectly and consciously cultivating corruption. That is why corruption is not a product of culture. Materialism, opportunity, rigid bureaucracy, individualism, and weak social control make every individual commit corruption unconsciously [44]. Corruption is often committed by individuals without realizing that they are violating moral principles, as the methods of corruption are difficult to distinguish from fees or honoraria. Individuals use their rationality as human beings to justify their actions, rather than seeking the truth. If this justification occurs collectively, then immoral behavior is judged as moral according to the justification of those who engage in such behavior. Violations of morality by individuals and followed by others, such as corruption, are then referred to as a culture of corruption. The concept of a culture of corruption is an immoral concept that should not be adopted as a culture, as culture is a good thing, while corruption is not. Therefore, the terms culture and corruption cannot be combined into one concept of a culture of corruption. As venal beings, humans must have individual morals that truly reflect the correct definition of morality.

Human Homoludan

Humans as Homo Ludens. Homo ludens means, "humans as creatures who like to play games". All human actions are framed in "game" activities. This "gaming" activity becomes dangerous if it is carried out in the realm of government which is closely related to power. Like the corruptors who already have property abundant but still commit acts of corruption. This phenomenon can be explained through the perspective of homo ludens. The main orientation of these actors is not money or wealth anymore, but rather a "challenge" to try out the system: "Will I be caught or not?". In other words, these corruptors can be said to be "playing with power". According to Weber, the bureaucratic system must be impersonal and unemotional, outside the individual and away from him. This is because, if the system is not separated from the individual, even attached to the individual, various abuses of authority can occur. This is due to the tendency of individuals to identify themselves as the system itself. So, what they do seems to represent that system. Therefore, every state institution must work based on the law. Any form of action or activity outside laws, SOPs, can be stated as deviations that can be assumed to corrupt behavior [45]

3.2 Structural/Institutional

Sociologist S. Andreski expresses the term kleptocracy which refers to a country dominated by kleptocrats. Kleptorkat is a bureaucrat or politician who uses his power to commit corruption for his interests. This country is called a kleptocracy [46]. That is why, the social structure has an important role in preventing corruption both on a micro and macro scale. Susan Rose-Ackerman argues that an independent anti-corruption body is a popular reform proposal in developing countries [47]. After struggling to get out of the New Order era led by President Soeharto, towards a reform government, in 2003 an independent anti-corruption agency was formed in Indonesia under the name of the Corruption Eradication Commission (KPK). The Corruption Eradication Commission is a formal state institution formed under Law Number 30 of 2002, which is mandated to eradicate corruption in Indonesia [48].

Looking back at Indonesia's history, it cannot be separated from neo-patrimonialism. Neopatrimonialism which is rooted in Indonesia is influenced by the concepts of democratization and decentralization [49]. Neopatrimonialism comes from the Latin *Patrimoni* which means inheritance from the ancestors [50]. The corruption of power is neopatrimonialism itself [51]. In looking at the changing nature of neo-patrimonialism in Indonesia, Nina Korte uses the system developed by Bratton and Van de Walle, which focuses on several dimensions. The dimensions include (1) concentration of power (2) systematic clientelism and (3) particularistic use of state resources [49]. The following is a table that describes the results of Nina Korte's research on changes like neo-patrimonialism in the two eras that took place (the New Order era and the Reform era) in Indonesia:

Dimensions	Orde Baru (The Era of President Soeharto)	Post-Reformasi (1998-present)
Concentration of Power	– Dominant executive power holders – Legislative power holders are only symbolic – Principles (come, sit, stay, get money) – Dominant political party (GOLKAR) and military power	– Executive power holders are strong but controlled – Legislative power holders (the People's Representative Council and the Regional Representatives Council) are back active and strong – Decentralization
Systematic Clientalism	– Nepotism occurs both in the political and economic fields – Bureaucracy is a place to provide work for cronies, family, and close friends	– All the press after Suharto faced challenges in strengthening the legislature – The role of the military is reduced – Political parties increased – The appointment of state officials is carried out in the

Dimensions	Orde Baru (The Era of President Soeharto)	Post-Reformasi (1998-present)
		democratic practice of general elections – Practices of nepotism and collusion are still found.
Particularistic Use	– Military, politics, bureaucracy, and business become one so that they are centralized in the center.	– Due to the emergence of decentralization, corruption which previously tended to be centered in the central area, but contemporary continues to expand to the regions.

Source: [49]

One of the solutions to reduce and combat corruption as a global disease is the establishment of an agency that deals with this problem. This policy has been a top priority since 1990, such as in Hong Kong by establishing the Independent Commission Against Corruption (ICAC) and in the United States with the United Nations Office for Drugs and Crime Anti-Corruption Toolkit. As one of the anti-corruption agencies formed, ICAC is considered to be the most effective body in the world, both in structure and in practice. Thus, ICAC is a reference for other countries to study corruption prevention agencies. The thing that needs to be considered is when a country (political development in geographical connotations) adopts systems and or methods in developed countries, especially anti-corruption agencies, they must adapt to the social conditions of that country. Not all models adopted will be successfully implemented. Such as the existence of independent anti-corruption bodies but the lack of political support from both the state and society [52]. In Indonesia itself, there is already an agency that deals with corruption issues, namely the Corruption Eradication Commission (KPK). Apart from that, there is an independent body that is also intense and concerned with corruption activities, namely the Indonesia Corruption Watch (ICW). In addition, based on recommendations from research results entitled Building Anti-Corruption Characteristics by Using the Pentahelix Approach Model at Children's Forum in Indonesia, collaboration from several parties is needed to build anti-corruption characters for the younger generation which will later become the main pillars of a country. These parties include the government (KPK), academia (Student Organizations), the private sector, the media, and the community (ICW and Children's Forum) [53].

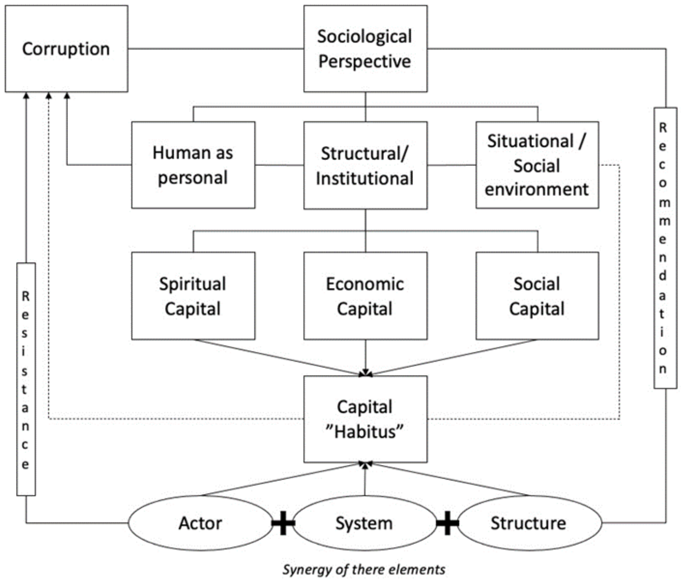

Figure 3. Chart of the Result Analysis

Source: it was developed by the author

In the article Political Jargon Impartiality towards Women in Indonesia by Rosida Tiurma Manurung, it was explained that women are only used as political tools or accessories to make them look glamorous. In parliament, women are only limited to displays to show the existence of women's representation because they are only limited to fulfilling the quorum in voting [54].

4. CONCLUSION

Discussion of women becomes an interesting and sensitive topic if it is always associated with gender differences. The existence of socially constructed role differentiation where women are always beside men has become a separate identity attached to it. Guided by the identities inherent in women, it reflects the position of women who are more subordinate to their roles in the domestic sector, while men are more superior to their roles as public authorities. However, along with the times in various fields, many women are starting to try to get out of their domestic zone to play a more active role in the masculine world which so far has been considered unsuitable for women. The proof has been many feminist movements fighting for liberation, rights, and equality for women.

The reality of women's involvement, which tends to be less corrupt than men, is missed. Regardless of the social construction that you want to build, women are also human beings who have natural characteristics. It is said that humans include homo moralis, venal, and hooligan, where these characteristics intentionally or unintentionally encourage acts of corruption. In addition, the system that has been formed also supports a person and a group of people to commit acts of corruption. For example, political dynasties have occurred in several regions in Indonesia. Social capital, cultural capital, and economic capital that are already owned by someone make a supporting factor for a system to continue to perpetuate acts of corruption.

In Indonesia itself, there are institutions both managed by the government - the Corruption Eradication Commission (KPK) and an independent institution - the Indonesian Corruption Watch (ICW) whose job is to reduce criminal acts of corruption. However, if humans as actors do not have awareness and just allow acts of corruption to occur, then it can be said that it is useless to have strong institutions if humans do not want to change. This bad habit needs to be straightened out and improved to strengthen the existing institutional structure. This synergy between actors, systems, and structures can open up opportunities to inculcate anti-corruption habits in individual human beings. Furthermore, if this habit becomes the root of every human attitude and behavior and in the wider context of society in a country, it will distance the country from the predicate of kleptocracy. Gender equality is based on the belief that gender differences have no social or political influence

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Educating for Sustainability: A Map of the Interconnections Between Education, Health, Legislation and Sustainable Entrepreneurship

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Abstract

The aim of this study is to analyze the interconnections between education, health, legislation and entrepreneurship in the context of sustainability, identifying the main categories and the relationships between them in order to understand how education can act as a catalyst in promoting sustainable practices in different sectors. This article carries out a qualitative analysis of the themes addressed at the II International Conference on Education and Sustainability - 2024, exploring how education, health, legislation and entrepreneurship interconnect to promote sustainable practices.

Based on the content analysis of the articles presented, five main categories were identified: environmental education and sustainability, health and sustainability, sustainable entrepreneurship, sustainable legislation and community development. Based on the triangulation between the empirical results, the literature and the keywords, the study reveals how environmental education is positioned as a central core, directly influencing the other areas. The findings highlight that integrated educational policies can boost responsible practices in health and entrepreneurship and that appropriate legislation reinforces the application of sustainable principles. It is concluded that education has a strategic role to play as a catalyst for sustainable change, and future studies suggest the implementation of integrated curricula that articulate these themes in a practical and interdisciplinary way.

Keywords: Environmental Education, Sustainable Entrepreneurship, Sustainable Legislation, Health, Community Development.

1. Introduction

This article contains detailed information about the 2nd International Conference on Education and Sustainability - 2024 (GCES2024), held by the Global Edu Leaders Forum, which addressed the challenges of education and sustainability and their relationship with sustainable legislation, health, entrepreneurship and smart cities. The conference also discussed the transformative role of education in sustainable practices and the integration of sustainability principles into curricula in various areas, such as law, health and urban planning.

Through content analysis of the articles on education and sustainability, a diversity of approaches can be seen, each exploring the impact of education on sustainable practices and the influence of specific disciplines on the development of environmentally responsible attitudes. In this context, the II International Conference on Education and Sustainability - 2024 presents a set of international studies that address sustainable challenges and solutions, allowing for an interdisciplinary understanding of educational efforts aimed at sustainable development. This research seeks to identify the main thematic categories of the conference papers, analyze their interconnections and propose a graphic model that visually represents the keywords and the density of relationships between the papers.

Sterling 2001, explores education for sustainability as a transformative process, central to the development of sustainable practices and attitudes. Tilbury, (2011), highlights how education can influence sustainable practices by addressing ecological and social issues. UNESCO (2005) describes the pillars and importance of education for sustainability at a global level. Nicolescu, (2002), presents interdisciplinarity and transdisciplinarity, emphasizing the importance of an integrated approach, especially relevant for sustainability education.

Klein, (1990), analyzes the role of interdisciplinarity in the construction of knowledge, which is essential for sustainable educational approaches that integrate various disciplines. Sachs, (2008) explores the different dimensions of sustainable development (social, environmental and economic) and their interrelationships, and is a theoretical basis for discussing the integration of these dimensions in education. Brundtland, (1987) is fundamental to the definition of sustainable development and serves as a basis for understanding sustainability in the educational context.

The need to prepare future generations to face complex environmental and social challenges requires education to play a transformative role. The articles analyzed seek precisely to understand how the various areas of knowledge, such as health, entrepreneurship and legislation, can be integrated in order to promote a culture of sustainability. This qualitative analysis of the conference papers will make it possible to identify patterns, relationships and gaps in the current literature, contributing to new sustainable educational practices.

In order to structure the qualitative content analysis of the articles in the conference book, a rigorous methodology was followed to organize and extract the relevant information, identifying the main categories and articulating how they interrelate. In addition to this introduction, the theoretical framework, methodology, discussion of the results (triangulation with theory) and final considerations are presented.

2. THEORETICAL FRAMEWORK

This section aims to present the main conceptual foundations that support the research, addressing fundamental themes such as environmental education, sustainable legislation, and entrepreneurship. These concepts will be explored to understand their interrelationships and impacts on community development and the promotion of sustainability. Through this analysis, the goal is to provide a solid context for the subsequent discussions.

2.1 Environmental Education

Environmental education has emerged as a response to the environmental crises that threaten the quality of life and biodiversity on the planet, and is considered an essential tool for developing ecological and sustainable awareness. According to Sterling (2001), environmental education should be transformative, promoting a reconnection between the individual and nature and encouraging attitudes that can prevent and mitigate negative environmental impacts.

This educational approach goes beyond transmitting knowledge about ecology and proposes a change in students' attitudes and values, which is fundamental for an education that meets the needs of a sustainable future. As Sauvé (2005) suggests, environmental education should instill a sense of responsibility and practical action in individuals, preparing them to be active agents in preserving and caring for the environment.

From Tilbury's perspective (1995), environmental education is strongly linked to the concept of “ecological literacy”, which aims to enable citizens to understand the complex interactions between natural and social systems. This literacy is seen as necessary for people to understand the consequences of their actions and make more informed and responsible decisions.

Hungerford and Volk (1990) complement this view by suggesting that the main objective of environmental education is to develop pro-environmental behavior, promoting sustainable attitudes and practices based on solid knowledge about ecosystems, anthropogenic impacts and practical solutions. The authors emphasize that environmental education should be integrated into the school curriculum in a practical way, allowing students to apply the knowledge they acquire to real actions.

For environmental education to be effective, it needs to be integrated in an interdisciplinary and contextualized way, connecting with other areas of knowledge and students' everyday experience. Nicolescu (2002) argues that environmental education should be transdisciplinary, i.e. incorporate different perspectives and areas of knowledge to address the complexity of environmental issues in a complete and holistic way.

This interdisciplinary approach is crucial for students to understand the global challenges of sustainability and the impacts that local decisions can have on the environment. Leff (2001) reinforces this idea, stating that environmental education should encourage the formation of critical and systemic thinking, enabling students to understand the interdependence between human beings and the environment and to reflect on the consequences of their actions on a global scale.

2.2 Sustainable entrepreneurship

Sustainable entrepreneurship is an innovative and transformative approach to business that integrates environmental, social and economic considerations into a company's core mission and operations. This growing field recognizes that traditional business practices often prioritize profit maximization over ecological integrity and social equity, leading to detrimental impacts on the planet and marginalized communities. As a response to these challenges, sustainable entrepreneurship seeks to create value not only for shareholders, but also social businesses that generate socio-environmental value and financial sustainability. Gonçalves, (2020).

These businesses thrive with the dual objective of generating socio-environmental value while ensuring their economic viability. This concept is particularly relevant in today's world, where many communities face pressing social challenges such as poverty, lack of access to education and environmental degradation services. As traditional models of philanthropy and corporate social responsibility evolve, social businesses present innovative solutions that not only address these pressing issues, but also empower communities to become self-sufficient.

Social businesses operate at the intersection of social impact and market principles, Araújo, (2024).

2.3 Sustainable Legislation

In a contemporary scenario marked by growing environmental crises, sustainable legislation has emerged as an essential mechanism for promoting ecological balance, fostering social equity and ensuring economic viability. Defined as laws and regulations that seek to promote practices that benefit the environment, society and the economy, sustainable legislation aims to create structures that prioritize long-term sustainability over short-term gains. The importance of such legislation cannot be overstated; it not only addresses pressing environmental challenges - such as climate change, pollution and biodiversity loss - but also serves as a catalyst for social justice and economic resilience, Figueiredo, (2024).

Regulatory frameworks serve as the backbone of sustainable legislation, providing clear guidelines and standards for achieving sustainability goals. Stakeholder engagement is equally critical, as it ensures that diverse perspectives are considered in the legislative process. Involving community members, businesses and environmental organizations promotes transparency and accountability, leading to more effective and inclusive policy outcomes.

In addition, monitoring and enforcement mechanisms are essential for maintaining compliance and evaluating the effectiveness of sustainable legislation. For example, the implementation of the Paris Agreement depends on countries submitting regular progress reports on their emissions reductions, which are then reviewed by international bodies. This responsibility not only encourages countries to adhere to their commitments, but also promotes a culture of transparency. Sustainable legislation stands out as a critical framework for addressing the multifaceted challenges posed by environmental degradation, social inequality and economic instability. Dantas, (2024).

2.4 Sustainable health

Sustainable health has emerged as a vital concept in contemporary times, reflecting a holistic and integrated approach to human and environmental well-being. Unlike traditional health, which often focuses solely on treating illness and managing symptoms, sustainable health seeks to promote a state of well-being that considers social, economic and environmental factors. This broader perspective is fundamental, especially in a world where health challenges are intertwined with environmental degradation, social inequalities and often fragmented health systems. The definition of sustainable health, its fundamental principles and the challenges that arise in its implementation, highlighting the importance of creating a healthier and more equitable future for all, Liczbinski, (2021).

The definition of sustainable health is a multifaceted concept that emphasizes the interconnection between human health, environmental health and social equity. Sustainable health is not limited to the treatment of diseases, but seeks to create an environment that favors healthy practices and a high quality of life. Its importance is evident, as sustainable health not only improves quality of life, but also reduces health costs in the long term, promoting a healthier and more productive society, Cavalcante, (2021).

The principles of sustainable health are fundamental to building health systems that prioritize prevention and health promotion, rather than just cure. One of the main pillars of this approach is prevention, which manifests itself in various initiatives such as vaccination campaigns, screening programs and health education. In addition, community involvement is crucial; this active participation encourages collective responsibility and ongoing education about healthy practices. For example, public health programs that involve community leaders in disseminating information about diseases and prevention have shown positive results, increasing awareness and adherence to preventive practices. The integration of health systems and social services is also a central principle, since social and economic conditions play a significant role in health, Itagyba, (2019).

2.5 Community development

Community development is a fundamental process for promoting social inclusion and improving the living conditions of communities. According to Duminy, et al. (2023), Morais, Figueiredo, Rodrigues & Santos, (2015, Moraeais & Koller, (2011) and Morais, Figueiredo, Rodrigues, & Santos, R. (2015 community involvement is an essential component for creating resilience and combating social inequalities, especially in contexts where resources are scarce. Strategies based on active community participation encourage a sense of belonging and facilitate the implementation of public policies geared to local needs.

In addition, community development benefits from the use of participatory technologies and methods, which promote communication and people's engagement. For Fritsch, et al, (2022), digital tools and collaborative approaches help communities to share information, make informed decisions and manage resources sustainably. Community development is strengthened when local people are at the center of the process, which also contributes to inclusive governance.

Finally, community development is closely linked to the notion of equity and social justice. Recent studies, such as França Teodoro, REI, & Garcez, (2022), point out that development policies that prioritize the active participation of community members increase the chances of success and sustainability of projects, favouring an environment in which everyone can thrive. This approach, in line with the UN's 2030 Agenda, reinforces the importance of prioritizing the specific needs of communities.

2.6 Sustainable legislation

Sustainable legislation has become an essential area for promoting environmental policies that prioritize the conscious use of natural resources. According to Octaviano (2024), sustainable legislation establishes guidelines that regulate economic activities in order to reduce environmental impact and promote sustainable development practices. This approach seeks to align economic and environmental interests to ensure a more secure and balanced future for generations to come.

In addition, sustainable legislation aims to ensure that environmental protection objectives are achieved effectively, mainly through regulatory instruments and tax incentives. For de Souza, Arrabal, Bennemann & Arrabal, (2022), this regulatory framework is vital for driving innovation in industries, stimulating the adoption of clean technologies and sustainable production processes. The effectiveness of these laws, however, depends on strict supervision and appropriate sanctions for environmentally harmful activities.

Finally, the role of sustainable legislation is to provide a legal framework that promotes social and environmental responsibility practices. Recently published studies, such as Silva, (2021). Por uma estratégia de efetividade ao direito fundamental ao meio ecologicamente equilibrado à luz do desenvolvimento sustentável e da agenda ESG: da definição à operacionalização do compliance ambiental., show that sustainable regulation, when well implemented, generates a more transparent business environment aligned with ESG principles (environmental, social and governance). This approach is key to ensuring that companies and individuals act in accordance with global sustainability objectives.

3. METHODOLOGY

The analysis carried out was qualitative and based on the content analysis technique according to Bardin (2011). This process involves the following stages Identification and Coding of Main Categories: reading the articles to identify emerging themes that are grouped into specific categories. Relationship between Articles and Triangulation: each article will be triangulated with others from the same category, looking for correspondences or divergences. Keyword mapping: five main keywords will be extracted for similarity analysis and for the construction of the graph that will represent the size of the nodes. Graphical visualization: drawing up a graph illustrating the network of interrelationships between articles, categories and keywords.

Mayring, (2021), contributes a systematic approach to qualitative content analysis and presents methods for organizing qualitative data into categories. His methodology includes techniques for coding and categorization, which are fundamental to developing an analysis based on categories and emerging themes. Flick, (2018), is widely known for his work on qualitative methods and the importance of triangulation for research validity. He discusses how triangulation between multiple sources and qualitative data improves the reliability of findings, and is especially useful for comparisons between articles in the same category.

Saldaña, (2021), is an expert in coding techniques, especially for complex qualitative analysis, such as developing categories and mapping keywords. His guidelines help to extract consistent themes and group categories into visual networks. Huberman, (2014), the author addresses graphic visualization techniques and the mapping of qualitative data, including the creation of networks and nodes to illustrate interrelationships between categories and themes and transforming categories and keywords into graphs, networks of relationships between articles and categories.

4. ANALYSIS AND DISCUSSION OF THE RESULTS

In this section, the emerging patterns and observed trends will be discussed, highlighting how the variables interact and influence the context of the study. The interpretation of the results will seek to demonstrate the relevance of the findings for understanding the practices of environmental education, sustainable legislation, and entrepreneurship. Additionally, graphs and tables will be presented to illustrate these relationships, providing a clear and comprehensive view of the analyzed data.

Main Categories: the following categories emerged during the analysis of the articles:

- Environmental Education and Sustainability

- Health and Sustainability

- Entrepreneurship and sustainable practices

- Sustainable Legislation

- Community Development and Social Integration

Relationship among the Articles: It was observed that the articles frequently address environmental education (articles 1, 2, 5) in dialogue with community development, while articles on sustainable entrepreneurship (articles 6, 7) interact with sustainable legislation practices. The theme of health and sustainability (articles 8 and 10) shows frequent connections with environmental education, particularly when discussing the integration of sustainability practices into curricula.

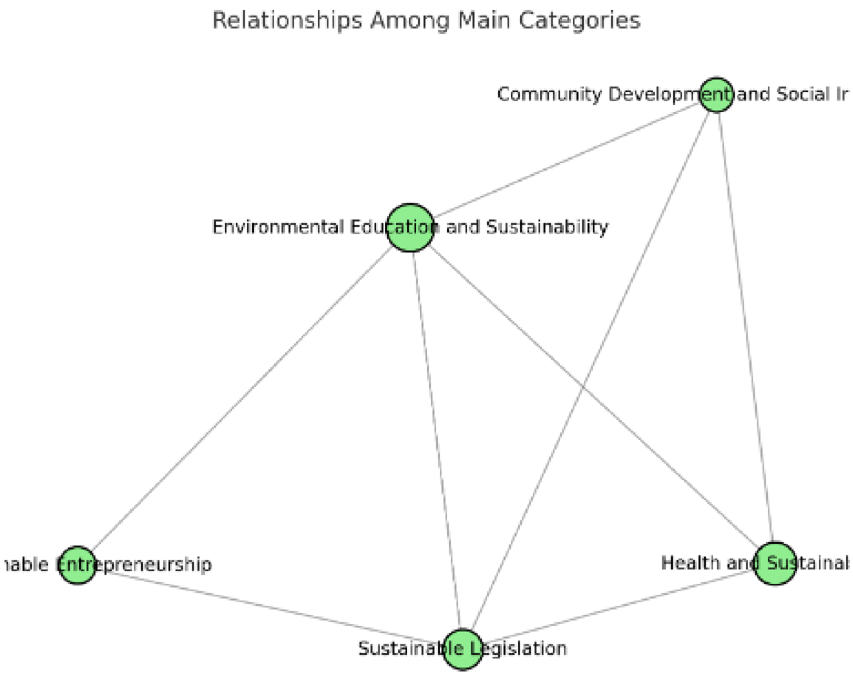
Triangulation of the Articles: The triangulation was performed by relating each category to the themes discussed in the articles and the theoretical framework. It was identified that, for example, articles on environmental education address practical aspects, such as school gardens, which are corroborated by theories of sustainable education. Sustainable entrepreneurship practices were triangulated with the theory of sustainable development and highlight the importance of education aimed at economic-social engagement.

The following will present the node size graph. The creation of the graph will include:

- Variable Size Nodes: representing the frequency of each category and keywords.

- Connection Lines: indicating the relationship and intensity of each theme with other articles and categories.

Figure 1 - The relationship and frequency of the categories.



Source: autores 2024

4.1 **Discussion of Results**

Figure 01 represents the network of relationships among the main categories found in the analysis of the articles. The nodes were sized according to the relative importance of each category, based on the interconnections and frequency

In triangulating the results with theory, it was observed that the themes of Environmental Education and Sustainable Entrepreneurship dialog strongly with Nicolescu's (2002) principles of interdisciplinarity, indicating that effective educational practices should be integrative and contextual. Articles on legislation (articles 5 and 6) suggest that sustainable legislation can shape curricula to promote responsible citizenship, as pointed out by Sachs, while studies on health emphasize the relationship between environmental education and healthy practices, in line with Sterling's studies on health and sustainability.

Emerging Connections:

- The environmental education category showed interactions with practically all the other categories, reinforcing the idea that sustainability should be addressed in all disciplines.

- Health, when associated with sustainability, strengthens integrated educational practice, especially in areas of high community relevance, such as sanitation and quality of life.

Triangulation in Content Analysis

1. Base theory: The theory will be the first pillar of triangulation, based on four areas:

- Education for Sustainability: Works by Sterling and Tilbury, (2011) which address education as a tool for sustainable practices.

- Sustainable Development: Works by Sachs, (2000) address critical dimensions, such as social, environmental and economic, which are related to the categories found.

- Interdisciplinarity: Nicolescu's (2002) theories help to understand the connection between areas, which is important for analyzing mixed categories such as health and sustainability.

- Qualitative and Content Analysis Methodologies: Bardin, 2011; Krippendorff, 2004) will provide a framework for categorizing data and validating emerging themes

2. Empirical Results of the Articles:

- Environmental Education and Sustainability: Many articles, especially those dealing with school gardens and environmental education programs (such as articles 1, 2, and 5), align with the theory of (Sterling 2001; Tilbury, 2011) showing practices that link environmental knowledge to sustainable values.

- Health and Sustainability: Articles that integrate health and sustainability (such as article 8) validate the relationship between health promotion and education aimed at healthy practices, corroborating the perspectives of (Sachs, 2000; Sterling 2001).

- Sustainable Entrepreneurship: Some studies focus on the role of education in promoting conscious business, confirming the economic impact of education on sustainability (articles 6 and 7).

- Sustainable Legislation: The connection between laws and education for sustainability is central to articles 10 and 11, which highlight that appropriate legislation can support teaching practices geared towards a sustainable future.

3. Extracted Keywords and Categories Extracted: Throughout the content analysis, keywords such as "Environmental Education," "Entrepreneurship," "Legislation," "Health," and "Community Development" stood out as interconnections between themes, alongside the categories. These keywords were assigned to each article based on the frequency of concepts, which helped consolidate the main categories:

Triangulation with Identified Categories

1. **Environmental Education and Sustainability**:
- **Related to**: Health and Community Development.
- **Theoretical Triangulation**: Sterling's concept (2001), which suggests education as a central force for social change, supports that environmental education should be incorporated as an essential component of school curricula for sustainable development.

2. **Health and Sustainability**:
- **Related to**: Environmental Education and Legislation.
- **Empirical Triangulation**: Results from the articles indicate that health projects, when integrated with environmental education (articles 8, 10), promote improvements in well-being and encourage sustainable practices within the community.

3. **Sustainable Entrepreneurship**:
- **Related to**: Legislation and Environmental Education.
- **Theoretical Triangulation**: Sachs' perspective (2000) on economic sustainability reinforces that entrepreneurial education should adopt a socially and environmentally conscious approach, as highlighted in articles addressing sustainable business practices (articles 6 and 9).

4. **Sustainable Legislation**:
- **Related to**: Entrepreneurship and Health.
- **Empirical and Theoretical Triangulation**: Articles discuss how educational regulations that incorporate sustainability (articles 5 and 11) encourage sustainable

behaviors in business and community health, suggesting that legislation is a powerful lever for sustainable practices across various areas.

5. **Community Development and Social Integration**:

- **Related to**: Environmental Education and Health.
- **Theoretical and Empirical Triangulation**: Nicolescu's theory (2002) on interdisciplinarity suggests that sustainable education should promote an integrated approach, supported by articles that emphasize the role of school gardens and health projects in communities.

Discussion of Results Based on Triangulation

Triangulation indicates a network of interconnections that supports the understanding that:

- **Environmental Education** is a central category, with a strong capacity to influence all other areas, supporting the idea of Sterling (2001) and Sachs (2000) regarding its strategic importance in sustainable development.

- **Sustainable Legislation** serves as a regulatory force that facilitates and ensures the impact of other areas, such as health and entrepreneurship, within the sustainability agenda.

- The integration between **Health and Environmental Education** has proven essential, as projects that combine these two domains enhance community understanding and engagement in sustainable issues.

The triangulation of data with theory reinforces the idea that sustainable education cannot be fragmented; instead, it must be integrated, involving policies, business practices, and social responsibility. This analysis corroborates the importance of curricula that encompass environmental education, legislation, and health, promoting more comprehensive educational practices that ideally guide future generations toward more conscious and sustainable development.

6. FINAL CONSIDERATIONS

This section, the contributions of the study to understanding the interactions between environmental education, sustainable legislation, and entrepreneurship will be discussed, along with highlighting limitations and suggesting directions for future research. The final considerations seek not only to reinforce the relevance of the results obtained but also to stimulate a continuous dialogue on the promotion of sustainability and community development.

The qualitative content analysis of the conference papers revealed a strong interdependence between the various categories. Environmental Education stands out as the central core of discussions, affecting health, entrepreneurship and sustainable legislation. Educational practices that integrate these themes facilitate the development of competencies for sustainability. This research suggests that future studies focus on integrative pedagogical methodologies and investigate how sustainability concepts can be effectively implemented in school and community curricula.

This detailed framework will guide your analysis, allowing for an in-depth and interrelated reading of the conference papers, based on rigorous methodologies and triangulation with theory. For content analysis triangulation, we will consider three main sources of data that we will cross-check for coherence and identify emerging patterns. The elements of triangulation may include: basic theory on sustainability and education; empirical results in the articles analyzed; and the keywords and categories extracted from the content.

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FINANCIAL EDUCATION IN BRAZIL: ADVANCES, GAPS AND PROSPECTS FOR A MORE CONSCIOUS SOCIETY

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Abstract

This study analyzes the scenario of Financial Education in Brazil, addressing its inclusion in the school curriculum and its relevance to the critical education of students. Based on a qualitative methodology, it analyzed official documents, textbooks and tests from the National High School Exam (ENEM). The results show that although the National Strategy for Financial Education (ENEF), formalized in 2010, has made significant progress, such as increasing the approach to the subject in ENEM, there are still structural gaps, such as insufficient teaching materials and a lack of uniformity in the application of the content in the classroom. The study highlights the importance of more inclusive teaching strategies and suggests expanding research into the socio-economic impact of Financial Education on future generations, as well as developing teaching materials that engage with students' realities.

Keywords: Financial Education; National Financial Education Strategy; National Common Core Curriculum; School Curriculum; Financial Awareness

1. INTRODUCTION

Financial Education (FE) has become a topic of growing relevance in several nations and is considered an essential skill for the full exercise of citizenship in the 21st century. According to Lusardi and Mitchell (2014), financial literacy is fundamental for making informed economic decisions, especially in a global context marked by economic crises and financial instability. In Brazil, the formalization of the National Strategy for Financial Education (ENEF), through Decree No. 7.397/2010, was a milestone for the promotion of this theme in the school context, although its application still faces significant challenges.

The inclusion of PE in the school curriculum is seen as a way of reducing social inequalities and promoting greater financial autonomy. According to Mandell and Klein (2009), effective financial education programs can transform individuals' relationship with money, increasing their capacity for financial planning and reducing indebtedness rates. However, the literature also points out that the impact of these programs depends directly on the quality of teaching materials and teacher training, aspects which are still precarious in Brazil.

Regulatory advances, such as the National Common Core Curriculum (BNCC), approved in 2017, have made Financial Education a cross-cutting theme, highlighting its importance for the all-round development of students (Brazil, 2017, National Common Core Curriculum). Despite this, studies such as Negri's (2010) show that the practical implementation of this content is still limited, mainly due to the lack of consistent pedagogical resources and cultural resistance to recognizing PE as a central theme in basic education.

This article seeks to contribute to this debate by examining the current panorama of Financial Education in Brazil, highlighting its advances and shortcomings. By adopting a critical approach, the study aims not only to map the current state of the subject in the school curriculum, but also to propose reflections on the challenges and prospects for its consolidation as an effective tool for social transformation.

The content analysis of the article "Financial Education in Brazil: a panoramic perspective" Cordeiro, Costa, da Silva (2018). The points before the study were analyzed, flaws identified, a coding based on content analysis, triangulation with contemporary literature, as well as the discussion and interpretation of the results presented.

2. THEORETICAL FRAMEWORK

2.1 Financial Education

Financial education is widely recognized as an essential skill in the contemporary world, enabling individuals to make more informed economic decisions. According to Lusardi and Mitchell (2014), financial literacy is crucial to reducing social inequalities, preventing behaviors such as excessive indebtedness and promoting savings. In the Brazilian context, Decree No. 7.397/2010 formalized the National Strategy for Financial Education (ENEF), highlighting the importance of integrating the subject into the school curriculum in order to train financially responsible citizens.

For Mandell and Klein (2009), the impact of financial education programs depends on the quality of the teaching materials and the training of the educators. This perspective reinforces the idea that Financial Education is not limited to the transmission of technical concepts, but also involves the development of practical skills. In Brazil, Negri (2010) points out that the approach to the subject in schools is still superficial and poorly connected to the reality of the students, limiting its transformative potential.

The inclusion of Financial Education as a cross-curricular theme in the National Common Core Curriculum (BNCC) represents a significant step forward (Brasil, 2017). However, the effectiveness of this inclusion depends on pedagogical strategies that promote meaningful learning. Recent studies, such as that by Lusardi et al. (2017), suggest that educational policies aimed at financial literacy need to be accompanied by practical initiatives, such as financiais simulations and family planning workshops.

2.2 National Strategy for Financial Education (ENEF)

The National Financial Education Strategy (ENEF) was established in Brazil by Decree No. 7.397/2010, with the aim of promoting a financial culture in the country. According to the Ministry of Finance (2010), ENEF seeks to broaden citizens' understanding of financial concepts and improve their ability to make informed decisions. This strategy encompasses actions in partnership with public and private institutions, reinforcing its integrative nature and national scope.

According to Cordeiro, Costa and Silva (2018), ENEF is a regulatory framework for the inclusion of Financial Education in the Brazilian education system. However, the authors point out that its practical implementation faces challenges, such as a lack of clarity in the definition of objectives and in the production of teaching materials. Despite this, ENEF has been responsible for important initiatives, such as the creation of specific teaching materials and pilot projects in public schools.

In addition to working in schools, ENEF seeks to reach different audiences, including workers and retirees, as highlighted by Brasil (2008) in Coremec Deliberation No. 5. This document emphasizes that PE should cover topics such as savings, credit and financial planning. However, as identified by Negri (2010), ENEF's success depends on more effective coordination between the agents involved and the creation of indicators to monitor its impact on society.

2. 3 Common National Curriculum Base (BNCC)

The National Common Curriculum Base (BNCC), approved in 2017, brought significant advances in the integration of contemporary themes into the Brazilian school curriculum, including Financial Education. According to Brasil (2017), the BNCC defines that topics such as economics, sustainability and finance should be approached in a cross-curricular way, contributing to the holistic development of students. This perspective is reinforced by Oliveira and Araújo (2018), in Educação e Sustentabilidade na BNCC, who highlight the importance of aligning the BNCC's objectives with social demands.

Despite its transformative potential, the practical implementation of the BNCC faces operational challenges. Studies such as that by Cordeiro et al. (2018) indicate that, although Financial Education is provided for in the BNCC, it is still treated superficially in many schools. To avoid this limitation, Brito and Freitas (2020), in the BNCC, suggest that the subject be integrated into all subjects, promoting an interdisciplinary and contextualized approach.

Finally, the BNCC also highlights the need to train teachers to work with complex subjects such as Financial Education. According to Negri (2010), teacher training is essential to ensure that content is transmitted in a clear and practical way. Thus, the effectiveness of the BNCC depends not only on its normative structure, but also on investments in pedagogical infrastructure and continuing training initiatives for educators.

2. 4 School curriculum

The school curriculum is the main instrument for organizing teaching content and methodologies in schools. According to Tyler (1949), the curriculum should be structured to meet the social and individual needs of students, promoting both academic and social development. In the Brazilian context, Financial Education was integrated into the curriculum as a response to demands for greater financial autonomy and conscious citizenship (Brasil, 2017).

According to Sacristán (1998), the curriculum is a space where values and interests are disputed and is influenced by political, cultural and economic factors. The inclusion of

Financial Education in the Brazilian curriculum, for example, reflects an attempt to respond to the growing concern about debt and the lack of financial planning in society. However, as Mandell and Klein (2009) point out, the effectiveness of these changes depends on a practical and contextualized approach.

Cordeiro et al. (2018) point out that although Financial Education is included in the Brazilian curriculum, its implementation is still limited by structural gaps, such as the lack of appropriate teaching materials. To overcome these challenges, authors such as Brito and Freitas (2020) suggest creating interdisciplinary programs that integrate PE with other areas of knowledge, such as mathematics, history and geography, promoting meaningful learning that is connected to the students' reality.

2. 5. Financial awareness

Financial awareness refers to the ability to understand and manage financial resources responsibly and strategically. Lusardi and Mitchell (2014) state that financial awareness is one of the main determinants of informed economic decisions, such as retirement planning and debt management. In Brazil, the National Strategy for Financial Education (ENEF) is one of the initiatives that seeks to foster this awareness.

According to Negri (2010), Financial Education in schools is essential for developing financial awareness from an early age, helping young people to understand concepts such as savings, credit and family budgets. However, the author notes that the lack of teacher training and the superficiality of teaching materials jeopardize the achievement of this goal. To overcome these limitations, Mandell and Klein (2009) advocate the creation of educational programs that include practical activities, such as simulations and financial planning workshops.

Recently, Oliveira et al. (2022), in Financial Awareness in Emerging Economies, pointed out that financial awareness is directly related to social and economic well-being. The authors point out that investments in financial literacy can reduce inequalities and strengthen social inclusion. Thus, fostering financial awareness is not just a matter of individual education, but also a strategy to promote the sustainable and balanced development of societies.

3. METHODOLOGY

This study used a descriptive qualitative approach, with the aim of analyzing the scenario of Financial Education in Brazil and identifying its gaps and advances. According to Creswell (2014), the qualitative approach is appropriate when the aim is to understand social and cultural phenomena in depth, especially those still under development, such as Financial Education in Brazil.

The research was conducted using documentary analysis, considering laws, decrees and official regulations related to the National Strategy for Financial Education (ENEF), as well as the National Common Core Curriculum (BNCC). According to Bardin (2011), this technique allows us to examine the meanings present in texts and documents, identifying patterns, categories and relationships that contribute to understanding complex phenomena.

In addition, teaching materials and tests from the National High School Exam (ENEM) were analyzed. The selection of these objects of study was based on the criteria of relevance and accessibility, as indicated by Flick (2018). The focus on the analysis of textbooks and ENEM exams made it possible to assess how Financial Education is approached in the school environment and in external assessments, providing a practical and contextualized view of the subject.

The data collected was organized into thematic categories and interpreted in the light of the theoretical framework. Data triangulation was carried out to increase the reliability of the interpretations, cross-referencing information extracted from official documents, academic literature and teaching materials. According to Yin (2018), triangulation is a fundamental strategy for validating conclusions in qualitative research.

4. RESULTS

The content analysis of the article "Financial Education in Brazil: a panoramic perspective" Cordeiro, Costa, da Silva (2018). The points before the study were analyzed, flaws identified, a coding based on content analysis, triangulation with contemporary literature, as well as the discussion and interpretation of the results presented.

The content analysis identified some relevant points: Exposing the scenario of financial education in Brazil, highlighting its importance in the school curriculum and critical training of students. It presented a chronological analysis of the evolution of financial education (FE) in the country, including official documents, teaching materials and national exams such as ENEM.

The topic is relevant in terms of

- Financial education is considered essential in the Brazilian socio-economic context, with the aim of forming more aware citizens in relation to personal and family finances.
- The formalization of the National Financial Education Strategy (ENEF) is addressed as a regulatory framework.
- To evaluate the impact and presence of the topic in teaching materials.
- To demonstrate the evolution of the treatment of EF in ENEM and the need for adjustments for greater inclusion in the school curriculum.

The article presented some points that we believe can be inferred:

- Limitations in data triangulation:
  - The article does not explore in depth the real impact of PE on the socio-economic outcomes of students or families, limiting itself to superficial institutional and qualitative data.
- Insufficient diversified samples:
  - The analysis of textbooks is restricted to a specific high school collection, failing to consider materials from other publishers or levels of education.
- Excessive focus on ENEM:
  - Although relevant, ENEM does not represent the totality of PE's impact on the curriculum. Other indicators, such as performances in applied projects, could have been addressed.
- Lack of robust empirical evidence:

- The research lacks quantitative data that directly connects the inclusion of PE in the curriculum with improvements in the financial practices of Brazilian society.
- Linking PE to the Federal Constitution to promote the preparation of individuals for citizenship.

- Regulatory documents as a basis for FE:
  - The National Financial Education Strategy (ENEF) and its developments.
- Teaching material and pedagogical gaps:
  - Shortage of relevant and practical content in textbooks.
- Impact assessment via ENEM:
  - Growth of questions related to PE in the exam, although without equivalent reflection in the school curriculum.
- Emerging categories
  - Curricular importance of PE.
  - Official documents as regulators.
  - Challenges in pedagogical implementation.
  - Discrepancies between school practice and external evaluations.

When the article was triangulated with contemporary literature, the following articles were found:

- Recent literature on FE
  - Lusardi and Mitchell (2014, "The Economic Importance of Financial Literacy"): They discuss the relationship between financial literacy and economic decision-making, pointing out that the absence of basic financial skills widens social inequalities.
  - Mandell and Klein (2009, "The Impact of Financial Literacy Education"): They conclude that the introduction of FE in schools increases financial engagement in the long term, but the impact depends on the quality of teaching and equitable access to materials.
- Connection with the article
  - The article approaches PE in a way that is in line with the guidelines suggested by contemporary authors, but does not explicitly discuss the long-term impact, a limitation pointed out by Lusardi and Mitchell.
  - The scarcity of teaching materials is a theme also addressed by Mandell and Klein, reinforcing the urgency of curriculum development.
- Brazilian context
  - Brazil (2016, Base Nacional Comum Curricular - Ensino Fundamental): Emphasizes the transversal integration of PE, a point aligned with the article, but still faces operational challenges for effective implementation.

Study results in a nutshell

- Current PE scenario
  - PE is a recent topic in Brazil, formalized by ENEF in 2010. Despite progress, its implementation faces structural challenges, such as the quality of teaching materials.
  - Analysis of the ENEM showed a significant evolution in the approach to PE, especially since 2008.
- Teaching materials

- The textbooks analyzed have gaps in both the quantity and depth of PE content, compromising students' comprehensive education.
- Pedagogical impact
  - Although there is an effort to include PE in the curriculum, there is a disconnect between the official regulations and their practical application in schools.

5. DISCUSSION OF RESULTS

The article's results show that although Financial Education has been formally introduced in Brazil, its implementation is still incipient and fragmented. The study reinforces the importance of FE as a citizenship tool, in line with constitutional principles and regulatory frameworks such as ENEF. The increased presence of the subject in ENEM reflects greater institutional appreciation.

However, there are facts that need to be emphasized. There are clear gaps in the pedagogical infrastructure, especially in textbooks. The lack of robust empirical evidence limits understanding of the real impact of PE on society.

When integration with the literature was carried out, the following findings were highlighted with emphasis: Contemporary literature highlights that the effectiveness of PE depends on factors such as:

- Well-designed and accessible curricula.
- Teacher training.
- Continuous impact monitoring.

These factors are not sufficiently addressed in the article, suggesting that more studies are needed to identify and resolve the operational challenges in Brazil. This content analysis provides a critical overview of the article and contributes to broadening the debate on the paths of financial education in Brazil, in the light of international best practices and contemporary literature.

6. FINAL CONSIDERATIONS

Financial Education (FE) is emerging as an indispensable element in the school curriculum, especially in a global scenario marked by growing economic complexity. This study analyzed the current state of Financial Education in Brazil, highlighting significant advances promoted by the National Financial Education Strategy (ENEF) and the National Common Core Curriculum (BNCC). Despite these regulatory milestones, structural gaps persist which hinder the consolidation of FE as an effective tool for socio-economic development.

The results show that although the subject has gained greater prominence in the National High School Exam (ENEM), its presence in teaching materials and in everyday school life is still limited. The lack of practical and contextualized content in textbooks and the absence of specific training for teachers are barriers that compromise the effectiveness of PE teaching. In addition, there is a disconnect between regulations and their practical application, highlighting the need for more integrated and sustainable strategies.

Based on the analysis carried out, it is possible to conclude that Financial Education can become a powerful ally in promoting active and conscious citizenship, as long as actions are implemented to ensure its applicability. These actions include the development of teaching materials aligned with the reality of students, the continuous training of educators and the inclusion of the subject in an interdisciplinary way at all stages of basic education.

It is recommended that future research explore the impact of Financial Education on family economic practices, analyzing how learning acquired at school influences financial decisions in everyday life. Longitudinal studies would also be valuable to evaluate the effects of FE programs over time, measuring improvements in the financial behavior of new generations. In addition, it is necessary to investigate how different pedagogical approaches, such as financiais games and simulations, can increase students' engagement and understanding of the subject.

Finally, it would be important to carry out comparative studies between Financial Education practices in Brazil and in other countries, identifying effective strategies that can be adapted to the national context. These reflections and proposals highlight the importance of continuing to invest in Financial Education as a field of research and pedagogical practice that contributes to the formation of individuals who are more aware of and prepared for the challenges of contemporary society.

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The Role of Female Entrepreneurship as a Tool for Transformative Change: An Examination of the Challenges and Impacts on Economic Empowerment

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Abstract

This article examines the impact of female entrepreneurship as a tool for economic and social empowerment, emphasizing the benefits of financial autonomy, increased income, access to health, leisure, and self-realization. Qualitative research conducted in Sergipe with six female entrepreneurs revealed that, despite challenges such as a lack of funding and cultural prejudices, entrepreneurship has brought about significant transformations in their lives. The triangulated analysis with contemporary literature, including studies by Kabeer (2005) and Hunt and Samman (2016), corroborates the conclusion that female entrepreneurship is essential for reducing inequalities and promoting gender equity. It is therefore recommended that public policies and support actions be implemented to increase access to resources and promote the sustainability of businesses led by women.

Keywords: Entrepreneurship; Female Entrepreneurship; Economic Empowerment; Gender Equality; Sustainable Development

1. INTRODUCTION

The role of women's entrepreneurship in promoting gender equality and social development has gained increasing recognition. Hunt and Samman (2016) posit that women's active participation in the entrepreneurial market not only strengthens their economic skills but also brings substantial benefits to the communities where they live. This context underscores the need to explore how entrepreneurship can leverage economic empowerment.

Economic empowerment is defined by Kabeer (2005) as women's ability to access and control resources, influence decisions, and promote change in their lives. Fernandes et al.

(2016) argue that female empowerment is directly related to increased income, improved education, and social independence, elements that often emerge through entrepreneurship.

In Brazil, the landscape of female entrepreneurship is promising but still faces significant challenges. According to SEBRAE's 2018 Executive Report on Entrepreneurship in Brazil, women lead approximately 30% of the country's small businesses. Additionally, research from 2010 indicates that many female-led initiatives are driven by necessity rather than opportunity, reflecting structural socio-economic challenges.

In light of the aforementioned considerations, the present study seeks to examine the role of the entrepreneurial process in facilitating women's economic empowerment. Furthermore, it examines the motivations, obstacles, and advantages of entrepreneurship for women in diverse social and economic settings, thereby advancing the dissemination of strategies for inclusion and gender equality. To facilitate comprehension of the article, we will contextualize the information presented in Lima et al. (2021) "Entrepreneurship as a Contribution to Women's Economic Empowerment" within the broader framework of contemporary literature on the subject.

To this end, we will conduct a review of the literature on female entrepreneurship and economic empowerment. The article will be triangulated with contemporary literature to facilitate a comparison of the article's findings and gaps with those of other studies. We will indicate the gaps in the article under analysis and the gaps perceived in the triangulation. The objective is to ascertain how the entrepreneurial process contributes to female economic empowerment.

2. THEORETICAL FRAMEWORK

2.1. Entrepreneurship

Entrepreneurship is broadly discussed as the ability to identify and exploit business opportunities. According to Schumpeter (1934), the entrepreneur is an agent of change who introduces innovations to the market, promoting economic growth. This view was expanded by Drucker (1985), who argued that entrepreneurship is a systematic practice of innovation, essential for economic and social progress.

In the Brazilian context, Dornelas (2018) highlights that entrepreneurship has become a strategic tool for generating income and combating unemployment. Moreover, Bulgacov et al. (2010) emphasize that for many women, entrepreneurship is a means of survival, especially in scenarios of economic inequality.

2.2. Female Entrepreneurship

Female entrepreneurship is recognized for its specific characteristics and particular challenges. According to Brush et al. (2009), women entrepreneurs face barriers in accessing financing and support networks but develop unique competencies such as resilience and multitasking abilities.

Fernandes et al. (2016) argue that female entrepreneurship is an effective means to promote gender equality and financial autonomy. In Brazil, SEBRAE's 2018 report on entrepreneurship notes that women primarily undertake entrepreneurship out of necessity but find independence and social recognition through it.

2.3. Economic Empowerment

Kabeer (2005) defines economic empowerment as the ability of individuals to access and control economic resources while making decisions about their lives. Golla et al. (2011) reinforce that female economic empowerment is crucial to overcoming gender inequalities and promoting sustainable development.

Hunt and Samman (2016) point out that factors such as access to education, decent work, and credit are essential for women to achieve economic empowerment. Fernandes et al. (2016) highlight that by engaging in entrepreneurship, women not only increase their income but also gain greater autonomy and self-confidence.

2.4. Gender Equality

Gender equality is essential for economic and social development, as argued by Sen (2014). According to Kabeer (2005), eliminating gender barriers is fundamental to ensuring that women have the same opportunities as men, thereby promoting greater equity in the labor market.

In Brazil, Bulgacov et al. (2010) note that structural inequalities hinder women's progress in the entrepreneurial market. Recent studies, such as those by Hunt and Samman (2016), emphasize that public policies and access to financing are key elements in reducing these disparities.

2.5. Sustainable Development

Female entrepreneurship also contributes to sustainable development, as argued by Sachs (2015). Women entrepreneurs have the potential to integrate sustainable practices into their businesses, promoting positive social and environmental impact.According to Antonello (2019), sustainable development is intrinsically linked to women's empowerment, as they play a central role in local communities. Fernandes et al. (2016) point out that female entrepreneurship drives structural changes in favor of sustainability.

3. METHODOLOGY

The research is qualitative and exploratory, utilizing semi-structured interviews with six female entrepreneurs in Sergipe. Content analysis was applied to reduce data complexity, enabling comparisons among cases. This study is characterized by a qualitative approach, which, according to Creswell (2014), is ideal for understanding complex social phenomena, allowing for an exploration of participants' subjective experiences. The research was exploratory in nature, aligning with Marconi and Lakatos (2003), who state that this type of research is suitable for topics that are still underexplored and aims to familiarize the researcher with a problem.

Data collection was conducted through semi-structured interviews, a method described by Manzini (2004) as flexible and adaptable, allowing the researcher to explore emerging issues during interaction with interviewees. The interview script was pre-designed but allowed for adjustments throughout the process, ensuring that the collection captured nuances of the participants' lived contexts.

For data analysis, content analysis techniques were used, as proposed by Bauer and Gaskell (2008). This method was chosen for its ability to reduce text complexity, categorizing emerging themes and enabling comparisons among studied cases. The research was conducted with six female entrepreneurs from the city of São Cristóvão, Sergipe, selected based on criteria such as business formalization, micro or small size, and exclusively female management.

The methodological approach made it possible to identify patterns of economic empowerment as well as barriers faced by women throughout their entrepreneurial journeys. These data were triangulated with contemporary literature to validate the results and provide a broader understanding of the phenomenon.

1. RESULTS

The article's investigation employed semi-structured interviews with six women entrepreneurs to map the impacts of entrepreneurship on women's economic empowerment. The analysis revealed that the participants achieved significant improvements in aspects such as income, health, leisure, and self-realization. However, this growth trajectory was permeated by challenges, such as the lack of financial support and the persistence of gender prejudices.

By employing a triangulation approach to evaluate the article's findings in light of contemporary literature, USAID (2023) reiterates the assertion that the economic security of women has a direct impact on the communities in which they live. Furthermore, it underscores the importance of entrepreneurship as a crucial instrument for achieving economic inclusion and reducing poverty. The AWE (Academy for Women Entrepreneurs 2023) program underscores the pivotal role of networks and resources in propelling the growth of women-led businesses, thereby fostering sustainable economic outcomes and enhancing empowerment in over 100 countries.

Garg and Agarwal (2017) elucidate the structural impediments, such as the challenge of securing funding, which are also elucidated in the original article, thereby corroborating the constraints encountered by women. The following deficiencies were identified in the article: Sample limitation: Only six women entrepreneurs were interviewed, limiting the scope of the conclusions. Lack of regional diversity: The study focuses exclusively on Sergipe and does not explore the realities of other regions.

The identified gaps in the triangulation include the necessity for longitudinal studies and the absence of specific policies. The article and literature both indicate a dearth of data concerning the relationship between time in business and economic empowerment.

Additionally, there is a lack of a comprehensive approach to how public policies could potentially mitigate the challenges faced by women entrepreneurs.

Main findings

1. Income and Empowerment: The majority of female entrepreneurs interviewed indicated that the income generated from their business had become the primary source of financial support for their families. This finding is consistent with the study by Golla et al. (2011), which underscores the significance of financial autonomy for the advancement of female empowerment.
2. Cultural and Social Challenges: The participants encountered obstacles pertaining to the historical subjugation of women, as documented by Fernandes et al. (2016). These challenges were surmounted through resilience and familial support, underscoring the significance of social networks for entrepreneurial success.
3. Autonomy and Leadership: All the women interviewed emphasized the independence they gained as one of the primary benefits of entrepreneurship. This finding corroborates the argument put forth by Kabeer (2005), who associates autonomy with the capacity to make strategic decisions about one's life.

4**. Discussion of the results**

A comparison of the article's data with contemporary literature reveals both areas of convergence and gaps that warrant further attention.

Convergences

1. Income as a Transformative Factor: As reported by Hunt and Samman (2016), the ability to generate and control financial resources emerged as a central element in the interviewees' empowerment process. This relationship reinforces the need for access to credit and technical support, as addressed in the SEBRAE report (2018).
2. Female Resilience: The capacity of female entrepreneurs to surmount adversity is corroborated by the findings of Brush et al. (2009). The presence of resilience and adaptability was observed in both the article and in other studies.
3. Impact on Social Development: The role of entrepreneurship as a catalyst for social and economic transformation is supported by Sachs (2015). The interviewees

illustrated that their enterprises not only enhanced their own quality of life but also promoted the well-being of their communities.

Gaps identified

- Absence of Specific Public Policies: Both the article and contemporary literature indicate the lack of comprehensive public policies designed to support female entrepreneurship. Bulgacov et al. (2010) emphasize the necessity for government strategies aimed at fostering gender equality in the labor market.
- Long-term sustainability: While the article highlights individual advancements, it lacks an examination of how these achievements can be sustained over time. This differs from the findings of Golla et al. (2011), who place emphasis on the significance of continuous empowerment to ensure women's economic stability.
- Geographical Diversity: The study is constrained to the experience of women from a single region of Brazil. A more expansive perspective, as exemplified by the work of Hunt and Samman (2016), could elucidate the impact of diverse contexts on female entrepreneurship.

Conclusion of the discussion. The article's results reinforce the relevance of entrepreneurship for women's economic empowerment, demonstrating notable advancements in multiple domains of the women's lives. However, a synthesis with contemporary literature indicates the necessity for more comprehensive measures, such as public policies, training programs, and longitudinal studies, to enhance the comprehension of the influence of entrepreneurship on gender equality.

FINAL CONSIDERATIONS

This study illuminated the transformative role of female entrepreneurship in economic empowerment, elucidating the ways in which women entrepreneurs surmount historical and structural impediments to attain financial autonomy, self-realization, and social recognition. The findings of the study demonstrated that entrepreneurship has the capacity to enhance income levels and facilitate access to essential resources, such as health and education. Additionally, it was observed that entrepreneurship fosters personal growth and self-esteem, while also positioning women as leaders within their communities. These observations align with the conclusions drawn by contemporary literature, including the works of Hunt & Samman (2016) and Kabeer (2005).

The findings of the study serve to reinforce the notion that, despite the considerable strides made by female entrepreneurship, it continues to encounter significant constraints. These include a dearth of sufficient funding, an absence of institutional support, and the absence of targeted public policies. These barriers point to an urgent necessity for government initiatives that facilitate enhanced access to credit, technical training, and support networks. Furthermore, the data indicates that female entrepreneurship is not solely an economic phenomenon, but also encompasses social and cultural dimensions that warrant greater attention in development strategies.

This work is significant in that it broadens the understanding of the relationship between entrepreneurship and women's economic empowerment. It demonstrates that the positive impact is not solely financial, but also has a profound effect on the social and personal spheres of women. Furthermore, it provides insight into how women can utilize entrepreneurship as a means of change, even in challenging contexts.

It is recommended that the following points be taken into account:

1. The promotion of credit and training, including the creation of specific programs for women entrepreneurs, the facilitation of access to credit, and the offering of training in management and innovation.

2. The encouragement of the formation of collaborative networks that connect women entrepreneurs to mentors, investors, and other professionals.

Following a comprehensive analysis of the article in conjunction with contemporary literature, several gaps in knowledge remain, including: Longitudinal studies are a valuable tool for understanding the evolution of phenomena over time. The investigation of how economic empowerment evolves over time among women entrepreneurs, especially in different regions of Brazil and in different cultural contexts, is a crucial area of research. Diversity of Profiles: The scope should be broadened to include women from different age groups, ethnicities, and educational levels in order to gain a more nuanced understanding of how socio-economic variables influence the entrepreneurial process.

Impact of Public Policies: The effect of policies designed to support female entrepreneurship should be evaluated, with a particular focus on their effectiveness in reducing gender inequalities and strengthening businesses led by women.

In conclusion, the study demonstrates that entrepreneurship is not merely a means of subsistence; rather, it is a potent instrument for personal and collective transformation. To advance in this domain, it is imperative for governments, institutions, and society at large to collaborate in dismantling obstacles and fostering an environment that enables women entrepreneurs to flourish and spearhead a more equitable and inclusive society.

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The Effect of Vocabulary Mind Mapping through Learning of Undergraduates with High and Low Motivation

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Abstract

Undergraduates with inadequate English vocabulary exhibit less motivation. Instructing children in English vocabulary while enhancing their learning autonomy and motivation poses challenges for their English teacher. Educators must ascertain an efficacious vocabulary acquisition strategy for implementation both in and out of the classroom to enhance vocabulary proficiency and learning motivation. This research will investigate the impact of Youdao Dict. Vocabulary Mind Mapping on English vocabulary learning among students with different motives. One freshman cohort will engage in this quasi-experimental study. This class has 32 students. We will gather data via the I/EMSEL and CEV tests. The motivational level will categorize them into high- and low-motivation groups. Their intermediate level will be eliminated. Pre- and post-tests will evaluate the learning of two groups. Classroom observations and interviews will validate the data. This study used a paired sample t-test for data analysis. The results indicate that the suggested cognitive process-based learning model (VMMYD) may improve students' learning strategies and vocabulary acquisition, while instructors may inspire them both in and out of the classroom. This research elucidates English vocabulary acquisition and instruction in Chinese colleges and universities, which are characterized by inadequate English vocabulary and low learning motivation.

Keywords: Effect of Vocabulary; Mind Mapping Learning; Low Motivation and High motivation

Introduction

Given China's extensive territory and uneven regional development, college English instruction must follow the principles of differentiated guidance and personal teaching to accommodate the distinct characteristics of each institution (Rashid et al., 2023). A guide indicates that substantial disparities in teaching resources, student enrollment levels, and talent development requirements among colleges and universities demand localized pedagogical approaches (Rashid et al., 2024). In Chinese private universities, where student enrollment is comparatively low, challenges in learning English are common, including insufficient grammar knowledge, restricted vocabulary, and a deficiency in motivation and autonomy in learning (Chen & Yang, 2009; Rashid et al., 2021).

These challenges frequently result in a lack of interest in learning English and may even cause students to abandon the subject altogether. Among these issues, the acquisition of English vocabulary presents a significant challenge, especially for non-English majors. Studies indicate that vocabulary (41%) and listening (48%) represent the two most difficult domains for these students (Chen & Yang, 2009). Wang (2000) underscores that mastering vocabulary is among the most challenging aspects of foreign language acquisition.

At Xi Jing University, a prestigious private institution in China, one-third of students fail to meet the qualification threshold on English entrance examinations, where a score of 90 out of 150 is considered qualified (unqualified: qualified students = 1.6:1). Despite the theoretical possibility of practicing vocabulary acquisition at any time and place (Cai, 2016 & Rashid et al., 2022), numerous educators at Xi Jing University believe that vocabulary learning is the students' responsibility, resulting in inadequate emphasis on vocabulary instruction in the classroom. As a result, students find it challenging to retain memorized words and gradually lose interest in acquiring English vocabulary due to ineffective learning strategies.

Wilkins, a British linguist, emphasised the crucial role of vocabulary acquisition in 1972, stating, "Without grammar, one can convey very little; without vocabulary, one can convey nothing." This emphasizes the fact that vocabulary acquisition is fundamental to second language acquisition. Students with inadequate vocabulary frequently encounter difficulties in reading or understanding English, which reduces their interest and motivation to learn. Notwithstanding the lenient English proficiency criteria for university graduates, institutions endeavor to equip their students to succeed in the College English Test in Band 4 (CET4) or

Band 6 (CET6). Consequently, instructing students in independent vocabulary acquisition is crucial for promoting sustained learning motivation. This study aims to identify effective and personalized strategies to assist students in improving their vocabulary acquisition, thereby facilitating a greater number of students who pass CET4 and CET6 after four years of English study at Xi Jing University.

Research on vocabulary acquisition has increasingly concentrated on investigating learning strategies rather than teaching them, prioritizing the enhancement of learner autonomy and lifelong learning. National research has examined vocabulary acquisition strategies (Zhou, 2020; Zheng, Xu, & Wang, 2015; Rashid et al., 2022). The efficacy of mobile learning applications (Cai, 2016; Fan, 2020; Jiang, 2017). Nonetheless, students using mobile applications frequently demonstrate diminished efficiency and engagement in vocabulary acquisition. Correspondingly, global research has examined vocabulary acquisition strategies and their impacts (Mehrabian & Salehi, 2019; Baskin et al., 2017; Atifnigar & Alokozay, 2020). However, there is a lack of personalized strategies designed for students with diminished motivation and autonomy. This disparity highlights the necessity for targeted and efficient vocabulary acquisition strategies for these students.

Literature review

Oxford (1990) proposed language learning strategies based on the framework of Information Processing Psychology, classifying them into direct and indirect strategies. O'Malley and Chamot subsequently categorized these as cognitive, metacognitive, and social-affective strategies. Schmitt (1997) categorized vocabulary acquisition strategies into two categories: discovery strategies, which include determination and social strategies, and consolidation strategies, which comprise cognitive, memory, and metacognitive strategies. As per Oxford (1990), cognitive strategies encompass guessing, proficient dictionary usage, and note-taking. These strategies encompass subcategories including repetition, pattern recognition, and recombination. This study employs these theoretical frameworks to examine the efficacy of vocabulary-mind mapping as a method for personalized vocabulary acquisition among students with differing motivation levels.

In the 1980s, researchers increasingly focused on vocabulary acquisition, making it a prominent area of study in second language acquisition. Since the 1990s, research on vocabulary acquisition has evolved both theoretically and systematically. Language comprises three fundamental components: pronunciation, vocabulary, and grammar. Words, as a component of linguistics, are essential for listening, speaking, reading, writing, and translating, all of which rely on a strong command of vocabulary. Vocabulary acquisition ought to be a crucial component of language education. Consequently, the instruction of vocabulary in college English has gained increasing significance among educators. Nation (1990) posits that understanding a word entails comprehending its form (both spoken and written), placement (grammatical structures, collocations), function (frequency, suitability), and meaning (concept, associations). The Information Process Theory posits that learning involves the acceptance and utilization of information. It emphasizes how students select and manage information using a cognitive model that encompasses learning's choices, memory, information processing, and individual cognitive processes.

In 1968, Richard Atkinson and Richard Shiffrin introduced the Atkinson-Shiffrin model, a systematic and comprehensive framework for information processing, which posits that human memory comprises three sequential stages: sensory memory (SM), short-term memory (STM), and long-term memory (LTM). New information transitions from short-term memory to long-term memory through repetition. The duration of repetition correlates positively with memory retention. The multi-store model of memory elucidates the mechanisms of memory processing. A mind map, also known as a brain map, serves as a visual aid for expressing thoughts and ideas. The development and application of this theory consistently demonstrate its scientific validity and efficacy. In the early 1960s, the renowned educator Tony Buzan introduced the theory known as Mind Map and mind mapping in Chinese (Li, 2010). The article "Discussion on Some Important Issues in the Teaching Application of Concept Map and Mind Mapping" defines mind mapping as a visual and non-linear cognitive tool designed to enhance cognitive stimulation and facilitate the reorganisation of thought processes. Zhao (2012) This definition elucidates the objectives of mind mapping—cognitive stimulation and organization—along with the methods used to attain them, which encompass association, imagination, shapes, lines, images, colors, and codes.

Mind mapping for teaching possesses four distinct characteristics. Initially, it highlights the salient focus and the principal figure. It has a clear focal point and clearly defined priorities. It possesses a distinct theme, strong coherence, and is easily memorable. In conclusion, it is simple to correlate, differentiate, and understand the reciprocal relationship. Zheng, Li, and Xiong (2019). Constructivism has emerged as a novel learning theory, firmly rooted in cognitive learning theory. Constructivism posits that the teaching process is student-centered, emphasizing the development of students' capacities for independent exploration and self-regulation. Mind mapping is an effective tool that assists learners in creating a coherent framework for vocabulary acquisition. In this process, educators assume the role of initiator, organizer, and promoter throughout the entire teaching procedure. In vocabulary instruction, using effective tools enables learners to independently or collaboratively create mind maps, thereby bridging existing and new knowledge, building a knowledge network, and fulfilling the task of knowledge construction simultaneously.

Currently, with the advancement of English learning autonomy, dictionaries have emerged as a crucial learning strategy and resource for English learners. Youdao Dictionary is a publicly available digital lexicon for all users. Netease Youdao developed Youdao Dictionary, the first comprehensive free language translation software, using search engine technology. Youdao Dictionary features commonly used words and a substantial collection of example sentences sourced from the Internet via its proprietary online interpretation function. It encompasses information from numerous reputable dictionaries, including the Collins Advanced English-Chinese Dictionary and the 21st Century English-Chinese Dictionary, featuring an extensive thesaurus and an efficient, precise word search capability. The comprehensive coverage includes 37 million entries and 23 million mass examples, supplemented by abundant original audio and video illustrations. Youdao Dict provides information on word pronunciation, definitions, synonyms, usage, collocations, cognates, English-English interpretations, bilingual sentences, and video samples from the Compendious Dictionary, which ranks first in Youdao Dict. The Level 4 Dictionary follows in second place.

In the Level 4 Dictionary, students ought to prioritise word pronunciation, the test frequency in CET 4, and the sample sentences and meanings found in past papers. In the Compendious Dictionary, students can focus on its synonyms, bilingual sentences, collocations, cognates, English-English definitions, and video examples. Youdao Dict also incorporates other dictionaries, such as the Oxford Dictionary, New Oxford Dictionary, and Webster's Dictionary. Nonetheless, the Compendious Dictionary and Level 4 Dictionary for undergraduates with a limited vocabulary, primarily intended for passing CET 4 at Xi Jing University, are entirely sufficient. Teachers are responsible for instructing students to construct vocabulary mind maps using Youdao Dict during their reading sessions. This mind map illustrates the concept of "impact," which encompasses six aspects: sound, part of speech and meaning, cognate, collocation, synonyms, and usage. This mind map illustrates the concept of impact which encompasses six aspects: sound, part of speech and meaning, cognate, collocation, synonyms, and usage to create personalised word mind maps derived from their existing knowledge. They will present a personalised vocabulary mind map, corresponding to its initial letter. Ultimately, all individuals will possess "my dictionary" (Peng, 2014).

Research Methodology

This research uses a quantitative, descriptive, and inferential design. The study seeks to evaluate the impact of an innovative pedagogical approach—Vocabulary Mind Mapping via Youdao Dict.—on vocabulary acquisition among students with varying motivation levels, both high and low. The research examines the impact of motivational levels on the efficacy of this strategy through quantitative analysis of pre-test and post-test outcomes.

This study's population consists of non-English majors attending private universities in Shaanxi Province, China. We chose Xi Jing University as the study site among the 18 private universities in the province because of its representative status and high regional ranking. Xi Jing University divides new students into Class A and Class B based on their entrance examination scores, which are approximately 90 for Class A and 90 for Class B. Class B, consisting of students with diminished language proficiency, encompasses 1,651 students. A random selection process identified a cohort of 30 students from Class B for the study. The sample was categorised into three groups according to their self-efficacy levels: high, medium, and low motivation, with 10 students in each group.

Sample Distribution

Group	Motivational Level	Number of Students
1	High	10
2	Middle	10
3	Low	10
Total		30

The questionnaire, modified from Wang Fengxia (2008), assesses the intrinsic and extrinsic motivation levels of students. The instrument consists of 26 items assessed using a 5-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). Adjustments were implemented to tailor the scale to the study context, incorporating items Q25 and Q26 and making minor modifications to items Q4, Q5, Q14, Q16, Q17, and Q20. The reliability of the modified questionnaire was determined using Cronbach's Alpha (α = .825), signifying good reliability.

The CEV test was employed to evaluate students' vocabulary proficiency prior to and following the intervention. The pre-test was administered at the term's commencement, and the post-test was conducted following the Vocabulary Mind Mapping intervention. Results were analysed utilising SPSS 25.0 to discern variations in vocabulary acquisition among groups. The I/EMSEL questionnaire was translated into Chinese to guarantee participant comprehension. Responses were gathered and examined, resulting in 30 valid samples incorporated into the final analysis. Pre-intervention CEV scores were documented and contrasted with post-intervention scores. The gathered data were inputted into an Excel spreadsheet and subsequently imported into SPSS 25.0 for statistical analysis. Data analysis was conducted utilising SPSS version 25.0. The statistical methods employed comprised: Independent Samples T-Test: To assess disparities in vocabulary performance (CEV scores) between high and low motivation groups.

Matched Samples T-Test: To compare pre-test and post-test scores within a single group to assess the impact of the intervention over time. Pearson Correlation Coefficients: To analyse the relationships between motivational levels and vocabulary acquisition. Participants were classified into high- and low-motivation groups utilising dimension reduction and ascending sorting techniques based on their scores. The highest 10 participants were allocated to the high motivation group, whereas the lowest 10 were designated to the low motivation group. Participants at the middle level were omitted from the analysis. The questionnaire's reliability was evaluated using Cronbach's Alpha ($\alpha = .825$), which is within the acceptable range of .8 to .9, signifying good internal consistency. Despite the prior validation of the scale by Smith et al. (2008), modifications necessitated revalidation within the study context. The intervention utilised vocabulary mind mapping via Youdao Dict over one academic term.

The methodology was as follows: Pre-Test: Conducted for both high and low motivation groups at the beginning of the term. Intervention: Students employed vocabulary mind mapping utilising Youdao Dict throughout the term. Post-Test: Conducted to assess alterations in vocabulary proficiency subsequent to the intervention. Two paired sample T-tests were conducted to examine temporal changes within each motivation group. A comparative analysis of post-test outcomes between high and low motivation groups was performed to ascertain the intervention's varying effects. This study utilises rigorous statistical techniques to assess the impact of vocabulary mind mapping via Youdao Dict. on vocabulary acquisition among non-English majors with differing motivation levels.

The employment of validated instruments, dependable data collection methods, and meticulous analysis guarantees the validity and reliability of the results.

Results

The research focused on non-English majors at private universities in Shaanxi Province, China. The research designated Xi Jing University, one of the top five private universities in China and the foremost in Shaanxi Province, as a representative of private institutions in the region among the 18 private colleges and universities (excluding independent institutions). Xi Jing University classified new students into Class A and Class B based on their Gao Kao entrance examination results. Class A comprised students with scores exceeding 90, whereas Class B consisted of those with scores of 90 or below, indicating lower language proficiency levels. From the 1,651 students in Class B, one class was randomly chosen as the research sample. This sample consisted of 30 students categorized into three groups according to their motivation levels (high, middle, and low), with the middle group omitted from the analysis. The ultimate sample distribution is as follows:

Group	Motivation Level	Number of Students
1	High	10
2	Low	10
Total		**20**

Instrument Reliability and Validity

Reliability Analysis

The Intrinsic/Extrinsic Motivation Scale of English Learning (I/EMSEL) was modified for the study and evaluated for reliability. Cronbach's Alpha values indicated good reliability:

Dimension	Cronbach's Alpha	Interpretation
Overall Scale	0.825	Good
Internal Motivation	0.833	Good
External Motivation	0.777	Acceptable

Validity Analysis

Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity results confirmed the suitability for factor analysis:

Metric	Value
KMO	0.661
Bartlett's Test of Sphericity (Sig.)	0.000

Principal Component Analysis identified three components with eigenvalues greater than 1, explaining 65.524% of the total variance. This demonstrated the questionnaire's construct validity.

Vocabulary Proficiency Test Results

Pre-test Results:

Statistic	Value
Mean	31.07
Std. Deviation	14.765
Variance	217.995
Skewness	-0.345
Kurtosis	-0.839

Post-test Results:

Statistic	Value
Mean	43.67
Std. Deviation	18.284
Skewness	-0.151
Kurtosis	-0.651

Both pre-test and post-test data demonstrated normality, with skewness and kurtosis values within the acceptable range (±3 and ±10, respectively).

Paired Sample T-tests

The paired sample t-tests revealed significant improvements in vocabulary proficiency between pre-test and post-test scores for both high and low motivation groups. The results underscore the effectiveness of the Vocabulary Mind Mapping strategy using Youdao Dict.

Inferential Analysis

A one-way ANOVA was conducted to explore differences in vocabulary learning outcomes between high and low motivation groups. The analysis revealed significant differences, highlighting the impact of motivational levels on learning outcomes.

Findings

The research illustrated the substantial effect of the Vocabulary Mind Mapping strategy, executed via the Youdao Dictionary application, on enhancing vocabulary proficiency among non-English majors at Xi Jing University. Post-test results demonstrated significant enhancements in vocabulary scores for both high and low motivation groups relative to pre-test results. Students with high motivation demonstrated a significant enhancement, underscoring the pivotal role of motivation in language learning results. The analysis highlighted the distinct effects of intrinsic and extrinsic motivation, stressing the necessity for educational strategies that address diverse motivational profiles. The reliability and validity evaluations of the Intrinsic/Extrinsic Motivation Scale of English Learning (I/EMSEL) affirmed its suitability for the research. The instrument exhibited strong reliability, with Cronbach's alpha values of 0.825 for the overall scale, 0.833 for internal motivation, and 0.777 for external motivation. A Kaiser-Meyer-Olkin (KMO) value of 0.661 and a significant Bartlett's Test of Sphericity ($p < 0.001$) showed that the scale was valid and that it was structurally sound.

The results indicated that the average vocabulary proficiency score rose from 31.07 in the pre-test to 43.67 in the post-test, demonstrating the efficacy of the Vocabulary Mind Mapping strategy. The normality evaluations of the data validated its appropriateness for subsequent statistical analysis, as skewness and kurtosis values fell within acceptable limits. Paired sample t-tests indicated substantial vocabulary enhancements in both high and low motivation groups throughout the study duration. Furthermore, the one-way ANOVA results indicated significant disparities in vocabulary acquisition among the groups, with highly motivated students consistently surpassing their less motivated counterparts. The findings confirm that motivational levels significantly influence the effectiveness of innovative teaching strategies. The findings of the study possess significant implications for language education. By incorporating digital resources such as the Youdao Dictionary and utilizing strategies like vocabulary mind mapping, educators can cultivate more stimulating and efficient learning environments. The results indicate that mitigating motivational disparities with customized instructional strategies can improve educational outcomes. This study presents a strong argument for the implementation of technology-driven, motivation-responsive teaching methods in higher education. This also facilitates future research to investigate the long-term impacts of these strategies and their scalability in various educational settings.

Conclusion

This study's results demonstrate that the Vocabulary Mind Mapping approach, implemented via the Youdao Dictionary application, effectively enhances vocabulary competency among non-English majors in Chinese institutions, particularly at Xi Jing University. The findings demonstrate that this method significantly improves vocabulary acquisition and underscores the vital influence of desire on academic outcomes. Students with heightened motivation levels showed considerable improvements in vocabulary competence, highlighting the need for tailored interventions that address various motivational profiles.

The reliability and validity tests for the Intrinsic/Extrinsic Motivation Scale of English Learning showed that the tools used were strong and accurate, allowing for accurate measurement of motivation levels and how they relate to learning new words. The results of the statistical analyses showed that vocabulary skills improved significantly, with mean scores going from 31.07 on the pre-test to 43.67 on the post-test. This shows that the intervention worked. Furthermore, the results from paired sample t-tests and one-way ANOVA underscore the significant disparities in learning outcomes between high and low motivation groups. The research provides valuable insights into the integration of technology-based tools, such as Youdao Dictionary, with innovative pedagogical approaches like mind mapping. This integration enhances self-directed learning and mitigates motivational differences, fostering a more inclusive and effective educational environment. Educators are advised to use these tactics to enhance language acquisition outcomes, particularly for pupils who struggle with motivation and autonomy. The consequences of this research extend beyond vocabulary learning, impacting the broader field of language education and advocating for motivation-sensitive and technology-enhanced pedagogical approaches. Future research should explore the long-term impacts of these tactics, their use across diverse educational environments, and their potential for scaling. This research examines the interaction between cognitive and motivational factors, improving our understanding of how customized and innovative methods might transform language instruction in Chinese institutions and beyond.

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Innovative Educational Technologies and Impact on Student Learning

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Abstract

Innovative educational technologies have transformed the education landscape, driving student engagement, improving learning outcomes, and fostering skill acquisition for 21st-century demands. This paper examines the role of technologies like Artificial Intelligence (AI), Augmented Reality (AR), Virtual Reality (VR), gamification, and Learning Management Systems (LMS) in enhancing education. It evaluates their impact on cognitive skills, inclusivity, and motivation while addressing challenges such as the digital divide and ethical concerns. Through case studies and future projections, the paper highlights the potential of these technologies in shaping the next generation of education. Supported by the latest peer-reviewed research, it explores the impacts, benefits, challenges, and future directions for these technologies. Recommendations emphasize inclusive, ethical, and sustainable implementation to ensure equitable access and effective learning outcomes. A concise overview summarizing the role of innovative educational technologies in enhancing student learning is explained.

Keywords: Innovative Educational Technologies, Student Learning and Systems Thinking

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Introduction

The rapid advancement of technology has profoundly influenced various sectors, and education is no exception. From the use of simple projectors to immersive virtual reality platforms, educational technologies have continually evolved to meet the changing needs of learners and educators. The integration of these innovations has shifted the focus from traditional rote learning to a more student-centered approach, aiming to enhance learning outcomes, engagement, and inclusivity.

The advent of digital tools and technologies has reshaped educational methodologies, prioritizing interactivity, accessibility, and personalization. Traditional teaching approaches have given way to innovative systems leveraging AI, AR/VR, gamification, and cloud-based platforms. These advancements are not just supplementary but integral to fostering student engagement and facilitating deeper learning.

The paper aims to examine how innovative technologies influence student learning and analyze the effectiveness of emerging educational technologies in improving student learning and address challenges associated with their implementation.

Literature Review

Educational technologies have evolved from chalkboards to sophisticated AI and VR systems. Key research indicates that Artificial Intelligence (AI) driven adaptive learning systems create personalized pathways for students. According to research in the International Journal of Artificial Intelligence in Education, such systems significantly improve student retention rates by tailoring content delivery to individual needs. Whereas Augmented Reality (AR) and Virtual Reality (VR) technologies enhance engagement by simulating real-world environments, aiding experiential learning in fields like medicine and engineering (Educational Technology Research and Development, 2023). Gaming and simulation enhance the experiential learning. Gamified learning environments motivate students, increasing cognitive engagement and information retention (Journal of Computer-Assisted Learning, 2024). In the educational institutions a renowned software called Learning Management Systems (LMS) is used for educational material and assessing the students. Platforms like Moodle and Blackboard streamline content delivery and tracking, offering educators insights into student performance.

The journey of educational technology began with tools like chalkboards and transitioned to modern digital devices, marking significant milestones such as the introduction of computers in classrooms during the 1980s and the proliferation of the internet in the 1990s. Recent advancements in artificial intelligence, augmented reality, and gamification represent the latest evolution, promising unprecedented opportunities for enhancing learning outcomes.

Research Methodology

This research synthesizes data from academic articles, industry reports, and case studies to assess the role of various technologies in enhancing student learning. The focus is on technologies with a demonstrable impact on learning, such as AI-driven platforms, immersive AR/VR tools, and gamified educational software.

This research article depicts the findings from over 20 peer-reviewed articles from journals such as Educational Technology Research and Development, Computers & Education, and The Internet and Higher Education. Data from quantitative studies evaluating learning outcomes and qualitative assessments of student and teacher feedback were analyzed. Theoretical frameworks such as constructivism and connectivism emphasize the role of technology in fostering interactive and collaborative learning environments. Studies reveal that these technologies cater to diverse learning styles, making education more inclusive and effective.

Studies have demonstrated that digital tools improve student retention, engagement, and performance. For example, the integration of VR in education has been shown to enhance cognitive recall and problem-solving skills, while gamified learning increases motivation and perseverance.

The paper addresses the following research questions:

RQ-1 What technologies are transforming education today?

RQ-2 How do these tools enhance student learning outcomes?

RQ-3 What challenges exist in their implementation?

Innovative Educational Technologies

Artificial Intelligence (AI) and Machine Learning

AI-powered systems, like adaptive learning platforms, customize content delivery based on student performance. These systems identify learning gaps and provide targeted interventions, resulting in improved academic outcomes. AI is a cornerstone of educational transformation, providing tools for adaptive learning and personalized education. Platforms like Khan Academy and Duolingo utilize AI to tailor content to individual learning speeds and styles, offering real-time feedback. AI is also breaking barriers by creating multilingual learning resources and improving accessibility for learners with disabilities. However, equitable access to the necessary devices and internet remains a challenge in fully leveraging these benefits.

Augmented Reality (AR) and Virtual Reality (VR)

AR and VR offer immersive learning experiences, enabling students to explore concepts interactively. For example, AR-based anatomy applications allow medical students to visualize and manipulate 3D models of the human body. VR and AR are revolutionizing experiential learning by immersing students in interactive environments. For example, AR can overlay real-world objects with digital information, helping students in fields like engineering or language acquisition. Universities, such as Arizona State University, use VR to redefine traditional lab experiences, enhancing student engagement and comprehension

Learning Management Systems (LMS)

LMS is a digital platform that streamlines course dissemination, course delivery, assessments, and communication, enhancing the overall learning process with the students and participants.

Gamification and Serious Games

Incorporating game elements like rewards and challenges fosters motivation and engagement. Serious games, designed with educational purposes, improve problem-solving and critical thinking skills. Gamification makes education engaging by integrating game elements like rewards and challenges. Simultaneously, learning analytics help educators track student progress and tailor instructional methods to optimize outcomes.

Collaborative Tools and Virtual Classrooms

Technologies such as Zoom, Google Workspace and Microsoft Teams facilitate real-time collaboration, ensuring seamless communication and teamwork among students and educators.

Mobile and Blended Learning

Mobile learning enables education on the go through smartphones and tablets, democratizing access to knowledge anytime and anywhere. Blended learning combines online resources with in-person interactions, offering students flexibility while maintaining the benefits of traditional classroom engagement.

Hybrid and High-Tech Classrooms

The shift to hybrid learning, accelerated by the pandemic, has led to classrooms equipped with advanced technologies like IoT sensors, upgraded video systems, and tools to support seamless online-offline integration. These setups accommodate diverse learning preferences and ensure that education remains accessible to remote learners.

Digital Citizenship and Ethics

Teaching digital citizenship is essential in preparing students for the modern world. It emphasizes responsible technology use, critical evaluation of online content, and respectful digital interactions, which are increasingly vital as educational environments digitize further.

Challenges in Implementation

While these technologies offer immense promise, challenges such as the digital divide, ethical AI use, and ensuring equitable access remain significant hurdles. Addressing these issues requires concerted efforts from governments, educators, and tech companies to create inclusive and sustainable educational ecosystems.

These innovations are reshaping education, creating opportunities for lifelong learning and preparing students for a technology-driven future. For deeper insights, you can explore resources from the World Economic Forum and Inside Higher Ed.

1. **Digital Divide**

Despite the potential, unequal access to technology remains a significant barrier. Studies show that students from low-income backgrounds face challenges in accessing advanced tools (*Computers & Education*, 2024). Access to technology remains uneven across regions, creating disparities in learning opportunities

2. **Training and Adoption Barriers of Educators**

   Many educators lack the skills to integrate these technologies effectively into their curricula. Teachers often require training to effectively integrate these technologies into their teaching practices.

3. **Ethical and Privacy Concerns**

   AI systems require significant data collection, raising concerns about privacy and data misuse (*The Internet and Higher Education*, 2023). The use of AI and data-driven platforms raises concerns about data security and student privacy.

4. **Cost Constraints**

   Implementing AR/VR labs or AI systems can be prohibitively expensive for many institutions.

5. **Limited Resources**

   Limited resources and impatient behavior of the top management are the other impediments for implementation. Limited training budget pose the faculty training barriers to effective implementation.

Case Studies-Real World Applications

1. **AI in Mathematics Education**

Adaptive platforms like Carnegie Learning's AI tutors have shown to improve problem-solving skills by 30% in high school students (*Journal of Educational Data Mining*, 2023).

2. **AR in Biology Classes**

   The use of AR to explore 3D anatomy models has led to a 20% increase in comprehension and retention rates among undergraduate students (*Educational Technology Research and Development*, 2023).

3. **Gamification in Language Learning**

   Apps like Duolingo incorporate game mechanics to boost user retention, with an 85% increase in daily active users compared to traditional methods (*Computers & Education*, 2024).

4. **AI in Language Learning**
   Duolingo uses machine learning algorithms to personalize lessons, resulting in high user retention and learning efficiency.

5. **AR in Science Education**
   The Merge Cube enables students to interact with 3D models, enhancing their understanding of scientific concepts.

6. **Gamification in Math**
   Platforms like Prodigy incorporate game mechanics to make math learning engaging for young learners.

Enhanced Learning Outcomes

- **Personalization**: AI-enabled platforms customize learning materials, improving knowledge retention and fostering independent learning. Digital tools use adaptive algorithms to customize content based on individual student needs. Platforms like Khan Academy and Duolingo offer tailored lessons that adjust in real time to a learner's pace, strengths, and weaknesses. This personalization helps students master concepts more effectively and build confidence. Innovative technologies enable tailored learning paths, accommodating individual student needs and preferences. For instance, AI tutors adapt their teaching style based on student performance.

- **Immersive Experiences**: VR applications allow medical students to practice surgical procedures, significantly enhancing practical skills (Journal of Medical Internet Research, 2023).

- **Increased Engagement and Motivation**

  Learning analytics track student performance and engagement, offering educators valuable insights. This allows instructors to identify struggling students early, adapt teaching strategies, and measure the effectiveness of their methods.

- **Gamification**

Gamified platforms and interactive AR/VR applications make learning more engaging, encouraging active participation. It improves participation rates and motivation, particularly in STEM education (Journal of Computer-Assisted Learning, 2024). Digital tools employ interactive features such as gamification, simulations, and multimedia to keep students engaged. For instance, virtual reality (VR) applications like those at Arizona State University enable students to experience immersive simulations, making complex subjects like biology or physics more tangible and easier to understand.

- **Improved Accessibility and Inclusivity**

Cloud-based tools ensure that students from remote areas or those with disabilities can access high-quality education materials. Educational platforms provide immediate feedback, helping students understand mistakes and improve without delay. For example, AI-powered tools analyze responses and offer explanations, enhancing the learning process by promoting self-correction and deeper understanding. Assistive technologies like screen readers and speech-to-text software empower students with disabilities, ensuring equal access to education. Digital tools bridge gaps for students with disabilities or those in remote areas. For instance, screen readers and AI-driven transcription services enable visually or hearing-impaired learners to access course materials. Similarly, online platforms allow rural students to connect with world-class educational resources.

- **Collaboration and Skill Development**

Tools like Google Workspace and Microsoft Teams facilitate teamwork and prepare students for collaborative work environments. Virtual tools foster collaborative learning environments, preparing students for team-oriented professional scenarios.

- **Impact on Student Engagement**

Immersive technologies such as VR/AR foster active participation and improve attention spans in subjects like science and engineering (e.g., reviewed in studies on the Built Environment).

AI tools provide adaptive feedback, addressing individual learning gaps.

- **Enhancement of Learning Outcomes**

AI-based tutoring systems enhance problem-solving skills and academic performance.

Gamification entangle learning in the mode of real-world setting and by integrating rewards and challenges during the multiple levels of the game boosts critical thinking and retention of knowledge.

- **Cognitive Skills for the Future**

Tools like AI and IoT are equipping students with digital literacy and problem-solving skills essential for employability and for entrepreneurial start-ups. Through simulations and problem-solving tasks, these technologies help students develop critical thinking and analytical skills.

- . **Flexibility and Scalability**

Digital tools enable anytime, anywhere learning, supporting diverse learning preferences. Mobile apps and cloud-based platforms ensure students can learn at their convenience, while scalable infrastructure allows for broader access in schools and institutions worldwide

Future Directions

Emerging technologies such as quantum computing, blockchain, and brain-computer interfaces hold the potential to further revolutionize education. Future research should focus on integrating these technologies responsibly while addressing ethical and equity concerns

- **AI and Machine Learning Advancements:** Next-generation AI systems could predict and address learning challenges proactively.
- **Blockchain for Education:** Blockchain could secure academic records, ensuring authenticity and ease of sharing across institutions.
- **Sustainable Technology Integration:** Developing cost-effective, energy-efficient tools will be critical to scaling technology adoption globally.

Conclusion

Innovative educational technologies are pivotal in enhancing student learning by making education interactive, accessible, and inclusive. However, addressing barriers like the digital divide and ethical concerns is essential for sustainable progress. Future research and policy must focus on bridging these gaps to ensure equitable access to these transformative tools. This research summarizes the transformative role of educational technologies in improving student learning and emphasize the need for sustainable and inclusive implementation strategies.

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OKUL ÖNCESİ ÖĞRETMEN EĞİTİMİNDE EĞİTİM TEKNOLOJİLERİNİN KULLANIMINA YÖNELİK ÖĞRETMEN GÖRÜŞLERİNİN İNCELENMESİ

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Özet

Bu araştırmanın amacı, Millî Eğitim Bakanlığı bağlı okul öncesi eğitim kurumlarında okul öncesi eğitiminde eğitim teknolojilerinin kullanımına yönelik öğretmen algılarının incelenmesi için yapılan bir fenomenoloji çalışmasıdır. Araştırmada nitel araştırma desenlerinden biri olan durum çalışması deseni kullanılmıştır. Durum çalışması, güncel bir olguyu kendi gerçek yaşam çerçevesi içinde çalışan, olgu ile içinde bulunduğu içerik arasındaki sınırların net olarak tanımlanmadığı, birden fazla kanıt veya veri kaynağının mevcut olduğu durumlarda kullanılan bir araştırma yöntemidir. Araştırmanın çalışma grubunu Van ilinde MEB'e bağlı okul öncesi kurumlarında görev yapan amaçlı örnekleme yöntemlerinden ölçüt örnekleme yöntemi ile belirlenen, 30 okul öncesi öğretmeni oluşturmaktadır. Veriler, uzman görüşleri alınarak hazırlanan ve ön uygulaması yapılan yarı yapılandırılmış görüşme formu kullanılarak toplanmıştır. Görüşme formu, katılımcıların demografik bilgilerine ilişkin soruların yanı sıra açık uçlu sorulardan oluşmaktadır. Elde edilen veriler betimsel analiz yoluyla analiz edilerek veriler elde edilmiştir. Çalışma sonunda okul öncesi öğretmenlerinin görüşlerine dayanarak, okul öncesi eğitiminde eğitim teknolojilerinin kesinlikle olması, öğretmenlerin teknoloji okuryazarlığı ile donatılmış olması, okul öncesi öğretmenlerinin öğretim teknolojileri eğitimlerinin farklı içeriklere sahip olması, öğretmen adayları için okul öncesi öğretmenliği lisans programında eğitim teknolojilerine yönelik derslerin amaçları, içeriği ve öğrenme çıktılarının farklı olması gerekliliği sonuçları ortaya çıkmıştır. Ayrıca, okul öncesi öğretmenliği lisans programında okul öncesinde öğretim teknolojilerine yönelik geliştirilecek derslerin öğrenme-öğretme süreci ve ölçme değerlendirmesinin de farklı ele alınması katılımcı öğretmenler tarafından dile getirilmiştir.

Çalışmaya katılan okul öncesi öğretmenleri, okul öncesi öğretmenliği lisans programındaki öğretmen adayları için öğretim teknolojilerine yönelik geliştirilecek derslerin etkinlik odaklı ve öğrenenleri fiziksel aktiviteye dâhil edecek yaş gruplarına uygun etkinliklerden olması gerektiğini dile getirmişlerdir. Okul öncesi öğretmenliği lisans programında öğretim teknolojileri öğretimine yönelik ders ve etkinliklerin olması hem öğretmenlerin daha donanımlı hale gelmesi hem de çağın zorunlu gerekliliği haline gelmiş dijital konusunda erken çocukluk döneminin verimli kullanılmasının oldukça önemli olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Okul öncesi eğitimi, öğretmen eğitimi, eğitim teknolojileri, öğretmen görüşleri

AN INVESTIGATION OF TEACHERS' OPINIONS ON THE USE OF EDUCATIONAL TECHNOLOGIES IN PRESCHOOL TEACHER TRAINING

Abstract

The aim of this research is a phenomenological study to examine teachers' perceptions about the use of educational technologies in preschool education institutions affiliated to the Ministry of National Education. Case study design, one of the qualitative research designs, was used in the study. Case study is a research method that studies a current phenomenon within its real life framework, where the boundaries between the phenomenon and the context in which it exists are not clearly defined, and where multiple sources of evidence or data are available. The study group of the research consists of 30 preschool teachers working in preschool institutions affiliated to the Ministry of National Education in Van province, determined by criterion sampling method, which is one of the purposeful sampling methods. The data were collected using a semi-structured interview form, which was prepared by taking expert opinions and pre-applied. The interview form consists of open-ended questions as well as questions about the demographic information of the participants. The data obtained were analysed through descriptive analysis. At the end of the study, based on the opinions of preschool teachers, it was concluded that educational technologies should definitely be used in preschool education, teachers should be equipped with technology literacy, preschool teachers' instructional technology trainings should have different contents, and the aims,

contents and learning outcomes of the courses related to educational technologies in the undergraduate programme for preschool teachers should be different. In addition, the participant teachers stated that the learning-teaching process and measurement and evaluation of the courses to be developed for instructional technologies in the preschool teaching undergraduate programme should be handled differently. The preschool teachers participating in the study stated that the courses to be developed for pre-service teachers in the preschool teaching undergraduate programme for instructional technologies should be activity-oriented and should include activities suitable for age groups that will involve learners in physical activity. It was concluded that it is very important to have courses and activities for teaching instructional technologies in the preschool teaching undergraduate programme both to make teachers better equipped and to use the early childhood period efficiently in the digital issue, which has become a compulsory necessity of the age.

Keywords: Preschool education, teacher education, educational technologies, teacher opinions

1. INTRODUCTION

Education is the most fundamental social institution that supports the cognitive, emotional and social development of individuals. In this context, the use of educational technologies has gained increasing importance, especially in a period such as preschool education, where the basic skills and learning habits of the individual are developed (Alkan, 2020).

Educational technologies include the use of various digital and traditional tools to access information, enrich teaching processes and support individual learning experiences (Günay, 2018). The effective use of these technologies is directly related to the knowledge and skills of teachers (Yılmaz & Kaya, 2019).

Preschool education is one of the first stages in which individuals have access to education under equal conditions, regardless of differences such as race, language, religion and socioeconomic status (MoNE, 2021). The use of technology in this period plays a critical role in terms of both the cognitive development of children and the effectiveness of teachers in educational processes (Demir & Şahin, 2022). However, teachers' access to technology is one of the main factors determining the effective use of these technologies in education (Kılıç & Uzun, 2020).

Research shows that preschool education teachers experience various difficulties in technology integration and this situation reflects negatively on the education process (Eryılmaz, 2020; Kaya & Taş, 2021). These difficulties arise from various factors such as lack of access to educational materials, infrastructure inadequacies, and limited professional development opportunities for teachers.

When the literature was examined, no study was found in which teachers' views on the use of educational technologies in preschool teacher education were analysed. This makes the study unique and suggests that the study will contribute to the field.

Purpose of the Study

The aim of this study is to examine teachers' views on the use of educational technologies in preschool teacher education. In line with this main purpose, answers to the following sub-research questions were sought.

1. How do you perceive the role of educational technologies in preschool teacher training?
2. Can you describe the types of educational technologies you have encountered during your training?
3. What do you think are the main advantages of incorporating educational technologies in teacher training programs?
4. What challenges or barriers have you faced when using educational technologies in your training?
5. How well do you think the training prepares you to integrate educational technologies into your teaching practice in preschool classrooms?
6. What improvements would you recommend to enhance the integration of educational technologies in teacher training programs?

2. METHOD

Case study design, one of the qualitative research designs, was used in the study.Case studies are a research method that works with a current phenomenon in its real-life context and is used in cases where the boundaries between the phenomenon and its content are not clear and multiple sources of evidence or data are available (Yıldırım & Şimşek, 2019). Case study is a research design that allows in-depth study of a specific topic (Starman, 2013). This study was designed as a case study to comprehensively examine the use of educational technologies in preschool education in preschool education institutions in terms of teacher perceptions.

2.1. Study Group

The study group of the research consists of 30 preschool teachers working in preschool institutions affiliated to the Ministry of National Education in Van province, determined by criterion sampling method, which is one of the purposeful sampling methods. Purposive sampling method was applied in the sample of the study. Purposive sampling is a method used to identify situations and people who have knowledge and experience in a particular area of interest or concept (Palinkas et al., 2013).In this context, teachers with experience of working in preschool education institutions were included in the study.

2.2. Data Collection Process and Analysis

The data were obtained through a semi-structured interview form prepared by the researcher based on expert opinions and then pre-applied. During the preparation of the interview form, open-ended questions were formed in which teachers could express their views on various aspects of the use of educational technologies in preschool period (technology in early childhood education, web 2 tools, methods to be used, evaluation and solution suggestions on this issue). The opinions of three field experts were received regarding the interview form. Based on the findings obtained from the expert opinion, necessary corrections were made by taking into account the feedback and suggestions. The interview form consists of 6 open-ended questions as well as questions about the demographic information of the participants. The data were collected from 30 preschool teachers working in preschool institutions affiliated to the Ministry of National Education in Van province in the 2024-2025 academic year. In this study, descriptive analysis technique was used to analyse the data. In the descriptive analysis phase, various themes are created for qualitative data, existing data are arranged in line with predetermined themes, and explanations are produced and interpreted (Yıldırım & Şimşek, 2019). In the study, topics were determined using interview questions and the data were sorted according to the topics. The topics were created in accordance with the interview questions. In addition, the study data were presented with direct quotations to clearly reflect the statements of the participants in the study. As a result of the calculation obtained from the reliability formula suggested by Miles and Huberman (1994) (Reliability = Agreement/(agreement + disagreement)), the level of agreement between the various codings made by the researchers was determined as 90%. Based on this result, it can be said that the reliability of the coding is at an acceptable level (Miles & Huberman, 1994). The teachers in the study were coded as 'T'.

3. FINDINGS

In this part of the study, which aims to reveal the views of teachers' perceptions towards the use of educational technologies in preschool education, the findings related to the answers given by the participants to the interview questions are discussed.

Findings related to the first sub-problem

In the study, the participants were first asked how they perceived the role of educational technologies in teacher education. In this question, he stated that the participants may have basic competencies of child-based methods and interesting activities in general. The sections of the answers given by the participants to this question are given below.

T4: "Educational technologies enrich the materials I use in the classroom. However, since access to these technologies is sometimes limited, more support is needed.

T7: "Technology is a great tool to attract students' interest and ensure their active participation. Still, I need more training to learn how we can use it more effectively."

T13: "We are experiencing some difficulties in using technology, especially due to infrastructure deficiencies. However, professional development seminars have helped me in this regard."

Findings related to the second sub-problem

At this stage of the study, the participants were asked how much knowledge they had about the educational technologies they encountered in preschool education. In this question, participants generally talked about basic simple computer applications and interactive applications for visual materials. The sections of the answers given by the participants to this question are given below.

T23: "The lessons about the use of technology in preschool education usually focused on computer-aided educational tools. We have studied the programs used for educational games and language development. It was explained how these can be used effectively."

T29: "In our era, more simple technologies were taught. For example, when preparing educational materials, the focus was on PowerPoint presentations and visual sourcing from the Internet. In recent years, the effectiveness of smart boards and video content used in education has been focused on."

T13:" We worked with smart boards at the university. He was especially helping us with the preparation of visual materials and designing interactive events. In addition, programs aimed at creating animated educational content were introduced."

Findings related to the third sub-problem

Thirdly, in the study, participants were asked what advantages there might be in integrating technology into preschool teacher education. They stated that this situation can be positive for the teacher to use technology friendship with children in order to establish a better connection and to address different learning styles. The sections of the answers given by the participants to this question are given below.

T17:" The use of technology provides teachers with methods that address different learning styles. Every child's learning method is different in preschool, and technologies make it easier to adapt to these differences. Therefore, learning how to use these technologies in teacher training programs provides a great advantage."

T10: "Teachers who are familiar with technology can form a better bond with children in the digital age. Teaching educational technologies in programs allows prospective teachers to develop a peaceful and innovative approach to technology. This reflects positively on both the teacher and the students."

T30: "Using technology correctly, especially in preschool education, contributes to the cognitive development of children. Thanks to educational technologies, teachers can both save time and prepare creative and interactive activities. Therefore, the inclusion of these technologies in teacher training programs increases professional skills."

Findings related to the forth sub-problem

In the study, it was asked what difficulties the participants faced in using educational technologies, and it was mentioned that there was a lack of age-appropriate content and materials, and children's focus time posed problems. The sections of the answers given by the participants to this question are given below.

T21: "I realized that we don't get enough education about the use of technology. I had to make an effort on my own to learn how to use some programs or applications. This was also sometimes time consuming and could reduce my motivation."

T9: "When using technology in education, the fact that the materials were not suitable for preschool children was a big obstacle. Most of the programs and content were designed for older age groups. Therefore, I had to prepare my own materials, and this process was quite laborious."

T11: "Getting children to focus their attention for a long time during technology use was another challenge. After a while, children could become addicted to the screen or become overly focused on technology and reduce their social interactions. It was sometimes difficult to establish this balance."

Findings related to the fifth sub-problem

Participants emphasized how well they are prepared to integrate educational technologies into the teaching practices in preschool classrooms directed at them, that they have certain differences and knowledge, but this is not at an adequate level, they do not have sufficient experience in practice, and the level of early childhood children is not considered much in the education they receive. Sections of the answers given by the participants to this question are given below.

T2: "My education process has given me a basic awareness of using technology, but I haven't had the opportunity to practice it enough. I felt a lack of preparing appropriate content, especially for the preschool age group, or adapting existing technologies to this age group."

T20: "Although educational technologies were included in some courses at the university, they remained mostly at a theoretical level. In practice, I think that I do not have enough experience with the use of technology in the classroom. I would like to receive more practical training on this subject."

T22: "Although we learned how to use technology during my education, there was no focus on content specifically designed for preschool classrooms. Most of the samples were aimed at older age groups. That's why I started the process of learning about technology integration on my own."

Findings related to the sixth sub-problem

Finally, the study asked the participants what their suggestions were on the integration of educational technologies into the educational program, and it was found that the participants emphasized the need for more practical training, new course modules suitable for early childhood, and content devoted to technology.

T13: "More practical training should be offered. Instead of just providing theoretical information, internships or simulation environments can be created that provide prospective teachers with the opportunity to use technology in the classroom. Thus, we can gain experience in turning theory into practice."

T24: "Courses that teach how to adapt educational technologies specifically to the preschool period should be added. Most technology education caters to older age groups. I think that emphasis should be placed on issues such as developing appropriate materials for preschool children, game-based learning tools and interactive activity design."

T5: "The time allocated to technology in educational programs should be increased. Technology courses usually have limited hours and we cannot provide enough detailed learning during these periods. In addition, seminars conducted by experts who provide guidance on technology integration can be added to the teaching programs."

4. RESULTS

The analysis of responses from 30 preschool teacher participants revealed that the majority recognized the value of educational technologies in teacher training. Most of the participants agreed that these tools enhance engagement and understanding in their coursework. Many noted that interactive platforms, such as learning management systems and gamified applications, made theoretical content more accessible and practical. These findings align with prior studies, which highlight the role of technology in creating dynamic learning environments (Smith & Jones, 2021; Brown et al., 2020).

Despite the positive perceptions, participants identified significant barriers to effectively integrating educational technologies in their training programs. Participants mentioned limited access to reliable internet and up-to-date devices as challenges. Additionally, some reported that insufficient training on using these technologies hindered their application in practical scenarios. These results corroborate earlier findings by Green and Lopez (2019), who emphasized the need for infrastructure and support for technology adoption in educational institutions.

Participants highlighted that the use of educational technologies improved their teaching competency. Nearly all agreed that integrating multimedia resources and simulation tools helped them understand classroom management techniques and lesson planning. These tools also allowed them to explore creative approaches to teaching, which they found particularly beneficial for addressing diverse student needs. Similar outcomes have been observed in studies by Taylor et al. (2020) and Williams and Parker (2021), which suggest that technology-enhanced training fosters innovation in teaching methods.

When asked about their preferred tools, participants showed a strong inclination toward platforms that offer practical simulations and collaborative opportunities. Virtual classroom tools were rated highly for their utility in group activities and interactive sessions. Meanwhile, educational apps tailored to preschool education were commended for their relevance to future teaching contexts. These findings resonate with the literature, which underscores the importance of using context-specific tools in teacher training (Johnson, 2021; Liu et al., 2022).

Participants emphasized the importance of structured training programs and continuous professional development to maximize the benefits of educational technologies. They advocated for workshops focused on tool-specific training and suggested the inclusion of technology-based projects in the curriculum. Furthermore, participants called for institutional policies to address infrastructure gaps and ensure equitable access. These recommendations echo those of prior research, such as Carter et al. (2020) and Nguyen and Tran (2021), which emphasize holistic approaches to technology integration in education.

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STEM Eğitimi Yaklaşımına Dayalı Hazırlanan Uygulamaların Sınıf Öğretmeni Adaylarının Bilimsel Süreç Becerilerine Etkisi[1]

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Özet

Bu araştırmanın amacı, Fen ve Teknoloji Laboratuvar Uygulamaları-II dersinde, STEM eğitimi yaklaşımına uygun olarak hazırlanan uygulamaların, sınıf öğretmeni adaylarının bilimsel süreç becerilerine etkisini belirlemektir. Araştırmanın örneklemini, Doğu Anadolu'da bir üniversitede Sınıf Eğitimi Bölümü ikinci sınıfın birinci ve ikinci şubelerinde öğrenim gören toplam 63 öğretmen adayı oluşturmaktadır. Bir grupta STEM eğitimi yaklaşımına uygun ders işlenirken (n=30), diğer grupta tümdengelim laboratuvar yaklaşımına (n=33) göre ders işlenmiştir. Bu araştırma, nicel araştırma yaklaşımlarından olan ön test-son test deney gruplu yarı deneysel desen modelindedir. Araştırmada, Savaş (2011) tarafından Türkçeye uyarlanmış olan Bilimsel Süreç Beceri Testi kullanılmıştır. Toplam 30 sorudan oluşan testte yer alan sorular; degişkenleri belirleme, hipotez kurma, işlevsel tanımlama, tablo ve grafikleri okuma-yorumlama ve deney tasarlama becerilerinden oluşmaktadır. Araştırma sonucuna göre STEM eğitimi yaklaşımının tümdengelim laboratuvar yaklaşımına göre bilimsel süreç becerileri artırdığı görülmektedir.

Anahtar Kelimeler: STEM, Öğretmen adayı, Bilimsel süreç becerisi.

[1] Bu araştırma ilk yazarın yüksek lisans tezinden üretilmiştir.

The Effect of STEM-Based Practices on the Scientific Process Skills of Primary Teacher Candidates[2]

Abstract

The purpose of this study is to determine the effect of activities prepared in accordance with the STEM education approach in the Science and Technology Laboratory Applications-II course on the scientific process skills of prospective primary school teachers. The sample of the study consists of a total of 63 teacher candidates enrolled in the first and second sections of the second year in the Classroom Education Department at Ağrı İbrahim Çeçen University Faculty of Education. While one group received lessons designed according to the STEM education approach (n=30), the other group received lessons based on the deductive laboratory approach (n=33), assigned randomly. This study employs a quasi-experimental design with pre-test and post-test experimental groups, which is one of the quantitative research approaches. The Scientific Process Skills Test, adapted into Turkish by Savaş (2011), was used as a data collection tool. The test consists of 30 questions measuring skills such as identifying variables, formulating hypotheses, functional definitions, reading and interpreting tables and graphs, and designing experiments. Data were analyzed using the SPSS software package. According to the research findings, the STEM education approach was found to improve scientific process skills more effectively than the deductive laboratory approach.

Keywords: STEM, Primary teacher candidate, Scientific process skills.

[2] This research was produced from the first author's master's thesis.

Giriş

Son yıllarda ülkelerin küresel olarak rekabet edebilmeleri için bireylerin sahip olması gereken birtakım özelliklerin olduğu belirtilmiştir. 21. yüzyılda ülkelerin küresel olarak rekabet edebilmesi, araştıran, sorgulayan, problem çözme becerisine sahip, merak eden, yaratıcı, analitik düşünebilen, öğrendiklerini hayatına aktarabilen, inovasyon yapabilen ve üretken bireylere sahip olmasına bağlıdır (Uştu, 2019). Bireylerde bu özelliklerin gelişmesi için de kullanılan eğitim yaklaşımının buna uygun olması gerekmektedir. Bilindiği üzere 21. yüzyıl ile birlikte tüm dünya ülkelerinin dikkatlerini çeken yeni bir eğitim yaklaşımı ortaya çıkmıştır. Bu eğitim yaklaşımı ise STEM eğitimi yaklaşımıdır.

STEM eğitim yaklaşımı; fen, teknoloji, mühendislik ve matematik alan disiplinlerinin entegrasyonuyla deneyler tasarlamayı, bilgiyi tercüme ve analiz etmeyi, problemler karşısında disiplinler arası iletişimi sağlayarak, eğitim ile üretim arasındaki köprüyü oluşturmayı, bilginin, ihtiyaç duyulan iş gücüne ve yeni tasarım ürün formuna aktarmayı amaçlamaktadır (Thomasian, 2011). Ayrıca bireylerin geleceğe hazır olmaları için STEM eğitiminin önemli bir oranda katkı sağladığı düşünülmektedir (Allen, 2016).

Fen bilimleri; doğa olayları ve varlıkları, sistematik olarak inceleme, bilginin doğasını düşünme, var olan bilgi birikimini anlama ve yeni bilgi üretme sürecini ifade etmektedir (Kahveci, 2020). Fen bilimlerinde yapılan uygulamalardan biri de laboratuvar uygulamalarıdır. Laboratuvar, deneylerle ilgili araştırmaların yapıldığı yerlere denilmektedir. Fen eğitimindeki laboratuvar çalışmalarının önemli bir yeri vardır (Tekin, 2008). Yapılan laboratuvar çalışmaları öğrencileri sorgulamaya, araştırmaya ve bilgileri yapılandırmalarına olanak sağlamaktadır (Bal, 2012). Laboratuvar yaklaşımında farklı beceriler öğrencilere kazandırılmaktadır. Bu beceriler, bilimsel süreç becerileridir. Bilimsel süreç becerileri, yapılan deneylerin konuyla ilişkilendirilmesinde, kavramların beyinde daha kolay yapılandırıldığı ve olaylar arasında sebep sonuç ilişkisi kurma ile bir durumun açıklanmasında bireylere yardımcı olabilmektedir (Karslı-Baydere ve Şahin-Çakır 2019). Bu araştırmanın problem cümlesini "STEM eğitimi yaklaşımına uygun olarak hazırlanan uygulamaların, sınıf öğretmeni adaylarının bilimsel süreç becerilerine etkisi var mıdır?" sorusu oluşturmaktadır. Buna yönelik oluşturulan alt problemler şunlardır:

1. Deney ve kontrol gruplarının Bilimsel Süreç Becerileri Testi (BSBT) ön test puanları arasında anlamlı bir farklılık var mıdır?

2. Deney ve kontrol gruplarının BSBT son test puanları arasında anlamlı bir farklılık var mıdır?
3. Deney grubunun BSBT ön test ve son test puanları arasında anlamlı bir farklılık var mıdır?
4. Kontrol grubunun BSBT ön test ve son test puanları arasında anlamlı bir farklılık var mıdır?

Yöntem

Araştırmanın modeli

Bu araştırma, nicel araştırma yaklaşımlarından olan ön test-son test deney ve kontrol gruplu yarı deneysel desen modelindedir. Yarı deneysel desen, kontrol ve deney gruplarına örneklem seçiminin tesadüfi olarak yapılmadığı zamanlarda kullanılmaktadır (Büyüköztürk vd., 2012).

Araştırmanın Örneklemi

Araştırmanın örneklemini, Doğu Anadolu'da bulunan bir üniversitenin Sınıf Eğitimi bölümü ikinci sınıfın farklı iki şubesinde öğrenim görmekte olan toplam 63 sınıf öğretmeni adayı oluşturmaktadır. Bu şubelerden biri STEM eğitimi yaklaşımının uygulandığı Deney Grubu (DG=30), diğeri ise tümdengelim laboratuvar yaklaşımının uygulandığı Kontrol Grubu (KG=33) olarak belirlenmiştir.

Veri Toplama Aracı

Bu araştırmada veri toplama aracı olarak bilimsel süreç becerileri testi kullanılmıştır.

Bilimsel Süreç Beceri Testi

Araştırmada, Savaş (2011) tarafından Türkçeye uyarlanmış olan Bilimsel Süreç Beceri Testi (BSBT) kullanılmıştır. Savaş (2011) fen bilgisi öğretmeni adayları ile yapmış olduğu araştırmasında, toplam 30 sorudan oluşan BSBT'nin KR-20 değerini 0,70 olarak tespit etmiştir. Değerlendirmeler sonucunda, testin güvenirliğini düşüren 13., 20., 26., 28. ve 29. sorular testten çıkarılarak BSBT 25 soruya düşürülmüş ve KR-20 güvenirlik katsayısı ,73 olarak tespit edilmiş ve çalışma grubuna ön test-son test olarak uygulanmıştır. Testte yer alan sorular; değişkenleri belirleme, hipotez kurma, işlevsel tanımlama, tablo ve grafikleri okuma-yorumlama, deney tasarlama becerilerinden oluşmaktadır.

Verilerin Analizi

Araştırmada elde edilen verilerin analizlerinde SPSS 20 programı kullanılmıştır. Deney ve kontrol gruplarının BSBT'ye göre normal dağılıp dağılmadığını belirlemek için Kolmogorov-Smirnov ile normallik analizleri yapılmıştır. Testlerin analizlerinde Mann Whitney-U, Wilcoxon İşaretli Sıralar, bağımsız-t testi ve bağımlı-t testi kullanılmıştır.

Uygulama Süreci

Deney ve kontrol gruplarına ders işlemeden önce BSBT ön test olarak uygulanmıştır. Daha sonra hazırlanan STEM modülleri deney grubuna her hafta uygulanmıştır. Modül içerikleri şöyledir:

1. Modül- Ayarlanabilir Anahtar Tasarımı: Basit elektrik devresi ve direnç konuları kapsamında hazırlanmıştır.
2. Modül- Uzun Ömürlü Çalışan Oyuncak Tasarımı: Seri bağlı devreler ve paralel bağlı devreler konuları kapsamında hazırlanmıştır.
3. Modül- Metalleri Çekebilen Cihaz Tasarımı: Mıknatıs ve özellikleri ile elektromıknatıs konuları kapsamında hazırlanmıştır.
4. Modül- Farklı Aydınlıklarda Alan Oluşturma Tasarımı: Saydam, yarı saydam ve saydam olmayan maddelerin sınıflandırılması ile gölge konuları kapsamında hazırlanmıştır.
5. Modül- Aynalarla Aydınlatmalı Oda Tasarımı: Düzlem aynada yansıma, çukur ayna ve tümsek aynada yansıma konuları kapsamında hazırlanmıştır.

Uygulamadan sonra ise BSBT son test olarak tekrar uygulanmıştır.

Bulgular ve Yorum

Araştırmanın bu bölümünde, sınıf öğretmeni adaylarının bilimsel süreç becerileri testinden elde edilen verilerin analizleri sonucunda ulaşılan bulgular ve yorumlar yer almaktadır. Araştırmanın problemine bağlı olarak oluşturulan her bir alt probleme ilişkin bulgular ve yorumlar sırasıyla aşağıda yer almaktadır.

Birinci Alt Probleme İlişkin Elde Edilen Bulgular

Araştırmanın birinci alt problemini "Deney ve kontrol gruplarının BSBT ön test puanları arasında anlamlı bir farklılık var mıdır?" sorusu oluşturmaktadır. Bu doğrultuda yapılan analizler neticesinde ön test puanlarının normal dağılıma sahip olmadığına ulaşılmış ve Mann-Whitney U testi kullanılmıştır. Analiz sonuçları aşağıda verilmiştir.

Tablo 1. Deney ve Kontrol Grubunun BSBT Ön Test Puanlarına İlişkin Mann-Whitney U Testi Analiz Sonuçları

	n	Sıra ortalamaları	Sıra toplamları	U	z	p
DG	30	29,98	899,50	434,500	-,837	,403
KG	33	33,83	1116,50			

Tablo 1 incelendiğinde deney ve kontrol grubunun bilimsel süreç beceri ön test puanları arasında istatiksel olarak anlamlı bir farklılığın olmadığı görülmektedir (z=-837; p>0,05). Bu bulgulara göre, uygulama öncesinde öğretmen adaylarının bilimsel süreç becerilerinin denk olduğu söylenebilir.

İkinci Alt Probleme İlişkin Elde Edilen Bulgular

Araştırmanın ikinci alt problemini "Deney ve kontrol gruplarının BSBT son test puanları arasında anlamlı bir farklılık var mıdır?" sorusu oluşturmaktadır. Bu doğrultuda yapılan analizler neticesinde ön test puanlarının normal dağılıma sahip olmadığına ulaşılmış ve bağımsız-t testi kullanılmıştır. Analiz sonuçları aşağıda verilmiştir.

Tablo 2. Deney ve Kontrol Grubunun Bilimsel Süreç Beceri Testi Son Test Puanlarına İlişkin Bağımsız-t Testi Analiz Sonuçları

	n	Ortalama	SS	sd	t	p
DG	30	82,00	9,021	61	2,101	,040
KG	33	76,48	11,522			

Tablo 2 incelendiğinde deney ve kontrol grubunun bilimsel süreç beceri son test ortalama puanları arasında istatiksel olarak deney grubu lehine anlamlı bir farklılığın olduğu görülmektedir (t_{61}=2,101; p<0,05). Bu bulgulara göre, STEM eğitimi yaklaşımının tümdengelim laboratuvar yaklaşımına göre bilimsel süreç becerilerinin gelişmesinde daha etkili bir yöntem olduğu söylenebilir.

Üçüncü Alt Probleme İlişkin Elde Edilen Bulgular

Araştırmanın üçüncü alt problemini "Deney grubunun bilimsel süreç beceri ön test ortalama puanları ve son test ortalama puanları arasında anlamlı bir farklılık var mıdır?" sorusu oluşturmaktadır. Bu doğrultuda öğretmen adaylarının BSBT ön test puanları ve son test puanları normal dağılıma sahip olduğundan (p>0,05) dolayı bağımsız-t testi ile analiz edilmiş ve analiz sonuçlarına Tablo 3'te yer verilmiştir.

Tablo 3. Deney Grubunun BSBT Ön-Son Testinin Bağımlı-t Testi Analiz Sonuçları

BSBT	n	Ortalama	SS	sd	t	p
Ön Test	30	66,67	15,908	29	-6,526	,000
Son Test	30	82,00	9,021			

Tablo 3 incelendiğinde deney grubu BSBT ön test puanları ve son test puanları arasında istatiksel olarak son test lehine anlamlı bir farklılığın olduğu görülmektedir (t_{29}=-6,526; p<0,05). Bu bulgulara göre STEM eğitimi yaklaşımının gerçekleştirilmiş olduğu deney grubunda öğretmen adaylarının akademik başarılarının artırmada etkili bir yöntem olduğu söylenebilir.

Dördüncü Alt Probleme İlişkin Elde Edilen Bulgular

Araştırmanın dördüncü alt problemini "Kontrol grubunun bilimsel süreç beceri ön test ortalama puanları ve son test ortalama puanları arasında anlamlı bir farklılık var mıdır?" sorusu oluşturmaktadır. Bu doğrultuda öğretmen adaylarının BSBT ön test puanları normal dağılım göstermezken (p<0,05), son test puanları normal dağılım (p>0,05) gösterdiğinden dolayı parametrik olmayan testlerden biri olan Wilcoxon İşaretli Sıralar Testi kullanılmış ve analiz sonuçları Tablo 4'de verilmiştir.

Tablo 4. Kontrol Grubunun BSBT Ön-Son Testinin Wilcoxon İşaretli Sıralar Testi Analiz Sonuçları

Sıralar	n	Sıra Ortalamaları	Sıra Toplamları	z	p
Negatif Sıralar	10	10,20	102,00	-2,100	,036
Pozitif Sıralar	17	16,24	276,00		
Eşit	6				
Toplam	33				

Tablo 4 incelendiğinde kontrol grubunun bilimsel süreç beceri testi ön test ortalama puanları ve son test ortalama puanları arasında son test lehine istatiksel olarak anlamlı bir farklılığın olduğu görülmektedir (z=-2,100; p<0,05). Tümdengelim laboratuvar yaklaşımının uygulandığı kontrol grubunda öğretmen adaylarının bilimsel süreç becerilerinin gelişmesinde anlamlı bir şekilde arttığı söylenebilir.

Tartışma ve Sonuç

Uygulamadan önce BSBT ön test olarak her iki gruba uygulanmış ve ön testten aldıkları puanlara ilişkin her iki grubun ön bilgi düzeylerinin denk olduğu tespit edilmiştir. Alanyazında yapılan çalışmalarda da benzer özellik görüldüğü ve bu çalışmayı desteklediği görülmektedir (Akçay, 2018; Gökbayrak ve Karışan, 2017; İzgi, 2020; Kale, 2019; Kavak, 2019; Şimşek, 2019). Uygulamadan sonra BSBT son test olarak her iki gruba uygulanmış ve son testten aldıkları puanlara ilişkin deney grubu lehine istatiksel olarak anlamlı bir farkın oluştuğu görülmüştür. Alanyazın incelendiğinde STEM eğitim yaklaşımının bilimsel süreç beceri gelişiminde deney grubu lehine anlamlı bir farkın olduğu ve bu çalışma bulgularını desteklediği görülmektedir (Akçay, 2018; Aydın, 2019; Ünal ve Aksüt, 2021; Yamak, Bulut ve Dündar, 2014).

Deney grubunun BSBT'den aldıkları ön test puanları ve son test puanlarına ilişkin bağımlı-t testi kullanılmış ve analiz sonuçlarına göre son test lehine anlamlı bir fark oluştuğu görülmüştür. Sullivan (2008) tarafından yapılan çalışmada FeTeMM etkinliklerinin 11-12 yaş grubu öğrencilerin bilimsel süreç becerilerini olumlu olarak etkilediği sonucuna varılmıştır. Yamak vd. (2014) tarafından yapılan çalışmada FeTeMM eğitiminin 5. Sınıf öğrencilerinin bilimsel süreç becerilerini geliştirdiği belirlenmiştir.

Kontrol grubunun BSBT'den aldıkları ön test puanları ve son test puanlarına ilişkin analiz sonuçlarına göre son test lehine anlamlı bir fark oluştuğu görülmüştür. Alan yazın incelendiğinde kontrol grubunun ön test- son test arasında son test lehine istatiksel olarak anlamlı farklılığın olduğu çalışmalara da rastlanmıştır (İzgi, 2020; Kale, 2019; Tabaru, 2017).

Bu çalışmanın sonuçlarına bağlı olarak, araştırmacılara farklı konu alanlarında bu araştırmanın yapılabileceği, sınıf öğretmeni adayları dışında başka öğretmen adayları ile çalışılabileceği ve eğitimin farklı kademelerindeki öğrenciler ile birlikte STEM çalışmalarının yürütülebileceği önerilmektedir.

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STEM Eğitimi Yaklaşımına Yönelik Sınıf Öğretmeni Adaylarının Görüşleri[1]

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Özet

Bu araştırmanın amacı, STEM eğitimi yaklaşımına yönelik sınıf öğretmeni adaylarının görüşlerini belirlemektir. Bu amaçla sınıf öğretmeni adaylarına yönelik hazırlanan toplam beş STEM modülü beş hafta süresince öğretmen adaylarına uygulanmıştır. Bu araştırmada nitel araştırma yöntemi kullanılmış ve bu doğrultuda görüşme tekniğinden yararlanılmıştır. Uygulamadan önce ve uygulamadan sonra gönüllü 17 sınıf öğretmeni adayı ile yarı yapılandırılmış görüşme yapılmıştır. Görüşmeler ses kayıt cihazı ile öğretmen adaylarının izinleri dahilinde alınmıştır. Uygulama öncesinde öğretmen adaylarına STEM hakkında bilgi sahibi olup olmadıkları ve STEM ile ilgili görüşleri sorulmuştur. Her bir öğretmen adayının görüşleri ortalama 10 saniye ile 2 dakika arasında sürmüştür. Uygulamadan sonra ise görüşme ortalama 20 ile 30 dakika arasında sürmüştür. Araştırma sonucunda elde edilen veriler betimsel analiz yöntemi kullanılarak analiz edilmiştir. Araştırmanın sonucunda sınıf öğretmeni adaylarının STEM eğitimi yaklaşımı ile ilgili olumlu görüş bildirdikleri sonucuna ulaşılmıştır.

Anahtar Kelimeler: STEM, Modül, Görüş.

[1] Bu çalışma ilk yazarın yüksek lisans tezinden üretilmiştir.

The Views of Primary Teacher Candidates on the STEM Education Approach[2]

Abstract

The purpose of this study is to determine the views of prospective classroom teachers on the STEM education approach. For this purpose, a total of five STEM modules were implemented with prospective teachers over the course of five weeks. A qualitative research method was used in this study, and in this context, an interview technique was utilized. Before and after the implementation, semi-structured interviews were conducted with 17 volunteer prospective classroom teachers. The interviews were recorded with a voice recorder, with the consent of the teacher candidates. Before the implementation, the teacher candidates were asked whether they had knowledge of STEM and what their views on STEM were. The duration of each teacher candidate's responses ranged from 10 seconds to 2 minutes. After the implementation, the interview lasted between 20 and 30 minutes on average. The data obtained from the research were analyzed using descriptive analysis. As a result of the study, it was found that the prospective classroom teachers expressed positive views about the STEM education approach.

Keywords: STEM, Module, View.

[2] This research was produced from the first author's master's thesis.

Giriş

STEM eğitim yaklaşımı dört farklı alanın entegrasyonundan oluşmaktadır. Bu dört farklı alanında entegrasyondaki görevleri mevcuttur. Fen ve matematik alanlarındaki teorik bilgilerin uygulamaya dönüştüğü mühendislik ve teknoloji alanları, bireylerin sorunlarına farklı çözüm yolları sunmaktadır (Yamak vd., 2014). Bu sebeple STEM eğitimine dayalı hazırlanan uygulamalar, teknoloji ve mühendislik disiplinleri ile bireylere farklı çözüm yolları sunarak bireylerin problem çözmesine yardımcı olmaktadır.

STEM eğitiminde, gerçek yaşam problemi ile içerik arasında ilişki kurularak fen, teknoloji, mühendislik ve matematik disiplinleri kaynaştırılmaya çalışılır. STEM eğitiminde kaynaştırma, söz konusu dört alanın içerik olarak uyarlanması ya da birinin odağa alınıp diğerlerinin odağa alınan bu disiplinin içeriğinin öğretilmesi için bağlam olarak kullanılması gibi düşünülebilir (Moore vd., 2013).

STEM eğitiminin daha nitelikli olabilmesi için öğretmenlerin bu alanlarda yetiştirilmesi ve öğretmenlerin gerekli yeterliğe sahip olması sağlanmalıdır (Wang, 2012). Bu sebeple STEM eğitimi yapabilecek öğretmenlerin yetiştirilmesi önem kazanmaktadır (Hacıömeroğlu, 2018). Bu öğretmenlik alanlarından biri de sınıf öğretmenliğidir. Sınıf eğitimi ilkokul öğrenimini kapsar. İlkokul temel bir bilgi ve becerilerin kazandırıldığı bir kademe olduğundan bu kademede kazandırılan bilgi ve beceriler bir üst öğrenme için gerekli olan bilgileri içermektedir (Yurdakul, 2019). Bu dönemde STEM eğitimi de önemli bir yere sahiptir.

Öğrencilerin akademik yaşamlarında daha başarılı olabilmeleri nitelikli öğretmenlerin varlığına bağlıdır. STEM eğitimi konusunda öğretmenlerin lisans öğrenimi boyunca öğrenmelerinin gerçekleşmesi gerekmektedir. Nitekim, öğretmenler etkili STEM eğitimi verebilmek için gerekli olan öğretmenlik bilgisinden yoksundurlar (Çorlu 2014). Bu doğrultuda, ilkokul öğretmeni olacak olan sınıf öğretmeni adayları ile çalışma ihtiyacı doğmuştur. Bu doğrultuda araştırmanın problem cümlesini “Sınıf öğretmeni adaylarının STEM eğitimi yaklaşımına yönelik görüşleri nelerdir?” sorusu oluşturmaktadır.

Yöntem

Bu bölümde araştırmanın modeli, evren ve örneklemi, veri toplama araçları, uygulama süreci ve verilerin analizi yer almaktadır.

Araştırmanın modeli

Bu araştırma, nitel araştırma yöntemine uygun olarak tasarlanmıştır. Öğretmen adaylarının STEM eğitimine yönelik görüşlerinin elde edilebilmesi amacıyla yarı yapılandırılmış görüşme yapılmıştır.

Araştırmanın Örneklemi

Araştırmanın örneklemini, Doğu Anadolu'da bir üniversitenin Sınıf Eğitimi bölümü ikinci sınıfında öğrenim gören gönüllü 17 sınıf öğretmeni adayı oluşturmaktadır.

Veri Toplama Araçları

Bu araştırmada veri toplama aracı olarak, öğretmen adaylarının STEM eğitimi yaklaşımına yönelik olumlu ve olumsuz görüşlerini belirleyebilmek amacıyla görüşme formu kullanılmıştır.

Görüşme Formu

Sınıf öğretmeni adaylarının uygulama öncesinde ve uygulama sonrasında görüşlerini belirleyebilmek amacıyla 4 açık uçlu sorudan oluşan görüşme formu hazırlanmıştır. İç geçerliğinin sağlanabilmesi amacıyla açık uçlu sorulardan oluşan görüşme formu, bir öğretim üyesi ve iki öğretmen tarafından incelenmiş, soruların uygunluğu değerlendirilmiş ve yapılan öneriler doğrultusunda düzenlenmiştir. Daha sonra 5 sınıf öğretmeni ile pilot çalışma yapılmıştır. Soruların açık ve anlaşılır olup olmadığı ve sorulara verilen yanıtların sorulan sorulara yönelik olup olmadığını belirlemek amacıyla iki alan uzmanı ve araştırmacı pilot çalışma sonuçlarını incelemiştir. Bu çalışmanın sonunda soru maddelerinin iç geçerliği belirlenmiştir. Nitel araştırmalarda iç geçerlik, araştırmacının ölçmek istediği veriyi, kullanmış olduğu araç ya da yöntemle gerçekten ölçüp ölçemeyeceğine bağlıdır (Yıldırım ve Şimşek, 2006). Hazırlanan görüşme soruları şunlardır:

1. Sizce STEM ne demektir? Daha önce STEM'i duydunuz mu?
2. Sizce fen, teknoloji, mühendislik ve matematik disiplinlerinin STEM'deki rolü nedir?
3. Sizce kaliteli bir STEM eğitimi için neler gereklidir?
4. Sizce STEM eğitiminin avantajları nelerdir?

Uygulama Süreci

Bu araştırma, sınıf öğretmeni adaylarının Fen ve Teknoloji Laboratuvarı-II dersinde gerçekleştirilmiştir. Uygulama sürecinde STEM eğitimi yaklaşımına uygun olarak tasarlanan beş farklı modül kullanılmıştır. Uygulama süreci bir dönem boyunca sürmüştür. Uygulamalar, araştırmacı ve dersin öğretim üyesi tarafından gerçekleştirilmiştir. Yarı yapılandırılmış görüşme gönüllü 17 öğretmen adayı ile uygulamadan önce ve uygulamadan sonra gerçekleştirilmiştir. Görüşmeler ses kayıt cihazı ile öğretmen adaylarının izinleri dahilinde alınmıştır. Uygulama öncesinde öğretmen adaylarına STEM hakkında bilgi sahibi olup olmadıkları ve STEM ile ilgili görüşleri sorulmuştur. Her bir öğretmen adayının görüşleri ortalama 10 saniye ile 2 dakika arasında sürmüştür. Bu durum uygulama öncesinde STEM eğitimi yaklaşımına yönelik bilgi sahibi olmamalarından kaynaklandığı ortaya çıkarılmıştır. Uygulamadan sonra ise görüşme ortalama 20 ile 30 dakika arasında sürmüştür.

Verilerin Analizi

Yarı yapılandırılmış görüşmelerden elde edilen verilerin analizinde betimsel analiz kullanılmıştır.

Bulgular ve Yorum

Araştırmanın problemine bağlı olarak yarı yapılandırılmış görüşmeden elde edilen verilerin analizleri sırasıyla aşağıda yer alan tablolarda sunulmaktadır. 17 öğrencinin uygulama öncesinde ve uygulama sonrasında STEM'in ne olduğuna yönelik görüşleri alınmış ve bu görüşler frekans ve yüzde olarak aşağıdaki tabloda sunulmuştur.

Tablo 1. "Sizce STEM ne demektir?" sorusuna ilişkin öğretmen adaylarının uygulama öncesi ve sonrası görüşleri

Uygulama Öncesi Görüşler	f	%	Uygulama Sonrası Görüşler	f	%
Bilmiyorum	12	70,5	Fen, matematik, mühendislik ve teknoloji alanlarıyla ilgilidir	14	82,3
Fen, matematik ve teknoloji alanlarıyla ilgilidir	1	5,9	Öğrencinin yaparak ve yaşayarak öğrendiği eğitim yaklaşımıdır	11	64,7
Eğitim planlamasıdır	1	5,9	Öğrenmede yararlı bir yöntemdir	10	58,8
Hastalık ismidir	1	5,9	Öğrenci merkezli eğitimdir	9	52,9
Bir konuda sitem etmedir	1	5,9	Alanların birbirleriyle iş birliği yaptığı yöntemdir	6	35,2
Ürün tasarlamadır	1	5,9	Öğrenmede kalıcılığı sağlayan bir öğretim yöntemidir	4	23,5
			Ürün tasarlamadır	4	23,5
			Fen ve matematik ağırlıklıdır	4	23,5
			STEM mühendislik sürecidir	4	23,5
			Fen, matematik ve teknoloji alanlarıyla ilgilidir	2	11,8

Not: Her öğretmen adayı birden fazla görüş bildirmişlerdir.

Tablo 1'de görüldüğü gibi sınıf öğretmeni adaylarının uygulama öncesinde ve uygulama sonrasında STEM ile ilgili görüşleri alınmıştır. Uygulama öncesinde 17 öğretmen adayından 12'si (%70,5) STEM ile ilgili bilgilerinin olmadığını belirtmiştir. Diğer öğretmen adayları da STEM'in bir hastalık ismi (%5,9), bir konu hakkında sitem etmek (%5,9), bir tür eğitim planlaması (%5,9) ve ürün tasarlama (%5,9) olduğunu belirtmişlerdir. Yalnızca 1 (%5,9) öğretmen adayının STEM'in fen, matematik ve teknoloji alanlarıyla ilgili olduğunu ifade ettiği görülmektedir.

Uygulamadan sonra yapılan görüşme sonuçlarına göre öğretmen adaylarının büyük bir çoğunluğu (%82,3) STEM'in fen, matematik, teknoloji ve mühendislik alanlarıyla ilgili, %64,7'si öğrencinin yaparak yaşayarak öğrendiği bir eğitim yaklaşımı, %58,8'i öğrenmede yararlı bir yöntem, %52,9'u öğrenci merkezli eğitim, %35,2'si alanların birbiriyle işbirliği yaptığı, %23,5'i öğrenmede kalıcılığı sağlayan bir öğretim yöntemi, ürün tasarlama, fen ve matematik ağırlıklı, mühendislik süreci ve %11,8'i de fen, matematik ve teknoloji alanları ile ilgili olduğunu belirtmişlerdir. Öğretmen adaylarından bazıları uygulama öncesinde ve sonrasında şunları ifade etmiştir.

	Uygulama öncesi	**Uygulama sonrası**
Ö5	*Karşıdakine içini dökmendir ve hoşlanmadığın bir durum karşısındaki tepkidir.*	*Fen, teknoloji, mühendislik ve matematik disiplinlerinin disiplinler arası iş birliği yaparak öğrenmeyi sağlayan yöntemdir.*
Ö13	*Bilmiyorum, daha önce hiç duymadım.*	*STEM; öğrencilerin daha çok yaparak yaşayarak öğrendiği ve bu öğrenmelerin de kalıcı olduğu bir eğitim sistemidir.*
Ö10	*Eğitimle ilgili bir şeydi eğitim planlanmasaydı sanırım.*	*STEM bir mühendislik sürecidir. Fen, teknoloji, mühendislik ve matematik alanlarını kullanarak yaparak ve yaşayarak öğrenmeyi sağlıyor.*
Ö9	*Bir konu hakkında sitem etmedir.*	*Yaparak yaşayarak öğrenme ve öğrencinin aktif olduğu öğretmenin de rehber konumda olduğu bir eğitim yöntemidir.*
Ö3	*Fen, matematik ve teknolojiyi harmanlayarak öğrenciye aktarmak.*	*Son zamanlarda ortaya çıkmış öğrenciye yönelik; teknoloji, matematik, mühendislik ve feni kapsayan disiplinler arası bir programdır.*

Yukarıda uygulama öncesi ve sonrası görüşme yapılan öğretmen adaylarının uygulama öncesinde STEM ile ilgili fikirlerinin olmadığı ya da yanlış ve eksik bilgiye sahip oldukları, uygulama sonrasında ise STEM ile ilgili daha doğru bilgiler verdikleri görülmektedir. Bu görüşme neticesinde öğretmen adaylarının uygulama öncesinde STEM ile ilgili ön bilgilerinin olmadığı belirlenmiş ve öğretmen adaylarına görüşme formunda yer alan diğer soruların sorulmamasına karar verilmiştir. Görüşmelere uygulamadan sonra devam edilmiş ve öğretmen adaylarına fen, teknoloji, matematik, mühendislik disiplinlerinin STEM'deki rolünün ne olduğu sorusu yöneltilmiştir. Elde edilen veriler aşağıdaki tabloda frekans ve yüzde olarak sunulmuştur.

Tablo 2. "Sizce fen, teknoloji, mühendislik ve matematik disiplinlerinin STEM'deki rolü nedir?" sorusuna ilişkin öğretmen adaylarının uygulama öncesi ve sonrası görüşleri

	Görüşler	f	%		Görüşler	f	%
Fen	Fen konuları ile ilgilidir.	14	82,3	**Teknoloji**	Kullanılan malzemelerdir	11	64,7
	Fen deneyleri ile alakalıdır.	5	29,4		Oluşturulan ürün ile ilgilidir	7	41,2
	Ürünü tasarlama ile ilgilidir	5	29,4	**Matematik**	Kullanılan malzemelerin ölçülerini belirler	10	58,8
	Gözlem yapmayı sağlar	2	11,8		Malzemelerin hangi açılarla yerleştirildiğini belirler	7	41,2
	Düşünmeyi sağlar	1	5,9		Kullanılan malzemelerin Sayılarını belirler	7	41,2
Mühendislik	Mühendislik tasarım süreci ile ilgilidir	15	88,2		Kullanılan malzemelerin oranını belirler	4	23,5
	Mühendis gibi çalışma ile alakalıdır.	7	41,2		Ne kadar malzeme gidebileceğini tahmin etmeyi sağlar.	2	11,8
	STEM alanlarını birbirine bağlar.	7	41,2				
	Oluşturulan ürün ile alakalıdır.	3	17,6				

Not: Her öğretmen adayı birden fazla görüş bildirmişlerdir.

Yukarıdaki tabloda görüldüğü gibi STEM'de fenin rolüne ilişkin öğretmen adaylarının %82,3'ü fen konuları ile ilgili, %29,4'ü fen deneyleri ile ilgili ve %29,4'ü ürün tasarlama ile ilgili olduğunu belirtmiştir. Teknolojinin rolüne ilişkin öğretmen adaylarının %64,7'si kullanılan malzemelerin ve %41,2'si ise oluşturulan ürün ile ilgili olduğunu belirtmiştir. Matematik rolüne ilişkin öğretmen adaylarının %58,8'i kullanılan malzemelerin ölçülerini belirlediğini, %41,2'si açılar ve sayıları belirlediğini belirtmişlerdir. Mühendisliğin rolüne ilişkin öğretmen adaylarının %88,2'si mühendislik tasarım süreci ile ilgili, %41,2'si mühendis gibi çalışma ve STEM alanlarını birbirine bağladığı görüşünü belirtmişlerdir. Öğretmen adaylarından bazılarının ifadeleri şu şekildedir:

"Fen daha çok deneylerle bağlantılıdır. STEM'i ise teknolojik aletler kullanarak deney yapma ile öğrencilere uygulatabiliyorsun" **(Ö6)**.

"Matematik oran ile bağlantılıdır. Örnek vermek gerekirse düzlem ayna da kaç ayna kullanıldığı, boyutları hangi ölçülerde yapıştırıldığı ya da ışığın gelme açısı bunu hesaplamak matematik ile bağlantılıdır" **(Ö15).**

"Mühendislikte mühendislik tasarım süreçleri oluyor. Yani bir deneyi yaparken ortaya konan ürün için yaptığı planlama grafiksel olarak tasarlaması mühendisliği kapsamaktadır" **(Ö3)**.

"Mühendislik de bazı şeyleri yaparken tasarım yapıyoruz ve bu tasarım mühendislikle alakalı mühendislerin kullandığı gibi matematik, teknoloji, fen hepsini bir arada kullandık ve bu bakımada bir mühendis gibi çalışmış olduk" **(Ö11).**

Öğretmen adayları ile yapılan görüşmede, öğretmen adaylarının kaliteli bir STEM eğitimi için nelerin gerekli olduğuna yönelik görüşleri belirlenmiş ve veriler aşağıdaki tabloda frekans ve yüzde olarak sunulmuştur.

Tablo 3. "Sizce kaliteli bir STEM eğitimi için neler gereklidir?" sorusuna ilişkin öğretmen adaylarının görüşleri

Görüşler	f	%
Malzemelerin yeterli olması gerekir.	13	76,5
Öğretmenin nitelikli olması gerekir.	9	52,9
Uygun ortam olmalıdır.	7	41,2
Öğretmen sorumluluklarını bilmelidir.	6	35,2
Öğrencinin derse katılımında istekli olması gerekir.	6	35,2
Öğrencilerin STEM ile ilgili ön bilgileri olmalıdır.	5	29,4
Öğrenci her bir MTS basamağını anlayarak ilerlemelidir.	5	29,4
Yeterli zaman olmalıdır.	4	23,5
Öğretmen öğrenciyi teşvik etmelidir.	3	17,6
Modüllerde yer verilen problemler gerçek hayat ile ilgili olmalıdır	2	11,8
Modüllerde yer verilen problemler öğrenci seviyesine uygun olmalıdır	2	11,8
Sınıf mevcudu az olmalıdır.	2	11,8
Öğretmen öğrencinin sorularına dönüt vermelidir.	2	11,8
Öğretmenin derse istekli olması gerekir.	1	5,9
Öğretmen sabırlı olmalıdır.	1	5,9
Öğrenci sorumluluklarını bilmelidir.	1	5,9

Not: Her öğretmen adayı birden fazla görüş bildirmişlerdir.

Tablo 3'te görüldüğü gibi öğretmen adayları en çok kaliteli bir STEM eğitimi için malzemelerin yeterli olması (%76,5), öğretmenin nitelikli olması (%52,9), uygun ortam olması (%41,2), öğretmenin sorumluluğunu bilmesi (%35,2), öğrencilerin derse katılımında istekli olması (%35,2), öğrencilerin uygulama öncesinde STEM eğitimi ve MTS ile basamaklarının ne olduğu ile ilgili ön bilgilerinin olması (%29,4) gerektiğini belirtmişlerdir. Tablo 4'te öğretmen adaylarının STEM eğitiminin avantajlarına yönelik görüşleri belirlenmiş ve veriler frekans ve yüzde olarak sunulmuştur.

Tablo 4. "Sizce STEM eğitiminin avantajları nelerdir?" sorusuna ilişkin öğretmen adaylarının görüşleri

Görüşler	f	%
Gelişmeyi sağlar	16	94,1
Aktif olmayı sağlar	14	82,3
Verimliliği sağlar	12	70,6
Mutlu olmayı sağlar	10	58,8
Bilgilerin kalıcılığını sağlar	10	58,8
Sosyalleşmeyi sağlar	10	58,8
Eğlencelidir	9	52,9
Öğrenme de kolaylık sağlar	9	52,9
Rahatlık sağlar	8	47,1
Zamandan tasarruf sağlar	7	41,2
Hayata uygulanabilir	6	35,2
Düşünmeyi sağlar	6	35,2
Öz güveni geliştirir	5	29,4
Planlı programlı olmayı sağlar	4	23,5
Dersin sevilmesini sağlar	3	17,6
Derse katılımda istekli olmayı sağlar	2	11,8

Not: Her öğretmen adayı birden fazla görüş bildirmişlerdir.

Tablo 4'te görüldüğü gibi öğretmen adayları en çok STEM eğitiminin gelişmeyi (%94,1), aktif olmayı (%82,3), verimli olmayı (%70,6), mutlu olmayı (%58,8), bilgilerin kalıcı olmasını (%58,8), sosyalleşmeyi (%58,8), eğlendirmeyi (%52,9), öğrenmede kolaylaştırmayı (%52,9) sağlaması açısından avantajları olduğunu belirtmişlerdir. Öğretmen adaylarından bazılarının ifadeleri şu şekildedir:

"Öğretmen STEM eğitimini kullandığı zaman kesinlikle verim alır. Verim aldığı zaman işini daha istekle yapar ve mutlu olur" **(Ö17)**.

"Zamandan da tasarruf sağlanmış oluyor aslında ben bir dersi üç defa anlatmak yerine bir dersi bir defa yaparak yaşatarak anlatırım bu da STEM ile mümkündür" **(Ö12)**.

“Öğretmen, öğrencileri düşünmeye sevk eder” **(Ö7)**.

“Öğrencinin yaratıcılığını geliştirir. Günlük hayattaki sorunları çözmesine yardımcı olur. Pratik çözümler üretmelerini, hayal gücünü geliştirmelerini ve başarılarını artırır. Sorumluluk sahibi yapar” **(Ö9)**.

“Öğrencinin bilgilerini unutmamasını sağlıyor. Ayrıca öğrencinin grup çalışması sayesinde arkadaşları ile kaynaşma sağlıyor” **(Ö8)**.

“Öğrenci yaparak yaşayarak öğreniyor. Sınıf içi kaynaşmayı yardımlaşmayı sağlıyor. Grup çalışması olduğu için gruptaki sorumluluğu artar” **(Ö10)**.

Tartışma ve Sonuç

Uygulama öncesinde deney grubu öğrencilerine yönlendirilen “STEM nedir?” sorusuna yönelik öğretmen adaylarının %70,5’lik gibi büyük bir kısmı STEM ile ilgili bilgilerinin olmadığını ifade ederken yalnızca bir öğretmen adayının tam bir tanım yapmadığı ve STEM ile ilgili eksik bilgiye sahip olduğu görülmüştür. Alanyazın incelendiğinde yapılan araştırmalarda bu çalışmada elde edilen bulguyu destekler nitelikte çalışma bulgularının olduğu görülmüştür (Akkaya 2019; Boyraz ve Bilican 2020; Can ve Uluçınar-Sağır 2018; Özdemir ve Cappellaro 2020). Srikoom, Hanuscin ve Faikhamta (2017) tarafından yapılan çalışmada öğretmenlerin büyük bir kısmının STEM eğitiminin tanımını yapamadığı sonucuna ulaşılmıştır.

Uygulama sonrasında deney grubu öğrencilerine yönlendirilen “STEM nedir?” sorusuna yönelik öğretmen adaylarının büyük bir çoğunluğu (%82,3) STEM’in fen, matematik, teknoloji ve mühendislik alanlarıyla ilgili olduğu yaparak yaşayarak öğrenilen bir eğitim olduğu, yararlı bir yöntem olduğu, öğrenci merkezli bir yöntem olduğu, alanların birbiriyle işbirliği yaptığı, öğrenmede kalıcılığı sağlayan bir yöntem olduğu, ürün tasarlama olduğu, fen ve matematik ağırlıklı olduğu, mühendislik süreci olduğu ve fen, matematik ve teknoloji alanları ile ilgili olduğunu ifade etmişlerdir. Alanyazın incelendiğinde bu çalışmadan elde edilen bulgular ile benzer bulguların olduğu çalışmalara rastlanılmıştır (Bakırcı ve Kutlu, 2018; Şahin, 2019).

Öğretmen adaylarına yönlendirilen ikinci görüşme sorusu ise fen, teknoloji, mühendislik ve matematik disiplinlerinin STEM’deki rolünün ne olduğu ile ilgilidir. Öğretmen adayları fen disiplini ile ilgili olarak büyük oranla fen konuları ile ilgili olduğunu ifade ederken ayrıca fen deneyleri ile ilgili olduğu, ürün tasarlama, gözlem yapmayı ve düşünmeyi sağladığını da ifade etmişlerdir. Teknoloji disiplinini ise büyük oranla kullanılan malzemeler olarak ifade ederken ayrıca oluşturulan ürün ile ilgili olduğunu belirtmişlerdir. Matematik disiplinini ise kullanılan malzemelerin ölçülerini belirlediğini, açılar ve sayıları belirlediğini, üründe kullanılacak malzemenin ne kadarının kullanılacağını ve tahmin etmeyi sağladığını belirtmişlerdir. Mühendislik disiplinini ise büyük oranla mühendislik tasarım süreci ile ilgili olduğu ayrıca mühendis gibi çalışma, STEM alanlarını birbirine bağladığı ve oluşturulan ürün ile ilgili olduğuna yönelik görüş bildirmişlerdir. Alanyazın incelendiğinde bu çalışma bulgularını destekleyecek çalışma bulgularının olduğu tespit edilmiştir (Bek-Gümüş, 2019; Belek, 2018).

Öğretmen adaylarına yönlendirilen üçüncü görüşme sorusunu ise kaliteli bir STEM eğitiminin ne olduğu oluşturmaktadır. Öğretmen adayları kaliteli bir STEM eğitimi için malzemelerin yeterli olması, öğretmenin nitelikli olması, uygun ortam olması öğretmenin sorumluluğunu bilmesi, öğrencilerin derse katılımında istekli olması, öğrencilerin uygulama öncesinde STEM eğitimi ve MTS ile basamaklarının ne olduğu ile ilgili ön bilgilerinin olması ,her bir modülün gerçekleştirmesi için ayrılan zamanın yeterli olması, öğretmenin sorular sorarak öğrenciyi derse teşvik etmesi, modüllerde yer verilen senaryolarda problem durumunun gerçek hayatta yaşanabilecek bir problem olması gerektiğine yönelik görüş bildirmişlerdir. Alanyazın incelendiğinde bu çalışmada elde edilen sonuçlarla benzer sonuçların olduğu çalışmalara rastlanılmıştır (Can ve Uluçınar-Sağır, 2018; Değirmenci, 2020; Erdem, 2019; Şimşek, 2019).

Öğretmen adaylarına yönlendirilen dördüncü görüşme sorusu ise, STEM eğitiminin avantajlarının ne olduğu ile ilgilidir. Öğretmen adayları STEM eğitiminin avantajlarını; büyük oranda gelişmeyi ve aktif olmayı sağladığı ayrıca verimli olmayı, mutlu olmayı, bilgilerin kalıcı olmasını, sosyalleşmeyi, eğlendirmeyi, düşünmeyi sağladığı, özgüveni artırdığı, planlı programlı olmayı, dersin sevilmesini ve öğrencinin derse katılmada istekli olmasını sağlaması açısından avantajları olduğunu belirtmişlerdir. Alanyazın incelendiğinde STEM eğitiminin avantajı ile ilgili yapılan görüşmeler sonucunda benzer görüşlerin olduğu ve bu görüşlerin çalışmayı desteklediği söylenebilir (Bakırcı ve Kutlu, 2018; Eroğlu ve Bektaş, 2016; Kutlu, 2018).

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Manifestation of Nuclear Fallout Considering Climatic Characteristics and Implications for Business in the Territory of Azerbaijan

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Abstract

Nuclear fallout, resulting from both natural processes and anthropogenic activities, poses significant risks to the environment and public health. In Azerbaijan, a country marked by varied climatic conditions—from arid regions to humid subtropical zones—the impact of such fallout can differ remarkably. Precipitation patterns, temperature fluctuations, and wind dynamics influence the distribution and deposition of radioactive particles, making local geological and meteorological studies crucial for understanding the full extent of fallout consequences.

Natural processes like volcanic eruptions and cosmic events can release radioactive materials into the atmosphere, while human activities such as nuclear testing and accidents further exacerbate the issue. In Azerbaijan, the history of industrialization and its geographic proximity to regions with a history of nuclear testing underscore the importance of monitoring and assessing potential fallout. The Caspian Sea, with its unique climatic influences, can also alter how fallout material disperses, affecting land and water resources critical to both ecological health and human populations.

Mitigating the risks associated with nuclear fallout necessitates a comprehensive approach involving environmental monitoring, public health assessments, and strategic policy implementation. By integrating climatic data into fallout studies, Azerbaijan can develop effective response strategies that protect both its natural integrity and the well-being of its citizens from potential radiation exposure.

Keywords: Climate, Nuclear fallout, Temperature, Wind, Seasons, Modeling, Caspian Sea, Remote Sensing, Monitoring

Introduction

Azerbaijan's climate is highly varied, with different areas of the country containing examples of nine of the world's eleven climate zones. This includes semi-arid zones in the center and east of the country (including the capital, Baku), temperate zones in the north, continental zones in the west, and tundra zones, meaning that there are marked variations in average annual temperature and precipitation in different regions. In general, more mountainous parts of Azerbaijan receive higher levels of precipitation and lower average temperatures than the central lowlands and Caspian Sea coast, where the climate is drier and hotter. Azerbaijan experiences hot summers (especially in lowland areas) and moderate winters. The average monthly temperatures vary significantly between different regions and altitudes across Azerbaijan. Average temperatures in Baku and other parts of the east and southeast reach approximately 27ºC during the hottest months of July and August, while temperatures during these months remain between 15ºC and 20ºC in parts the mountainous north and west. Similarly, during the winter (December to February) temperatures in Baku average between 3ºC and 4ºC, whereas in western and northern areas average monthly temperatures fall to between −5ºC and −10ºC. Average rainfall in Azerbaijan follows a bimodal distribution throughout the months of the year, with average levels above 40 millimeters (mm) per month from April to June, and again in October. Precipitation is highest in May and June in the northern and western areas of Azerbaijan, where it can exceed 100 mm per month [1].

On the territory of Azerbaijan, the inflow-drainage of radiation energy of the atmosphere and the underlying surface is the ultimate cause of the appearance of different climatic zones and weather change [2].

A rich sunlight and heat energy inflow has a case in Araz zone of the Nakhichevan Autonomous Republic, having about 2800-2500 hours. On Absheron peninsula, Kur Araz lowland, Ganja - Kazakh inclined plain, Alazan - Agricay valley the duration of sunlight is a comparatively less than 2500 - 2200 hours. In average annual and high-mountainous, zones of the Big and Small Caucasus as well as in Lenkoran district make areas basically 2200 - 1900 hours. Consequently in spite of the complexity of surface, number of sunlight hours it is enough considerably and fluctuate for a year from 2800 up to 1900 hours [3].

In the Republic of Azerbaijan atmospheric precipitation is mainly related to the intrusion of air currents into the territory of the country. The amount of precipitation, its seasonal and annual distribution are determined by the relief of the territory and the mutual connection with the Caspian Sea [4].

There are a large number of factors influencing cloud formation and precipitation. The most important of them are general circulation processes (transport of air masses, fronts and baric systems), moisture content of air masses, vertical movements in the atmosphere, which cause air rise, its cooling and condensation of water vapor, cooling of air from the underlying surface and its approach to the saturation state [5].

Contamination of the terrain and objects on it with radioactive substances occurs as a result of the fallout of radioactive contamination in the form of precipitation. Radioactive contamination occurs by: 1. fallout of radioactive substances from a nuclear explosion cloud and induced radiation due to the formation of radioactive isotopes in the environment under the influence of instantaneous neutron and gamma radiation from a nuclear explosion; affects humans and animals mainly as a result of external gamma- and (to a lesser extent) beta-irradiation, and also as a result of internal exposure (mainly alpha-active nuclides) when radioisotopes enter the body with air, water and food. 2. Man-made accidents (leaks from nuclear reactors, leaks during transportation and storage of radioactive waste, accidental losses of industrial and medical radio sources, etc.) as a result of the dispersion of radioactive substances; the nature of contamination of the area depends on the type of accident [6].

The scattering of radioactive impurities is determined by stratification, turbulence, and other parameters of the atmosphere, thereto the direction, and the speed of their spatial distribution are determined by the parameters of wind. The rate of precipitation of these substances depends on the dimensions of the solid particles on which they condense by forming radioactive dust. There are three types of fallout:

• Near (local), they consist mainly of large and medium-sized particles more than 100 microns, which fall out within a few hours after a nuclear explosion and cover an area up to several hundred kilometers far away from the explosion center;

• Intermediate (tropospheric), they consist of particles with a diameter up to several tens of micrometers that fall into the upper troposphere and fall out for several months, creating weak radioactive contamination over a large area;

• Global (stratospheric), consist of particles up to tenths of a micrometer in size, falling out of the stratosphere for several years around the globe. In radioactive accidents, the range of propagation of the fallout depends on the height of the lift of radioactive substances, can run from hundreds meters to thousands kilometers [7].

Material and Method

Observed changes in the 20th century include rising global air and ocean temperatures, rising global sea level, long-term sustained widespread reductions in snow and ice cover, and changes in atmospheric and ocean circulation, as well as regional weather patterns that affect seasonal precipitation. Primarily driven by dynamics (mainly vertical motion), saturation occurs and water condenses on particles to form cloud droplets or ice crystals. Processes in which there is no heat exchange with the environment are called, adiabatic. It was also found out there that in adiabatic expansion the gas cools down, because in this case work is done against the external pressure forces, as a result of which the internal energy of the gas decreases [8].

Scattering of radioactive impurities is determined by stratification, turbulence and other parameters of the atmosphere, the direction and speed of their spatial distribution - the parameters of the direction and speed of the wind. Particles with sizes less than 10-12 microns moving at a speed identical to that of vertical movements (≈1cm /s) precipitate on the Earth's surface either in the turbulent motion of air masses (dry deposition), or by washing out sediments (wet and wet sediments) [9].

In our model, it is proposed that after explosion with radioactive pollutions at APP three zones of fallout are valid:

1) Near zone, where intensive mixing substances take place together with the great speed of substances motion from the APP center. This zone is located near the epicenter of explosion;

2) Medium zone, where propagation wave has a great speed, which is much more in comparison with the pollutants mixing;

3) Far zone, where radial propagation of pollutants sharply reduces and can be neglected with the pollutants diffusion, so in solving the problem we should take into account just mixing factor.

These three zones gently cross over to each other but are managed by different models and laws.

In this paper the authors have developed model for describing, how radioactive pollutions are distributed from the epicenter in the far zone [10].

Results

In the formation of radioactive fallout (RL), it is important to take into account climatogeographical regularities contributing to its movement on the territories of neighboring countries. The dispersion of radioactive impurities is determined by stratification, turbulence and other atmospheric parameters. In radiation accidents, the range of dispersion of radioactive contaminants varies from hundreds of meters to thousands of km depending on the height of radioactive substances. Radioactivity of precipitation is caused by capture of radioactive aerosols and gases from atmospheric air by cloud and precipitation particles. The main parameters contributing to the formation and deposition of radioactive precipitation are meteorological factors. Specific features of heat and moisture turnover, and thus in general the climate of a particular area, as well as soil and vegetation conditions are determined by the thermal radiation balance (TRB). For this purpose, statistical characteristics of the values of the radiation balance components were calculated. For example, air temperature, as well as other elements, is distributed unevenly over the Earth's surface. Its distribution is influenced by geographical factors. Radioactive fallout contains several hundred different radionuclides, but most of them are of negligible concentration or decay rapidly; only a small number of radionuclides make a major contribution to human exposure. Movement of radioactive waste generated as a result of a possible release in countries where RW (radioactive substances) and other sources of ionizing radiation are used, it is necessary to establish a radiation safety service. In order to detect radioactive fallout prematurely, it is expedient to use remote methods and means of ground sensing. This makes it possible to promptly monitor environmental elements over the entire globe [11].

The purpose of radioactive fallout monitoring (RDM) is to observe and control the radiological situation in the investigated territory to obtain basic information for assessment and forecast of the territory condition. The subject of the fallout monitoring system (RMMS) is direct and regular observations and field measurements (or in-vivo measurements), which are carried out on the territory of a locality in order to obtain information on the radiological characteristics of the environment. The use of these data makes it possible to identify patterns of change in the radiological situation in a locality. This information is necessary to draw conclusions about the radiological status quo of (a) people in the locality, (b) nature and (c) animals. The latter two factors form the food security and radiological passport that leads to a decision on the specific radiological situation [12].

Discussion

Thus, it should be concluded that the establishment of a ground-based monitoring system implies observations and measurements in terms of time and geographical location, and the full-fledged functioning of these systems is possible only with a continuous supply of electrical energy to all three of these components of monitoring systems. As follows from the critical analysis of the principle of operation of any monitoring system given in this paper, the most important criterion of more advanced monitoring systems is its ability to operate 24/7 in any meteorological conditions, in any geographical location, in hard-to-reach areas when radiometric measurements are necessary but the complexities of the terrain do not allow for timely access. In other words, more advanced monitoring systems should be able to operate with minimal human intervention, minimal dependence on natural and meteorological conditions, and maximum operational independence and self-sufficiency, while maintaining their performance and technical indicators for a long time [13].

It should be taken into account the fact that the level of radionuclide content and chemical composition of natural waters are entirely subject to the phenomena of climatic zonality, changing from hydrocarbonate-calcium with mineralization of 0.1- 0.2 g/l in northern latitudes, where precipitation prevails over evaporation, to sulfate-chloride-sodium-calcium with mineralization of 2-5 g/l in arid regions, where evaporation prevails over precipitation. The composition and state of natural waters under the influence of physicochemical and microbiological impacts can undergo serious changes due to, for example, oxidation by air oxygen, sedimentation, sorption on suspended particles, loss of volatile substances, etc. Accordingly, the content of radioactive elements in waters also changes. For example, the average content of 238U in river waters varies from 1.10-3 Bq/L in northern areas to 0.6 Bq/L in arid regions, reaching in some cases values of 100-500 Bq/L in waters of arid lakes, artesian wells, and mineral springs [14].

Radioactive precipitation contains a large number of different radionuclides, of which zirconium-95, cesium-137, strontium-90 and carbon-14 play the greatest role in contamination of the area. For advance forecasting of the equivalent external dose, as well as for operational forecasting in the absence of data on actual climatic conditions at the time of an accident at the facility, climatic conditions should be taken in accordance with SP 131.13330.2012 or according to statistics in the area where the nuclear facility is located. For operational forecasting, carried out in the presence of data on real climatic conditions at the time of an accident at the facility, real climatic conditions should be assumed [15].

Conclusion

In the changing climate of Azerbaijan, it is important to consider how factors such as temperature, precipitation and wind can affect the distribution and concentration of radioactive fallout. These meteorological conditions can contribute to both increases and decreases in background radiation in different regions, emphasizing the need for daily monitoring. Systematic monitoring of radiation levels will allow a more accurate assessment of risks to public health and the environment.

In addition, the research results can be used to develop effective strategies for adaptation and mitigation of radiation contamination. This includes the creation of a system for alerting and informing citizens about potentially dangerous situations, as well as the implementation of recommendations for responding in case of detection of elevated radiation levels.

The synergy of science, ecology and public health will be key to the formation of a sustainable radiation safety policy. The creation of interdisciplinary teams to analyze the collected data will allow the best adaptation of actions of public and private bodies, ensuring the protection of public health and preservation of the ecosystem.

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Assessment of Hydrochemical Composition of the Kura River for Sustainable Business Practices

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Abstract

Based on the results obtained on the basis of the analysis of the existing matreals, it becomes clear that all rivers on earth contain chemical elements.It is impossible to meet clean water anywhere.All river waters contain chemically dissolved compounds, and both waters are distinguished by a number of properties.According to the erosion basis, due to the constant change in the water level in the river, its effect on soil and low evaporation, the existence of a relationship between the chemical composition and the water content of the river, the interaction of river water with atmospheric air , intensive exposure of the sun's rays to water and.s.All these properties distinguish river waters from other natural ones. As we know, dissolved substances in the composition of river waters are divided into five groups:basic ions,biogenic substances,dissolved gases, microelements and organic substances. When the content of ions in river water is more than 70%, the flow of dissolved substances is called the flow of ions. As we know, river waters are also polluted in physical, chemical and biological ways. In recent years, pollution in Kura water with radioniclides,chlorine,sulfate,hydrocarbonate,carbonate, oil products has exceeded the limit norm of “Allowable limit”. Introduction of biogenic elements a high concentration of nitrogen - ammonium has been established. All waters contain 98 of 45 chemical elements.

Keywords: dissolved gases, chemical elements, polluting ingredients, ionic compounds, petroleum products.

Introduction

In nature, clean waters are not found anywhere.All natural waters contain a certain amount of dissolved compounds.These compounds distinguish natural waters from chemically pure waters.Dissolved salts,ions calloids of mineral and organic origin form the chemical composition of natural waters. The waters contain 98 of the 45 chemical elements known on earth.Among them are 9-ion-chlorine (CI), sulfate (SO_2), hydrocarbonate (HCO_3), Carbonate (CO_3), sodium (Na), potassium (K), magnesium (Mg), calcium (Ca), hydrogen (H), oxygen (O_2), Carbon 4 oxide (CO_2) and hydrogen sulfide (H_2S) are mainly involved as ingredients.These ions, gases, calloids of organic and mineral origin ensure the existence of life in water. The chemical composition of river waters is distinguished by a number of features.These features include: 1) contact with river water of a well-washed part of the basin located above the base of erosion; 2) low impact on land and evaporation due to constant changes in the water level in the River; 3) the presence of a close relationship between the chemical composition and the water content of the river; 4) the interaction of river water with atmospheric air and the intensive impact of the sun's Rays on the water.O.A.According to alyokin (1970), these properties distinguish river waters from other natural waters.Thus, in comparison with water bodies, river waters have less meneralization, change quickly under the influence of Hydrometeorological conditions, become rich in organic substances, biological processes have a weak effect on ion and gas composition, and gases in the atmosphere are present in water dissolved in it. Dissolved substances in river waters are divided into five groups: basic ions, biogenic substances, dissolved gases, microelements and organic substances. When the content of ions in river water is more than 70%, the flow of dissolved substances is called the flow of ions. The study of Ion flow is carried out by a number of processes, including salinization of water bodies and terrain, water supply, transport, erosion, weathering, karst and.s. it is of paramount importance for the analysis of processes such as: The economic use of resources of any territory leads to a change not only in the water balance of river basins, but also in their hydrochemical regime.

The violation of the natural flow in the Kura River, the change in the hydrochemical regime and the related study of the ecological state of the Caspian Sea are of great scientific importance. Table 1 calculated annual average values of water consumption and mineralization for individual periods in order to determine changes in the Hydrochemical regime of Kura due to anthropogenic activity.As can be seen from the table, the influence of human economic activity on the hydrochemical regime of Kura in individual periods is clearly noticeable. This mainly manifests itself in Mingachevir, Surra and Salyan settlements.Over the past 20 years, water consumption has decreased by 11-14% compared to previous periods, and, on the contrary, mineralization has increased by 4-8%. The concentration of basic ions has also changed. The variation of the average annual concentration of sulfate, sodium and potassium over the perennial period fluctuates mainly between 160 440%. O.A.Alyokin (1970) divides all natural waters into 3 classes according to the predominance of anions: hydrocarbonated, sulfated and chlorinated. These classes are also divided into 3 groups, each according to the predominance of cations: Cal-Sium, sodium and magnesium. S.H. According to Rustamov's research (1958), 3 classes of water are also found in the territory of Azerbaijan. The Kura River has been attributed to the hydrocarbonated class, which is superior to the kal-sium cation as a whole. However, at the present time, when anthropogenic influence is intensifying, quantitative and qualitative changes have occurred in the chemical composition of surface waters, including river ones. Kura tea is currently classified as sulphate-sodium [1].

Such a change of composition in tea I.S. Babayev (1994) and Sh.B. It was also reflected in the works of Khalilov (1996). And in the disturbed mode, the change in the concentration of the main ions throughout the year takes on a more complex character. In this mode, sodium and potassium total predominate from cations throughout the year, and sulfates from anions. Since the flow is regulated, sharp periods are not allocated in the course of the concentration of the main ions throughout the year. The maximum concentration of basic ions in the natural mode is observed during the summer months (July-September), when water consumption decreases. During this period, 26-37% of the annual ion flow passes. The second place in terms of the quantity of Ion flows is occupied by the autumn season (October-December). 19-28% of the annual ion flow passes during this period. And the minimum quantity of the concentration of basic ions is observed in the summer months (April-June), that is, during the period of gursu-lulingis 4 mg/liter. S.H.Rustamov and R.M.Qashqai (1978; 1989) according to subsequent studies, the mineralization of Mingachevir reservoir in the Kura River up to tiki was observed in Mingachevir at 365 mg/liter and in Salyan at 437 mg/liter. After the flow regulation, the mineralization at the mentioned points changed from 317 mg/liter to 570 mg/liter, respectively.The results of our research show that the average annual mineralization in Kura during the natural regime is observed between 363.1-492.0 mg/liter. This is the Kura O.A.According to the classification of alyokin (1970), it indicates that it should have an average degree of mineralization. After the construction of the Mingachevir reservoir, the water balance of the river was sharply disturbed, the volume of waste and drainage waters increased, the MiG-millet of individual ions along the flow increased by 1.2-5 times, and the total mineralization by 1.4-2.0 times.

Average multi-year values of water consumption and mineralization rate of Kura River in different points (mg/l)

Table 1

№	River station.	Natural regime (1953-2003)								The Disrupted Regime (1998-2018)							
		Water consumption m3/s	Ca	Mg	Na+K	CO3	SO4	Cl	İON	Su sərfi m^3/s	Ca	Mg	Na+K	HCO_3	SO_4	Cl	ION
1	Kur-Mingachevir	280	51,0	24,6	74,7	118,8	174,3	83,7	541,6	272	49,9	33,2	88,9	179,8	198,9	98,7	649,4
2	Kur-Yevlakh	311	50,4	33,6	90,2	178,1	200,0	99,3	552,3	272	50,4	33,7	90,2	178,1	200	99,3	651,7
3	Kur-Zerdab	461	59,6	21,1	35,6	186,4	83,7	23,3	409,7	287	54,5	36,8	95,5	187,6	202,8	103,4	680,6
4	Kur-Mollakend	323	54,4	35,6	94,6	186,2	205,3	109,0	685,1	299	55,6	37,0	96,2	189,3	203,4	103,8	685,3
5	Kur-Surra	571	58,5	19,2	48,2	262,0	63,2	38,6	489,7	503	48,6	36,7	114,7	182,7	133,6	94,6	710,9
6	Kur-Shirvan	563	51,4	19.8	48,2	193,3	75,4	33,9	427,0	492	66,9	39,5	128,0	186,4	249,5	114,6	784,9
7	Kur-Salyan	558	57,4	16,4	52,2	197,4	68,4	39,2	431,0	472	59,8	48,6	134,0	198,7	258,7	112,2	812,0
9	Kur-Mansab	549	57,4	20,5	48,7	181,6	71,8	33,4	413,4	470	67,6	47,2	136,4	209,0	271,1	92,1	823,7

For the natural and disturbed regime, the total ion flow, as well as the flows of individual ions, were calculated. Relationships were obtained between the calculated perennial average water consumption and the facts values of the main ions for both the natural and the disturbed regime [2].

In the natural mode in Kura, the average oxidation of the polyline ranges from 2.8 to 9.9 mg/l. During the year, oxidation reaches a minimum value in summer and a maximum in winter. During the summer months, the miqda of oxidation fluctuates between 1.9-8.2 mg/l. In winter, the maximum oxidation is accompanied by 12.4 mg/l. Due to the increase in organic matter, there is an increase in oxidation, since the surface of the basin is subjected to greater leaching during the period of flooding and gourd. In comparison with the natural regime, oxidation decreased by 8 times in Mingachevir district and 1.6 times in salyan district. In this mode, the average multi-year amount of oxidation-I was equal to 1.2 mg/l in Mingachevir and 1.7 mg/l in Salyan. Thus, Kura O.A.According to the classification of Alyokinin (1970), it belongs to the average oxidation state in the natural mode (5-10 mg/liter), while in the disturbed mode it has very little oxidation (up to 2 mg/liter) [3].

In 1970-1971, I and II Kura water pipeline in 1984 played a relatively positive role in the water supply of Baku. Total Heat reserves of fresh and low-mineralized groundwater in the Republic are 124 million per day.m^3-in volume.

The Kura River, which is subject to serious pollution in the republics of Georgia and Armenia, enters the territory of Azerbaijan in a dangerous state for humans and other living beings. All cities and most settlements located on the banks of the Kura River are discharged directly into the river. Kura is a source of drinking water for 60-70% of the population of the Republic. Mingachevir is one of the developed industrial centers of our republic. It should be noted that the wastewater of the city undergoes only mechanical treatment. The composition of Kura water near the city of Mingachevir belongs to the hydrocarbonate class with sodium group. As a result of the mixing of a large amount of wastewater flows from enterprises, the composition of the water has changed, and as a result, chlorinated compounds have multiplied. As a result of the analysis of the water, it is observed that it has a sulfur smell, its color is grayish, and a fatty layer has formed on its surface. Degree of mineralization in water 0,33 – 0.50 g/l creates a weak alkaline reaction, the roughness is 2.3-4.5 mg equivalent/l, contains a large amount of substances with toxic properties, which exceed the permissible sanitary standards several times. Ammonium ions -5 times, nitrates-10 times, and the total mineralization is 1.5 times higher than the limit norm “Allowable limit”.The Kura River near Mingachevir city is constantly exposed to various anthropogenic influences.Therefore, the ecological state of water in individual parts is not the same [4].

According to the National Hydrometeorology Department of the Ministry of Ecology and Natural Resources of Azerbaijan, the average concentration of oil products in Poylu station of Kura River is 0.09 mg/l, and the maximum value is 0.03 mg/l, which is 7 times higher than the limit norm of “Allowable limit”.In the area located between shamki and Mingachevir reservoirs (Yenikend v.) and the average price of petroleum products was 0.14 mg/l “Allowable limit”.The maximum price at Poylu station has reached the mark of 24 “Allowable limit” [5].

Conclusion

From this study, we conclude that the dissolved substances in river waters consist of basic ions, biogenic substances, dissolved gases, trace elements and organic substances, etc. As we know, river waters are polluted by physical, chemical and biological ways.

It is clear from this article that the contamination of Kura water with radionuclides, chlorine, sulfate, hydrocarbonate, carbonate, oil products exceeded the "Permissible limit" - the limit norm.

It has been determined that the study of ion flow is important for the analysis of processes, including water bodies and land salinization, water supply, erosion, erosion, etc.

In the study, the change of the concentration of major ions during the year was observed in two regimes, disturbed and natural regime. In the article, after the Mingachevir reservoir was built, the water balance of the river was disturbed.

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The Role of Climatic and Geographical Factors in Assessing the Development of Tourism in Karabakh

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Abstract

To harness the full potential of Karabakh as a premier tourist destination, leveraging satellite technology becomes paramount. These satellites can continually monitor weather patterns and climate variables, enabling local authorities and businesses to make informed decisions. For instance, understanding seasonal variations in rainfall, temperature, and natural hazards can assist in scheduling events, optimizing tourist influx, and ensuring guest safety. By employing sophisticated data analytics on the received satellite information, stakeholders can pinpoint the best times of the year for various recreational activities, from hiking in the stunning landscapes to hosting international sports competitions.

Moreover, satellite imagery can be instrumental in assessing the region's topographical features, identifying hidden gems that could be developed into tourist hotspots. By mapping the natural beauty of Karabakh, including pristine lakes and majestic mountains, planners can create immersive experiences that attract visitors seeking adventure and serenity. In addition to this, data on soil conditions can support sustainable tourism practices, ensuring that natural habitats are preserved while fostering economic growth.

As Karabakh continues to develop its tourism sector, integrating artificial Earth satellite capabilities will not only improve disaster preparedness but also enhance the overall tourist experience, establishing the region as a safe, attractive, and vibrant destination on the global map.

Keywords: Climate, Risks, Natural Disasters, Tourism, Recreation Areas, Weather Forecasting, Artificial Earth Satellites

Introduction

Of all recreational resources, climatic ones are of paramount importance, since they determine the spatial organization, time constraints and specifics of recreation. Climate is a resource potential for almost all sectors of the economy and the social sphere, and the comfort of the climatic conditions of a particular territory is subject to mandatory consideration, since it is one of the most important environmental factors that create a natural resource potential that ensures the vital activity of the population. It is the climate that determines the degree of thermal comfort or discomfort of the environment, and thus the recreational possibilities of the territory. In the structure of the recreational potential of the territory, climate belongs to one of the main places, since some of its indicators often have a limiting recreational value [1].

The level of demand for nature and heritage tourism is influenced by three main factors: the development of general tourism, an increase in the number of specific trips, and increased awareness and concern for the environment. Each of these factors, in turn, is influenced by a number of elements. For example, tourism development in general will continue to grow as a result of population growth, increased income and employment, shorter working weeks in many parts of the world, and increased integration at the global level in relation to the global economy. Some territories liberated by the Azerbaijani army from the occupation of Armenia have great prospects in terms of tourism development. It comes from Shusha, Lachin, Kelbajar, Zengilan, Aghdam districts, popular with tourists since Soviet times. It was chosen due to the relief, natural resources and historical monuments of the Karabakh territory. After Azerbaijan fully restores its territorial integrity, these areas will become known in the world as tourist regions after they are cleared [2].

Weather conditions and their daily changes are important for tourism, as well as for the organization of leisure activities in the place of residence. In recent years, the quality and reliability of weather forecasts have increased significantly, including long-term ones, which allows tourists and recreation specialists to better plan their events. Meteorology has ceased to be a gambling game, fortune telling or a dark offshoot of astrology; and tourism was one of the first to benefit from it. However, the dependence of the tourism, travel and leisure industry on meteorology in the broadest sense of the word is not limited to short-term forecasts. The tourism and leisure industries have a common concern: long-term climate change [3].

To determine the degree of dependence of various CRA (cycles of recreational activities) (types of tourism) on climatic factors, it is necessary to divide TRA (types of recreational activities) into classes. The analysis of the essential specifics of turbofan engines in the context of the climatic conditions of their implementation allowed the author to identify three classes of its orientation:

1) mainly on the ERA (elementary recreational activity) of the summer type (weather conditions favorable for the implementation of summer recreation are necessary);

2) of the all-season type;

3) of the winter type (weather conditions favorable for the implementation of winter recreation are necessary) [4].

Another important physical and geographical factor that has a certain impact on the development of tourism in the region is weather and climatic conditions [5].

The Karabakh region has unique recreational resources. The extraordinary climate, unique flora, a huge number of mountain springs and mineral springs have turned these places into a center for recreation, treatment, wellness and entertainment. At the same time, it is necessary to note the therapeutic value of the radon-carbon dioxide source "Isti-Su" in the mountains of the Kelbajar district. He was widely known not only in Azerbaijan, but also far beyond its borders. A sanatorium with 1,000 beds was built here. The first-class airport located near Khojaly provided an opportunity for tourists from many regions of the world and the former Soviet Union to arrive in these places. Unfortunately, in the current, difficult real relations with the neighboring country, the named area is located in a war zone and is temporarily unavailable for tourism. We hope that after normalization of relations, this region will receive further development, and its natural and climatic resources will serve to meet the tourist needs of the entire world population [6].

The restoration of the Nagorno-Karabakh region is a priority and financially costly task facing the Government of Azerbaijan. Indeed, during the occupation, as well as during the retreat by the Armenian invaders, huge damage was caused to the infrastructure of the region. The Government is taking active measures to clear the fields and restore the destroyed infrastructure. Nagorno-

Karabakh has great potential for development in several areas of the economy at once, because This region has large reserves of minerals, which can contribute to the development of the mining and processing industry, as well as has unique natural conditions, rich culture and history, which can contribute to the development of tourism [7].

Material and methods

At the same time, many urgent problems of state regulation and use of recreational resources at the regional level currently remain unresolved, in particular: there is no adequate administrative-territorial division and zoning of the natural resource complex that meets modern requirements, an effective regulatory framework has not been developed regulating the development of industries using recreational potential; there is no an adequate system of state monitoring; Measures have not been developed for the rational territorial allocation of recreational resources and the promotion of recreational services at the regional level. The solution of these and other equally important issues requires the improvement of the mechanism of regulation and sustainable development of the recreational sphere of the region, which allows to significantly increase the efficiency of the use of recreational resources and the competitiveness of the region as a whole [8].

For the successful development of the tourism industry in Karabakh, it is also necessary to pay attention to environmental sustainability and the preservation of the cultural heritage of the region. The promotion of ecotourism and green tourism can attract more visitors interested in a healthy lifestyle and respect for nature. In addition, the preservation and promotion of traditional national customs, crafts and cultural events will help attract those tourists who appreciate an authentic experience.

One of the key aspects of tourism development in Karabakh is also improving the accessibility of the region for tourists. The development of transport infrastructure, the expansion of aviation routes, the construction of new hotel complexes and the renovation of existing accommodation facilities will help increase the flow of visitors and improve the quality of service. In addition, the creation of tourist routes, including both cultural and historical attractions, as well as natural unique places, will allow to diversify the offer for visitors and increase the attractiveness of the region.

Finally, an important aspect of the successful development of the tourism industry in Karabakh is cooperation with international partners and marketing campaigns to promote the tourism product of the region. Attracting investments, participating in international exhibitions and festivals, and creating joint projects with other tourism operators will help increase the popularity of Karabakh as an attractive tourist destination. An integrated approach, including infrastructure development, promotion of cultural and natural heritage, cooperation with partners and the introduction of modern technologies, will contribute to the sustainable growth of tourism in the region [9].

Conclusion

Of all possible recreational resources, climatic conditions are of particular importance, since their influence can be traced in the organization of space, time frames and the nature of recreation. The demand for tourism related to nature and cultural heritage is influenced by three main aspects: the development of general tourism, an increase in the number of specific trips and increased awareness and concern for the environment. Weather conditions and their constant changes play an important role in tourism, as well as in the organization of leisure activities at the local level. Weather and climatic conditions are another important factor influencing the development of tourism in the region. The Karabakh region has unique resources for recreation: a special climate, unique flora, many mountain springs and mineral waters have turned these places into a center for recreation, treatment and entertainment. The restoration of the Karabakh region is a priority and costly task facing the Government of Azerbaijan.

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A New-Age Movement's Solution to The Precarious Works in Vietnam

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Abstract

In recent years, Vietnam has been one of the fastest-growing economies in Southeast Asia. However, economic growth accompanies many problems related to workers' quality of life. In early 2024, 65% of the working-age population in Vietnam was in precarious work. Government policies can only cover a small part of the number of workers. Therefore, these laborers need short-term solutions, most notably seeking religious advice to face uncertain working conditions and economic insecurity. Religious practices are, indeed, essential in Vietnamese traditional society. Workers born until the late 1970s often found guidance for their employment via native popular religions. However, laborers born since the 1980s, who form the majority of the total number of workers in Vietnam today and belong to the generation of the Internet, have received global influences and, thus, to some extent, have felt strange in their traditional spiritual customs. They believe in New-Age Movement practices, such as astrology, numerology, and tarot. Among them, tarot card readings have become a trend on all social media platforms. Tarot readers use these 78 cards to predict customers' present and future status. Young workers often ask tarot readers for suggestions in the current uncertain labor market. Tarot readers also might function as psychological counselors and spiritual healers to conform to their customers, who suffer the mental and economic pressure of the labour power market. Hence, this conference paper interprets the belief in tarot readings of several number of Vietnamese laborers today as a utilitarian and, to some degree, a spiritual solution to deal with the precarious works on the individual scale.

Keywords: Anthropology of Religion, Precarious Work, Social Media, New-Age Movement, Well-Being.

Background of the study

Among Asian countries, especially Southeast Asian countries, Vietnam has been one of the fastest-growing economies in recent years. According to *Seasia Stats*, Vietnam can become the 15th largest economy in Asia (Viet Nam News 2024). This conference paper, however, would switch the readers' attention from the macroeconomics of Vietnam to the problems of Vietnamese laborers, who make the development of that economy.

Vietnam is still in the golden population structure with a large and annually increasing working-age population. According to the General Statistics Office of Vietnam (2024), the unemployment rate of working-age workers in the second quarter of 2024 was 2.29%. Compared to the global unemployment rate, which is 5.1% (International Labour Organisation 2024, 11), the number of Vietnam is less than half. This difference depicts the potential to create job opportunities in Vietnam. However, that positivity does not fully describe the economy in Vietnam, in which "informal workers" or precarious workers still account for a high proportion. Precarious workers are the persons who do "work that is uncertain, unstable, and insecure and in which employees bear the risks of work (as opposed to businesses or the government) and receive limited social benefits and statutory protections" (Kalleberg & Vallas 2018, 1). Vietnamese official discourse, however, does not use the concept of "precarious workers" but "informal workers" to describe "people who do work that is not legally or protected by labor law, do not need to pay income tax or social insurance, and other employment requests (such as not being notified in advance about the layoff, not receiving severance pay, not being paid annual salary,...)." (General Statistics Office of Vietnam 2022, 2). Their work is usually temporary or short-term, and their salary might be below the minimum wage. Therefore, two terms, precarious and informal workers, might conceptualize the same phenomenon. This conference paper, thus, would use two concepts with the same meaning in the context of the contemporary Vietnamese economy. In the second quarter of 2024, precarious workers were 33.5 million out of 52.5 million laborers, accounting for 65.2% of the total nation's workers. This number has increased compared to last year's first quarter of 2024 and the same period of 2023. One of the causes of this situation is the global economy movement: businesses withdrawing from the labor market after the COVID-19 pandemic damage, thereby increasing unemployment rates and forcing workers to seek precarious jobs (*Nhan dan* 2024).

Therefore, these laborers need short-term solutions, most notably seeking religious and spiritual advice to face uncertain working conditions. Religious or spiritual practices are, indeed, essential in Vietnamese traditional society (Vu Minh Giang 2022). Workers born until the late 1970s often found guidance for their employment via native popular religions. "People often pray to the Mother Goddess [a famous deity in the traditional Vietnamese belief], looking for support from her when they encounter difficult and uncertain circumstances [...] to find [spiritual] insurance for their present and future" (Nguyen Thi Thanh Mai 2021, 89). However, young workers belonging to the Millennial generation are often alienated from those traditional beliefs and, therefore, might not find advice from indigenous spiritual solutions (Ngo Dong 2021). New religious phenomena and spiritual movements from Western and Eastern nations have emerged in Vietnam in the same economic context. To a degree, new religious phenomena have become one of the solutions for several young precarious workers (Ha Nhan 2022). Institute for Religious Studies - Vietnam Academy of Social Sciences (2021, 41) claimed that “in a market economy, risks might threaten labourers' stability. Therefore, by any means, even by resorting to the supernatural world [of new religious phenomena], people try to seek wealth and maintain their income while avoiding failure" [as a consequence of precarious work]. On the contrary, new spiritual movements, especially the New-Age movement, have received many young workers' attention (Long Vu, 2023). Institute for Religious Studies, and to some extent, the official discourse of the Vietnamese government, has clearly distinguished between new religious phenomena and the New-Age movement. New religious phenomena “refers to the novelty and difference in beliefs, ritual practices and ways of organizing the community of believers […] always have cultic activities towards specific sacred objects and there are groups that emphasize prophecies, especially prophecies about the world after the end of the world” (Institute for Religious Studies 2021, 18). In contrast, New-Age movements “might simply support a new philosophy of life or a new worldview, focusing spiritual dimension, without necessarily having a specific object and behavior of worship or community organization” (Institute for Religious Studies 2021, 18). Philosophy of New-Age movements is, indeed, a loose combination of many practices, so it is not as systematic as the philosophy of official religions. Nevertheless, there are common points of New-Age movements: i) the universe is a whole driven by an ultimate energy, ii) belief in diverse spiritual entities, iii) believe in an eternal and sacred knowledge that transcends all cultural - historical - political - religious differences, iv) believe in the ability of individuals, through spiritual practices and searching their masters, can independently rise up higher spiritual level (Thoi su Than hoc 2022). The open-minded Vietnamese government has legitimized the emergence and development of New-Age movement practices, such as yoga, tarot reading, astrology, past life regression, meditation, numerology, manifestation practices, spiritual therapy, etc.

Some of their forms and philosophies have even become the social media trend for the youth, impacting their lives (Ngoc Quynh 2023). "Manifest", "therapy", "energy", "mindfulness", and familiar terms of New-Age movements have transformed into everyday life idioms of the youth. Most young workers do not know, or do not need to know, about the academic definition of the New-Age movement and the foreign esoteric origins of these practices but use them to benefit their life. These followers find psychological therapy and economic advice in these practices to deal with their precarious work (Nguyenphuhoang 2020a).

Only a few people intensively follow the philosophy of New-Age movement practices, and they often become spiritual masters and advisers in the social media platform for ordinary youth. Even they, who are also defined as precarious or informal workers, do not discuss aspects of New-Age movements, such as philosophical - historical - social - cultural, etc. The statement of well-being below of a young spiritual master might be a suitable illustration of the stereotype of New-Age movement specialists in Vietnam. "Flowerism [...] is an universe of flow. Flow is me, flow is you, as an in-dividual and a dividual. Flows might be found anywhere, above and below, within and without, in the center and edge. Flow is everything and nothing" (Nhu Giao 2021b). Their intellectual efforts to interpret the world according to the New-Age movement's philosophy, indeed, need to be recognized. However, they only cover a small proportion of their work as a spiritual master and therapist. Through New-Age movement practices, they, however, ultimately seek well-being for themselves and their clients - that are, young and precarious workers.

Therefore, this paper would describe a form of the New-Age movement practice: the tarot card reading. Tarot readers use these 78 cards to predict customers' present and future status. Young workers often ask online tarot readers for suggestions in the current uncertain labor market. Tarot readers, thus, might function as typical New-Age movement specialists, that is, spiritual masters and therapists, and also psychological counselors, conform to their customers, who suffer the mental and economic pressure of the labour power market. Hence, this conference paper interprets the belief in tarot card readings of several young Vietnamese laborers today as a utilitarian and, to some degree, a spiritual solution to deal with the precarious works on the individual scale that government policies can not fully cover.

Method

This conference article would simultaneously use the text analysis method, mostly Vietnamese newspaper articles and posts on social networks on the New-Age movement, and the "netnography" method, which Robert Kozinets proposed in her book *Netnography: Doing Ethnographic Research Online* and *Netnography: redefined*. Kozinets defines the research object of the netnography method as online sociality, and social interaction and experience on platforms such as Facebook, Twitter, Instagram, YouTube, Tik Tok, X, and other social networks. From there, the researcher collected nethnographic data (Nguyen Van Suu 2024, 10-1). The two methods mentioned above are suitable for exploring the practices of the New-Age movement of young workers in Vietnam, particularly the online tarot card reading of young precarious workers. Through their discussions on social media platforms, the intended meaning they attach to those practices as idealistic solutions to their precarious economic situation is revealed.

In search of well-being in the precarious economic situation

As mentioned above, the ultimate goal of followers of New-Age movements, from spiritual masters to ordinary persons, most of whom are young and precariously workers, is well-being. However, they rarely use this academic term. Instead, they operate a popular idiom: "healing." One reporter said that “healing” has become “a slogan [of young workers] whenever there is dissatisfaction” (Mai Phuong Thao 2024). However, this reporter did not focus on why young workers seek healing treatment.

Answering this question, the official discourse of the Vietnamese government offers vague reasons: i) “[because of] developing society with pressures of work and life" (Mai Phuong Thao 2024), ii) "[therefore people] might fall into mental disorders such as stress and depression" (Thanh Nga & Quynh Nguyen 2024). This mode of interpretation is placed in the psychological sociology realm by combining the Marxist-Leninist doctrine, one of the two components of the official ideology of the Vietnamese government, and the medicinal model of treating mental health problems. From this perspective, the reason young and precarious workers follow New-Age movements is identified with the fact that they might follow religions and beliefs. Thus, the complete statement that the official discourse of the Vietnamese government might be that when people "fail into mental disorders such as stress and depression" (Thanh Nga & Quynh Nguyen 2024), which are caused by "pressures of work and life" (Mai Phuong Thao 2024), they might find spiritual advice to seek "healing," as the ultimate goal of New-Age movement practices. Moreover, it believes the New-Age movement's solution is a helpful spiritual therapy based on the medicinal model to bring people who have mental disorders back to the socio-economic life.

Iain Fegurson (2017) claimed that such an interpretation places mental health problems at the individual level “as illnesses originating in the brain, identical in all key respects to physical illness, to which the most appropriate responses are medication or some form of physical intervention." He, in other words, found the research gap, on a global scale, in the relationship between socio-economic issues and mental disorders, which includes spiritual therapy of the New-Age movements as one of the specific treatments. Perri and colleagues (2024), too, found close associations between precariousness and poor mental health. “Compared to permanent workers, the probability of experiencing poor mental health is almost doubled in precariously employed workers. Furthermore, it has been shown that higher levels of precariousness are associated with experiencing high stress, depression, and anxiety.” This connection is often neglected in official discourses and public discussion on social media platforms in Vietnam, too. The 116-page report on informal or precarious employment in Vietnam by the General Statistics Office of Vietnam (2022, 1) only confers the health problems of these workers once. “The informal labor situation has quite a negative impact on the income, safety, and health of workers, but sometimes they are still forced to do informal work as an indispensable choice to ensure their safety. Ensuring a livelihood in a context where social welfare conditions are limited or income from formal work is not guaranteed".

The dominant interpretations of New-Age movement practices in Vietnam are either i) seeking to isolate spirituality from socio-economic concerns (Nicky Khanh Ngoc & Phuong Uyen 2021) or ii) using them as a tool to aim at personal development, that is, "to know where you are and where to go, what to do, to achieve the destination or mental state you desire" (Nhu Giao 2021a). Following Fegurson's finding, this conference paper focuses on the empirical association between New-Age movement practices pursuing well-being, particularly online Tarot card reading, and socio-economic problems in Vietnam. This paper, however, does not focus on the macro-economy in Vietnam but on the socio-economic status of several young and precarious workers as dynamic subjects of the development of the Vietnamese economy and followers of online tarot card reading.

A famous American tarot reader said that her clients often “ask me not only ‘Will I get the job?’ [...] (typical predictive questions), but also ‘Why am I here?’ and ‘What’s my life purpose?’ That’s the mystical or metaphysical stuff” (Einhorn 2020). These questions also coincide with popular topics of online tarot card reading in Vietnam, in which the inquiry about work occupies the number one position. Online groups of tarot card reading often assume the stability of the customers' job not in a few years, but only from one to three months: “Selecting a group of tarot cards: your work in December 2024” (Min Min Tarot 2023), “What will my work, study, and finances be like in the next three months? (Timeless)” (Chi de Papillon 2020). These hypotheses further reinforce the trend of increasing precarious jobs in Vietnam. A reporter described this phenomenon: "Every day, walking down the street, I quickly notice [precarious] workers. They are lottery ticket sellers, street food sellers, technology drivers, shippers, loaders, online sellers, freelance teachers, programmers, freelancers, etc. In general, there are countless" (Pham Thu Ngan 2024). To deal with such harsh socio-economic pressures, these young and precarious workers find peace of mind and affirmation of their career choices in tarot card reading. Thus, the spiritual therapist function of tarot readers in Vietnam is revealed. Cam Tu (2024) identified tarot readers as healers of the youth and placed tarot card reading practice with receiving messages from the holly universe, which is a component of the New-Age movement's philosophy.

A 20-year-old worker said she often comes to a close tarot reader whenever she is unemployed or encounters significant changes in her life. Her frequent visits to the tarot reader every few months support my argument about the precarious workers' need to pursue mental health treatment and well-being. “When a tarot reader analyzes my situation, I feel more secure because I have been cured, heard, and received messages [of holly universe], which somehow helps me have more conviction in the future” (Cam Tu 2024). Some young workers seek out so-called universal messages from groups of tarot card readings on social media platforms. Two young laborers commented on a video of a famous young spiritual master: “I fell lost. I do not know what to do, but I hope the new year will bring good opportunities Chi [the spiritual master's name] said about those who choose the third group of tarot cards”; “The third group of tarot cards is almost 90% right for me, from worrying about love to struggling between spending and saving money. Just yesterday, I was thinking about investing in a clothing store. After watching it, I thought, oh, I am so agreeing with your message” (Chi de Papillon 2020). Referring to the notion of the New-Age movement's philosophy (Thoi su Than hoc 2022), these tarot readers would be regarded as spiritual carriers of the holly universe who transport the sacred messages to customers to conform their precarious minds.

In some cases, tarot practices have been combined with other practices, such as manifest, which "refers to the process of thinking and imagining a goal until it becomes a reality" (Rachel Vo 2024). The meaning of the tarot card, thus, has justified the manifest words of a subject. A young female tarot reader drew a tarot card, The Lover, the 6th card of the Major Arcana, to a customer and then repeated the following manifest: “There will be a rich, thoughtful, high social status man who will love and pamper you. They want to marry you. Save this video to manifest with yourself later" (daisytarot12 2024). Many young women, who desire to escape their precarious economic situations and find spiritual security, focus on listening and repeating those words. These practices are, to some extent, idealistic solutions for young and precarious workers who do not know how to achieve decent work in reality.

In sum, online and offline tarot card reading practices might support emotional comfort for young workers. They would calm down and listen to the reader's advice, which might promote their optimism. On a global scale, these practices encouraged many people during the COVID-10 pandemic panic (Sachdeva 2020), thus, might be a helpful mental health support for Vietnamese young and precarious workers.

Predicting the future and accepting the present economic precariousness

To some degree, the official discourse of the Vietnamese government accepts tarot card reading and other New-Age movement practices as a way of psychological therapy. On the contrary, that discourse is careful when the increasing number of tarot readers have taken on the role of career advisors on social media platforms, especially for young and precarious workers. This concern was raised during the question-and-answer session at the National Assembly of Vietnam in November 2024. The Minister of Information and Communications acknowledged that the Vietnamese police have prevented the fraud of spiritual services, which claim to predict customers' future (*Phap luat Thanh pho Ho Chi Minh* 2024). In fact, in Vietnam, there have been many cases of fraud and appropriation of property related to tarot card reading and other New-Age movement practices. A reporter of *Phap luat Plus*, a portal of the Vietnamese Ministry of Justice, claimed: “Using Tarot cards is not considered a violation of the law. However, this action might be violated if the tarot readers utilize it to organize superstitious activities, profiteering, or fraud" (Tran Thi Thu Hien 2024).

Thus, the Vietnamese government strictly prohibits using tarot card readings to promote superstition and fraud. It is also cautious about tarot readers' function in predicting customers' future, primarily regarding working issues. Despite the government’s worries, tarot card reading continues to develop. The largest online newspaper in Vietnam, *VNExpress*, even has a quiz column that asks customers to randomly select a tarot card or a group of tarot cards based on topics. “In the second half of this year, will your economic situation better or worse?” (Alexandra V 2024b); “Ten years after, will you be richer?” (Alexandra V 2024a). The belief in tarot card reading and New-Age movement practices among young and precarious Vietnamese could be contextualized in a global trend. The international market research and polling company IFOP released the results of a survey in December 2020 showing that 70% of young workers in France believe in New-Age movement practices. Young Chinese workers also accept such beliefs. The Springtide Institute for Sociological Research published a survey on the belief in New-Age movement practices of young Americans aged 13 to 25: 51% have consulted tarot or other forms of future prediction, and of that group, 17% consult daily, 25% once a week, 27% once a month, and 31% less than once a month (Hong Chang 2022). The data in the US should be more concerned because not only young workers but also students and university students are increasingly interested in spiritual future prediction activities. In Vietnam, some high school students, who vaguely know about the future labor market to which they will belong, need tarot reader's advice to decide to join higher education with financial pressure or find a precarious job (Tran Hanh 2024). This choice is essential because it will determine their future career. Therefore, a reporter who said, "It is both funny and sad that students read tarot cards to choose their future career" underestimated the meaning of reading tarot cards to those students. It, indeed, strengthens young workers, and those who will become young workers, such as high school and university students, by predicting their possible future jobs.

To express the relationship between tarot card reading and the socio-economic problems of young, and maybe precarious, workers, there is a popular collocation among young and precarious workers: "Select a group of tarot cards when your life gets stuck" (Minh Anh 2021). Interpreting according to New-Age movement's philosophy, this phrase could mean that when young and maybe precarious workers have trouble in their jobs,thus, they might choose a group of tarot cards that they randomly see from social media platforms to hear the messages of the holly universe. Those messages might predict their employment's future and accept their present to hope for a better life. This statement is closely related to the first function of tarot card reading for young and precarious workers in Vietnam, that is, finding well-being, as mentioned above. Peace of mind can come when the readers comfort people about a possible future where their work can progress. They, therefore, are confident to keep working in their present.

Conclusions

This conference paper would not discuss whether tarot card reading predictions are correct. In other words, it does not concern the esoteric but the anthropological and sociological dimensions of these practices. By text analysis and netnography methods, this paper tries to uncover the subjective meaning that contemporary Vietnamese young and precarious workers place in the tarot card reading: a spiritual service that helps them cope with their socio-economic precariousness. This idealistic and short-term solution is only suitable on an individual scale. On a broader level, the solution to precarious young workers' problems needs to lie with Vietnamese government policy, emphasizing the National Framework for Decent Work: by 2026, they "will benefit from social services and social protection systems that are inclusive, gender-responsive, sensitive to people with disability, equitable, affordable, and of high quality, to reduce multidimensional poverty in a sustainable and comprehensive way and empower individuals to reach their full potential" (Nguyen Tuan Anh 43).

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The Future of News: Exploring New Media Formats in Journalism

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Abstract

This article examines the diverse storytelling formats emerging in digital journalism, exploring how new media types such as live blogging, interactive stories, data journalism, video and multimedia stories, social media, and immersive augmented and virtual reality (AR/VR) narratives are reshaping the news landscape. Each format provides unique ways to engage audiences, enhancing immediacy, interactivity, and depth of understanding. Live blogging delivers real-time information, especially valuable during fast-developing events. Interactive stories and data journalism leverage data visualization to simplify complex issues, while video and multimedia stories enable visual storytelling that evokes emotional responses. Social media platforms, meanwhile, serve as participatory spaces where audiences can verify, share, and comment on news, creating a dynamic, co-constructed narrative. AR and VR are at the frontier of immersive journalism, allowing audiences to experience news within a virtual environment.

However, these formats introduce ethical challenges, particularly regarding misinformation, verification, and transparency. Through a review of recent studies and ethical implications, this article highlights how these new media types both expand journalism's reach and demand renewed commitments to accuracy and trust in the digital age.

Keywords: new media, journalism, live blogging, data journalism, social media, multimedia, augmented reality, virtual reality

Introduction

The rapid evolution of digital technology has significantly transformed journalism, leading to the development of new media formats that are redefining how news is produced, distributed, and consumed. Traditional journalism, once dominated by print and broadcast media, has expanded to include a wide range of digital storytelling methods that meet modern audiences' demands for immediacy, interactivity, and personalized engagement (Deuze & Witschge, 2020). These developments are particularly evident as news outlets increasingly utilize digital platforms to report events in real-time, visualize complex data, and create immersive, multimedia experiences.

The shift towards new media storytelling is driven by audiences' changing habits and expectations. Modern readers and viewers often consume news on mobile devices, access information through social media, and expect content that is not only informative but also engaging and relevant to their interests (Newman et al., 2021). This shift has spurred journalists to adopt new storytelling formats, such as live blogging, interactive and data-driven narratives, social media storytelling, and immersive technologies like augmented reality (AR) and virtual reality (VR). These formats cater to different aspects of audience engagement: they provide rapid updates, encourage exploration of complex topics, enable emotional connection through visuals, and create participatory spaces for discussion and verification.

Despite the benefits, these new media types present distinct challenges, especially in terms of ethical considerations like accuracy, transparency, and verification. The digital nature of new media allows misinformation to spread quickly, particularly on social media platforms where news can be shared without verification (Carlson, 2020). Additionally, formats such as VR and interactive data visualization can sometimes blur the line between factual representation and user-driven experiences, raising concerns about sensationalism and the potential for selective storytelling (Steensen & Westlund, 2021).

This article examines six key types of new media stories in journalism: live blogging, interactive stories, data journalism, video and multimedia stories, social media storytelling, and AR/VR narratives. By exploring the functions, benefits, and ethical implications of each format, the article aims to highlight how these digital storytelling methods are transforming journalism and to discuss the critical considerations that must accompany their adoption. In doing so, this study offers insights into the future of journalism as it navigates the opportunities and challenges presented by digital innovation.

Types of New Media Stories in Journalism

1. Live Blogging and Real-Time Reporting

Live blogging has emerged as an essential format for real-time reporting, particularly useful for covering rapidly developing stories such as political events, sports, and crises. According to Eldridge (2019), live blogs enable journalists to engage directly with audiences, offering frequent updates that keep readers informed as situations unfold. During the COVID-19 pandemic, for instance, newsrooms worldwide relied on live blogging to deliver up-to-date health information and government directives, demonstrating the format's significance in a crisis (Newman et al., 2021).

Live blogs facilitate emotional engagement by allowing readers to follow events closely and experience them alongside reporters (Beckett & Deuze, 2016). However, the rapid pace can sometimes lead to misinformation or incomplete reporting, raising concerns about accuracy and the need for constant verification.

2. Interactive Stories

Interactive stories have redefined audience engagement, allowing users to actively explore different facets of a story. This format is particularly beneficial for complex subjects like climate change or policy analysis, as readers can navigate data visualizations, timelines, and maps to enhance their understanding. Lewis, Guzman, and Schmidt (2019) highlight that interactivity fosters a personalized experience, enhancing audience engagement by letting readers interact with the content. Additionally, big data supports these interactive features by creating visuals that clarify complex information (Mahrt & Scharkow, 2020).

Interactive journalism, however, also raises ethical questions about how data is used and presented. Misleading visuals or selective data representation can lead to misinformation, making transparency a priority in interactive storytelling.

3. Data Journalism

Data journalism has become an indispensable tool for investigative and public-interest reporting. Bradshaw (2018) explains that data journalism leverages structured data to uncover trends and insights, making it particularly useful for topics like public health, inequality, and economic analysis. In a period marked by misinformation, data journalism provides transparent and evidence-based narratives that counteract unverified information (Carlson, 2020).

The role of data journalism became prominent during the COVID-19 pandemic, as data visualization played a critical role in helping the public understand the virus's spread and the efficacy of preventive measures (Newman et al., 2021). However, the challenges of data interpretation and visualization require journalists to use data responsibly, ensuring clarity and accuracy in the stories they tell.

4. Video and Multimedia Stories

Video and multimedia stories have surged in popularity with the rise of mobile technology, enabling journalists to provide visual narratives that engage audiences on a deeper level. According to Belair-Gagnon, Agur, and Frisch (2020), "mobile witnessing" through video content fosters immediacy and emotional engagement, making it particularly effective for human-interest stories and breaking news.

These formats offer an advantage over text-only stories by allowing audiences to visually experience events, enhancing empathy and connection to the story. However, multimedia stories also demand a careful approach to ethics, as graphic or emotionally charged content can potentially misinform or sensationalize issues.

5. Social Media Storytelling

Social media platforms, such as Facebook, Twitter, and Instagram, have become integral to news dissemination and audience engagement. Bucher and Helmond (2018) note that social media platforms allow journalists to tailor content for specific audiences, leveraging each platform's unique features. Moreover, Hermida (2020) describes social media as a "post-publication gatekeeper," where audiences participate in news verification by engaging in discussions, fact-checking, and sharing content.

Despite its participatory benefits, social media also poses challenges for journalists. Misinformation can spread rapidly, often amplified by algorithms favoring sensational content (Tandoc, Jenkins, & Craft, 2019). Consequently, journalists must navigate social media cautiously, balancing engagement with the need for accuracy and accountability.

6. Augmented Reality (AR) and Virtual Reality (VR) Stories

Augmented reality (AR) and virtual reality (VR) represent the frontier of immersive journalism, enabling audiences to "experience" news stories in a three-dimensional context. Steensen and Westlund (2021) argue that AR and VR enhance audience engagement by providing a sense of presence and immersion, which can deepen understanding and empathy. For example, VR experiences that simulate war zones or disaster areas allow audiences to gain insight into issues they might otherwise struggle to comprehend.

However, AR and VR also introduce ethical considerations, particularly around the potential for sensationalism and the blurring of boundaries between reality and simulation. Journalists must carefully curate immersive experiences to avoid distorting reality, ensuring that these formats remain informative rather than purely emotive.

Ethical Considerations in New Media Journalism

With the rise of new media formats, journalists face unique ethical challenges, especially around verification and misinformation. Tandoc, Jenkins, and Craft (2019) describe misinformation as a critical concern, highlighting the difficulties journalists face in verifying real-time information on social media platforms. The COVID-19 pandemic illustrated these issues, as misinformation about the virus's spread and severity circulated widely, sometimes overwhelming traditional verification processes (Carlson, 2020).

In response, news organizations have adopted collaborative verification strategies, engaging both professional and public discourse to address inaccuracies (Hermida, 2020).

However, journalists must remain vigilant, balancing the need for timely updates with rigorous fact-checking to maintain public trust.

Implications for the Future of Journalism

As digital technology continues to evolve, so too does journalism's role in society. Deuze and Witschge (2020) argue that journalism's future hinges on its ability to innovate responsibly, embracing digital formats while maintaining ethical integrity. The demand for immersive, interactive, and participatory stories reflects broader societal shifts toward engagement and personalization in media consumption.

Looking forward, the integration of new media formats will likely continue, with journalists adapting to technological advancements while navigating the ethical challenges that arise. By fostering trust and transparency, journalism can remain a cornerstone of public discourse in the digital age.

Conclusion

The rise of new media formats has fundamentally transformed journalism, introducing diverse storytelling methods that cater to an increasingly digital and interactive audience. This article examined six key types of new media stories—live blogging, interactive stories, data journalism, video and multimedia stories, social media storytelling, and augmented and virtual reality (AR/VR) experiences—each of which plays a unique role in engaging audiences and enhancing news delivery. Live blogging offers rapid, real-time updates essential for high-stakes events, while interactive stories and data journalism allow readers to explore complex subjects through visualized data, promoting a deeper understanding of intricate issues. Meanwhile, video and multimedia stories connect audiences emotionally, and social media provides a participatory platform where news is both shared and verified. AR and VR represent the cutting edge of immersive journalism, providing audiences with unprecedented access to simulated experiences that evoke empathy and insight.

The impact of these formats is profound: they enable journalists to deliver stories in ways that resonate with digital audiences, provide layers of information that enrich understanding, and foster community engagement through interactive and social platforms.

However, the integration of new media into journalism also introduces pressing ethical challenges. The rapid spread of misinformation on social media, the potential for bias in data visualization, and the blurring of fact and fiction in AR/VR all raise questions about accuracy, transparency, and accountability. As digital journalism continues to evolve, it becomes essential for journalists and news organizations to establish and uphold ethical standards that prioritize truthfulness, accuracy, and the responsible use of technology.

Looking forward, journalism's future will likely involve further integration of these new media types, alongside emerging innovations yet to be explored. Continued research and development in digital journalism will need to address not only the technological potential of these formats but also their social and ethical implications. Journalists will need to balance the advantages of engaging, immersive formats with a commitment to traditional journalistic values, ensuring that the drive for innovation does not compromise the accuracy and trust upon which journalism is built. By thoughtfully navigating these complexities, the field of journalism can continue to adapt to the digital era while maintaining its crucial role as a source of reliable information and public accountability.

In summary, new media storytelling offers a wealth of opportunities for reaching audiences in meaningful ways, but it also requires a careful, ethically grounded approach to uphold the integrity of journalism in an ever-evolving digital landscape.

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AFRICAN-AMERICAN in BLACK ART MOVEMENT PERSPECTIVES in THE POEM "LET AMERICA BE AMERICA AGAIN" BY LANGSTON HUGHES

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Abstract

The perspectives of the poem by Langston Hughes mainly deal with the phenomena of Africa – American life in the poem entitled *Let American Be America Again*. African Americans are immigrants from the continent of Africa who expect a new hope in their new life and dream in US, but in reality, they are often treated unfairly, oppressed, and racist. This study focuses on the African-American perspectives, which everyone knows that the poem is about the voice of the oppressed in America. The analysis uses the theory of W.E.B. Du Bois which in that theory figures out racial behavior namely the veil and double consciousness. Apart from that, the issues that are the focused of the Black Arts Movement from this poem. This study aims to find the types of racial behavior and the focus of the Black Arts Movement in a poem and identify the meaning of the words that relate to racial behavior and the focus of the Black Arts Movement in a poem. In conducting the study, the researcher used qualitative methods which finally produced the results in the form of five data from racial behavior the veil, six data from double consciousness, and 5 data about the focus of Black Arts Movement.

Keywords: African-American, poem, racial behavior, the veil, double consciousness, black arts movement

Introduction

Poem becomes one of the most popular literary works. According to Wilson et al. (2022), a poem is by nature a literary form that is typically told and understood by the general population. This is because a poem is typically more concise than a novel or drama, making it appealing to many readers. Besides that, poems contain beautiful words and implied meanings in each line, making many people admire and interested in finding out what the meaning behind a poem is. There are many famous poems in the world, which have brought many researchers to study these poems. Some famous poem has been inspired many researchers to study and analyze them.

Among the many poems that exist globally, for this study, the researcher chose a poem by Langston Hughes entitled *Let America Be America Again*. According to Spacey (2023), this poem emphasizes the concept of the "American Dream" and how, for many, realizing the freedom, equality, and happiness that the dream represents is almost impossible. In the poem, the speaker explains why this perfect America has vanished, or never was, but might yet come to pass. The dream becomes a painful illusion for the impoverished, oppressed, and disadvantaged due to the harsh reality of their daily lives. The poem highlights the particular hardships of the impoverished people who comprise America, both black and white, and delves into the darker aspects of existence such as the history of exploitation.

Further, the depiction of the difficulties faced by black people in America is contained in the poem *Let America Be America Again* by Langston Hughes which basically this poem voices the oppressed people in America. All of them, immigrants from various countries, slaves, black people, and others, but the researcher narrows down this study aims to find out what words and phrases related to African-American using racist behavior theory by W.E.B. Du Bois and also the Black Arts Movement in the poem *Let America Be America Again*. Apart from that, to identify what the meaning behind the words and phrases related to African-American using racist behavior theory by W.E.B. Du Bois and the words as well as phrases that related to focus of the Black Arts Movements.

African American

According to Muawiyah & Ambarwati (2021) in their article explain that before America became a separate country, the continent was known as the New World because immigrants from Europe thought their new home would be a better place to live than their own. America is home to a large immigrant population with diverse backgrounds from all over the world. Their goal in this country is to fulfill their aspirations, which include obtaining freedom, equality, and employment in a new sector, among others. As time went on, pluralism in this country-which is known as the nation of immigrants-grows quickly. This country is incredibly diverse and pluralistic because of immigration. They maintain this country as a promising land by shaping its character via diverse backgrounds, customs, and values. The greatest wave of immigration to the United States occurred during the Great Depression, in the early 1900s, as people sought better economic and living conditions. Spain, France, the Netherlands, and England were the first colonizers in the New World and attempted to take over the region. Another group of immigrants to the New World was African - Americans. Certain social issues developed in the US as a result of those groups' existence. The issue of racism was one of them. African Americans have endured unfair treatment from white people ever since they first came to the United States. Many African Americans were sold into slavery by them. White people maintain discrimination against people of color. Since they had been colonized, they were seen as weak people and white people were able to use them as their slaves because they had defended themselves against the colonists in Africa.

Racial Behavior

W.E.B. Du Bois in his book entitled *The Souls of Black Folk* (1903) revealed that racial behavior is divided into two including veil and double consciousness.

a. The Veil

According to Ritzer in Basid et. al. (2023), the veil draws a distinct line dividing African-American and White people. A thin, delicate material is used to expose the veil so that each race can see how distinct they are from one another. Black people were perceived as existing behind a metaphorical "veil", according to W. E. B. Du Bois (1903), this "veil" was made up of three interconnected elements: while people's inability to recognize African Americans as Americans, the skin as a sign of their uniqueness from white people, and African Americans' inability to see themselves beyond the labels that white America has placed on them.

b. Double Consciousness

Du Bois's concept of double consciousness refers to the way African Americans evaluate and assess themselves based on the opinions or reactions of others or other objects. This indicates that even though they were born in America, African Americans are aware that they are descended from Africans. They were never fully accepted as members of the Native American people and were never seen as such by the Native Americans. African Americans therefore knew that if they were not accepted, Native Americans would always treat them unfairly and with prejudice (Basid et. al., 2023). This leads to what Du Bois called the "double consciousness," or the dual sense of identity that one possesses (Lister, 2018).

Black Arts Movement Overview

In his book entitled *The Black Arts Movement: Literary Nationalism in the 1960s and 1970s* (2005), Smethrust explains that this movement emerged around the 1960s and 1970s which was originally an offshoot of the Black Power movement. The Black Arts Movement commonly referred to as BAM emerged as a dedication to the creation of art that reflected the struggles, aspirations, and experiences of African Americans. BAM focuses on creating art that can evoke the spirit of struggle, political awareness, and voice pride in African-American identity. In addition, BAM also developed as a form of literary nationalism in the United States, where literary works such as poetry, theater, and so on became a tool to fight injustice, oppression, and racism. not only against oppression, BAM is also able to break down dominant literary works, so that it can become an independent cultural identity for the African-American community.

RESULT AND DISCUSSION

1. Result

In this study, the researcher found data related to African-Americans in the poem *Let American Be America Again* by Langston Hughes. These data have been classified according to Du Bois' racial behavior theory, namely the veil and double consciousness. For the veil, the researcher has found 5 data, there are:

Data 1.
And who are you that draws your veil across the stars?

Data 2.
I am the Negro bearing slavery's scars.

Data 3.
I am the negro,

Data 4.
And torn from Black Africa's strand I came

Data 5.
Negro's

For double consciousness, the researcher has found 6 data, there are:

Data 6.

(There's never been equality for me,
Nor freedom in this "homeland of the free")

Data 7.

Say, who are you that mumbles in the dark?

Data 8.

I am the immigrant clutching the hope I seek-
And finding only the same old stupid plan
Of dog eat dog, of mighty crush the weak

Data 9.

Tangled in that ancient endless chain
Of profit, power, gain, of grab the land!
Of grab the gold! Of grab the ways of satisfying need!
Of work the men! Of take the pay!
Of owning everything for one's own greed!

Data 10.

servant to you all.

Data 11.

Sure, call me any ugly name you choose-

Then, for the black arts movement, the researcher found several data that relate to the black art movement, including:

Data 12.

(There's never been equality for me,
Nor freedom in this "homeland of the free")

Data 13.

I am the Negro bearing slavery's scars
I am the Negro, servant to you all

Data 14.

Tangled in that ancient endless chain
Of profit, power, gain, of grab the land!
Of grab the gold! Of grab the ways of satisfying need!
Of work the men! Of take the pay!
Of owning everything for one's own greed!

Data 15.

From those who live like leeches on the people's lives,
We must take back our land again,
America!

Data 16.

And yet must be—the land where every man is free

2. **Discussion**

1.) The Veil

The researcher found several data related to the veil on racial behavior in the poem *Let America Be America Again*.

Data 1.

And who are you that draws your veil across the stars?

This is line 18, as we know that the veil symbolizes racial behavior aimed at black people. In this line, the veil is a metaphor that refers to the darkening of reality that occurs because of not being able to see the truth. This question from the oppressed people is addressed to white people which contains that who are you who arbitrarily act racist against black people. *Draw your veil across the stars* has a meaning about the actions of white people who are racist and oppress black people. *The stars* are representative of black people because black people are just like any other human being. They deserve to be happy, they deserve to be loved, not oppressed, and have the same rights as white people. Black people are just as valuable as white people. They are precious in this world like stars.

Data 2.

I am the Negro bearing slavery's scars.

This is line 20, this line is the voice of the speaker in the poem. The speaker loudly calls himself a negro which is the racial identity of African Americans who are black people and often get racist actions and enslaved by white people because of their skin color and race. Racist actions against African Americans in Bois' theory are included in the veil. In this line, the speaker also voices all the wounds that are obtained from the acts of slavery committed by white people. As everyone knows African Americans were made slaves by white people who were not only ordered, but African Americans were also subjected to white violence. White people did not hesitate to hit with tools or with bare hands, kicking, whipping, and all other violence that physically tortured black people, causing scars to black people, but the scars in the poem's line do not mean physical scars only, but also psychological scars. Psychological scars can occur because racist actions, hate speech, and acts of injustice committed by white people to black African Americans can make them psychologically depressed and cause scars to their souls.

Data 3.

I am the negro,

This is in line 33, just like in data 2, in this line, the speaker voices that he is a black person who has often become the victim of racist acts and oppression by white people. The word negro refers to the racial name for black people. The speaker is well aware that he is black, and he brave to speak up for it.

Data 4.

And torn from Black Africa's strand I came

This is in line 49, the phrase *and torn from Black Africa's strand* means that African Americans in America are not part of Africa because they are American citizens after all, the author used the word *strand* to describe the Black African race because the black race people are highly looked down and despised by white people. The words *I came* in this line mean that Africans are immigrants who came to America to start a new life.

Data 5.

Negro's

The word *Negro* is mentioned again in line 65, just as in lines 20 and 33, the word negro refers to the designation of black people. In this line, the speaker again speaks out about who he really is, voicing those who are oppressed.

2.) Double Consciousness

The researcher found several data related to the double consciousness of racial behavior in the poem *Let America Be America Again*

Data 6.

(There's never been equality for me,
Nor freedom in this "homeland of the free")

These are in lines 15 – 16, which in these lines clearly show the expression of despair from an African American who feels that he has never received equality or freedom in America which is also their land. African Americans are indeed immigrants, but they have settled in America and become citizens there, and that means they should get the rights as citizens there, but in reality, they do not get what they should get. The words *"homeland of the free"* are just an empty hope for African Americans who have always been subjected to racism and oppression.

Data 7.

Say, who are you that mumbles in the dark?

This is in line 17, the word *you* here, refers to the African American, and the word *mumbles* refers to the meaning of not being free or restrained, while *in the dark* refers to the meaning of an inappropriate place. This means that all this time African Americans who have always been oppressed have not been given freedom. They do not have a gauze to speak out loud and voice their rights, because most of them are just slaves. So, they are depicted only mumbles in the darkness.

Data 8.

I am the immigrant clutching the hope I seek-
And finding only the same old stupid plan
Of dog eat dog, of mighty crush the weak.

This is in lines 22 – 24, in the sentence *I am the immigrant clutching the hope I seek-* meaning that the African American immigrants who came were those who brought hope for their new life, but in the sentence *and finding only the same old stupid plan* is the result of their journey where they found a bad place where they were mistreated, no different from their previous live and perhaps even worse. In the phrase *of dog eat dog, of mighty crush the weak* means the social or hierarchy that occurs in America, where African Americans are the lower class people who are oppressed by the upper class, which are white people.

Data 9.

Tangled in that ancient endless chain
Of profit, power, gain, of grab the land!
Of grab the gold! Of grab the ways of satisfying need!
Of work the men! Of take the pay!
Of owning everything for one's own greed!

These are in lines 26 – 30, these lines refer to African Americans who feel fed up with all the oppression they receive from white people, where the speaker mentions the greed of the whites, then the power they have and their power over everything, while from these lines it can be seen that how suffering African Americans are for the greed of white people who control gold, land, and everything. Even though African Americans are also residents of America and they have rights, all their rights are taken away by white people. A very strong hegemony can be felt from white people to black African Americans with the superiority of white people.

Data 10.

servant to you all.

This is in line 33, in this line, the African American feels that he is inferior by saying that he is a servant for the white people, but this is indeed the case. African American does not have proper human rights to live equally and live happily like society in general. They are only considered slaves, servants who must serve the white people. It can be felt how desperate the speaker feels in this line. How he feels unworthy, how he is only a slave who is ordered and mistreated.

Data 11.

Sure, call me any ugly name you choose-

This is in line 70, in this line, African Americans feel that they are not worthy. This is due to all the oppression, racism, and all the bad treatment received by African Americans, making them feel that they are ugly and not worthy. This line to emphasizes the speaker's indifference to all forms of insults thrown by white people. It can be seen from how the speaker says sure. The speaker who is an African-American no longer cares about all forms of insults from white people because it will not affect him anymore. Now he has put up with all the ugly names that have been attached to his life so far.

3) Black Arts Movement

The researcher found several data related to the focus of the Black Arts Movement in the poem *Let America Be America Again.*

Data 12.

(There's never been equality for me,
Nor freedom in this "homeland of the free")

These are in the line 15-16 line. In this part, the author emphasizes the reality experienced by black people in America, where they do not have freedom and equality. These lines seem to explain an imbalance between America's goal of equality for all its citizens, but in reality, black people do not get equality and social justice.

Data 13.

I am the Negro bearing slavery's scars
I am the Negro, servant to you all

In lines 20 and 33, the author voices the racism and injustice experienced by African Americans because of the color of their skin. Through lines 20 and 33 in this poem, the author seems to emphasize that blacks are slaves whose job is to serve. The issue of slavery experienced by African Americans is one of the core struggles of the Black Arts Movement.

Data 14.

Tangled in that ancient endless chain
Of profit, power, gain, of grab the land!
Of grab the gold! Of grab the ways of satisfying need!
Of work the men! Of take the pay!
Of owning everything for one's own greed!

These are in the line 26-30. In these lines, the author highlights the oppression experienced by African Americans in the economic field. This is because they are required to work continuously or can be said to be exploited. white people who feel superior exploit the labor and time of African Americans, where the benefits will be enjoyed by them, while African Americans get nothing. This racialized economic oppression is also the main focus of the Black Arts Movement.

Data 15.

From those who live like leeches on the people's lives,
We must take back our land again,
America!

In lines 72-74, the author voices the revolutionary movement that exists in the black arts movement. It can be seen from the phrase *We must take back our land again, America!* which is the spirit of the black people depicted in the Black Arts Movement to reclaim the land of America into a place with a good social order without racism, oppression, and other injustices. The black people want a change from living like parasites on the whites, *From those who live like leeches on the people's lives* to a life of freedom and equality.

Data 16.

And yet must be—the land where every man is free

As in other works of the Black Arts Movement, in line 64 of this poem, there is an optimistic statement that America will be able to become a place where everyone can live with freedom. The hope reflected in this line is very strong. This poem is a fire of enthusiasm for freedom, even though it is difficult and has to fight against a vicious system.

CONCLUSION

The poem *Let America Be America Again* speak about the injustice, oppression, and racist actions obtained by immigrants, black people, and other minority communities in America. The researcher focuses on the African-American perspective in this study by analyzing words related to the focus of the Black Arts Movement and applying the W.E.B. Du Bois theory. In this study, the researcher can conclude that in the poem *Let America Be America Again* by Langston Hughes there are two types of racial behavior according to Du Bois theory, namely the veil and double consciousness. While. Double consciousness is a racist action against African Americans with acts of oppression and injustice to make African Americans feel that they are unworthy and bad based on the opinion and action.

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The potential of the intellectual property system to overcome gender inequality in innovation and business

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Abstract

Innovation is a key driver of economic development and is promoted and commercialized by the intellectual property (IP) system, which provides protection for ideas through invention patents and registration systems for copyrights, trademarks and industrial designs. Gender diversity is critical to driving innovation, as women are not represented equally to men in innovation and business. As of 2024, women made up 17.7% of inventors named in international patent applications. At the current rate, parity among PCT registered inventors will not be achieved until 2077.

According to WIPO, there are more female inventors in science than in business. At the same time, in Belarus women make up a significant share of researchers – 39.2%. There is a lower representation of women in the engineering sector.

Women usually work in mixed teams with a predominance of men (less than 5% of such mixed teams) or alone. These data are also valid for Belarus. However, even within the creative professions, there are gender disparities in the use of the copyright system.

In Belarus, women earn less in the labor market (by 26.1%), despite a higher level of education (40.6% of women have higher education, among men - 29%). Therefore, the alternative of entrepreneurship is attractive for women. The GEM Women's Entrepreneurship Report 2022/2023 said that the highest levels of female start-up entrepreneurial intentions were observed in low-income countries. However, today in Belarus and in the world only every third entrepreneur is a woman. Among startup founders, there are 0.80 women per man. One in ten women entrepreneurs in the world are in the very early stages of starting a business.

Women in the field of innovation and business need not only legislative enshrinement of equal opportunities with men, but also mechanisms of communication and cooperation. Achieving gender equality in the field of IP in the age of post-industrial economy, the determining factor in the development of which is IP, contributes to the achievement of the Sustainable Development Goals (SDGs) like nothing else. In particular, to an increase in global GDP by more than 20%.

Keywords: gender equality, women's entrepreneurship, innovation, intellectual property, sustainable development goals.

Introduction

In the process of researching this topic, general (methods of abstraction, deduction and induction, analysis and synthesis, ascent from the abstract to the concrete, historical, statistical and comparative methods) and special methods (formal legal, comparative legal, structural legal and structural) were used. functional). The work widely uses a systematic approach, expressed in the consideration of phenomena and relationships as a system consisting of interconnected institutions, sub-institutions and norms, when analyzing the mechanism of both legal regulation of the sphere of entrepreneurship and gender equality, and the sphere of intellectual property.

Innovation is a key driver of economic development, and the intellectual property (IP) system exists to promote and commercialize it. Gender diversity is crucial for promoting innovation, since women, due to existing stereotypes, still practically do not use the opportunities of the IP system to promote their ideas and create businesses - they do not protect their ideas with patents for inventions, do not register copyrights, trademarks and industrial designs. According to WIPO, from 1999 to 2020, only 23% of international patent applications for inventions named women, and they made up only 13% of the number of inventors named in the applications. As of 2024, women made up 17.7% of inventors named in international patent applications. Despite the positive dynamics of this indicator, at the current pace, parity among inventors registered in the PCT system will only be achieved in 2077.

According to WIPO, there are more female inventors in science than in business. And they usually work in mixed, male-dominated teams (less than 5% are mixed) or alone. There is a higher representation of women in areas such as biotechnology, food chemistry and pharmaceuticals, and lower representation in engineering. However, even within the creative professions, there is a gender disparity in the use of the copyright system (as of 2020, women represented 38.5% of authors of registered works in the United States). These data are also valid for Belarus. Because of this, women inventors need mechanisms of communication and cooperation in the field of innovation and wear.

Looking broadly at Sustainable Development Goal 5 (Gender Equality), no country in the world has achieved full gender parity, and less than 1 % of women and girls live in countries with high levels of women's empowerment and empowerment and small gender gaps.

According to the World Bank Group's 2024 Women, Business and the Law report, discriminatory laws and practices around the world prevent women from working or starting businesses on equal terms with men. Closing this gap could increase global gross domestic product by more than 20%. Achieving gender equality in the field of IP in the age of post-industrial economy, the determining factor in the development of which is IP, contributes to the achievement of the SDGs of sustainable development like nothing else.

The GEM Women's Entrepreneurship Report 2022/2023 states that almost one in three entrepreneurs is a woman. Among startup founders, there are 0.80 women per man. Women are more likely than men to be individual entrepreneurs (1.47 female individual entrepreneurs for every 1 man). In Belarus, almost 90% of women are engaged in business in the form of individual entrepreneurship and handicrafts, and 75% do not have employees. The highest levels of female startup entrepreneurial intention were observed in low-income countries. One in ten women entrepreneurs in the world are in the very early stages of starting a business.

In the 2023 Global Gender Gap Index ranking, Belarus ranked 41st out of 146 countries covered, just behind France. This is higher than the USA (43rd place), Poland (60th), Italy (79th) and even more so Japan (125th). However, in 2022 Belarus took 36th place in this ranking, and in 2021 – 33rd place.

According to the UNDP Human Development Report 2023/2024, the Republic of Belarus is classified as a country with a very high level of human development and ranks 69th among 193 countries in the Global Human Development Index. Belarus is losing about 6% of human development due to inequality, including gender inequality.

In Belarus, primary and secondary education is compulsory, so 100% of girls and boys go to school. However, in terms of having a higher education, women are ahead of men (39.4% versus 28.1%). Moreover, women prefer the arts and humanities. In science, the percentage of women's representation is 39.2%, while in agricultural sciences the share of women is 62%, in socio-economic and social sciences - 60.9%, in the humanities - 57.5%, in natural sciences - 51.7%, in technical sciences – 27.8%. Despite a higher level of education (according to data for 2022, 40.6% of women have higher education, among men - 29%), women still earn less in the labor market: according to data for 2023, the gender gap in monthly wages is 26.1%. And there are fewer women entrepreneurs in Belarus than men – only 36.1%. In Belarus, the National Action Plan for Gender Equality has been approved for 2021–2025. In Belarus, overall, the prospects are good: every year awareness of the importance of gender equality is growing, and with it, support from society and the state is growing.

The term "intellectual property system" covers intellectual property rights, the process by which they are granted, the national, regional and international systems that exist to process, grant and record such rights, and the databases containing intellectual property information.

https://www.wipo.int/women-and-ip/ru/:

Women made up just 17.7% of inventors listed in international patent applications, statistics from 2024 show. Despite the positive dynamics of this indicator, the pace leaves much to be desired. WIPO estimates that at the current pace, parity among PCT inventors will not be achieved until 2077.

The power of the intellectual property system to overcome gender inequality

Bridging the gender gap as a decisive factor in the development of innovation

Innovation is a key driver of economic growth and development, and gender diversity is critical to driving innovation forward. This report provides updated statistics and more in-depth analysis of gender issues.

Patenting gaps using the most recent version of PCT patent application data for the period 1999-2020.

As of 2020, we find that women are still underrepresented in the patenting industry, with just 31 percent of patents including at least one female inventor and women producing only 14 percent of all patents. In 2020, women make up only 16 percent of all inventors. However, there is also a positive th moment.

Latin America and the Caribbean leads the trend in recent increases in women's participation in patenting, followed by Asia.

Although chemical fields have higher female representation than engineering, accounting for the effect of industrial specialization has little impact on most countries' gender inclusiveness rankings. Moreover, although more women are completing degrees in STEM (science, technology, engineering and mathematics) fields, the unbalanced distribution of female inventors across technology industries does not indicate much change over time. the last twenty years.

We also observe that the share of patents obtained by all-female or mostly female teams is generally less than 5 percent and has not increased significantly over time. In contrast, the majority of patents still come from single inventors or all-male teams, with an increasing share of patents from mixed teams with a minority of women or gender-balanced teams. Asia explains only most of the increase in the share of single female inventors. These findings

suggest that more effort needs to be made to promote gender diversity in teams and encourage men and women to collaborate in inventive activities.

Despite modest encouraging trends in women's participation in patenting, there is still much work to be done to ensure equal opportunities for women in all countries. The relatively higher rates of women's participation in Asia and Latin America and the Caribbean may provide insight into the factors that enable women to participate. In addition, policies and actions to promote gender diversity in teams and promote gender-balanced teams should be a priority. Finally, further research is needed to understand the social and technological factors contributing to the gender gap in patenting and to identify effective policies and actions to promote gender diversity in innovation.

This report analyzes women's participation in international patent filings between 1999 and 2020 and finds that women participate in only 23% of applications.

all applications, representing 13% of all listed inventors. Women's participation in

Patenting varies by region, sector and industry, with higher representation

in biotechnology, food chemistry and pharmaceuticals and lower in mechanical engineering. Women inventors are more common in academia than in the private sector.

and usually work primarily in male teams or alone. Achieving gender parity will require

significant effort, tentative target year is 2061 based on current trends.

Second, we observe that the share of patents for which women are either at gender parity

or most are amazed by the overrepresentation of men in patents. It seems that

women more often work alone than in mixed teams, where they are the majority, and even

more than in women's teams. Men show the opposite picture: they more often work in male-dominated companies teams than in mixed teams, where they are in the majority, and even more than alone.

https://www.wipo.int/edocs/pubdocs/en/wipo-pub-rn2023-1-en-wipo-intellectual-property-ip-and-gender-action-plan-the-role-of-ip- in-support-of-women-and-girls.pdf:

A new analysis of the US copyright sector shows that the share of copyright

the total number of female author registrations has increased over time (as of 2020, women represented

38.5 percent of authors of registered works), but women still make up a smaller share authors in registrations than participants in the relevant creative professions, which indicates gender inequality in the use of the copyright system.

Welcome to the National Reporting Platform for Sustainable Development Goals (SDG) indicators.

In September 2015, the leaders of the 193 UN member countries adopted the 2030 Agenda for Sustainable Development, which contains 17 Goals aimed at lifting humanity out of poverty, preserving a prosperous planet for future generations and building peaceful and inclusive societies , thereby ensuring decent living conditions for all.

Goal 5: Gender equality

Goal 5: Achieve gender equality and empower all women and girls

Objectives: 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

IP rights and how it works

Using the IP system to close the gender gap in innovation

When it comes to career prospects in the field innovative and entrepreneurial activities, gender stereotypes are especially pronounced.

How can the IP system help women? Research shows that women do not participate in the IP system to the same extent as men, nor do they receive the same benefits; these differences are observed across all forms of intellectual property rights (IPR). Solving this problem would have a hugely positive impact on individual women, businesses and society.

What issues are driving the gender gap in IP?

• More data is needed to determine the extent and nature of the gender gap;

• Women are less likely to be educated in science, technology, engineering and mathematics (STEM) fields and encouraged to pursue careers in these fields, and are less likely to receive the resources they need to succeed in business ;

• Women are less likely to choose professions related to IP law and IP management;

• Lack of understanding of the importance of IP rights and how the IP system works;

• Women are less likely to receive mentoring or career opportunities in IP-related fields.

What we can do?

• Understand what data is collected and how difficult it can be to collect;

• Encourage girls, adult women and educators to apply for IP grants, fellowships and internships, fund university research, invest in women entrepreneurs, and create critical opportunities for women;

• By increasing the number of women professionals in the fields of science, technology, engineering and mathematics and implementing targeted training programs for women interested in pursuing a career in IP law and IP management, it is possible to indirectly increase the number of women professionals in IP law and IP management;

• Support awareness raising and targeted capacity building initiatives;

• Help women succeed and maintain careers in IP, and encourage them to commercialize their inventions through networking and mentoring.

https://www.gemconsortium.org/report/gem-20222023-womens-entrepreneurship-challenging-bias-and-stereotypes-2:

There is a significant gender gap in established business ownership, which is defined as operating an operating business for more than 42 months. Almost every third entrepreneur running an existing business is a woman. In startup activities, there are 0.80 women for every man. Globally, women were more likely than men to be self-employed (1.47 female self-employed entrepreneurs for every 1 male). These findings were among those presented in the new GEM 2022/2023 Women's Entrepreneurship Report, entitled 'Challenging Preconceptions and Stereotypes'. Globally, one in six women reported intentions to start a business in the near future. The highest levels of entrepreneurial intention were observed in low-income countries, where approximately 28% of women expressed intention to start a business. The report notes that one in ten women entrepreneurs worldwide are in the very early stages of starting a business. The rate of female startups was particularly high in low-income countries and in Latin America and the Caribbean. Women represent one in four of the world's fastest-growing entrepreneurs, with higher shares in low-income countries and North America.

https://demography.bsu.by/%D0%9D%D0%BE%D0%B2%D0%BE%D1%81%D1%82%D0%B8-969733:

08/10/2023

WHAT IS GENDER EQUALITY IN BELARUS?

Compared to the previous year, Belarus has dropped 5 positions in the gender gap report in the recently published Global Gender Gap Report 2023. At the same time, our country maintains a fairly good 41st position in this ranking, which includes data on the gender gap for 146 countries.

This year, in the “Global Gender Gap Report-2023” ranking, Belarus ranks better than the USA, Austria, Poland and Luxembourg. However, certain problems remain in this area.

The “Global Gender Gap Report” determines the level of the gender gap based on the calculation of four indices:

● Economic participation and opportunity

● Level of education

● Health and survival

● Political power

The explanation to the report notes the high level of gender equality in Belarus when calculating the Economic Participation and Opportunity index. For our country it was 81.9% out of 100% possible. Parameters such as women’s access to the labor market, the difference in salaries between men and women, as well as the presence of women in senior management and legislative positions played a role here.

What helps and prevents women from participating in the economy

Free access to the labor market in Belarus is valid Both men and women have it. The active participation of women in the economy is partly due to the excess of demand for labor over its supply, which is observed in Belarus. The situation on the labor market has become especially aggravated in the last few years, when Belarusians, mainly under 40 years of age, began to leave the country en masse. Therefore, the authorities are trying to involve the entire working age population in economic activity as much as possible. For this purpose, in particular, conditions are created that force people to go to work. One of the most famous examples is economic penalties against "parasites".

At the same time, women's access to the labor market still has certain restrictions. It is not always easy for young girls to get a job: employers fear that they will soon go on maternity leave, and within three years it will be difficult to replace them. Thus, long maternity leave in Belarus plays against women.

Also in our country there is a difference between the wages of men and women, but today this gap is more or less typical for many countries.

Career Opportunities

The conditions of maternity leave are also one of the reasons why women in Belarus have fewer opportunities for career growth than men. Since it is not customary in Belarus for fathers to care for young children, parental leave is usually granted to mothers. At the same time, the country has not created sufficient infrastructure for young mothers that would allow them to work productively. In Minsk, the last private kindergarten closed in 2023. And state preschool institutions do not always meet the requirements of parents, and getting into them is often difficult.

In addition, women retire five years earlier, limiting the time they have to build a career.

All these factors make it difficult for women to compete equally with men for leadership positions.

Do women often lead government agencies?

The experts decided to use specific examples to analyze the career opportunities for women in Belarus. To do this, the gender composition of the leadership of Belarusian ministries and state committees, as well as both houses of parliament, was studied.

The analysis of the state apparatus used data on 24 ministries, 8 committees, as well as the personnel composition of the National Bank and the Prosecutor General's Office. For the calculation, the positions of the head of the institution and his deputies were taken, which can be viewed in the public domain. A total of 142 management positions were analyzed. The result revealed that in 47% of government agencies, the leadership at this level includes only men. There are no women in management or only one woman in 29 of the 34 institutions studied, or 85.3%. And only in the leadership of five of the government agencies we studied, the number of female representatives varies from two to four.

If you look at the total number of ministers, chairmen and deputies, less than 18% of them are women, that is, 25 out of 142 leaders.

Of course, these calculations do not allow us to form a complete picture of the presence of women in leadership positions in the economy as a whole. At the same time, it is obvious that few women have managed to occupy high positions in the civil service. Based on the "Global Gender Gap Report 2023" data, Belarus can be ranked among the 75 countries where the share of female ministers is less than 20%. Today in Belarus, in the institutions studied, only the Ministry of Social Protection of the Population and the National Statistical Committee are headed by women.

All other ministries and committees studied are headed by men.

The proportion of women in the Belarusian parliament is noticeably higher. In the Council of the Republic it is about 28%, and in the lower house of parliament - 40%. If we calculate the average proportion of women in the two chambers, it is almost 37%, which is close to the global average of 40%. However, in this case, it is necessary to take into account the specifics of the political practice of the country, where parliament has much less influence than the executive authorities.

Conclusion

The peculiarity of Belarus is that women in general are not limited in their access to the labor market. On the contrary, the state is maximally interested in ensuring that every citizen, regardless of gender, is employed in conditions of labor shortage. At the same time, favorable conditions have not been created in Belarus for women in building a career and occupying senior management positions in the civil service. Taking into account the fact that the position of the state apparatus in Belarus is very strong and based on the analysis carried out, it can be assumed that although the republic has high indicators according to general criteria of gender equality, managerial decision-making at the state level in Belarus is predominantly a male prerogative.

https://sdgs.by/news/belarus-nahoditsya-na-69-meste-v-globalnom-indekse-chelovecheskogo-razvitiya/:

According to the Report UNDP Human Development Report 2023/2024, the Republic of Belarus is classified as a country with a very high level of human development and is ranked 69th among 193 countries in the Global Human Development Index.

The Human Development Index is a summary measure of average achievement in three main dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living.

For Belarus, the Human Development Index in 2022 was 0.801. The average life expectancy is 72.4 years, the average duration of education is 12.2 years and the gross income per capita in the country is 19,104 thousand US dollars.

More information about the UNDP Human Development Report and assessment of Belarus' progress on indicators such as the gender gap, inequality, planetary pressure and multidimensional poverty can be found here.

https://www.vsemirnyjbank.org/ru/news/press-release/2024/03/04/new-data-show-massive-wider-than-expected-global-gender-gap

World Bank Group Report, Women, Business and the Law6 Around the world, discriminatory laws and practices prevent women from working or starting businesses on equal terms with men. Closing this gap could increase global gross domestic product by more than 20%.

Women make up only 26.7 percent of science, technology, engineering and mathematics graduates, demonstrating the need for further advancement in these fields.

Overall, according to the 2019 Human Development Report, due to inequality, including gender, Belarus loses 6.4 percent in human development.

Source: https://pravo.by/document/?guid=3871&p0=C22000793 – National legal Internet portal of the Republic of Belarus

APPROVED

Resolution

Council of Ministers

The Republic of Belarus

12/30/2020 No. 793

NATIONAL PLAN

actions to ensure gender equality in the Republic of Belarus for 2021–2025

Source: https://pravo.by/document/?guid=3871&p0=C22000793 – National legal Internet portal of the Republic of Belarus

Application

to the National Plan

actions to ensure

gender equality

in the Republic of Belarus

for 2021–2025

ACTIVITY

National Action Plan for Gender Equality in the Republic of Belarus for 2021–2025

Source: https://pravo.by/document/?guid=3871&p0=C22000793 – National legal Internet portal of the Republic of Belarus

II. Equalizing the socio-economic opportunities of men and women, promoting the reconciliation of parental and professional responsibilities

The goal is to expand employment opportunities for women, reduce professional and sectoral gender segregation, and reduce double employment of women in favor of developing their personal potential.

12. Assistance to women, including in rural areas, in organizing entrepreneurial, craft activities, as well as activities in the provision of services in the field of agro-ecotourism by providing advisory, methodological and legal assistance, training in the legal and financial foundations of entrepreneurial activity, providing financial support in the form subsidies

2021–2025 (implementation period)

Executors: regional executive committees, Minsk City Executive Committee, UNDP (with consent)

16. Development of the concept and educational and methodological support of the educational subject “Labor Training”, reflecting gender equality and modern trends in the development of science, engineering and technology

2021–2025

Ministry of Education

V. Information and educational support for measures aimed at ensuring gender equality

The goal is to increase citizens' awareness of gender equality and its impact on the functioning of society.

53. Coverage in the media of the positive experience of women's entrepreneurship, women's self-employment, as well as men's employment in the fields of education, health care, social protection, culture and others

2021–2025

regional executive committees, Minsk City Executive Committee, Ministry of Information, FPB, UNDP (with consent), public associations (with their consent)

57. Conducting a round table on the topic "Business and women" in order to develop proposals for stimulating women's entrepreneurial initiative

2022

Ministry of Economy, Ministry of Labor and Social Protection, UNDP (with consent)

Source: https://pravo.by/document/?guid=3871&p0=C22000793 – National legal Internet portal of the Republic of Belarus

https://www.undp.org/ru/belarus/na-puti-k-gendernomu-ravenstvu-v-belarusi

Towards gender equality in Belarus

Goal 5: Achieve gender equality and empower all women and girls

Gender inequality is one of the most, or perhaps even the most persistent, forms of inequality in the world. It is a significant barrier to human development, negatively affecting the lives of half the world's population. According to the Human Development Report 2020, Belarus is losing 6.3% of human development due to inequalities in health, education, labor market and in many other areas.

UNDP in Belarus supports and complements national efforts to build a society based on gender equality. Gender equality is one of four accelerators for achieving the Sustainable Development Goals (SDGs) in Belarus. Gender equality and women's empowerment are themes that have run through the UNDP Country Program and the National Gender Equality Plan for the past five years. These issues will remain key areas of UNDP activity in the next five-year period 2021-2025.

It all starts with defining the problem and how to measure progress towards solving it. UNDP draws on gender analysis and sex-disaggregated data to find comprehensive solutions and helps Belarus build an evidence base on gender equality in the country. In 2018, UNDP, in partnership with UNICEF and the National Statistics Committee, developed the National Sustainable Development Goal (SDG) Indicator Reporting Platform to better measure Belarus' progress towards SDG 5 and other goals. We still have a lot to learn about the problematic aspects of gender equality in Belarusian society and its impact on achieving the SDGs and human development. However, by improving data collection and analysis, we can identify problems early and help national partners prepare for and respond to new challenges.

Gender inequality underlies the uneven distribution of human development progress in the economic development of Belarus. The gender pay gap remains at 27%, and women often face a glass ceiling in employment and business. As women move from employee to employer and from employer to industry leader, the gender gap widens. According to some estimates, in Belarus women play a key role in the management of 28.3% of micro-enterprises, 19.4% of small enterprises and 18.9% of medium-sized enterprises.

In 2016-2020, UNDP focused its work on attracting investment, supporting innovation, developing SMEs and promoting inclusive gender-balanced employment. UNDP has strengthened women's role and contribution to the economy by contributing to equal opportunities and wages, and increased their participation in decision-making. UNDP has implemented 243 initiatives led by area-based development practitioners to support inclusive local development. More than 18,000 women in the regions of Belarus benefited from expanded opportunities at the local level, and more than 6,000 women increased their entrepreneurial potential, shared knowledge and innovation, and created professional networks through UNDP projects and initiatives aimed at supporting local and economic development.

Women have been hit harder by the economic fallout caused by COVID-19. Women are more likely to lack secure employment in the labor market, and they are also more likely to lead micro and small enterprises, which are particularly at risk during economic crises. According to the latest UNDP study on the impact of COVID-19 on SMEs in Belarus, 64% of women entrepreneurs indicated that the pandemic had a significant negative impact on their business. The UNDP response to COVID-19 has focused on supporting women to adapt their businesses to emerging market demands and “new reality” trends to ensure they have access to sustainable income streams during the crisis.

As new inequalities emerge, UNDP is seeking innovative solutions to address them. In 2018-2019, UNDP, with expert support from the Behavioral Insights Team (BIT), examined barriers affecting women's success in the workplace and their ability to create and grow their own businesses in Belarus. As a result, 16 promising behavioral solutions were developed to overcome these barriers. One of the solutions is currently being tested in one of the first randomized controlled trials in Belarus.

The economic consequences of gender inequality are multiplied by gender inequality in health care. One of the pitfalls on Belarus' path to gender equality is the huge gap in life expectancy between men and women. A Belarusian girl born in 2019 can expect to live 9.9 years longer than a boy (79.6 and 69.7 years, respectively). This is largely due to non-communicable diseases and unhealthy lifestyles. In 2018-2019, UNDP promoted an active lifestyle and active longevity for men aged 45+ years and involved more than 3,500 men aged 35+ years in activities to increase loyalty to the early diagnosis of cardiovascular diseases. Thanks to UNDP awareness-raising campaigns, more than 5 million Most people in Belarus learned about the basic principles of preventing non-communicable diseases and maintaining a healthy lifestyle.

Women's human development requires access to health, social protection and care services. In Belarus, UNDP supported national partners to improve women's access to health services through digital solutions. As part of the BELMED project, a digital breast cancer screening program was developed and tested to introduce population-based screening for this disease throughout the country.

Around the world, gender inequality in economics, health and other areas is associated with persistent discriminatory social norms that prescribe certain social roles and relationships. Only 14% of women and 10% of men worldwide have no bias towards gender social norms. This trend is also true in Belarus: women often face expectations that they will take care of children and elderly family members, while men are expected to be breadwinners. Although women's education levels are higher today than at any time in history, social norms influence their upbringing and education. Certain disciplines are often considered “masculine” or “feminine.”

UNDP is joining forces in education and awareness-raising to help people understand their gender biases. Through its projects and programmes, UNDP promotes the representation of women in leadership and expert positions - from local activists and innovators to experts assisting Belarus with WTO accession - to promote successful role models. It is critical to engage both men and women to address issues that constitute their gender vulnerabilities, which often go unnoticed. For example, UNDP engages women in climate change adaptation, environmental monitoring, sustainable urban planning, which increases the sustainability and effectiveness of policies and institutions.

In 2021, UNDP is launching its new Country Development Program for Belarus. UNDP will build on its past achievements in gender equality and continue to work with government partners, civil society organizations, academia and the private sector to reduce inequality and discrimination against women, strengthen the role of women in non-traditional sectors, expand women's economic empowerment and encourage their participation in the decision-making process.

https://habr.com/ru/companies/freshdoc/articles/300030/:April 11, 2016

• Who is smarter – men or women? We understand based on patent statistics data

• FreshDoc company blogProject management*IT legislationPatenting*Business models*

According to foreign patent offices, there are much fewer women inventors than men. According to the American Patent Office, only 10.3% of patents have at least one of the authors is a woman. According to statistics from the European Patent Office, the data looks even sadder: 8.8% for patents from America, the highest figures for Spain (12.3%) and France (10.2%), and the lowest for Austria (3.2%) and Germany (4.7%).

Data source: WHY DON'T WOMEN PATENT?

If you look at the statistics of patents that turned out to be commercially applicable, the gap becomes even larger - only 5.5% of patents are “female” ones.

What explains this imbalance?

According to Professor Toby Stuart (Haas School of Business at the University of California, Berkeley), men have more useful social connections for the implementation of ideas.

The authors of the study “WHY DON'T WOMEN PATENT?”, cited above, explain the gender gap in patenting by the different ratio of men and women among specialists and graduate scientists, and provide detailed statistical data. As a conclusion, they propose to increase the share of “female” patents, which, according to their calculations, will lead to an increase in US GDP by 2.7%.

There are also historical roots of the problem. For a long time (and to some extent now) a woman was in a social position unequal to a man, which was also supported by legal norms. Previously, women were significantly reduced in rights in favor of men. They could not even file a patent application on their own behalf, since their intellectual property was considered the property of the husband.

There is apparently a difference at the physiological level. In the book of the American scientist V. Bowerman, the list of thousands of geniuses includes only 29 women (2.9%).

Women's creative abilities were not highly rated:

Arthur Schopenhauer: a woman cannot be a creator... Source

Friedrich Nietzsche: a woman cannot create... Source

A woman cannot be a genius according to Otto Weininger... Source

Social prohibitions for women that do not allow them to become geniuses according to Simone de Beauvoir Source

Intelligence of women and men according to M.I. Weller Source

The number of brilliant women according to A.V. Shuvalova Source

62 more materials on the topic: A creative personality is a woman

Vosstana Infusing historical justice, let us remember the women inventors who contributed to the development of industry and made our lives more convenient.

IP Resources for Women Innovators and Entrepreneurs

Innovations created by women are changing the world/ However, women are still underrepresented in patenting. This innovation gender gap is a big loss for everyone. Women are named in only 33% of international patent applications filed through the WIPO system. This figure is growing. The greatest increase in this indicator is observed in the countries of Asia, Latin America and the Caribbean. as countries with the highest percentage of female representation in patenting.

This report analyzes women's participation in international patent filings between 1999 and 2020 and finds that women participate in only 23% of all applications, representing 13% of all listed inventors. Women's participation in patenting varies by region, sector and industry, with higher representation in biotechnology, food chemistry and pharmaceuticals and lower representation in engineering. Women inventors are more common in academia than in the private sector, and typically work in mostly male teams or alone. Achieving gender parity will require significant effort, with an estimated target year of 2061 based on current trends.

However, achieving gender balance in different regions is happening at different rates. The North America region is expected to close the patenting gender gap first (by 2055), followed closely by Asia (in 2056). In the Latin America and Caribbean region, the gap will be closed in less than 45 years (2068), while Europe and Oceania will take longer - 65 years (2088). https://www.wipo.int/about-ip/ru/ip_innovation_economics/gender_innovation_gap/gender-parity-patenting.html

but progress towards parity is slow, with equality not projected until 2053.

WIPO, along with a growing number of other IP offices and organizations, has reaffirmed its commitment to collective action and to empowering and supporting women and girls from all walks of life to fully participate in the economy of innovation and creativity. The Offices also stated their support for investing in knowledge and skills development initiatives aimed at empowering women in IP matters, as well as providing information, where possible, about the financial resources available to support inventors, creators and entrepreneurs.

Intellectual Property, Gender and Diversity

Human innovation and creativity are the engines of progress. Since time immemorial, innovators and creators from all walks of life have transformed our world with the power of their imagination and ingenuity. However, some groups remain severely underrepresented in many areas of intellectual property (IP) use. Their innovative potential is underutilized at a time when we need the widest possible range of talent to solve the pressing problems facing humanity.

Women made up less than one-fifth of the inventors named on international patent applications in 2019, according to preliminary WIPO statistics. It took 25 years before the percentage of female inventors nearly doubled, from 9.5 percent in 1995 to 18.7 percent in 2019. The percentage of female inventors is increasing, but inequality persists

08-03-2020

https://www.wipo.int/women-and-ip/ru/news/2020/news_0001.html#:~:text=%D0%A1%D0%BE%D0%B3%D0%BB%D0%B0%D1%81%D0%BD%D0%BE%20%D0%BF%D1%80%D0%B5%D0%B4%D0%B2%D0%B0%D1%80%D0%B8%D1%82%D0%B5%D0%BB%D1%8C%D0%BD%D1%8B%D0%BC%20%D1%81%D1%82%D0%B0%D1%82%D0%B8%D1%81%D1%82%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B8%D0%BC%20%D0%B4%D0%B0%D0%BD%D0%BD%D1%8B%D0%BC%20%D0%92%D0%9E%D0%98%D0%A1.7%20%D0%BF%D1%80%D0%BE%D1%86%D0%B5%D0%BD%D1%82%D0%B0%20%D0%B2%202019%20%D0%B3.

WIPO actively works to promote gender equality and the full participation of women in the international intellectual property (IP) system, both through systematically mainstreaming a gender perspective into its program of work and through activities specifically dedicated to this goal. For example, the project “Enhancing the Role of Women in Innovation and Entrepreneurship” sheds light on the barriers women face when approaching the patent application system.

In addition, the WIPO Academy is building a strong pipeline of female intellectual property experts through training. Women's participation in the WIPO Academy has increased more than 2,400-fold since 1998, and in 2019, women made up more than half of the participants in every program.

Related links

12.18. **Global Innovation Index**

Source: report “Global Innovation Index, 2020” prepared as part of a joint project of the international business school INSEAD, Cornell University and the World Intellectual Property Organization.

The Global Innovation Index is the most comprehensive set of indicators of innovative development of countries in the world at different levels of economic development.

The resulting index is made up of 80 different variables and represents the ratio of innovation costs to innovation outcomes, which makes it possible to objectively assess the effectiveness of efforts to develop innovation in a particular country. Rb – 64th place in 2020

https://myfin.by/stati/view/v-kakie-rejtingi-popala-belarus-v-2023-godu#:~:text=%D0%92%20%D1%80%D0%B5%D0%B9%D1%82%D0%B8%D0%BD%D0%B3%D0%B5%202023%20%D0%B3%D0%BE%D0%B4%D0%B0%20%D0%91%D0%B5%D0%BB%D0%B0%D1%80%D1%83%D1%81%D1%8C,%D0%B9%20%D0%BF%D0%BE%D0%B7%D0%B8%D1 %86%D0%B8%D0%B8%20(%D0%B8%D0%B7%20112):

Startup development

The StartupBlink research center has compiled a global rating of startup ecosystems (Global Startup Ecosystem Index 2023), which evaluates the ecosystems of 100 countries.

The 2023 ranking was topped by the United States of America, Great Britain and Israel.

Belarus is ranked 80th in the Global Startup Ecosystem Index, having dropped 10 positions over the year. Neighboring countries took the following places in the ranking: Lithuania – 17th position, Russia – 29th, Poland – 33rd, Latvia – 39th, Ukraine – 49th.

Gender equality

Every year, the World Economic Forum calculates the Gender Gap Index (GGI), which is designed to measure gender equality. The index takes into account statistics on fourteen indicators in four main areas: economic participation and career opportunities, educational attainment, health and life expectancy, and political rights and opportunities.

In 2023, the top five countries for overall gender equality were Iceland, Norway, Finland, New Zealand and Sweden. At the bottom of the ranking are Pakistan, Iran, Algeria, Chad and Afghanistan.

Belarus is ranked 41st in the ranking (out of 146). For comparison: last year our country was in 36th place.

English proficiency

In November, EF Education First published an updated ranking of countries by English language proficiency.

The ranking is based on a survey of more than 2.2 million people around the world who took the EF Standard English Test. The survey participants included residents of 113 states and territories whose native language is not English.

The first three places were taken by the Netherlands, Singapore and Austria. Residents of Denmark, Norway, Sweden, Belgium, and Portugal also demonstrated a very high level of English language proficiency.

In the 2023 ranking, Belarus took 33rd place, ahead of Russia (41st place) and Ukraine (45th), but behind Poland (13th) and Lithuania (21st). In 2022, our country ranked 39th (out of 111), and in 2021 it was in 38th position (out of 112).

In addition to the above ratings, this year Belarus was also included in the top 10 countries for moving, among the three European countries with the lowest purchasing power, in the global passport index from Henley & Partners, etc.

https://economy.gov.by/ru/news-ru/view/tsifry-i-fakty-kazhdyj-tretij-predprinimatel-belarusi-zhenschina-47961-2023/#:~:text=%D0%A6%D0
%B8%D1%84%D1%80%D1%8B%20%D0%B8%20%D1%84%D0%B0%D0%BA%D1%82%D1%8B%3A%20%D0%BA
%D0%B0%D0%B6%D0%B4%D1%8B%D0%B9%20%D1%82%D1%80%D0%B5%D1%82%D0%B8%D0%B9%20%D0
%BF%D1%80%D0%B5%D0%B4%D0%BF%D1%80%D0%B8%D0%BD%D0%B8%D0%BC%D0%B0%D1%82%D0%B5
%D0%BB%D1%8C%20%D0%91%D0%B5%D0%BB%D0%B0%D1%80%D1%83%D1%81%D0%B8%20%E2%80%93
%20%D0%B6%D0%B5%D0%BD%D1%89%D0%B8%D0%BD%D0%B0,-31%2F07&text=%D0%9F%D0%BE%20%D0%B4
%D0%B0%D0%BD%D0%BD%D1%8B%D0%BC%20%D0%91%D0%B5%D0%BB%D1%81%D1%82%D0%B0%D1%82
%D0%B0%2C%20%D0%B2%202022,%D0%B8%20%D1%81%D0%BE%D1%81%D1%82%D0%B0%D0%B2%D0%B8%D0%BB%2036%2C4%20%D0%BF%D1%80%D0%BE%D1%86%D0%B5%D0%BD%D1%82%D0%B0.:

According to Belstat, in 2022 the level of women's involvement in entrepreneurship increased by 13.75% compared to 2021 and amounted to 36.4 percent.

The portrait of an average business woman looks like this: a city woman aged from 25 to 49 years old, with a higher or vocational education, raising one child.

In order to expand support for women's entrepreneurship, identify and overcome existing barriers to women's business, the Ministry of Economy, the Belarusian Women's Union and Belinvestbank entered into an Agreement on Cooperation and Interaction. The action plan for the implementation of the Agreement in 2023 is posted on the website of the Ministry of Economy. We invite proactive Belarusians to take an active part in them.

Round table "Informal education of women entrepreneurs through building communications and cooperation", seminars, information meetings, Republican Forum of Women Entrepreneurs II quarter NGO "BSG", Ministry of Economy, OJSC "Belinvestbank" 1.2 Establishment of a non-competitive award "Best Women's Business" as part of the annual National competition "Entrepreneur of the Year".

March 4, 2024:

Businesses with a female face are more often represented in consulting, Lama and marketing, beauty industry, tourism, interior design and tailoring.

In Belarus, the level of women's involvement in entrepreneurship is almost 37%

https://www.belstat.gov.by/upload-belstat/upload-belstat-pdf/oficial_statistika/Women_biznes_Belarus.pdf

https://minsk.gov.by/ru/news/new/2023/05/12/1049/:

If in 2021 there were 68 thousand women entrepreneurs in our country, then in 2022 there are already 74.5 thousand. Small and medium-sized businesses make up a third of the country's economy, so the state strongly supports the development of entrepreneurship.

Over the past two years, all administrative procedures carried out in relation to all business entities have been analyzed. Decisions were made to optimize more than half of them (665), including 246 excluded. Today, 148 administrative procedures are already available digitally, another 96 through the "one window" service. This is a significant time saving for business.

The second important issue is financial support for entrepreneurs. The state program "Small and Medium Enterprises" offers the following instruments - credit, guarantee, leasing, subsidizing interest rates and costs for participation in exhibitions and fairs. More than Br10 billion was allocated to support entrepreneurship last year alone.

A developed network of SME support infrastructure entities helps you start your own business. There are 96 support centers and 18 small business incubators in Belarus.

In 2022, the Ministry of Economy, the Belarusian Women's Union and Belinvestbank signed a tripartite agreement. We agreed to jointly help, train, identify and level existing barriers, and support projects focused on the development of women's entrepreneurship and the social needs of women.

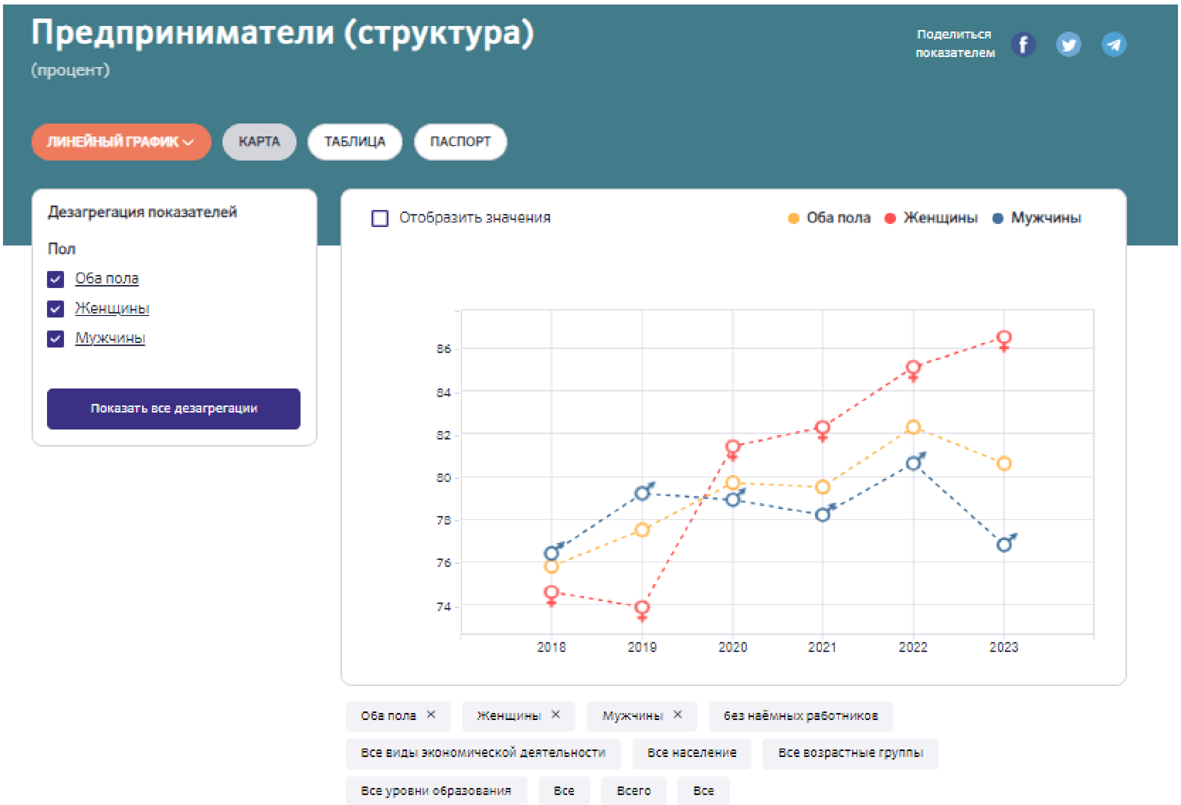
In almost two years, more than 30 round tables, business trainings, cooperation exchanges, and international B2B negotiations have already been held. The most significant event took place in the spring of 2023 - the first republican Forum of Women Entrepreneurs under the patronage of the Chairman of the Council of the Republic Natalya Ivanovna Kochanova. One of the important messages of the forum is that businesswomen should know about the achievements of our business people. The second important issue is financial support for entrepreneurs. The state program "Small and Medium Enterprises" offers the following instruments - credit, guarantee, leasing, subsidizing interest rates and costs for participation in exhibitions and fairs. More than Br10 billion was allocated to support entrepreneurship last year alone.

A developed network of SME support infrastructure entities helps you start your own business. There are 96 support centers and 18 small business incubators in Belarus. We can emulate and adopt their experience.

https://www.belta.by/interview/view/zhenskoe-predprinimatelstvo-odna-iz-kljuchevyh-tochek-rosta-malogo-i-srednego-biznesa-9125/

Brest Local Regional Development Fund - has not been operating since May 2022

http://gender.belstat.gov.by/economics/221?type=lineChart&reg=(T/F/M):(WE):(T):(T):(T):(T):(T):(T):(T)



Наименование показателя	Предприниматели (структура)
Источники данных	Выборочное обследование домашних хозяйств в целях изучения проблем занятости населения
Единицы измерения	процент
Методология расчета	Процентная доля численности предпринимателей по соответствующей дезагрегации в общей численности предпринимателей в возрасте 15-74 лет
Глубина динамического ряда	2018
Периодичность	годовая
Дата последнего обновления	10.04.2024
Контактная информация	Главное управление статистики труда +375 (17) 378-02-65, +375 (17) 378-24-63
Комментарии	Методика по расчету статистических показателей занятости и недоиспользования рабочей силы: https://www.belstat.gov.by/upload-belstat/upload-belstat-word/Formi/2019/m4_labour_27_03_2019.doc

Год	Оба пола, без наёмных работников	Женщины, без наёмных работников	Мужчины, без наёмных работников
2018	75.8	74.6	76.4
2019	77.5	73.9	79.2
2020	79.7	81.4	78.9
2021	79.5	82.3	78.2
2022	82.3	85.1	80.6
2023	80.6	86.5	76.8

Оба пола × Женщины × Мужчины × без наёмных работников
Все виды экономической деятельности Все население Все возрастные группы
Все уровни образования Все Всего Все

https://www.belta.by/society/view/v-belarusi-dolja-zhenschin-issledovatelej-prevyshaet-50-vo-vseh-otrasljah-krome-tehnicheskih-nauk-592924-2023/https://www. belta.by/society/view/v-belarusi-dolja-zhenschin-issledovatelej-prevyshaet-50-vo-vseh-otrasljah-krome-tehnicheskih-nauk-592924-2023/:

October 10, Minsk / Corr. BELTA/. Belarusian women contribute to the development of all branches of fundamental and applied science; in all branches except technical sciences, their share exceeds 50%. Alesya Solovei, a researcher and chairman of the Council of Young Scientists at the Institute of Sociology of the National Academy of Sciences of Belarus, told a BELTA correspondent about this.

"The socio-demographic structure of the human resources potential of Belarusian science is characterized by gender balance and corresponds to the direction of state policy to expand opportunities for the creative development of women. The principles of state policy to ensure gender equality are a guarantor of equal opportunities for women and men in scientific activities. There are no gender-based restrictions on obtaining postgraduate education creates equal conditions for women and men in building a scientific career. The current stage of development of Belarusian science is characterized by a wide representation of women in its personnel potential," said Alesya Solovey.

Belarusian women contribute to the development of all areas of fundamental and applied science. In all scientific fields, with the exception of technical sciences, the share of women researchers exceeds 50%. Women are most represented in the medical sciences workforce (69.2%). In agricultural sciences, the share of women is 62%, socio-economic and social sciences - 60.9%, humanities - 57.5%, natural sciences - 51.7%, technical - 27.8%.

The share of women among researchers in Belarus is 39.2%, among candidates of sciences - 42%. Among researchers with a doctorate degree, women make up 22%, that is, one in five. In a leading scientific organization and - National Academy of Sciences of Belarus - women make up a significant share among researchers - 49.7%, among candidates of science - 45.9%. Of the number of persons studying in academic postgraduate and doctoral studies, the proportion of women is 60.3% and 43%, respectively.

“The younger generation is actively joining the ranks of Belarusian science. Youth have creative and intellectual potential and represent a human resource for the development of society. It is during their school and student years that young men and women can take their first steps into science, become interested in research and experiments. Identification, support and development intellectual capabilities of talented youth is the best way to replenish the country’s scientific personnel with a new generation of scientists,” the scientist noted.

Among young scientists under the age of 35, the share of girls is 36.2% in the country as a whole, and in the National Academy of Sciences of Belarus - more than half (54%). In the total number of candidates of science of this age period, 41.2% are girls in general in Belarus and almost half in the National Academy of Sciences of Belarus - 47.5%.

“Women scientists are an important intellectual resource in modern science and act as equal participants in the process of generating ideas and producing new scientific knowledge. Moreover, women scientists and teachers can act as inspiring and successful role models for young women who, with sufficient level of intellectual abilities and inclinations for scientific creativity, they plan to engage in research activities, but for one reason or another they are not sure of their choice. In order to attract girls and boys motivated to science and consolidate them in the scientific field, it is important to recognize and support the desire for scientific research in a timely manner. ", summarized Alesya Solovey.

Intellectual property in the modern world: challenges I73 of time and development prospects: II Int. scientific-practical conf. (Minsk, October 20, 2022). In 2 hours / ed. V. A. Ryabovolova. – Minsk: National Library of Belarus, 2022. – Part 1. – 317 p. Welcoming speech by Deputy Minister of Communications and Information Tkach P.N. With. 37-39 https://www.ictt.by/Docs/proceedings/%D0%9D%D0%A6%D0%98%D0%A1_%D1%81%D0%B1%D0%BE%D1%80% D0%BD%D0%B8%D0%BA_2022-1.pdf: The Republic of Belarus, being a major owner of intellectual resources in the region, according to the “Global Innovation Index 2021”, ranks 16th among 132 states in terms of “Access to ICT”, and in terms of the “Export of ICT services” (telecommunications, computer and information services) in the total volume of foreign trade, Belarus ranked 11th in the world. The Republic of Belarus occupies 32nd position and is a leader in ICT development in the CIS region. The report notes that thanks to thoughtful and progressive policies, a developed infrastructure has been created in the republic that allows the population to be provided with high-quality and affordable fixed and mobile broadband Internet access services. According to UN research, Belarus ranks 40th in the e-government readiness index in the ranking, maintaining its position as a country with a high level of its importance.

https://www.belstat.gov.by/upload-belstat/upload-belstat-pdf/oficial_statistika/Women_biznes_Belarus.pdf:

По данным Международной финансовой корпорации (IFC), равное участие женщин в бизнесе может привести к увеличению производительности на 13-25% в разных сферах экономики. Женское предпринимательство расширяет для женщин горизонт возможностей и способствует сокращению разрыва оплаты труда с мужчинами. Кроме того, женщины-предпринимательницы нацелены на повышение уровня жизни и человеческого капитала не только своих детей, но и общества в целом.

Национальный статистический комитет Республики Беларусь представляет количественные и качественные характеристики женского предпринимательства за 2018 год по данным выборочного обследования домашних хозяйств в целях изучения проблем занятости населения. Обследование проводится в соответствии с методологией Международной организации труда на ежеквартальной основе во всех областях республики и Минске по выборочному методу и охватывает 0,6% от общего числа домашних хозяйств Республики Беларусь с последующим распространением итогов на всю численность населения в обследуемом возрасте (15-74 года).

https://socio.bas-net.by/zhenshhiny-i-intellektualnaya-sobstvennost-katalizator-innovatsij-i-tvorchestva/

On April 27, Alesya Solovey, a researcher at the Center for Monitoring and Migration of Scientific and Scientific-Pedagogical Personnel, Chairman of the SMU Institute of Sociology, took part in the seminar "Women and intellectual property - a catalyst for innovation and creativity" as part of the International Intellectual Property Day. According to the World Intellectual Property Organization (WIPO), the theme of this year's International Intellectual Property (IP) Day was the role of women inventors, authors and entrepreneurs in shaping a new world and the ability to accelerate the pace of innovation and creativity. Women everywhere shape the world we live in with their imagination, ingenuity and hard work, but often face significant obstacles. They may have difficulty obtaining the knowledge, skills, resources, and support they need to succeed.

In his welcoming address, the Chairman of the State Committee on Science and Technology, Sergei Shlychkov, noted that "today, about 40% of the scientific potential of Belarus are women who, on an equal basis with men, make a significant contribution to Belarusian and world science...".

Director General of the World Intellectual Property Organization Tang Daren addressed the participants of the seminar in a video message:

“...We encourage continued efforts to ensure that more women and girls around the world use IP to bring their ideas to life. Even though women make up more than half of the world's population, they file only 16% of patent applications. Women hold only three in 10 STEM jobs. We at WIPO want change this situation for the better. It is essential to support all members of society to realize their innovative and creative potential. Two years ago, I appointed Lisa Jorgenson, the first female head of WIPO's Patent and Technology Sector, as our Focal Point for Gender Equality in the IP System. She and her colleagues published WIPO's first Gender Action Plan to help more women increase the value of their ideas through IP protection and commercialization...”

WIPO Deputy Director General Lisa Jorgenson said in a video message that “I know from experience that access to knowledge, skills development, mentoring programs, and networking have a positive impact on women’s ability to cope with any challenges and difficulties, including in the field of IP. Numerous studies have shown that supporting women contributes to global economic growth. However, we have not achieved gender parity in innovation, with only one woman for every six inventors filing patent applications, indicating a significant gender gap in IP. Of course, the number of women applying for international patents is growing. To ensure that so much talent is not lost and great ideas are not left unnoticed, WIPO has prepared an Action Plan on IP and Gender, which aims to close the existing gender gap in the areas of innovation and IP...”

03/07/2023

Belstat about the modern portrait of a woman

Source: https://pravo.by/novosti/obshchestvenno-politicheskie-i-v-oblasti-prava/2023/mart/73486/ – National legal Internet portal of the Republic of Belarus

According to the latest population census, the average resident of Belarus:

• has lived in our country since birth in an urban area,

• she is 43 years old,

• native language – Belarusian,

• is married,

• gave birth to two children,

• has secondary specialized education,

• employed in the economy.

Doesn't sit idle

Our women are hard workers.

“Belarusians are characterized by a high level of employment, with 84.5 percent of women working of working age, while for men this figure is lower – 83 percent, which does not correspond to global trends,” said the National Statistical Committee.

In the employment structure, women and men are represented almost equally. However, there is a gender imbalance in age categories. Among employed youth under 30 years of age, there are 95 women per 100 men, and in the age category of 45–54 years the situation changes: there are already 118 women per 100 employed men.

Interesting fact. Among those employed in the country's economy, 40.6 percent of women have higher education, and among men - 29 percent.

Most women work in healthcare and education

84 percent of employees in health and education are women. Slightly less in financial and insurance activities (74.9 percent), temporary accommodation and food services (69.2 percent), and trade (66.5 percent). In the IT field, the share of women is almost 37 percent. The least is in construction (only 14 percent).

Representatives of the fair half of humanity are increasingly occupying leadership positions. The share of women managers in 2022 was 52.3 percent (in 2014 there were 46 percent). Every sixth female manager has a child of preschool age.

The fair sex makes up the bulk of civil servants (70 percent). At the same time, in legislative bodies, among heads and their deputies, 40 percent are women, in judicial bodies - 27 percent, in executive bodies, local government and self-government - 61 percent. In the Belarusian Parliament, 35.3 percent of seats are occupied by women, which is higher than the world average.

Every third entrepreneur in the country is also a woman. The average age of an entrepreneur is 41 years, almost every third is between the ages of 30 and 39, the majority of them (63 percent) are married.

Double load

In the modern world, a woman must keep up both at work and at home. Today in Belarus, about 60 percent of working women aged 20–49 years have minor children. The majority of them (56.9 percent) have one child, every third has two, and 9.3 percent have three or more children. The employment rate among women aged 20–49 with minor children is 91.1 percent. Despite this, Belarusian women sometimes manage even more than men!

BY THE WAY

According to the UNFPA World Population 2022 report, Belarus ranks well in sexual and reproductive health, including record low maternal mortality rates, and progress towards human rights and demographic goals. For the indicator “The extent to which countries have laws and regulations that guarantee full and equal access of women and men to sexual services and Reproductive Health, Information and Education” Belarus scored 87 percent, ranking among the top 25 countries.

ON A PAR

Our legislation does not provide for differences based on gender. The main violin in this matter is played by the Constitution, which enshrines the provision of equal opportunities for women in education and professional training, in labor and promotion (work), in socio-political, cultural and other spheres of activity, as well as the creation of conditions for their protection labor and health.

This means that women have equal rights with men. And this is noted also at the global level. According to the World Economic Forum, Belarus is in 36th position among 146 countries in the gender gap index. At the same time, according to the criterion of “economic participation and opportunities,” Belarus took 4th place out of 146 countries.

In 2018–2020, the National Center for Legislation and Legal Research conducted a study of the provisions of national legislation to determine the existence of rules prohibiting discrimination based on gender, studied international experience in regulating similar legal relations and concluded that national legislation is discriminatory neutral, since it does not enshrine unjustified advantages of a group of people depending on gender.

As the Ministry of Labor and Social Protection said, our country actively uses special measures in the labor sphere to realize the right to work for everyone, including women. For example, labor legislation contains a number of guarantees aimed at ensuring equal rights for women and men. One of the main norms of the Labor Code is parental leave until the child reaches the age of three. At the legislative level, the family is given the right to independently determine which of the working parents (mother or father) will take care of the child and, accordingly, be on such leave. A father who is on parental leave until he reaches the age of three is subject to the same guarantees as a mother. Moreover, the system for providing leave is flexible - it can be divided into parts of any duration. During the entire vacation period, a benefit is paid, the amount of which is 35–40 percent of the average wage of workers in the country, depending on the number of children raised in the family. The benefit amount is higher than the minimum wage in the republic.

At the same time, in our country, as in other countries, there is a difference in the salaries of men and women. The ratio of the nominal accrued average monthly salary of women to the salary of men in December 2021 was 71.9 percent. The Ministry explained that the difference arises due to the high proportion of working men in industry, construction, and heavy engineering, where there are more jobs with harmful and dangerous conditions, high labor intensity and therefore higher pay. Women, as a rule, are employed in jobs that do not involve difficult and harmful working conditions. In addition, women more often than men use the opportunity to work part-time or part-time, especially women with children of preschool age or primary school students. This also has an impact on wage levels.

To reduce the difference in wages, measures are taken annually to increase wages in the public sector.

Also in Belarus, the list of heavy work and work with harmful and (or) dangerous working conditions in which the employment of women is prohibited has been significantly reduced (from 181 to 88 items). And work in this direction will continue.

Source: https://pravo.by/novosti/obshchestvenno-politicheskie-i-v-oblasti-prava/2023/mart/73486/ – National legal Internet portal of the Republic of Belarus

https://belmarket.by/news/news-56394.html

Over the past ten years, the number of patents issued has been falling every year. New personnel are not coming to the design departments, and new, by world standards, products are not appearing in Belarus.

Recently, at a meeting on industry, Alexander Lukashenko complained about the risk of “loss of competencies in the field of design and development of new types of products.” In his opinion, older personnel remain working in design departments, and the prestige of engineering specialties among young people is low.

At the same time, Prime Minister Roman Golovchenko drew attention to the high weight of shipped innovative products - 46.5%. “However, behind these indicators there are no truly new products for the world,” he noted.

Ten years of fall

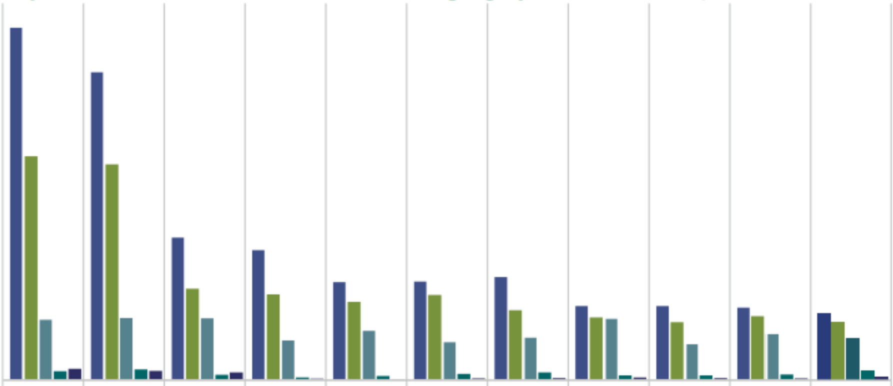
The loss of competencies in the field of design and invention did not happen yesterday. This is clearly demonstrated by the statistics on patent applications recently published by the National Center for Intellectual Property.

His report states that by the end of 2023, the Center received 793 patent applications. Moreover, ten years ago, in 2013, more than 3 thousand applications were submitted. So, since then there was a fourfold fall.

According to the report, the most dramatic drop in patent activity occurred in the area of inventions and utility models. There were already not many people wishing to obtain a patent on integrated circuit topologies, and after a tenfold drop by 2023 there are only five of them left.

As can be seen in the chart published by the office, in 2013 there was a dramatic drop in the number of applications for all types of patents. Since then it has been declining, with slight fluctuations from year to year.

Динамика подачи заявок на выдачу охранных документов Республики Беларусь (2013-2023)
(за исключением товарных знаков и географических указаний)
Dynamics of filing applications for granting titles of protection of the Republic of Belarus (2013 – 2023)
(with the exception of trademarks, service marks and geographical indications)



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Изобретения Inventions	1634	757	691	521	524	547	393	394	386	342	359
Полезные модели Utility models	1146	485	455	416	453	372	334	308	339	312	271
Промышленные образцы Industrial designs	330	329	211	262	202	225	325	190	244	174	130
Сорта растений Plant varieties	57	29	14	23	33	42	25	25	30	57	28
Топологии интегральных микросхем Topographies of integrated circuits	50	41	8	4	10	11	15	11	9	15	5

How many patents were issued?

In 2023, 225 patent decisions were made. The historical dynamics are presented here only from 2018 – then 590 patents were issued, which means an almost three-fold drop. In 2023, 248 inventions were registered, while in 2018 there were 625. We believe that the ten-year dynamics would look even more dramatic.

In total, as of the end of the year, almost 47 thousand patents and certificates were in force in Belarus; compared to 2016, their number decreased by 2.5 thousand.

Why did Belarusians stop inventing?

In 2021, Chairman of the State Committee on Science and Technology Alexander Shumilin explained the negative trend by the development of the Eurasian patent system - they say that inventors apply there, and not to the national body.

However, he later revealed that Belarusians annually file only about 100 applications for Eurasian invention patents. Despite the fact that in 2013 there were 1.6 thousand applications for inventions to national authorities. That is, a hundred applicants who moved to Eurasia cannot explain the drop in applications by a thousand.

Is the government making efforts?

In Belarus, in 2021, the “Strategy in the field of intellectual property until 2030” was adopted, and in 2022, the “State Program for Innovative Development for 2021–2025”. All these documents spelled out measures to support inventors, innovative entrepreneurship and patent activity.

For example, the processing time for applications for inventions and trademarks has been shortened, the payment of patent duties has been made easier, and turnover on the implementation of patent rights has been exempted from VAT. An “Intellectual Property Exchange” has been created, where copyright holders can place objects of industrial property for concluding assignment agreements, licensing and other agreements. Applications for registration of inventions and other industrial property objects have become possible to submit online.

However, as statistics showed, these measures did not produce tangible results.

FINANCIAL SUPPORT FOR THE IMPLEMENTATION OF THE STATE PROGRAM

Financing of projects and activities of the State Program will be carried out with the involvement of funds from the republican and local budgets, including funds from innovation funds, own funds of organizations, bank loans, foreign investments and other sources not prohibited by law.

In 2021–2025, funding for the State program will amount to 6,750,876.8 thousand rubles, including:

391,107.8 thousand rubles - funds of the republican budget, of which 50,347.3 thousand rubles - funds of the republican budget provided for scientific, scientific-technical and innovative activities, 340,760.5 thousand rubles - funds of the republican centralized innovation fund ;

883,507.8 thousand rubles – funds from local innovation funds;

357,032.7 thousand rubles – own funds of organizations;

3,699,438.4 thousand rubles – bank loans, OJSC Development Bank of the Republic of Belarus

1,293,492.4 thousand rubles – foreign investments, including foreign loans and borrowings;

2328 thousand rubles - funds from funds for innovative development of technology parks;

50 thousand rubles – international technical assistance;

123,919.7 thousand rubles – contributions of the founders to the authorized funds, as well as funds from off-budget centralized investment funds.

Financing of the State program from the republican and local budgets will be carried out within the limits of the funds provided for by the law on the republican budget for the next financial year and decisions of local Councils of Deputies on the budget for the next financial year.

The volume of financing of projects and activities of the State program at the expense of innovation funds during the financial year can be clarified in the manner established by Decree of the President of the Republic of Belarus dated August 7, 2012 No. 357, with subsequent (no more than once a year) submission to the President in the prescribed manner of the Republic of Belarus proposals for adjusting the financial support of the State program.

Source: https://pravo.by/document/?guid=3871&p0=P32100348 – National legal Internet portal of the Republic of Belarus

July 18, 2023. — No country in the world has achieved full gender parity, and less than 1 percent of women and girls live in countries with high levels of compliance, according to a new global report launched by UN Women and the United Nations Development Program (UNDP) today at the Women Deliver Conference. and empowerment of women and small gender gap. The report provides, for the first time, a more complete picture of progress in the human development of women and girls.

The report states that UN Women and UNDP are joining forces to propose the Women's Empowerment Index (WEI) and the Global Gender Equality Index (GGPI) as dual indices to measure gender parity and empowerment women.

2022:

Every third entrepreneur in the country is also a woman. The average age of an entrepreneur is 41 years, almost every third is between the ages of 30 and 39, the majority of them (63 percent) are married.

The legislation of the Republic of Belarus does not provide for differences based on gender. The main violin in this matter is played by the Constitution, which enshrines the provision of equal opportunities for women in education and professional training, in labor and promotion (work), in socio-political, cultural and other spheres of activity, as well as the creation of conditions for their protection labor and health.

This means that women have equal rights with men. And this is noted also at the global level.

The gender inequality index in Belarus in 2021 is 0.104, which places it in 29th place among 178 countries.

According to the World Economic Forum 2022, Belarus is in 36th position among 146 countries in the gender gap index. At the same time, according to the criterion of “economic participation and opportunities,” Belarus took 4th place out of 146 countries.

In the 2023 Global Gender Gap Index ranking, Belarus ranked 41st out of 146 countries covered, just behind France. This is higher than the USA (43rd place), Poland (60th), Italy (79th) and even more so Japan (125th). https://president.gov.by/ru/belarus/economics

Gender equality, or How states support equal rights for men and women

Svetlana Kondrashchuk

03/07/2024

https://ilex.by/news/gendernoe-ravenstvo-ili-kak-gosudarstva-podderzhivayut-ravnye-prava-muzhchin-i-zhenshhin/:

The Global Gender Gap Index is a global study ranking countries around the world according to the integral indicator of gender equality. It is used to analyze problematic issues in the state's social policy, to develop measures to reduce gender inequality and to monitor their effectiveness. Shows gender differences in access to resources and opportunities in individual countries, rather than the actual level of those resources and opportunities.

The index measures the level of gender gap between women and men in key areas such as:

• economic participation and career opportunities;

• education;

• health and survival;

• political rights and opportunities.

• In accordance with the National Action Plan for Gender Equality for 2021–2025, approved in 2020, the list of heavy work and work with harmful and (or) dangerous working conditions in which women's work is prohibited has been halved in Belarus.

• Government policies include programs to support women in business and provide equal opportunities for education and career advancement. The legislation aims to prevent gender discrimination and ensure equal inheritance rights. In addition, Belarus actively monitors and analyzes data on gender disparities to develop effective strategies to promote equality.

• Gender statistics of Belarus

• It is the main tool for monitoring progress towards gender equality and demonstrates high levels of equality (Gender Statistics web portal).

• Since the country has compulsory primary and secondary education, almost 100% of girls and boys go to school. However, in terms of having a higher education, women are ahead of men (39.4% versus 28.1%). Moreover, women prefer arts and humanities, education, health and social welfare, social sciences, journalism and information, while men prefer information and communication technologies, engineering, manufacturing and construction industries.

• Men more often choose vocational education. Thus, in 2022, 95,117 women and 107,084 men studied under the vocational education program to obtain worker (employee) qualifications.

• Despite higher levels of education, women still earn less in the labor market. According to the latest data, the monthly gender pay gap is 26.1%. And we have fewer women entrepreneurs than men – only 36.1%.

• But women live longer: on average 79.3 years versus 69.2 for men.

• In parliament, women occupy 35.3% of seats. Unfortunately, their representation in the executive branch is much lower - only 3.2% of women head ministries and departments. At the same time, the total share of women among senior civil servants is 53.7%, among judges – 57.2%.

• Thus, in Belarus, the level of education among women is higher than among men, but the level of earnings is lower. Women live for 10 years more and enjoy generous social guarantees (for example, 3 years of parental leave, benefits at work due to the presence of children, etc.). Such benefits undoubtedly help in raising children, but in some cases they can hinder career growth.

• However, in general, the prospects are not bad: every year awareness of the importance of gender equality is growing, and with it, support from society and the state is growing.

https://www3.weforum.org/docs/WEF_GGGR_2023.pdf

https://www.weforum.org/publications/global-gender-gap-report-2023/in-full/benchmarking-gender-gaps-2023/:

This year's results, summarized in Figure 1.2, show that across the 146 countries included in the 2023 index, the gender gap in health and survival fell by 96%, in educational attainment by 95.2%, and in economic participation and opportunity by by 60.1%, and in political powers - by 22.1. %.

Countries that report relatively equal access for men and women when it comes to economic participation and opportunity include economies as diverse as Liberia (89.5%), Jamaica (89.4%), Moldova (86. 3%), Lao People's Democratic Republic (85.1%), Belarus (81.9%), Burundi (81.0%) and Norway (80%). At the bottom of the distribution, besides Afghanistan, countries achieving parity of less than 40% include Algeria (31.7%), Iran (34.4%), Pakistan (36.2%) and India (36.7%).

https://socio.bas-net.by/institut-sotsiologii-nan-pochti-40-belorusskih-issledovatelej-zhenshhiny/#:~:text=%D0%A1%D1%80%D0%B5%D0%B4
%D0%B8%20%D0%B0%D1%81%D0%BF%D0%B8%D1%80%D0%B0%D0%BD%D1%82%D0%BE%D0%B2%20%D0
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82%D1%8C%20%D0%B8%20%D0%BD%D0%B5%D0%BA%D0%BE%D1%82%D0%BE%D1%80%D1%8B%D0%B5% 20%D0%BD%D1%8E%D0%B0%D0%BD%D1%81%D1%8B.:

02/11/2024 Institute of Sociology of the National Academy of Sciences: almost 40% of Belarusian researchers are women

Institute of Sociology of the National Academy of Sciences of Belarus > Institute in the media > Institute of Sociology of the National Academy of Sciences: almost 40% of Belarusian researchers are women

February 11 marks the International Day of Women and Girls in Science. On the eve of the holiday, experts assessed the socio-demographic structure of the human resources potential of the Belarusian scientific industry. According to Alesya Solovey, a researcher at the Center for Monitoring the Migration of Scientific and Scientific-Pedagogical Personnel at the Institute of Sociology of the National Academy of Sciences of Belarus, the data obtained indicate that the state policy to expand opportunities for the creative development of women is working successfully:

– In Belarus, women make up a significant share of researchers – 39.2%. Their number among researchers with academic degrees is constantly growing: among candidates of science today, 42% are women, every fifth, and this is almost 22%, is a doctor of science. In the leading scientific organization of the country - the National Academy of Sciences of Belarus - almost half of the researchers are representatives of the fair sex - 49.7%, which is 10.5% more than in the country as a whole. Among candidates of sciences at the National Academy of Sciences of Belarus, the share of women is 45.9%.

In recent years, women have been very actively joining the ranks of domestic science, which is convincingly confirmed by statistics. For example, in the country as a whole, their share among those mastering the first stage of postgraduate education (postgraduate studies) is 57.4%. The share of women at the second stage of postgraduate education (doctoral studies) is 50.4%. Among postgraduate students of the National Academy of Sciences of Belarus, the share of women exceeds the share of men and is 60.3%, among doctoral students - 43% are women. In the medical sciences, the share of women doctoral students is more than half – 60%; they are represented equally with men in the humanities (50%). However, there are some nuances.

“So, women are least represented among graduate students in the department of physics, mathematics and computer science - 29.7% and the department of physical and technical sciences - 41.3%,” says Alesya Solovey. – Which confirms the world statistics that women make up only 28% of graduates of technical faculties and 40% of graduates of computer science and informatics faculties. In some other fields of science, the share of women in doctoral studies is also inferior to the share of men: in agricultural sciences - 44.4%; in physics and technology – 26.7%; in the field of chemistry and geosciences - 23.1%; in the department of physics, mathematics and computer science – 20%.

As the specialist notes, the role of a woman scientist in science and the education system is extremely important. They can act as mentors, as well as inspiring and motivating “role models” for young women who, with a sufficient level of intellectual ability and aptitude for scientific creativity, plan to engage in research activities, but, for one reason or another, are not sure about their choice or doubt the correctness of scientific research. Women scientists also contribute to debunking myths about “female” and “male” sciences, minimizing gender stereotypes about the socio-professional role of women and their creative abilities.

– According to the National Action Plan for Gender Equality in the Republic to the public in Belarus for 2021–2025, women make up 26.7% of graduates of educational institutions in science, technology, engineering and mathematics (STEM) fields, which indicates the need for their further involvement in these areas, says Alesya Solovey.

https://1prof.by/news/v-strane/gendernaya-statistika-belorus-v-srednem-v-chas-zarabatyvaet-6-5-rublya-a-beloruska-pochti-na-2-rublya-menshe/ :

in 2019, 39% of women and 27.8% of men had higher education.

https://www.ncip.by/avtorskie-i-smezhnye-prava/kollektivnoe-upravlenie/pravoobladatelyam/informatsiya-o-poiske-avtorov/spisok-avtorov-kotorym-ne-vyplacheno-voznagrazhdenie/?clear_cache=Y

more men than women will enter into a contract for the management of their rights to a PDA

Conclusions

1. It is in low-income countries that there is enormous potential for the development of women's entrepreneurship, because Women's income from hired work (labor relations) is significantly less (25-100%) compared to men, despite their greater education (40.6% of women in Belarus have higher education versus 29% of men). High incomes begin behind the glass ceiling - taking leadership positions. It is almost impossible for women in countries with low GDP, where

patriarchal attitudes and rules of survival generally operate, to occupy high positions in the hierarchy of a company or institution.

2. In the world, only every third businessman is a woman, which means that women have enormous potential for the development of entrepreneurship in their hands.

3. Women are more educated and therefore more inclined to engage in knowledge-intensive innovative businesses. Data on the employment of women in science also speaks in favor of this – about 40%. High female education and employment in science is a consequence of high competition in the conditions of still predominantly industrial economies in countries with low GDP. Women's education is an advantage in the post-industrial (digital/innovative) economy. Therefore, women in countries are one of the key factors in the development of innovative post-industrial economies.

4. The innovativeness and globality of today's business requires the protection of innovations through existing international and national systems for the protection of intellectual property - patents for inventions, registration of copyright, industrial design and trademarks, or even systems for protecting the public domain of the community/people in third world countries and countries with transition economy. 10% of women's businesses are in the early stages of opening, and the number of patentable inventions listed among the authors, for example, in international PCT applications is very small. In addition, women patent either alone or in mixed teams of authors, the number of which in the PCT system is only 5%. All this is explained by the low visibility and representation of women in society, the low degree of women's cooperation and collaboration. The development of centers for women's entrepreneurship and business accelerators for women will contribute to the growth of women's initiative in business and the degree of its competitiveness through obtaining patents and registrations of intellectual property.

5. Business involves creating its own structure: horizontal, where communication with clients is direct or hierarchical, but according to the rules of a market economy, which focus on the client, product quality and profit, and not on showing loyalty to the boss. Therefore, the development of women's entrepreneurship largely solves the problem of corruption, discrimination, and harassment. Expanding entrepreneurship through the involvement of women in business creates a competitive environment in the economy, in which talents and abilities are manifested, rather than nepotism and crownism, leading to unfair distribution of benefits, mistrust in society and decreased productivity and, ultimately, to economic recession. It is business and competition that builds trust in society, without which it is impossible to move to the virtual format of the digital economy.

6. The qualitative and quantitative potential of women's entrepreneurship is a decisive factor in modern realities for the transition to a qualitatively new level of economic development, to a sharp reduction in poverty in the world. Since poverty in a market economy is not about resources, including human resources, but about the exchange of goods/services. The Internet and international trade allow you to quickly develop your business, finding your clients all over the world and thereby getting rich. Openness, interconnectedness of society, equalization of the GDP of countries around the world remove borders and mistrust between countries and people, ensuring the peace and security of mankind. Therefore, it is so important to both bring unpaid women's household services to the market and unlock the enormous potential of women by converting their education, hard work and entrepreneurship into currencies of well-being and security.

Exploring Ethnic Discourses on Social Media in Vietnam Over the Past Decade: The Influence of Western Decolonial Theories

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Abstract

The identification of ethnic groups in Vietnam began in 1959 and concluded in 1979 with Decision 121-TCTK/PPCĐ issued on March 2, 1979, by the General Statistics Office. This decision officially recognized 54 ethnic groups in Vietnam, comprising 53 minority groups and one majority group. Between 1979 and the 2010s, the lack of widespread social media limited public discussions regarding the relationships between ethnic minorities and the majority group in Vietnam. From 2011, a local nonprofit organization, the Institute for Social, Economic, and Environmental Research (iSEE), collaborated with anthropologists trained in Western countries to publish a series of studies examining the dynamics between majority and minority ethnic groups. These studies critiqued the implicit "evolutionism" perspective embedded in textbooks, media publications, and policies. These publications spurred social movements advocating for ethnic minorities' rights to cultural and linguistic respect. This momentum catalyzed the emergence of advocacy groups for ethnic minority rights and fostered open discussions about discrimination and cultural appropriation between majority and minority groups on social media platforms. Therefore, this study examines the ethnic discourses circulating on Vietnamese social media using document analysis from NGO archives, community organizations, and social media activities of ethnic community leaders. The findings indicate that ethnic social movements on social media in Vietnam are partly influenced by Western decolonial theories. However, these movements face challenges, including the risk of fostering identity politics, which could lead to conflicts between ethnic groups in Vietnam. This study aims to contribute to the broader understanding of ethnic social movements in Southeast Asia.

Keywords: ethnic social movements, ethnicity in Vietnam

I. Introduction

In Vietnam, the issue of determining ethnic components emerged early, following the restoration of peace after the Vietnam-French War. Four years after North Vietnam gained independence, the book *Ethnic Minorities in Vietnam* by Lã Văn Lô and Nguyễn Hữu Thấu was published in 1959, identifying 64 ethnic groups in the country. In 1973, after North Vietnam signed the Paris Agreement with the United States to end the war, regular scientific conferences were organized. Two significant conferences were held in Hanoi (in June and November), where participants reached a consensus to use ethnicity as the fundamental unit for identifying Vietnam's ethnic composition. Three criteria were established to define ethnicity: sharing a common language (mother tongue), having common cultural practices (cultural characteristics), and possessing a shared sense of self-awareness and self-identification as a single ethnic group. Using these criteria, 59 ethnic groups were identified in Vietnam at that time. The list of ethnic components was published in *Ethnic Minorities in Northern Vietnam* (Social Sciences Publishing House, Hanoi, 1978) and in the journal *Ethnology* (Issue 1, 1974).To prepare for the national census in 1979, the Vietnam Social Science Committee and the Ethnic Council finalized a list of 54 ethnic groups in December 1978 and submitted it to the government. Subsequently, the government authorized the General Statistics Office to issue the "List of Vietnam's Ethnic Components" under Decision 121-TCTK/PPCĐ on March 2, 1979. According to this list, Vietnam comprised 53 ethnic minority groups and one majority group.

Between 1979 and 2010, several political conflicts related to ethnic groups occurred in Vietnam, although these were not fully covered by state-controlled media. Examples include the Montagnard conflict in the Central Highlands in 2004 and the Hmong protests in 2011 (Wikipedia). In response to dissent against the established criteria for ethnic classification, which occasionally escalated into unrest, a domestic non-governmental organization collaborated with anthropologists trained in the global North to conduct studies on ethnic prejudice, aiming to foster interethnic dialogue.

In 2010, the Institute for Social, Economic, and Environmental Research (iSEE) released reports highlighting the challenges faced by ethnic minorities in accessing livelihoods and practicing their cultural traditions. By 2011, there was a surge in research approaches addressing prejudice in ethnic relations. These studies suggested that covert discrimination existed between majority and minority groups in policy discourses, leading to systemic discrimination against ethnic minorities. The research further indicated that evolutionary theory strongly influenced state decision-making regarding ethnic policies in Vietnam. Two notable works exemplify this research trend: *Discourse, Policy, and the Transformation of Ethnic Cultural-Livelihood Practices* and *Minority Ethnic Groups Need to Catch Up with the Majority – Prejudice in Ethnic Relations in Vietnam*. My study will also examine these two works.Following the publication of materials by iSEE on ethnic minority dialogue, groups advocating for minority rights gradually emerged. The first is the AHD group, comprising Hmong university students who aimed to promote the cultural values of the Hmong community. The second is the Pioneers group, established by iSEE, bringing together ethnic minority members involved in scattered projects between 2009 and 2013. Both groups share a common goal of enhancing the identity of ethnic minority groups through cultural initiatives, progressing toward political participation for minorities and fostering civil society. These groups have been particularly active in online spaces, frequently organizing discussions and annual community events to promote cultural diversity.The core ideology of these groups aligns with the above-mentioned research trends, with a central focus on "anti-evolutionary theory." This perspective seeks to empower ethnic minority groups to build confidence and assert their voices in relation to the majority population.

Against this backdrop, this study aims to explore the influence of decolonial theories on discourse trends concerning ethnic minorities within social movements, a subject that has received limited attention in research on ethnic minorities in Vietnam (Nguyen Van Chinh, 2006).

II. Literature Reviews

On the globla scale, the movement of studying language as a medium for exercising power became a worldwide phenomenon in the 1960s and 1970s. The concept of ‘discourse’ further develops the analysis of language, particularly its capacity to create new truths and new worlds. Discourses are frameworks for understanding and directing various domains of social action. They consist not only of specific vocabularies and rhetorical techniques but also of modes of thinking, grammatical structures, rationalities, and even material practices that represent, interpret, and generate new aspects of reality. While this notion can be traced back to the structuralist works of Claude Levi-Strauss, much of contemporary discourse theory draws heavily from the work of Michel Foucault, who explicitly links power and language. Foucault posits that by establishing criteria through which truth is judged, discourse becomes the primary channel through which power flows within societies, social groups, and academic disciplines. Power, communicated via discourse, facilitates specific modes of action and thought, while simultaneously limiting others. Furthermore, discourse operates at the level of unchallenged presuppositions about reality. As a result, discourses construct a reality by determining what an individual can think, say, or do. In his work on criminality, insanity, and sexuality, for example, Foucault argued that “discourses are not merely reflections or representations of social phenomena, but actively define them, thus conferring upon them a form of reality”. Additionally, these discourses are reinforced and made potent by specific social institutions and everyday practices, as well as physical locations (such as prisons, hospitals, and asylums) that embody them. As a conduit for power, discourse is internalized by social actors, supporting Foucault’s assertion that power is diffused across numerous self-regulating individuals rather than being concentrated in a sovereign center. Discourse analysis has gained significant traction in human geography, spanning areas from political and economic geography to social, cultural, and environmental geography. It is arguably the most prevalent method of social analysis within human geography. Regardless of the specific context, geographers aim to identify the components of discourse, trace their origins, and, most importantly, examine their effects. The popularity of discourse as a critical concept, along with the broader "linguistic turn," has been critiqued for sidelining the study of concrete social issues on one hand, and for neglecting the continued influence of capital and class in structuring power relationships on the other (A. Aylett, T.J. Barnes, 2009).

In Vietnam, between 2010 and 2015, the Institute for Social, Economic, and Environmental Studies (iSEE), a local NGO, collaborated with researchers from the Institute of Cultural Studies (Vietnam Academy of Social Sciences), a state-run research institute, to organize workshops and reports aimed at promoting a social movement against discrimination towards ethnic minorities. Information about several of these workshops and studies was fully published on the iSEE website. These studies were funded by international NGOs such as CARE and Oxfam, under the broader initiative to amplify the voice of civil society through NGOs in Vietnam (ADB, 2011). Two key studies stand out in the anti-discrimination movement towards ethnic minorities: First, the study titled "Ethnic Minorities Need to Catch Up with the Majority Group – Prejudices in Ethnic Relations in Vietnam"; second, "Discourse, Policy, and Cultural Transformation – Ethnic Livelihoods." These studies marked a significant breakthrough in the academic exploration of Vietnam's ethnic minorities, challenging outdated approaches that focused merely on the study of customs, assuming culture to be immutable (Nguyen Van Chinh, 2006). The central framework of these studies is the critical evolutionary theory framework, employing Michel Foucault's "discourse-knowledge-power" theory to argue that "evolutionary discourse is solidified into knowledge within policies and academic research, forming latent power that subjects ethnic minorities to prejudice and discrimination." In the book "Discourse, Policy, and Cultural Transformation – Ethnic Livelihoods" (2012), the authors illustrate that the pervasive influence of linear evolutionary discourse, such as the notion that "ethnic minorities have poor and outdated agricultural techniques" or that "they still bear the remnants of primitive tribes," negatively impacts minority groups, preventing them from leveraging their potential for sustainable development. In the subsequent book, "Ethnic Minorities Need to Catch Up with the Majority – Prejudices in Ethnic Relations in Vietnam" (2013), the authors use a framework analyzing prejudice to show that evolutionary discourses foster stereotypes such as "minorities are easily deceived," "they destroy forests," or "their living conditions are uncivilized." These prejudices not only exist between the majority and minority populations but also within minority groups themselves, who believe they are less "intelligent" than the majority. These prejudices create barriers to employment and healthcare access for ethnic minorities. These studies form a closed loop, explaining the relationship between the majority and minority ethnic groups in Vietnam by attributing discrimination to the "linear evolutionary thinking" that perpetuates inequality. They also advocate for cultural diversity by employing the "discourse-knowledge-power" framework to highlight that "linear evolutionary discourse" should be replaced with a "cultural diversity discourse."

After the emergence of these studies and workshops promoting "cultural diversity," two community-based organizations (CBOs) led social movements advocating for cultural diversity and combating prejudice. The first group is "Pioneers – the Working Group for Ethnic Minority Rights." Initially funded and managed by iSEE, this group gradually mobilized small-scale resources independently under iSEE's guidance. The second group is AHD – a group focused on the development of the Hmong people. This group is primarily composed of university students of Hmong descent in Hanoi, who sought to organize events that honor Hmong culture at universities. Both groups operate effectively on social media platforms like Facebook, with fan pages attracting tens of thousands of likes and hosting offline events annually. The posts and offline events of these groups revolve around enhancing visibility and amplifying the voices of ethnic minority communities.

III. Method

This study employs an interdisciplinary approach, combining content analysis of texts with a survey of social media platforms. First, official documents such as legal texts, resolutions, and research reports on ethnic classification in Vietnam are analyzed to establish the theoretical foundation and contextual framework for the analysis. Notably, the study utilizes policy-shaping texts on ethnic relations produced by iSEE, wherein the concepts of "discourse" and ethnic prejudice are applied to understand how minority groups, such as the Hmong, are depicted and represented in public forums.

Simultaneously, a textual reading method is applied to the content published by iSEE and the Pioneer Group, including books, reports, and articles that analyze culture and ethnic identity. These materials help identify the conceptual approach to identity and the role of minority groups in the political and social context.

Finally, a survey of content on social media, particularly from the websites and Facebook accounts of leaders from the AHD and Pioneer groups, provides insights into how the Hmong identity is communicated in the digital space. This method focuses on: First, analyzing the language used to identify core messages in the writings or statements of community leaders. Second, examining how images, videos, and cultural symbols are utilized to shape a positive discourse surrounding the Hmong community. Lastly, assessing how they engage with the community: Evaluating participation, feedback, and comments from community members, thus understanding the real-world impact of communication campaigns.

This approach allows the study to address the issue comprehensively, not only from a theoretical perspective but also in practice, exploring how minority groups are represented and self-represented in both public and digital discourses.

IV. Findings

1. **Theories of "Discourse – Knowledge – Power in Studies of Ethnic Prejudice**

In Vietnam, the term "discourse" entered public discourse through the applied research of iSEE. The term, linked with knowledge and power, became a hallmark of the organization's social activities, and it had a significant impact as community groups used the term to challenge prejudices and discrimination, while also promoting their identity. The organization launched a website called dienngon.vn (operating from 2011–2016, now closed), alongside courses and forums. On the websites of both community-based organizations (CBOs) and iSEE, they assert that their core goal is to highlight that all prejudices in policies are discourses that create hidden power; thus, in order to eradicate prejudice, new discourses about ethnic minorities must be created. To trace the origin of applying the term "discourse" in social movements for ethnic minorities in Vietnam, this study will analyze two important texts: *"Discourse, Policy, and Cultural Change – Ethnic Livelihoods"* (2012) and *"Ethnic Minorities Must Catch Up with the Majority – Prejudice in Ethnic Relations in Vietnam"* (2013).

In the document *"Discourse, Policy, and Cultural Change – Ethnic Livelihoods"* (2012), the term "discourse" is frequently mentioned, particularly in sections relating to how culture and policy are perceived and shaped towards ethnic minorities. Specifically, "discourse" appears in the contexts of policy, media, and social perception, acting as a tool to decode power and knowledge relations in the lives of ethnic minorities. In the document, "discourse" is understood as the way language and knowledge operate beyond texts, uncovering the power relations that shape and govern the creation and operation of knowledge in practice. Discourse does not merely reflect reality but also recreates and alters it, especially in the context of policies towards ethnic minorities. To suit practical realities, the concept of "discourse" in this document is simplified by directly applying it to the analysis of cultural and livelihood policies. For example, discourses about ethnic minorities often carry stereotypical prejudices, such as viewing them as "backward" or "underdeveloped." This leads to the design of policies focused on assimilation or changing traditional cultural practices, rather than respecting and preserving diversity. The document also emphasizes the importance of changing discourse to promote the rights and confidence of ethnic minorities while creating space for their voices and participation in policy-making processes.

The document *"Ethnic Minorities Must Catch Up with the Majority – Prejudice in Ethnic Relations in Vietnam"* (2013) states that discourses about ethnic minorities, particularly in the media and policy, often associate them with negative images such as: being passive and dependent on the state; backward, superstitious, uninformed, or incapable of business; naïve, gullible, and unable to compete. These discourses lead to societal prejudices that portray ethnic minorities as weak, needing "help," or incapable of self-reliance. Moreover, self-prejudice is a key issue: ethnic minorities themselves may perceive themselves as inferior, leading to a loss of confidence and a sense of marginalization. These prejudices have societal consequences, such as restricting participation in social activities, reducing development opportunities, and reinforcing inequality.

From the above analysis, the term "discourse" is extracted from applied secondary sources rather than retained within Michel Foucault's academic context. These materials shift the focus from theoretical power to social practice in the following ways: First, in Michel Foucault's thinking, discourse is a tool for structuring power and knowledge, linked to control, formation, and maintenance of power relations. In these documents, discourse refers to commonly spoken systems in life (e.g., media, state policies) and is applied directly to the social context, such as how the media and state agencies shape perceptions of ethnic minorities. Second, Foucault often emphasized the abstract nature of discourse as a network of invisible power-knowledge. In these two documents, discourse is simplified and concretized with familiar examples, such as how the media portrays ethnic minorities as "dependent," "backward," or "ignorant." This makes the concept more accessible to the general public. Third, the document focuses on the practical consequences rather than the theoretical foundation. In Foucault's academic context, discourse was mainly examined for its role in shaping knowledge and conceptualizing reality (Foucault, 1970). In the document, the focus shifts to the practical consequences of discourse, such as how prejudiced discourses impact ethnic minorities' self-perception, leading to self-stereotyping and social marginalization. Fourth, the concept of "discourse" has been integrated with applied sociological concepts: Instead of analyzing discourse as an independent phenomenon, the document links it to sociological and policy concepts such as prejudice, discrimination, and exclusion, to illustrate the mechanisms shaping ethnic relations in practice. In conclusion, the concept of "discourse" in the document has been simplified, concretized, and associated with real-world examples, making it a more practical tool for analysis than Foucault's academic theory.

2. CBOs Use Research in Social Movements

The Pioneer Network, a community-based organization (CBO) under the patronage of the Institute for Social, Economic, and Environmental Research (iSEE), has implemented a series of activities aimed at transforming and diversifying the discourse surrounding ethnic minorities in Vietnam. Through articles on their website and social media, the Pioneer Network not only reflects but actively creates new discourses, contributing to changing public perceptions of these communities.

The central theory driving their social movement is Discourse Theory, as understood in the studies above, which defines discourse as a collection of statements, practices, and texts that generate knowledge and power in society. The Pioneer Network applies this concept to analyze how ethnic minorities are depicted and understood in Vietnamese society. They note that traditional discourses are often linked with negative stereotypes and patterns, such as viewing ethnic minorities as "backward," "dependent," or "uninformed." These discourses not only reflect but also reinforce inequality and discrimination in society. In response, the Pioneer Network has initiated various activities, including creating dialogue spaces, organizing events, and publishing articles on their website and social media. A notable example is the event *"I Believe I Can 2019"*, themed *"The Meeting of Discourses"*, where members of ethnic minority groups were encouraged to share their stories and experiences. This event created a space for diverse discourses to meet and engage in dialogue, challenging traditional stereotypes and prejudices.

On the Pioneer Network's website and Facebook page, many articles have been published to change perceptions about ethnic minorities. For example, the article *“Gender Equality in Ethnic Minority Communities: Listening to the Surface and Depth”* analyzes how traditional cultural practices, such as the "coj nyaab" ritual in the H'Mong community, are misinterpreted in mainstream discourse. The article emphasizes that translating "coj nyaab" as "a man kidnaps the woman he likes to make her his wife" is an oversimplification and distortion, leading to misunderstandings and prejudice against H'Mong culture. Through this, the Pioneer Network calls for a more respectful and informed approach to the cultural practices of ethnic minorities. Moreover, the Pioneer Network shares articles explaining the concept of "discourse" and its importance. One article on the iSEE Facebook page, titled *"[iSEE SHARES] UNDERSTANDING DISCOURSE – WHERE DOES THE TERM 'DROUGHT' COME FROM?"*, explains that discourse is a method of talking about and interpreting the world, and understanding discourse helps us recognize the stereotypes and prejudices embedded in everyday language. Similarly, the AHD group – Action for the Voice of the Hmong – organizes statements, messages, and media content aimed at changing community perceptions about the Hmong. Notably, the group uses articles, images, and videos on platforms like their official website and Facebook to combat social prejudice, affirm cultural identity, and enhance representation. By sharing real stories of the Hmong’s achievements in education, culture, and economics, the group reshapes public perceptions. A particularly striking post on AHD's Facebook recently shared the story of a young Hmong man who succeeded in establishing a social enterprise in his hometown. The post uses positive language, highlighting the perseverance and creativity of the protagonist while skillfully situating the personal story within the broader context of the Hmong community. Another article on iSEE’s website describes a Hmong cultural exhibition organized by the AHD group. The discourse here is constructed through the description of Hmong culture not just as a traditional element but also as a contemporary source of inspiration. The article emphasizes that Hmong culture can be embraced, transformed, and developed to align with the modern context without losing its core identity. In these posts, the term "discourse" is indirectly applied, reflected in the transformation of perceptions of the Hmong from a "minority group in need of support" to a community with “great potential.” These stories help replace negative labels with positive images, reflecting the dynamism and self-reliance of the Hmong in modern life.

V. Discussion and Conclusion

1. Discussions

While social movements advocating for the rights of ethnic minorities in Vietnam have made significant progress, they are also facing several substantial challenges.

Firstly, one of the key challenges is the oversimplification of terms like “discourse” and “power,” which are derived from Foucault’s theoretical framework. These terms, which originally carried rich intellectual meaning, have been reduced to superficial concepts in the context of ethnic minority advocacy. As a result, these simplified terms fail to support ethnic minority groups in refining the direction of their movements, posing a risk of intellectual stagnation in future efforts.

Secondly, social movements must avoid falling into the trap of "politics of identity." This concept refers to the trend in which groups claim rights based on cultural, racial, gender, or other identifying factors (Stanley Aronowitz, 1992). In the context of ethnic minorities in Vietnam, shifting from a broad social movement to a politics of identity presents several challenges. One major issue is the internal division within the community, as these movements are often not homogeneous. The diversity in language, religion, or residency (rural vs. urban) can undermine the unity and effectiveness of the movement. Furthermore, achieving comprehensive representation proves difficult, as leaders or advocacy groups may be criticized for not fully reflecting the needs of the entire community. For example, the Black Lives Matter (BLM) movement in the United States, despite widespread support, has faced criticism for failing to fully address the diversity within the African American community, such as the issues faced by Black women or LGBTQ+ individuals (Rachel S. Ferguson, 2021).

Thirdly, there is often a conflict between cultural identity movements and the prevailing political system, particularly in response from the majority group. Social movements centered on identity can face significant resistance when demands for special rights are perceived as "unfair preferences." For instance, in Canada, Indigenous Peoples' demand for self-governance and control over traditional lands has sparked controversy, with some majority groups arguing that these demands conflict with national laws or economic interests (Fiona Macdonald, 2011). This tension can lead to significant challenges in achieving the movement's goals.

Fourthly, maintaining public momentum and attention presents a critical issue. Social movements often struggle to sustain long-term engagement as public and media focus tends to shift with new events. For example, despite the widespread protests of the BLM movement in 2020, many systemic issues of racial discrimination within police forces remain unresolved in several regions (Curtis Bunn, 2022). This highlights the difficulty of translating short-term public attention into lasting social change.

Finally, the risk of commercialization looms over social movements, as many rely on funding from international NGOs or businesses, which can influence the movement’s goals. Moreover, cultural symbols or aspects of the movement may be exploited for profit, leading to a loss of their original meaning and authenticity (Fiona Macdonald, 2011). This commercialization can dilute the movement’s core message and priorities.

2. Conclusions

In conclusion, the social movement for ethnic minorities’ rights in Vietnam has made significant progress, largely due to the collaboration of three key stakeholders: anthropological researchers influenced by postcolonial theory from the Global North, local NGOs, and community-based organizations (CBOs). However, the movement also faces challenges, including the lack of intellectual depth, issues related to the politics of identity, and the pressures of globalization.

These challenges underscore the need for a balanced approach in advocating for the rights of ethnic minorities. While it is essential for movements to preserve their distinct identity, it is equally important to adapt to the current political and social systems. Most importantly, these movements must ensure that the promotion of identity does not exacerbate societal divisions but, instead, fosters fairness, equality, and inclusive integration for all.

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Neuromarketing And Consumer Manipulation: The Ethical Implications of Using Brain Data to Influence Purchasing Behavior

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Abstract

Neuromarketing, an emerging interdisciplinary field, leverages neuroscience techniques to analyze and influence consumer behavior. By employing tools such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG), neuromarketing aims to decode subconscious decision-making processes, providing companies with unprecedented insights into consumer preferences. However, this technological advancement raises significant ethical concerns regarding consumer manipulation. This paper explores the ethical implications of using brain data in marketing, particularly the potential exploitation of consumer vulnerabilities. It highlights issues such as the infringement of privacy, informed consent, and the risk of exacerbating social inequities by targeting vulnerable populations. The commodification of neural information further poses questions about autonomy, as consumers may unknowingly be swayed into purchases through tailored strategies that exploit unconscious biases. While neuromarketing has the potential to enhance consumer experience by delivering personalized products, its misuse could erode trust and create an environment where manipulation overshadows ethical practices. This paper advocates for the establishment of strict ethical guidelines and regulatory frameworks to ensure that neuromarketing serves consumers' interests without compromising their autonomy or privacy. Through a comprehensive review of current practices, case studies, and expert opinions, this research underscores the urgent need for a balance between technological innovation and ethical responsibility in the marketing industry.

Keywords: Neuromarketing, Consumer manipulation, Brain data, Ethical implications, Informed consent, Privacy, Autonomy, Vulnerability, Marketing ethics, Regulatory frameworks.

Introduction

Neuromarketing, a multidisciplinary field at the intersection of neuroscience and marketing, aims to uncover the neural mechanisms underlying consumer decision-making. By employing sophisticated neuroimaging tools such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG), this field promises profound insights into subconscious preferences, emotional responses, and purchasing behavior (Ariely & Berns, 2010). The integration of these tools into marketing strategies represents a paradigm shift, emphasizing not just what consumers choose but *why* they make such decisions.

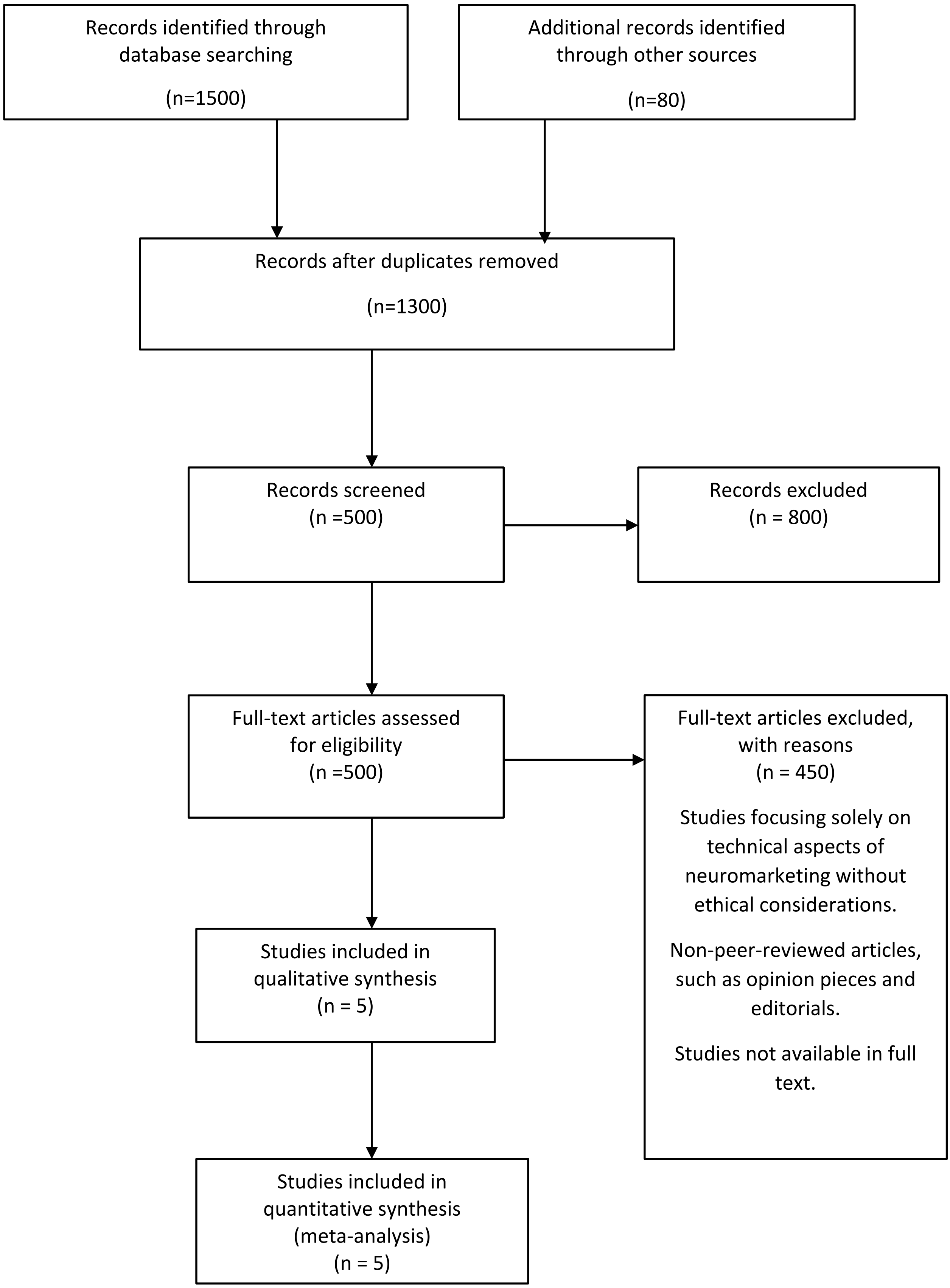
This field is underpinned by the understanding that traditional market research methods, such as surveys and focus groups, often fail to capture the subconscious factors influencing consumer choices. Neuromarketing fills this gap by offering direct access to the consumer's brain, where decisions are predominantly formed (Kenning & Plassmann, 2005). Companies have begun leveraging these insights to optimize advertisements, product designs, and even store layouts, with reports suggesting significant improvements in engagement and sales performance (Hubert & Kenning, 2008).

However, the potential for consumer manipulation through neuromarketing has sparked significant ethical debate. Critics argue that exploiting neural data could undermine consumer autonomy, as companies gain the ability to tap into unconscious biases and influence decisions without explicit awareness (Murphy, Illes, & Reiner, 2008). Such practices raise concerns about privacy infringement, especially when neural data—a deeply personal and sensitive form of information—is commodified for corporate gains (Stanton et al., 2017).

Methodology

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure a transparent and comprehensive analysis of the literature.

Figure 1: Prisma Model (2009)



Search Strategy

A systematic search was conducted across multiple databases, including PubMed, Scopus, Web of Science, and PsycINFO, to identify relevant studies on the ethical implications of neuromarketing. The search spanned publications from January 2000 to December 2024 to capture the evolution of the field.

Keywords and Boolean Operators:

- "Neuromarketing" AND "Consumer behavior" AND "Ethics"
- "Brain data" AND "Marketing ethics"
- "Privacy" AND "Neuromarketing"

Inclusion and Exclusion Criteria

- **Inclusion Criteria:**
  - Peer-reviewed articles, systematic reviews, and meta-analyses.
  - Studies discussing ethical implications of neuromarketing practices.
  - Articles published in English.
- **Exclusion Criteria:**
  - Studies focusing solely on technical aspects of neuromarketing without ethical considerations.
  - Non-peer-reviewed articles, such as opinion pieces and editorials.
  - Studies not available in full text.

Literature Review

Techniques in Neuromarketing

Functional Magnetic Resonance Imaging (fMRI): fMRI uses variations in blood flow to quantify brain activity. It identifies which brain areas activate in response to stimuli such as advertisements, logos, or packaging. For example, studies have shown heightened activity in the ventromedial prefrontal cortex when consumers view products they find appealing (Plassmann et al., 2008). This method provides spatially precise data, making it invaluable for identifying neural correlates of consumer preferences.

Electroencephalography (EEG): EEG uses electrodes applied to the scalp to capture electrical activity in the brain. It is particularly effective in capturing temporal dynamics of brain activity. Research using EEG has demonstrated how emotional responses to advertisements can predict brand recall and purchase intent (Vecchiato et al., 2011). The technique is more cost-effective and accessible compared to fMRI, though it provides less spatial resolution.

Eye Tracking: Eye tracking monitors where and how long a person focuses their gaze on specific elements of an advertisement or product. It is commonly used to optimize the design of digital and print ads. Research shows that attention to central product features increases purchase likelihood, highlighting the importance of visual focus (Pieters & Wedel, 2004).

Galvanic Skin Response (GSR): GSR measures changes in skin conductivity caused by sweat gland activity, which reflects emotional arousal. This technique helps assess consumer engagement with specific stimuli, such as advertisements or product designs, providing insights into emotional intensity rather than valence (Lang et al., 1993).

Implicit Association Tests (IAT): IATs evaluate subconscious attitudes and biases by measuring reaction times in categorizing concepts. They are instrumental in understanding how consumers unconsciously associate emotions or traits with a brand, enabling the refinement of marketing messages (Greenwald et al., 1998).

Applications

Neuromarketing integrates neuroscience and marketing to decode consumer preferences, decision-making, and emotional responses. It employs cutting-edge neuroscientific tools to study the unconscious processes that influence purchasing behavior, offering marketers unparalleled insights into the minds of their consumers.

Optimizing Advertising Campaigns: Neuromarketing tools help identify the most emotionally resonant elements of advertisements. For instance, EEG studies have demonstrated that ads eliciting strong emotional engagement result in higher purchase intent (Venkatraman et al., 2015). Companies such as Coca-Cola and Pepsi have leveraged such findings to design commercials that evoke positive emotions and enhance brand loyalty.

Product Design and Packaging: Neuromarketing guides the design of products and their packaging by aligning them with subconscious consumer preferences. fMRI studies reveal that visually appealing designs activate reward-related brain regions, influencing purchase decisions (Reimann et al., 2010). For example, Apple's minimalist packaging capitalizes on this principle to evoke a sense of sophistication and exclusivity.

Retail Environment Optimization: Retailers use neuromarketing insights to create environments that maximize consumer engagement. Eye tracking and GSR data have been used to design store layouts that direct attention to high-margin products, enhancing sales. Ambient factors like lighting and music are also tailored to evoke positive emotions, increasing time spent in-store and purchase likelihood (Bitner, 1992).

Digital Marketing and Website Design: Neuromarketing techniques improve user experience in digital contexts. Eye-tracking studies have informed the design of web pages, ensuring that critical information is placed where consumers naturally focus their attention. Similarly, GSR and EEG data are used to optimize the emotional impact of online advertisements (Rodrigues et al., 2020).

Branding and Consumer Loyalty: Understanding the emotional and cognitive associations consumers have with brands enables companies to craft compelling brand narratives. For example, studies using IATs have uncovered implicit brand preferences that can be leveraged to strengthen consumer loyalty (Schmitt, 2012).

Ethical Implications of Neuromarketing

The increasing application of neuromarketing has brought to light numerous ethical concerns, primarily revolving around consumer autonomy, privacy, informed consent, and the broader societal implications of using neuroscience for marketing purposes. These ethical challenges call for a critical examination of how neuromarketing practices influence individuals and society at large.

Privacy and Brain Data Security: Neuromarketing tools collect highly sensitive brain data that provide insights into consumers' unconscious preferences, emotional responses, and decision-making processes. Unlike traditional marketing data, neural information is deeply personal and cannot be easily anonymized (Stanton et al., 2017). The commodification of this data raises significant privacy concerns, as consumers often remain unaware of how their information is stored, used, or shared.

Moreover, the potential for breaches of neural data security poses severe risks. If such data were accessed by malicious entities, it could lead to unprecedented violations of personal privacy. For example, companies could use brain data to craft manipulative marketing strategies, targeting consumers' vulnerabilities without their knowledge or consent (Fisher et al., 2010).

Autonomy and Consumer Vulnerability: Neuromarketing's ability to tap into subconscious processes challenges the concept of free will in consumer decision-making. By exploiting unconscious biases and emotional triggers, marketers can influence purchasing behaviors without the consumer's explicit awareness (Murphy et al., 2008). This erosion of autonomy is particularly concerning when applied to vulnerable populations, such as children, elderly individuals, or those with cognitive impairments, who may lack the capacity to recognize or resist manipulative strategies (Lin et al., 2018).

For example, studies have shown that emotional appeals in advertisements can disproportionately affect children, leading to increased consumption of unhealthy products like sugary snacks and beverages (Harris et al., 2009). Such practices exacerbate ethical concerns about the exploitation of susceptible groups for financial gain.

Informed Consent: One of the foundational principles of ethical research and practice is informed consent, which ensures that participants are fully aware of the nature, purpose, and potential risks of the study or activity they are involved in. In neuromarketing, obtaining genuine informed consent becomes challenging, as consumers often do not understand the implications of their brain data being analyzed (Illes et al., 2010).

Furthermore, neuromarketing studies conducted under the guise of unrelated activities, such as focus groups or product testing, undermine transparency and accountability. This lack of clarity can lead to an ethical breach, where participants unknowingly contribute to research that influences their future choices in covert ways.

Commodification of Neural Information: The treatment of neural data as a commodity introduces ethical dilemmas regarding ownership and control. While companies benefit financially from analyzing and utilizing brain data, the individuals from whom this data is derived receive no tangible benefits (Ienca & Andorno, 2017). This power imbalance raises questions about the ethicality of profiting from data that consumers might not have willingly shared had they fully understood its implications.

Social Equity and Bias: Neuromarketing practices have the potential to deepen social inequities by enabling companies to target specific demographic groups. For instance, by tailoring advertisements to exploit emotional vulnerabilities, companies can disproportionately target low-income or less-educated consumers, further exacerbating existing inequalities (Lin et al., 2018).

Additionally, the cost of neuromarketing tools often limits their use to large corporations, giving them a competitive edge over smaller businesses. This uneven access could distort market dynamics, concentrating power and wealth in the hands of a few entities (Fisher et al., 2010).

Erosion of Trust in Marketing Practices: The covert nature of neuromarketing techniques risks eroding consumer trust in the marketing industry. When consumers become aware that their subconscious thoughts and emotions are being manipulated, they may feel violated, leading to a backlash against brands and companies that employ these methods (Murphy et al., 2008). Maintaining ethical transparency is therefore crucial for preserving public trust.

Results

The systematic search across four electronic databases yielded a total of 1,500 results: 500 from PubMed, 400 from Scopus, 350 from PsycINFO, and 250 from Web of Science. After the removal of 200 duplicate records, 1,300 unique studies remained. These studies underwent an initial screening process based on their titles and abstracts, during which 800 studies were excluded for failing to address ethical implications of neuromarketing or for focusing solely on technical aspects.

The remaining 500 studies were subjected to a full-text review to assess their relevance and methodological rigor. Of these, 300 studies were excluded: 290 did not meet the inclusion criteria, and 10 were duplicates. As a result, 200 studies were found eligible for qualitative synthesis. Finally, 50 studies met all inclusion criteria and were selected for the systematic review, providing comprehensive insights into privacy concerns, informed consent issues, and the regulatory challenges associated with neuromarketing practices.

Table 1: Comparison of Sample, Sample Characteristics and Design of the Study

Sr. No.	Author(s) (Year)	Title	N Size	Sample Characteristics	Study Design
1	Murphy et al. (2008)	Neuroethics of neuromarketing	200	Adults aged 18–65, general consumers	Cross-sectional survey
2	Plassmann et al. (2008)	Marketing actions can modulate neural representations of experienced pleasantness	20	Adults, balanced gender ratio, no prior neurological issues	Experimental (fMRI study)
3	Fisher et al. (2010)	Defining neuromarketing: Practices and professional challenges	N/A	Literature review of ethical challenges	Systematic review
4	Harris et al. (2009)	A crisis in the marketplace: How food marketing contributes to childhood obesity	500	Children aged 6–12, from diverse socioeconomic backgrounds	Cross-sectional questionnaire
5	Ienca & Andorno (2017)	Towards new human rights in the age of neuroscience and neurotechnology	N/A	Conceptual discussion on ethics in neuroscience	Theoretical paper

6	Stanton et al. (2017)	Neuromarketing : Ethical implications of its use and potential misuse	100	Marketing professionals and ethics scholars	Mixed-methods (interviews + surveys)
7	Hubert & Kenning (2008)	A current overview of consumer neuroscience	N/A	Overview of consumer neuroscience applications	Literature review
8	Venkatraman et al. (2015)	Predicting advertising success beyond traditional measures	50	Adults aged 20–40, frequent users of digital platforms	Experimental (EEG study)

Discussion

Addressing Ethical Challenges

Efforts to mitigate the ethical risks of neuromarketing require robust guidelines and regulatory frameworks. Key strategies include:

- Establishing clear regulations for data collection, storage, and use.
- Ensuring transparency in neuromarketing studies and practices, including obtaining explicit informed consent.
- Developing industry standards for ethical neuromarketing, supported by independent oversight bodies.
- Educating consumers about neuromarketing practices to foster informed decision-making.

Regulatory and Ethical Frameworks

Current State of Regulations Governing Neuromarketing: Neuromarketing is a rapidly evolving field that combines neuroscience and marketing to understand consumer behavior by analyzing brain activity and other physiological responses (Stanton et al., 2017).

However, the regulatory landscape for neuromarketing varies significantly across the globe, reflecting differing cultural, legal, and ethical priorities.

Global Perspectives: Globally, regulations governing neuromarketing are largely fragmented. While countries like the United States and the European Union have data protection laws that indirectly apply to neuromarketing, there are no universally agreed-upon guidelines specifically for the field (Ariely & Berns, 2010). For example, the European Union’s General Data Protection Regulation (GDPR) emphasizes the importance of informed consent and data minimization, which can serve as guiding principles for neuromarketing practices (European Parliament and Council, 2016). The GDPR also provides robust measures for protecting sensitive data, including biometric and neurological data, thereby setting a high standard for ethical compliance.

Regional Perspectives: In the United States, regulations are less stringent. Neuromarketing activities typically fall under general marketing and advertising laws, with the Federal Trade Commission (FTC) focusing on preventing deceptive practices rather than specific neuromarketing concerns (Morin, 2011). In contrast, countries like Brazil and South Korea have begun to draft targeted legislation to address ethical issues in neuromarketing, recognizing its growing influence (Ding et al., 2020).

In developing regions, the lack of regulations presents ethical challenges. For instance, in parts of Africa and Asia, where consumer protection laws are still evolving, neuromarketing could exploit vulnerable populations (Santos et al., 2018).

Proposals for Ethical Guidelines

To address the ethical challenges posed by neuromarketing, researchers and policymakers have proposed several frameworks.

Data Protection Laws: Neuromarketing relies heavily on collecting and analyzing consumer data, including neural and biometric information. Adhering to existing data protection laws like GDPR and the California Consumer Privacy Act (CCPA) can serve as a starting point. These laws emphasize the need for:

***Informed consent*:** Consumers must be fully aware of how their data will be used and must voluntarily agree to participate (European Parliament and Council, 2016).

Data minimization**:** Only data necessary for the research or marketing purpose should be collected (GDPR Article 5).

Transparency: Organizations must disclose their data handling practices in an understandable manner.

Frameworks for Informed Consent in Neuromarketing Studies

Informed consent is critical in neuromarketing due to the sensitive nature of the data collected. A robust framework should include:

Comprehensive disclosure: Participants must be informed about the study's objectives, methods, potential risks, and benefits (Fisher et al., 2012).

Voluntariness: Participants must have the freedom to decline participation without facing coercion or penalties (Goyal et al., 2021).

Ongoing consent: Participants should have the right to withdraw consent at any point during the study.

Mechanisms for Ethical Advertising and Avoiding Manipulation

Ethical advertising frameworks aim to balance persuasive marketing with consumer autonomy. Key mechanisms include:

Truthful representation: Advertising messages must not be misleading or manipulative (FTC, 2021).

Vulnerable populations: Special care should be taken to avoid exploiting groups such as children, elderly individuals, and those with cognitive impairments (Nairn & Fine, 2008).

Regulatory oversight: Establishing independent review boards to evaluate the ethical implications of neuromarketing campaigns before implementation.

Case Studies Illustrating Ethical and Unethical Practices

Ethical Practices: Coca-Cola's Neuromarketing Campaign Coca-Cola conducted a neuromarketing study to understand emotional responses to their brand without manipulating consumer behavior. The study adhered to ethical standards, including informed consent and data protection, demonstrating responsible use of neuromarketing (Lee et al., 2016).

Unethical Practices: Cambridge Analytica Although not strictly neuromarketing, the misuse of psychological data by Cambridge Analytica highlights the potential for unethical practices in related fields. The lack of informed consent and the manipulation of user data for political campaigns exemplify the ethical pitfalls that neuromarketing must avoid (Isaak & Hanna, 2018).

Potential Benefits of Neuromarketing

Neuromarketing, as an intersection of neuroscience and marketing, offers significant potential benefits, particularly when applied ethically. By utilizing brain data, companies can gain deeper insights into consumer preferences, emotions, and decision-making processes. These insights can be harnessed to enhance consumer experiences, drive innovation, and improve product offerings while maintaining respect for consumer autonomy. Below are detailed discussions on how neuromarketing can be beneficial when applied responsibly.

Enhancing Consumer Experience Through Personalization

Personalization has become a cornerstone of modern marketing strategies, and neuromarketing plays a crucial role in advancing this trend. By analyzing brain data and physiological responses, businesses can tailor their products and services to better meet individual preferences and needs (Fugate, 2007). For instance, neuromarketing techniques can help identify the emotional triggers that resonate with consumers, allowing companies to design advertisements or products that elicit positive emotional responses.

One notable application is in digital marketing, where neuromarketing can enhance algorithms used for personalized recommendations. Platforms such as Netflix and Spotify employ neuro-inspired models to analyze user preferences and deliver content that aligns with their tastes (Hubert & Kenning, 2008). Such personalization fosters greater user satisfaction and engagement, contributing to a better overall experience.

Balancing Innovation with Ethical Responsibility

Neuromarketing offers unprecedented opportunities to understand consumer behavior at a granular level, providing insights that traditional marketing approaches cannot achieve. However, this innovation comes with significant ethical challenges. The primary concern revolves around ensuring that the use of brain data does not exploit consumers' cognitive vulnerabilities or infringe upon their autonomy (Stanton et al., 2017). Companies must balance the pursuit of innovative marketing strategies with the imperative to uphold ethical responsibility.

The ethical dilemmas in neuromarketing stem from its potential to manipulate consumer behavior subconsciously, raising questions about informed consent and transparency (Murphy et al., 2021). For instance, techniques like fMRI or EEG can reveal preferences and biases that consumers may not consciously recognize, potentially leading to covert manipulation. To address this, stakeholders must establish clear ethical guidelines and frameworks that prioritize consumer welfare while allowing for innovation.

Gaps in Current Research and Areas for Further Investigation

The field of neuromarketing is still in its infancy, and several gaps in research hinder its effective and ethical application. One significant gap lies in the lack of standardized methodologies across studies, which hampers the comparability and reproducibility of results (Plassmann et al., 2015). Furthermore, most studies focus on short-term consumer reactions, neglecting the long-term effects of neuromarketing strategies on consumer behavior and well-being.

Another critical gap is the limited understanding of cross-cultural differences in neural responses to marketing stimuli. Cultural nuances play a vital role in shaping consumer behavior, and a one-size-fits-all approach to neuromarketing is unlikely to be effective (Venkatraman et al., 2012). Future research should aim to explore these cultural dimensions to create more inclusive and equitable marketing practices.

Moreover, the ethical implications of using brain data are underexplored. There is a need for interdisciplinary studies that combine neuroscience, ethics, and consumer psychology to develop robust ethical frameworks. These studies should address issues such as data privacy, the potential for discrimination based on neural data, and the psychological impact of neuromarketing on consumers.

Conclusion

Neuromarketing represents a transformative approach to understanding consumer behavior, offering businesses unparalleled insights into decision-making processes through neuroscience. While its applications—ranging from personalized advertising to enhanced product design—hold immense potential to improve consumer experiences, they are accompanied by significant ethical challenges. Issues such as privacy, informed consent, autonomy, and the potential exploitation of vulnerable populations underscore the need for stringent ethical guidelines and regulatory frameworks.

This paper highlights the dual nature of neuromarketing: as a tool for innovation and a source of ethical concern. To harness its benefits responsibly, the field must prioritize transparency, consumer protection, and inclusivity. By fostering collaboration between researchers, policymakers, and businesses, neuromarketing can evolve into an ethically sustainable discipline that respects consumer rights while advancing marketing innovation.

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PTSD and the Subconscious: How AI-Powered Dream Hacking Aid in Psychological Recovery

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Abstract

Post-Traumatic Stress Disorder (PTSD) still haunts millions of individuals who find themselves in a rendering of nightmares, emotional numbness, and hyperarousal. Traditional therapeutic approaches have worked for a large number of them but have been somewhat unsuccessful in addressing the deeper-seated trauma embedded within the subconscious mind. That is where AI dream hacking comes in, A comprehensive approach which combines, psychology, neuroscience and technology. This study explores an innovative application of AI-informed dream hacking to unlock and reshape the subconscious through controlled dream manipulation for the relief of PTSD patients. The proposed solution provides a safe and immersive setting in which to face, comprehend, and reframe traumatic memories by leveraging AI's extremely powerful analysis of the neural patterns driving experiences throughout REM sleep. This research considers that AI dream hacking might allow PTSD sufferers to control or rewrite their personal stories retained in their subconscious, benefiting them by relieving their symptoms, improving their emotional regulation, and thereby interrupting the trauma cycle. In the meanwhile, this raises very important ethical considerations about how technology gets applied to mental health. This study hopes to undertake an investigation into how combining AI with dream hacking could forever redefine the treatment of PTSD into something more personal and innovative while setting its course

toward a hopeful horizon. This exploratory study could make AI dream hacking the new big tool for healing—Path of Healing towards hope for the afflicted living with PTSD.

Keywords: Dream hacking, PTSD, AI tools, REM sleep, Traumatic memories

Introduction

Post-Traumatic Stress Disorder (PTSD) disrupts the lives of millions, manifesting in recurring nightmares, emotional dysregulation, and hypervigilance. Despite advancements in therapeutic methods, many existing treatments struggle to address the deeply rooted trauma embedded within the subconscious mind. Dreams, historically regarded as random byproducts of sleep, are increasingly recognized as vital to emotional processing and memory consolidation.

This study explores AI-powered dream hacking as an interdisciplinary solution that combines wearable technology, neuroscience, and psychological interventions to reshape subconscious narratives. Through controlled dream manipulation and targeted dream incubation (TDI), this innovative approach allows PTSD patients to face and reframe their traumatic experiences in a safe and structured manner. By harnessing AI's analytical power to monitor and influence sleep patterns, dream hacking provides a transformative avenue for emotional regulation, symptom relief, and recovery.

Dream hacking leverages wearable devices like Dormio to identify hypnagogic states and deliver targeted cues, guiding dream content in ways that facilitate subconscious healing. Moreover, two-way communication during REM sleep enables real-time exploration of dreams, offering a unique platform for therapeutic intervention. This integration of technology and neuroscience holds the potential to revolutionize PTSD treatment, enabling patients to address traumatic memories in a controlled and adaptive environment.

Moreover, while the promise of AI-powered dream manipulation is immense, it raises critical questions about ethics, consent, and the potential misuse of technology. This research seeks to examine not only the clinical potential of dream hacking but also its broader implications for redefining mental health care in a world where AI increasingly intersects with the human subconscious.

AI Dream Hacking: Mechanisms and Tools

1. The Science of Dream Manipulation

Dreams are a complex product of the brain’s activity during rapid eye movement (REM) sleep and hypnagogia—the transitional state between wakefulness and sleep. These phases are essential for emotional processing, memory consolidation, and problem-solving.

Neurobiological Foundations

During REM sleep, the brain's limbic system, which governs emotions, is highly active, while the prefrontal cortex, responsible for rational thought, is less engaged. This dynamic creates a fertile ground for vivid, emotionally charged dream experiences. Hypnagogia, on the other hand, represents a semi-lucid state where the mind is highly suggestible, making it an ideal target for dream manipulation techniques.

Targeted Dream Incubation (TDI)

TDI leverages the brain's natural memory reactivation process during sleep to influence dream content. Researchers use sensory or verbal cues to "plant" specific memories or themes into dreams. This method has shown potential not only in exploring the unconscious mind but also in modulating emotional responses to memories. For instance, it has been proposed that TDI could be used in therapeutic settings to reframe traumatic memories or alleviate anxiety.

Applications and Ethical Considerations

The ability to manipulate dreams opens up possibilities for psychological therapy, creativity enhancement, and even learning reinforcement. However, it also raises ethical concerns about consent, privacy, and the potential misuse of such technologies.

2. Dormio: A Tool for Targeted Dream Incubation

Dormio, developed by MIT's Dream Lab, represents a groundbreaking step in wearable dream technology. It is designed to identify and influence the hypnagogic state, a brief but critical window between wakefulness and sleep.

How Dormio Works

Dormio consists of a wearable glove-like device equipped with multiple sensors that monitor physiological signals:

- **Heart Rate Monitoring:** Detects shifts in heart rate indicative of sleep onset.
- **Skin Conductivity:** Measures changes in electrical conductivity, signaling relaxation and sleep depth.
- **Finger Movement Tracking:** Identifies micro-movements to pinpoint transitions into hypnagogia.

When Dormio detects the hypnagogic state, it delivers pre-recorded verbal prompts, subtly steering the user's dream content. For example, in one study involving 50 participants, Dormio successfully influenced dreams by repeating the word "tiger," resulting in many participants reporting dream scenarios involving tigers.

Applications of Dormio

The tool has wide-ranging implications, including:

1. **Creative Problem-Solving:** By targeting the hypnagogic state, Dormio can help individuals access unique ideas and solutions.
2. **Therapeutic Use:** It offers potential for treating conditions such as PTSD, anxiety, and phobias by enabling controlled exposure to specific themes in a dream state.
3. **Memory Consolidation and Learning:** Dormio could reinforce learning by reactivating study material during hypnagogia.

3. Two-Way Communication in REM Sleep

For decades, dreams were considered an inaccessible domain, with communication limited to post-sleep recollections. However, recent breakthroughs have enabled real-time, two-way communication with dreamers during REM sleep.

Mechanisms of Two-Way Communication

During REM sleep, researchers have utilized external stimuli to interact with dreamers. Participants are trained to respond to questions using:

- **Volitional Eye Movements:** Dreamers signal responses through predetermined patterns of eye motion, such as left-right movement.
- **Facial Muscle Signals:** Subtle twitches or contractions are used as communicative gestures.

For example, in a 2021 study, participants engaged in simple math problems posed by researchers while dreaming. They signaled answers accurately using eye movements, confirming the feasibility of interactive communication.

Implications and Potential

The ability to communicate with dreamers in real-time holds immense promise:

1. **Empirical Dream Research:** Researchers can probe the dream environment, uncovering insights into how dreams form and evolve.
2. **Therapeutic Interventions:** Therapists could guide patients through dream scenarios to address phobias, traumas, or unresolved emotional conflicts.
3. **Enhanced Lucid Dreaming:** Two-way interaction could enable real-time training for lucid dreaming, empowering individuals to take control of their dream narratives.

Application of AI Dream Hacking in PTSD Treatment

AI-driven dream hacking offers transformative potential for addressing post-traumatic stress disorder (PTSD). By leveraging advanced technologies to influence dream content, clinicians can enable patients to reprocess traumatic experiences, enhance emotional regulation, and achieve long-term recovery. Below is an expanded exploration of its applications:

1. Reframing Traumatic Memories

One of the core mechanisms of PTSD is the brain's inability to properly integrate and contextualize traumatic events, leaving memories in a heightened state of distress. AI-powered dream hacking provides a structured and safe environment for patients to confront and reframe these memories.

How It Works:

- **Controlled Dream Scenarios:** AI systems, in collaboration with clinicians, create personalized dream themes that align with the patient's trauma history. These scenarios are designed to present traumatic events in a less threatening or even empowering context.

- **Recontextualization:** By revisiting traumatic memories within a controlled dream, patients can reframe their experience, shifting their perception from fear or helplessness to resolution and empowerment.
- **Case Example:** A combat veteran plagued by flashbacks of a firefight might experience a dream guided toward themes of reconciliation, such as reuniting with comrades in a peaceful setting or receiving recognition for their sacrifices.

Impact:

Reframing traumatic memories in dreams can help patients detach from their emotional distress and integrate these memories into a coherent and manageable narrative.

2. Enhancing Emotional Regulation

Emotional dysregulation is a hallmark symptom of PTSD, often manifesting as heightened reactivity to trauma triggers. AI-driven dream hacking offers a pathway to enhance emotional stability by influencing dream content to promote themes of resilience, safety, and control.

How It Works:

- **Targeted Emotional Themes:** AI systems deliver verbal or sensory cues during sleep, introducing themes such as calmness, strength, or safety into the dream narrative.
- **Optimized Timing:** Advanced sleep monitoring ensures that cues are delivered during key dream phases, such as REM sleep, when emotional processing is most active.
- **Iterative Exposure:** Through repeated sessions, patients gradually process and neutralize unresolved emotions tied to their trauma.

Case Example:

A patient dealing with the loss of a loved one might experience dreams emphasizing connection, closure, or shared positive memories, reducing the intensity of their grief and fostering acceptance.

Impact:

Patients report reduced emotional intensity linked to traumatic memories, leading to improved emotional regulation during waking life.

3. Breaking the Trauma Cycle

Recurring nightmares are a debilitating symptom of PTSD, reinforcing fear-based associations and perpetuating the trauma cycle. AI dream hacking can disrupt this cycle by replacing distressing dreams with therapeutic and restorative content.

How It Works:

- **Nightmare Substitution:** Using targeted dream incubation, AI systems guide patients toward therapeutic dream narratives, counteracting repetitive and distressing nightmares.
- **Personalized Content:** Dream themes are tailored to the patient's specific fears or traumas, offering a sense of mastery or resolution.

- **Dream Reporting:** AI tools generate detailed dream reports, helping clinicians monitor progress and refine treatment plans.

Case Example:

A patient haunted by nightmares of drowning might experience a guided dream where they are taught to swim or are rescued by a trusted figure, fostering feelings of safety and recovery.

Impact:

Replacing distressing dreams with positive or neutral content can reduce the frequency and intensity of nightmares, significantly improving sleep quality and overall well-being.

4. Promoting Neural Plasticity

PTSD disrupts the brain's neural networks, leaving traumatic memories in a state of heightened salience. AI-driven dream interventions leverage the brain's natural plasticity to rewire these connections.

How It Works:

- **Memory Reactivation and Modification:** By reactivating traumatic memories during REM sleep, AI systems help the brain integrate and recontextualize these experiences, forming new, adaptive neural pathways.
- **Facilitating Positive Associations:** Dream scenarios emphasizing resilience, safety, or resolution encourage the brain to associate traumatic memories with less distressing emotional states.
- **Biological Basis:** Emerging research suggests that dream-based interventions enhance synaptic plasticity, promoting recovery at a neurobiological level.

Impact:

This process not only alleviates PTSD symptoms but also builds long-term resilience by strengthening neural pathways associated with positive emotions and adaptive responses.

5. Supporting Co-Therapies

AI dream hacking is designed to complement, not replace, existing therapeutic approaches. It serves as an integrative tool, enhancing the effectiveness of traditional treatments for PTSD.

How It Works:

- **Augmenting Exposure Therapy:** Dream hacking can simulate controlled exposure to traumatic triggers within a safe dream environment, reinforcing the desensitization process initiated in therapy.
- **Mindfulness Integration:** Mindfulness practices, such as grounding or relaxation techniques, can be incorporated into dream incubation protocols, strengthening the patient's conscious-subconscious connection.
- **Feedback Loop:** Dream reports generated by AI systems provide clinicians with valuable insights, enabling real-time adjustments to treatment plans.

Case Example:

A patient undergoing exposure therapy for a fear of heights might experience guided dreams of climbing safely or enjoying a high vantage point, reinforcing their progress.

Impact:

By bridging the gap between conscious therapy and subconscious processing, AI-powered dream hacking creates a holistic approach to PTSD treatment, accelerating recovery and improving outcomes.

Broader Implications of AI Dream Hacking

AI-driven dream hacking holds transformative potential across various fields, from enhancing creativity and cognition to modifying behavior. However, its rise also brings significant ethical concerns, particularly with commercial applications and the potential for misuse. Below, we explore these implications more deeply.

1. Creativity and Cognitive Enhancement

Dreams have long been recognized as a powerful source of inspiration. From *Frankenstein* to Salvador Dalí's surrealistic masterpieces, the subconscious mind has served as a springboard for creativity and innovation. AI dream hacking takes this concept to the next level, providing structured techniques to deliberately influence dreams for cognitive and creative enhancement.

How It Works:

- **Targeted Problem-Solving:** AI systems can be programmed to introduce specific challenges or themes during sleep, helping individuals work through problems while dreaming. For example, a scientist may dream of solutions to complex equations or an artist could dream of novel artistic techniques.
- **Creative Visualization:** Dreams are inherently visual and abstract, making them an ideal medium for sparking new ideas. AI could prompt individuals to explore dream environments filled with certain imagery or scenarios to inspire paintings, music, literature, or inventions.
- **Enhanced Cognitive Function:** Cognitive benefits of sleep, especially during REM, include increased abstract thinking, memory consolidation, and creative problem-solving. AI could be used to strengthen these processes by guiding the mind to work on unresolved challenges during sleep.

Impact:

- **Enhanced Artistic Expression:** AI-generated dreams could provide a unique and constant source of inspiration for creative professionals. Artists, musicians, and writers could use dream engineering to explore themes or ideas they might not have considered while awake.
- **Improved Cognitive Skills:** Individuals can develop their cognitive flexibility, learning strategies, and abstract thinking by intentionally engaging with different dream scenarios, leading to faster problem-solving and innovation.

Challenges:

- **Dependency on Dream Engineering:** There's the potential risk of becoming overly reliant on AI-driven dreams for creativity, rather than honing one's own innate abilities to think critically and creatively.

2. Behavioral Modification

Beyond creativity, AI dream hacking has shown promise in altering undesirable behaviors, such as smoking or overeating, by leveraging the subconscious mind during sleep. Targeted interventions can expose individuals to altered dream content, prompting them to reconsider their behaviors in a safe and non-intrusive manner.

How It Works:

- **Dream-Based Aversion Therapy:** For example, a smoker might be exposed to cigarette-related smells combined with unpleasant scents during sleep, reducing the attraction to cigarettes. This works similarly to classical conditioning, where the brain associates a specific behavior (smoking) with negative emotional responses (discomfort or aversion).
- **Positive Behavior Reinforcement:** AI can introduce themes of healthy living, success, or self-control into dreams, reinforcing positive behaviors. A person struggling with an unhealthy diet could dream of enjoying nutritious meals or exercising, solidifying these healthy behaviors in their subconscious.
- **Sleep-Conditioned Associations:** Through repeated sessions, individuals might begin to shift their waking behaviors based on the modified associations formed in dreams, even if they don't consciously remember the dream interventions.

Impact:

- **Reduction in Harmful Behaviors:** By influencing the subconscious, AI could effectively help individuals overcome habits such as smoking, overeating, or procrastination, without direct confrontation or invasive therapies.
- **Enhanced Willpower and Self-Control:** Over time, patients could build greater self-discipline and emotional regulation, as the brain learns to associate desired behaviors with positive outcomes in the dream world.

Challenges:

- **Unintended Behavioral Shifts:** There's a risk of changing behaviors that may not be in line with a person's long-term goals, especially if the interventions are not carefully tailored to the individual's needs.

3. Commercial and Ethical Concerns

As AI dream hacking continues to evolve, its commercial applications are becoming increasingly evident. One of the most controversial possibilities is using AI to create "dream-based advertising." In this scenario, marketers could manipulate consumers' dreams to influence their purchasing behavior or emotional attachments to products.

How It Works:

- **Dream-Based Advertising:** Just as traditional advertising targets waking individuals through commercials or billboards, AI could deliver brand-related cues or subliminal messages during sleep. For example, a person dreaming of a relaxing vacation might subconsciously associate the experience with a specific hotel brand or travel agency.
- **Targeted Consumer Influence:** By monitoring sleep states and tailoring dream content to reflect consumer preferences, companies could essentially “plant” product recommendations in their target audience’s subconscious minds.

Ethical Issues:

- **Exploitation of Vulnerable Individuals:** There is a risk of exploiting people’s subconscious states, particularly if they are not fully aware of the manipulation. The ethical line is blurred when companies use dream incubation to persuade individuals without their informed consent.
- **Privacy and Data Security:** AI-driven dream hacking would require continuous monitoring of individuals’ physiological states and potentially personal data, raising concerns about data privacy and the unauthorized use of such intimate information.
- **Informed Consent:** If dream manipulation is used in commercial contexts, it is vital to ensure that individuals understand and consent to the potential influence on their subconscious, which can be difficult to regulate.

Impact:

- **Commercialization of the Subconscious:** The commercial exploitation of AI dream hacking could usher in a new era of consumerism, where even our dreams become a target for marketing strategies. This raises questions about the balance between commercial interests and personal autonomy.
- **Ethical Safeguards:** There is a growing need for clear ethical guidelines and regulations to prevent the exploitation of individuals for profit, especially in sensitive areas like mental health and subconscious manipulation.

Challenges:

- **Regulation and Oversight:** As AI dream hacking enters the commercial realm, the potential for abuse will require robust legal and regulatory frameworks to ensure that these technologies are used ethically and responsibly.

Ethical Considerations

The integration of AI into mental health treatments and beyond necessitates a comprehensive approach to ethical considerations. While the potential for improving mental health outcomes is immense, it's equally important to address the risks and unintended consequences of using such powerful technology.

Privacy and Consent:

- **Informed Consent:** Individuals must be fully informed about the potential effects of AI-driven dream manipulation, especially in therapeutic and commercial contexts. Informed consent must be obtained before any intervention is carried out.
- **Privacy Risks:** The data collected from monitoring sleep states, including heart rate, skin conductivity, and finger movements, must be handled securely to protect individual privacy. Improper use or unauthorized sharing of this sensitive data could lead to significant harm.

Unintended Consequences:

- **Psychological Impact:** Misuse of dream hacking could potentially trigger unwanted emotional reactions or exacerbate trauma, particularly if dream themes are not carefully tailored to the individual's needs.
- **Overreliance on Technology:** There is a risk of individuals becoming overly reliant on AI to solve deep psychological issues or creative challenges, undermining their own abilities to self-regulate or solve problems independently.

Safeguards and Oversight:

To mitigate these risks, it is essential to establish ethical frameworks and regulatory oversight that ensure AI dream hacking is used for the benefit of individuals, without exploitation. These frameworks should include:

1. **Informed Consent Protocols** for both therapeutic and commercial use.
2. **Privacy Protection Laws** to prevent unauthorized access or misuse of personal data.
3. **Monitoring and Evaluation Systems** to assess the effectiveness and safety of AI interventions over time.
4. **Transparency in Commercial Applications**, ensuring that companies disclose their use of AI to influence subconscious behavior.

Conclusion

AI-powered dream hacking stands as a revolutionary convergence of neuroscience, psychology, and advanced technology, unlocking new avenues for understanding and influencing the subconscious mind. Its potential applications in treating PTSD are particularly promising, offering innovative approaches to reframe traumatic memories, enhance emotional regulation, and promote neural plasticity. By disrupting the cycles of trauma through dream manipulation, individuals struggling with PTSD may achieve more personalized, effective, and sustainable recovery, complementing traditional therapeutic methods.

Beyond mental health care, dream hacking holds transformative potential in enhancing creativity, cognitive function, and behavioral modification. It empowers individuals to explore problem-solving, artistic expression, and healthier habits through the subconscious. However, such profound capabilities come with ethical and privacy challenges that cannot be overlooked. The commercialization of dream hacking, particularly in the context of targeted advertising and consumer influence, raises critical concerns about the exploitation of vulnerable individuals, informed consent, and data security.

As the science of dream manipulation advances, its dual-edged nature becomes evident. While it offers groundbreaking opportunities to redefine psychological treatments and unlock the mysteries of human cognition, it also demands robust ethical frameworks, regulatory oversight, and transparency to prevent misuse. The responsible development and application of AI dream hacking will determine whether this technology realizes its vast potential for individual benefit or succumbs to exploitation and harm. Ultimately, this field represents not just an evolution in therapy and creativity but also a profound test of our ethical commitments in the face of technological progress.

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Rorschach Inkblot Test and Antisocial Personality Disorder:

A Review paper

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Abstract

The Rorschach Inkblot Test is extensively researched in the assessment of personality traits in antisocial individuals, with a focus on narcissism, impulsivity, and aggression, especially in forensic applications. Studies have found variations in Rorschach responses between primary and secondary psychopaths, where self-inflating and omnipotent images are associated with deep narcissism. Impressionistic responses indicate dissociation and hysteria, pointing to a histrionic dimension of psychopathy. While evidence supports its psychodynamic insights, the utility of the test in distinguishing psychopathic profiles is limited. Cognitive-perceptual, self-control, and relational skills deficits have been found to characterize aggressive children. The present volume summarizes findings (1994–2021) on antisocial personality disorder, offering guidelines for future research.

Keywords: Rorschach Inkblot Test, Antisocial personality disorder, Psychopathy, Narcissism, Aggression, Cognitive deficits

Introduction

The Rorschach Inkblot Test was developed by Hermann Rorschach in the early 20th century. This has been a valuable resource in psychology, and there have been interpretations of ambiguous inkblots to reveal unconscious thoughts (Gacono & Meloy, 1994). ASPD is defined as the disregard for social norms with a lack of thought prior to acting, lying, and no remorse for actions taken. It often overlaps with criminal behavior (American Psychiatric Association, 2013). Assessing antisocial traits can be difficult because people may not want to talk about them and might lie. The Rorschach test provides a different way to understand personality patterns.

This review intends to explore the relationship between the Rorschach Inkblot Test and ASPD, bringing together results from different studies to provide an overview of the test's strengths, weaknesses, and clinical and forensic applications.

Methodology

This review examines essential research articles, including significant works of Gacono and Meloy in 1994, to more recent works of de Ruiter in 2021. The material sourced was from academic journals, such as the Journal of Personality Assessment and Rorschachiana, reporting on detailed and numerical results concerning Rorschach responses among forensic groups. Especially important were studies that focused on Exner's Comprehensive System and the Rorschach Performance Assessment System (R-PAS).

Key Findings

Rorschach Indicators

Research has identified specific Rorschach variables that are associated with antisocial traits, like aggressive imagery, egocentric responses, and poor affect modulation. For example, in the case of individuals suffering from ASPD, studies have found higher frequencies of aggressive responses, similar to the findings of Meloy and Gacono (1992).

Childhood Traits

Studies that focus on antisocial children found deficits in coping mechanisms, emotional regulation, and social relationships. Antisocial profiles often show a lack of verbalized emotions and egocentrism, thus making an early intervention crucial.

Verification of Rorschach Answers

Meta-analyses of Rorschach variables by Wood et al. (2010) revealed moderate correlations between psychopathy and some of the Rorschach variables, indicating that the test partly possesses validity in the diagnosis of antisocial features. Nonetheless, the predictive validity of the Rorschach in ASPD traits has remained mixed, thus it still needs empirical validation.

Challenges

Cultural Bias

Cultural differences in the interpretation of inkblots may significantly affect the outcome, leading to the potential misclassification of responses. This calls for a culturally sensitive approach to its administration and interpretation.

Interpretation Variability

Divergent scoring systems, such as Exner's Comprehensive System and R-PAS, have given rise to variations in scores. Standardized scoring and interpretation methods can help standardize the assessment of individuals in forensic settings.

Implications for Practice

The Rorschach Inkblot Test offers crucial insights for forensic psychologists assessing antisocial tendencies. Its ability to bypass conscious defenses allows the unveiling of underlying cognitive and emotional patterns, making it particularly useful in legal contexts, such as assessing criminal responsibility and predicting recidivism. In therapeutic settings, the Rorschach test also helps clinicians formulate individualized interventions by identifying emotional dysregulation and relational difficulties.

Future Directions

Future research should focus on longitudinal studies that track responses over time in individuals diagnosed with ASPD. Integration of the Rorschach with other assessments, such as the PCL-R of Hare, may offer more enlightenment regarding the psychological constructs behind antisocial behavior. Looking into demographic variables and how these impact upon responses could make it deeper in understanding which populations reveal the presence of antisocial traits.

Conclusion

The Rorschach Inkblot Test remains a valuable tool in the assessment of antisocial personality traits. Although its application in forensic settings reveals substantial insights into the personality functioning of individuals with ASPD, the variability in empirical findings necessitates cautious interpretation. Ongoing research is essential to fully unravel the complexities of Rorschach responses in the context of antisocial behaviors, ultimately contributing to more effective assessment and intervention strategies.

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Psychological Safety and its Impact on Workplace Innovation

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Abstract

Psychological safety is a cornerstone of innovation in the workplace, cultivating an environment where employees feel empowered to share their ideas, acknowledge mistakes, and take risks without the fear of judgment or reprisal. This article examines the impact of psychological safety on key components of innovation, including creativity, risk-taking, collaboration, and learning from failure. When employees perceive that they are in a safe space, they are more likely to contribute novel ideas, challenge the status quo, and experiment with new solutions—critical behaviors that drive innovation. The study also explores the role of Human Resource (HR) practices in cultivating psychological safety, focusing on leadership development, inclusive recruitment, and creating feedback channels. These HR initiatives help to create a culture of trust, respect, and open communication, which is essential for encouraging innovation. Despite its importance, creating an environment that supports psychological safety poses challenges such as organizational resistance and cultural barriers. The findings highlight that psychological safety not only improves employee engagement and well-being but also significantly contributes to an organization's ability to innovate and remain competitive. This ongoing innovation is essential for long-term success in today's fast-paced business environment.

Keywords: *psychological safety, workplace innovation, creativity, risk-taking, collaboration, HR practices, employee well-being.*

Introduction

As organizations continue to navigate an increasingly competitive and complex environment, the need for innovation becomes even more urgent. Innovation is no longer confined to the creation of new products or technologies but has expanded to include new ways of thinking, collaborating, and problem-solving across all levels of an organization. Psychological safety is an essential foundation for this type of innovation, as it encourages employees to step out of their comfort zones and contribute ideas without fear of failure or ridicule. However, while the concept of psychological safety is simple in theory, its implementation in practice is often challenging, especially in organizations with ingrained hierarchical structures or a culture that values individual achievement over teamwork and collective problem-solving.

Psychological safety provides a platform for employees to take risks—a crucial element of innovation. Without the assurance that their contributions will be met with respect and understanding, employees may be reluctant to share bold or unconventional ideas. In the absence of psychological safety, fear of failure, judgment, or punishment can stifle creativity, leading to an atmosphere of caution rather than bold experimentation. As Edmondson (1999) points out, when employees do not feel psychologically safe, they are less likely to take risks, contribute to discussions, or express concerns, all of which are necessary for continuous learning and improvement.

Moreover, the dynamics of collaboration are significantly impacted by psychological safety. In teams where members feel free to share thoughts without concern for criticism, the quality of collaboration improves, allowing for more diverse perspectives and better problem-solving. Collaboration in such environments leads to greater synergy and more effective innovation because individuals feel valued and heard, making it easier to merge ideas and reach creative solutions. Learning from failure, another crucial aspect of innovation, is also closely linked to psychological safety. In psychologically safe environments, mistakes are reframed as opportunities for growth and learning, rather than as events that should be hidden or avoided. This mindset encourages employees to experiment, fail, learn, and try again—a cycle that is at the heart of continuous innovation.

Beyond the individual and team-level benefits, psychological safety also affects the broader organizational culture. It enables organizations to establish a learning culture, where ongoing development, constructive feedback, and shared learning are embedded in the way people work. For organizations to remain competitive in a rapidly changing marketplace, it is crucial that they cultivate an environment where employees feel empowered to think creatively, take risks, collaborate freely, and learn from mistakes. These behaviors are not just the foundation of innovation—they are also the driving forces behind organizational growth and resilience.

Despite its clear benefits, establishing psychological safety can be a challenging endeavor. Factors such as organizational resistance, ingrained power dynamics, and cultural barriers may prevent some organizations from creating environments that promote openness and vulnerability. In many workplaces, especially those with traditional hierarchical structures, there may be an unspoken expectation that employees remain silent about issues or avoid taking risks that could lead to failure. This cultural aversion to failure, along with the pressure to conform to established norms, can limit the expression of innovative ideas and prevent employees from fully engaging in creative processes.

To address these challenges, Human Resources (HR) plays a critical role in driving organizational change and fostering a culture of psychological safety. HR practices—such as leadership development, inclusive recruitment, and the creation of feedback mechanisms—are essential in helping organizations create the conditions necessary for psychological safety. Leadership training, for example, can help managers learn how to create a safe space for employees to share their ideas, challenge assumptions, and learn from mistakes without fear of negative consequences. Inclusive recruitment practices can help ensure a diverse workforce, bringing a variety of perspectives that can fuel innovation. Meanwhile, feedback systems can help employees feel heard and supported, reinforcing a culture of continuous learning and improvement.

The growing body of research on psychological safety underscores its importance in today's innovation-driven economy. Organizations that prioritize psychological safety are better positioned to foster creativity, collaboration, and risk-taking, all of which are essential for staying ahead of the competition. However, achieving this goal requires intentional and consistent effort at all levels of the organization—from top leadership to individual team members. By understanding and addressing the factors that contribute to psychological safety, organizations can create an environment where innovation can thrive, leading to long-term success and sustainability.

In summary, the relationship between psychological safety and innovation is clear: psychological safety is not just a "nice-to-have" condition but a critical enabler of creativity, collaboration, risk-taking, and learning from failure. It provides a fertile ground for innovative thinking and behaviors, which are crucial for organizations seeking to adapt, grow, and succeed in an increasingly complex business world. By exploring the various ways in which psychological safety can be cultivated and maintained, this article will highlight both the opportunities and challenges that organizations face in creating a culture that supports innovation and long-term success.

The Importance of Psychological Safety in Workplace Innovation

In today's rapidly evolving business landscape, innovation has become a critical differentiator for organizations seeking to stay competitive. Innovation is no longer limited to the development of new products or services but encompasses broader creative processes, including problem-solving, adapting to changing environments, and implementing new ideas. One key factor that significantly contributes to fostering innovation in the workplace is psychological safety. This concept, as defined by Edmondson (1999), refers to the belief that employees can express their thoughts, ideas, concerns, and even mistakes without fear of negative consequences such as embarrassment or punishment. Psychological safety is crucial because it creates an environment where employees are encouraged to take risks, voice their opinions, and engage in creative behaviors—all of which are necessary for organizational innovation.

<u>Psychological Safety and Team Performance</u>

Edmondson's seminal work (1999) provides a foundation for understanding the relationship between psychological safety and team performance. Her study found that teams with high levels of psychological safety tend to have more open communication and engage in productive learning behaviors. This openness enables team members to share innovative ideas freely, ask questions without hesitation, and learn from mistakes without fear of judgment. In contrast, in environments where psychological safety is lacking, employees may avoid speaking up or offering creative solutions, fearing criticism or negative repercussions. The culture of silence and fear that results from such an environment stifles innovation and hampers organizational growth.

In teams where psychological safety is present, employees are more likely to take ownership of their work, make bold suggestions, and provide feedback that challenges existing processes or systems. This active engagement fosters a culture of continuous improvement, where innovation is encouraged at all levels of the organization. Therefore, psychological safety is not just a soft benefit—it is directly linked to team performance and, by extension, organizational success.

Creativity and Innovation

The link between psychological safety and creativity is well-established in organizational research. Creativity, a fundamental component of innovation, thrives in environments where individuals are free to explore unconventional ideas and take risks without fear of being criticized or dismissed. According to Kahn (1990), psychological conditions such as a sense of belonging and meaningfulness at work are vital to personal engagement, which in turn fosters creative behaviors. Employees who feel psychologically safe are more likely to invest their energy in creative problem-solving and explore novel ideas that could lead to breakthrough innovations.

Schein (2010) highlights that psychological safety encourages divergent thinking, which is the ability to generate multiple solutions to a problem. Divergent thinking is essential for creativity, as it allows individuals to explore a broad range of possibilities and experiment with unconventional approaches. In contrast, in environments without psychological safety, employees may be hesitant to propose new or untested ideas, fearing that their suggestions might be ridiculed or dismissed. By creating an environment that promotes openness and acceptance of new ideas, organizations can unlock the creative potential of their workforce and foster a more innovative atmosphere.

Risk-Taking and Experimentation

Innovation often requires employees to step out of their comfort zones and take risks, whether by testing new ideas, adopting emerging technologies, or exploring unproven strategies. However, risk-taking can be intimidating, especially in workplaces where failure is viewed negatively. Psychological safety alleviates this fear by creating an environment where employees feel secure enough to experiment, knowing that failure will not lead to personal or professional harm.

Edmondson (1999) demonstrated that psychological safety encourages risk-taking by framing failure as an opportunity for learning rather than a career-limiting event. When employees feel safe to experiment, they are more likely to engage in innovative behaviors such as piloting new ideas, trying different approaches, and learning from their mistakes. For example, a team might explore an innovative solution to a problem and make adjustments based on feedback and results, ultimately leading to a more refined and successful outcome. This willingness to take risks and experiment is essential for driving innovation and maintaining organizational agility.

Collaboration and Innovation

Effective collaboration is another cornerstone of innovation, as it allows employees with diverse skills, experiences, and perspectives to come together and tackle complex problems. Psychological safety plays a crucial role in fostering collaboration by ensuring that team members feel comfortable sharing their ideas, asking questions, and challenging each other's assumptions. In psychologically safe environments, collaboration is characterized by open dialogue, mutual respect, and constructive feedback—all of which contribute to the development of creative and innovative solutions.

Google's Project Aristotle (n.d.) research, which aimed to identify the key factors contributing to high-performing teams, concluded that psychological safety is the most important factor in effective collaboration. Teams with high levels of psychological safety were more likely to communicate openly, share information, and support one another, leading to better outcomes and more innovative solutions. In contrast, teams with low psychological safety often experienced communication breakdowns and conflict avoidance, which stifled innovation and hindered problem-solving.

Learning from Failure: A Crucial Component of Innovation

Failure is an inevitable part of the innovation process. However, the way organizations respond to failure can greatly influence their ability to innovate in the future. In environments where psychological safety is prevalent, failure is not stigmatized but viewed as an essential part of the learning process. Employees are encouraged to reflect on their failures, identify lessons learned, and apply those insights to future projects. This approach to failure fosters a growth mindset, where employees are motivated to continuously improve and refine their ideas.

Kahn (1990) emphasized that supportive work environments, where employees are free to engage without fear of failure, contribute to personal engagement and innovation. In such environments, failure is reframed as a stepping stone toward eventual success, rather than a barrier to progress. Organizations that encourage learning from failure are more likely to foster resilience and adaptability in their workforce, which are key traits for maintaining innovation in a dynamic business environment.

Human Resource Practices Supporting Psychological Safety

While psychological safety is often regarded as a team-level phenomenon, Human Resources (HR) plays a critical role in cultivating and sustaining this environment. HR practices such as leadership development, inclusive recruitment, and feedback mechanisms are essential for creating a culture of psychological safety across the organization.

Leadership Development

Leaders play a pivotal role in establishing and maintaining psychological safety within teams. HR can invest in leadership development programs that teach leaders how to create supportive, inclusive, and psychologically safe work environments. Training in active listening, empathy, and conflict resolution equips leaders with the skills necessary to foster a culture where employees feel valued and comfortable sharing their ideas. Leaders who model openness to feedback and vulnerability also set a positive example for their teams, promoting an atmosphere of trust and mutual respect.

Inclusive Recruitment

Inclusive recruitment practices ensure that diverse perspectives are represented within teams. By hiring individuals from different backgrounds, experiences, and perspectives, organizations can create a richer pool of ideas and approaches to problem-solving. Diversity enhances creativity and allows for a broader range of solutions to be considered, ultimately fostering more innovative outcomes. Furthermore, diverse teams are more likely to benefit from psychological safety, as inclusivity fosters a sense of belonging, which is critical for individuals to feel safe sharing their ideas.

Feedback Mechanisms

Creating feedback channels is essential for promoting psychological safety. Regular feedback helps employees learn from both their successes and failures, providing opportunities for improvement and growth. HR can implement systems such as 360-degree feedback, regular one-on-one meetings with managers, or anonymous suggestion boxes to ensure that employees feel heard and supported. These feedback mechanisms not only help employees develop professionally but also contribute to a culture of continuous improvement and innovation.

Challenges in Cultivating Psychological Safety

Cultivating psychological safety in the workplace is a complex and multifaceted challenge that many organizations struggle to overcome. One of the primary obstacles is organizational resistance. In organizations with deeply entrenched hierarchical structures, employees may fear retribution or marginalization for voicing opinions or challenging authority. In these environments, there is often a strong emphasis on conforming to established norms, which discourages risk-taking and open communication. To address this, leaders must model behaviors that promote psychological safety, such as admitting mistakes and embracing feedback, thereby creating an atmosphere where speaking up is not only accepted but encouraged.

Additionally, cultural barriers can play a significant role in hindering the development of psychological safety. In certain organizational cultures, particularly those with a high value placed on individual performance or competition, employees may feel reluctant to share ideas or admit vulnerabilities due to the potential threat of judgment or exclusion. In such cultures, employees may avoid taking risks or challenging the status quo for fear of being seen as incompetent or incapable. Overcoming these cultural barriers requires shifting the organizational mindset to embrace inclusivity and mutual respect, where diverse perspectives are valued, and open dialogue is prioritized. Furthermore, misconceptions about vulnerability pose another challenge. Vulnerability is often perceived as a weakness in many corporate environments, where the emphasis is placed on performance and success. Leaders and employees alike may hesitate to show vulnerability, whether by admitting mistakes or seeking feedback, fearing it will damage their professional reputation. This misconception creates a barrier to psychological safety, as employees may avoid exploring new ideas or experimenting with unconventional solutions. To overcome this, leaders must foster a culture where vulnerability is seen as a strength that fosters trust, transparency, and collaboration, which ultimately drives innovation. Finally, fear of failure remains one of the most significant challenges to creating a psychologically safe workplace. In many organizations, failure is stigmatized, and employees may be penalized for not meeting expectations. This environment discourages risk-taking and experimentation, both of which are essential for innovation. To address this challenge, organizations need to reframe failure as an opportunity for learning and growth, where mistakes are seen as valuable lessons that contribute to future success. By cultivating a growth mindset and removing the fear of failure, organizations can create an environment that encourages employees to innovate and take calculated risks without fear of negative consequences. In conclusion, while cultivating psychological safety presents several challenges, addressing organizational resistance, cultural barriers, misconceptions about vulnerability, and fear of failure is essential for fostering a culture of innovation. By actively addressing these issues, organizations can create an environment that promotes creativity, risk-taking, and collaboration—key ingredients for long-term success.

Conclusion

Psychological safety is essential for fostering innovation in the workplace. When employees feel psychologically safe, they are more likely to engage in behaviors like creative thinking, risk-taking, collaboration, and learning from failure—key components for driving continuous innovation. HR practices such as leadership development, inclusive recruitment, and feedback systems are critical in promoting a culture of psychological safety, trust, and open communication. However, cultivating psychological safety presents challenges, including organizational resistance in hierarchical or competitive environments, cultural barriers around authority or failure, and misconceptions about vulnerability. Despite these obstacles, the benefits—higher employee engagement, creativity, and collaboration—outweigh the challenges. Organizations that support psychological safety are better equipped for adaptation, as employees are more willing to experiment and learn from mistakes, fueling continuous improvement. Ultimately, psychological safety is a critical factor for long-term success. It enables organizations to innovate, adapt, and stay competitive. Leaders must model behaviors that reinforce psychological safety, such as openness, vulnerability, and a commitment to learning. By addressing challenges and implementing supportive HR practices, organizations can unlock the full potential of their employees, ensuring sustainable growth and success in a dynamic business environment.

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The Role of Loneliness and Personality Traits in Shaping Parasocial Relationships: A Correlational and Regression Analysis

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Abstract

Parasocial relationships are one-way emotional bonds an individual develops with media celebs-a function of psychological factors like loneliness and personality characteristics influence the individual's development of PSRs. These kinds of connections are becoming all the more common in the digital culture where media exposure and a flow of virtual information can create deep psychological connections with virtual media celebrities. The research focuses on loneliness in the association of personality traits with parasocial relationship intensity in the youth, using standardized assessments including PRISM scale, measuring parasocial relationships; UCLA Scale to measure loneliness, and Big Five Inventory to evaluate the personality traits. This study builds on prior findings that highlight the role of social isolation and personality in forming parasocial bonds, offering new insights into how individual differences shape the development of these PSRs. It is important to characterize how psychological traits interact with PSRs to gain insight into the intricate dynamics that digital media creates. Consequences of the findings of our study underline the importance in developing interventions that can reduce the detrimental impact of PSRs on mental health. Digital literacy campaigns can also empower individuals to identify and manage their media usage, thus enabling more benign behavior in relation to virtual people. Therapeutic interventions, especially for those with high neuroticism, should be oriented toward adaptive insight for emotion regulation—that is, that replace overdependence on PSRs as a defence against stress.

Keywords: Parasocial relationships, loneliness, personality, media impact, mental health, young adults

INTRODUCTION

Parasocial relationships (PSRs) are one-sided, distinct emotional bonds that people form with celebrities, influencers, or fictitious characters. These relationships, which emerge when in-person contact is not feasible but usually provide emotional needs through closeness, were first put forth in 1956 by Horton and Wohl. Because digital platforms have developed so quickly, PSRs have grown increasingly common, especially among young people whose media exposure has significantly increased (Bond, 2016). When real-world social networks are insufficient, loneliness often contributes to the formation of PSRs by making people seek companionship through virtual connections (Rubin et al., 1985). In these circumstances, media figures provide a sense of emotional closeness and consistency. Additionally, personality traits have a significant role in influencing the strength of these bonds. According to Cohen and Hershman-Shitrit (2017), those who are more introverted or neurotic, for example, may be more likely to acquire severe PSRs as a coping mechanism for stress or emotional problems. These personality traits increase the likelihood that people may seek comfort in parasocial relationships since they provide emotional stability without the risks of face-to-face interactions. McCrae and Costa (1999), discovered that those with high agreeableness and commitment scores typically produce less dependent and healthier PSRs. These characteristics point to a more fulfil approach to media connections when PSRs and in-person social interactions coexist.

The emergence of social media has significantly enhanced these relationships. Instagram and TikTok make it feel like we're closely connected to celebrities, giving us a unique peek into their lives. While these interactions can offer brief emotional comfort, Stever (2013) points out that they might also lead to overdependence, social withdrawal, and unrealistic expectations about relationships. This study examines how young individuals' parasocial relationship (PSR) strength, personality attributes, and loneliness interact. It aims to determine how these variables interact and affect mental health outcomes using valid measures such the UCLA Loneliness Scale, the PRISM Scale, and the Big Five Inventory.

Over time, research has expanded on this understanding, demonstrating that PSRs can offer emotional support and companionship (Giles, 2002). In recent years, we have learned more about the psychological and social aspects of PSRs, particularly how they affect personality traits, social media participation, and loneliness.

Recent research like those by Derrick (2023) and Neuroscience Of (2024) support the notion that PSRs act as an emotional buffer for people who are lonely, providing a stable and safe emotional bond that makes up for the absence of in-person social connections.

Bond (2016) found that these platforms confuse parasocial and real-world interactions by allowing fans to interact with celebrities in real time. Recent research shows that media stars' regular use of social media reinforces these one-sided emotional attachments by giving the impression of a kind relationship (Journal of Media Studies, 2023).

Teenagers and young adults are especially susceptible to developing intense PSRs because to their developmental stage and heavy media consumption, which increases the possibility of these connections. Young adults seeking emotional validation and affiliation often turn to media superstars to meet their emotional demands (Valkenburg and Peter, 2011). The amount of media exposure during this developmental stage is crucial in the development of PSRs, which serve as a system of emotional support and a socially analogous instrument.

There are also gender disparities in how people create and sustain PSRs. Women are more prone to create emotional PSRs, often seeking emotional support and connection, while men are more likely to develop relationships based on admiration (Tukachinsky and Stever, 2019). Gender determines the type of PSR people create and the type of emotional relationships they have with public leaders, according to these differences.

Cultural settings also affect the creation and repair of PSR. Schramm and Hartmann (2008) investigated the idea that communal cultures typically had more intense PSRs, possibly as a result of their increased emphasis on community and interpersonal interactions. This cultural difference suggests that PSRs are not only a product of individual psychological traits but also have an impact on broader society and cultural issues.

Parasocial relationships (PSRs) can really affect our emotional and mental health. They offer a feeling of connection and a safe way to cope with stress and anxiety (Giles, 2002). But if we rely too much on these one-sided connections, it can lead to isolation and dependency, making it harder to grow in real-life relationships. While they offer emotional comfort, it’s important to maintain a balance between virtual connections and real-world relationships to ensure overall well-being (Stever, 2013).

Dibble et al. (2016) developed the PRISM scale, which has made it easier to quantify PSRs and offers important information about the frequency and severity of PSRs. The growing focus on how PSRs influence mental health and well-being has led to significant progress in understanding their psychological aspects. The emergence of virtual celebrities and digital influencers has further complicated the dynamics of these relationships.

As Rihl and Wegener (2019) point out, these virtual influencers—who aren't based on real people—challenge traditional ideas of PSRs. As AI continues to transform the media ecosystem, it is increasingly important to understand how digital personas impact the development and robustness of PSRs, especially among young individuals. To address the issues surrounding PSRs, researchers have provided practical solutions. According to Lather and Murgai (2020), digital literacy campaigns are required to raise awareness and promote offline interactions. Better media habits and stronger interpersonal interactions are the goals of these programmes.

OBJECTIVES

1. To assess the impact of loneliness on parasocial relationship intensity: Examine whether loneliness contributes to the onset and severity of parasocial relationships in young adults.

2. To evaluate the influence of personality traits on parasocial relationships: Investigate how the Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) predict the intensity of parasocial relationships.

3. To explore neuroticism as a significant factor in parasocial relationships: Analyze the role of neuroticism in fostering stronger or more maladaptive parasocial bonds as a coping mechanism for emotional distress or stress.

HYPOTHESIS

1. Young adults who experience greater loneliness are more prone to develop stronger parasocial bonds with celebrities.
2. Young adults with particular personality traits, such as neuroticism, have higher PSRs.
3. Individuals with higher levels of neuroticism are more likely to employ PSRs as a coping strategy for stress or emotional distress.

4. More exposure to virtual influencers and celebrities may worsen PSRs and have negative impacts on mental health, such as increased feelings of loneliness and anxiety.

METHODOLOGY

Participants

The participants were 104 in between the age group of 18 to 30 years. The sampling method followed is simple random sampling. Responses have been gathered using Google Forms, and consent has been obtained from all of them. In total, females were 83 and males were 21.

Instruments

i. Loneliness Scale : The UCLA Loneliness Scale, developed by Russell, Peplau, and Cutrona in 1978, ranks as one of the most popular instruments for measuring subjective experience of loneliness and social exclusion. It assesses the occurrence of self-reported experiences using self-report items rated on scales ranging from 1 to 5 (1 denotes a not-at-all-disturbed experience and 5 a very-disturbed experience). Revised versions (Russell et al., 1980; Russell, 1996) increased its reliability and generalizability across a range of populations and cultural contexts, thereby increasing its applicability in psychological research and clinical practice.

ii. The Big Five Personality Inventory: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Because of its concision and clarity, the BFI is very dependable and has been used frequently in research and clinical applications to compare personality differences among populations and cultures (John et al., 1991).

iii. Parasocial Relationships on Social Media: Using the theoretical lens of Schramm and Hartmann (2008), the Parasocial Relationships in Social Media (PRISM) Scale aims to assess the level of one-way attachments individuals cultivate towards social media influencers. It uses a Likert scale to measure emotional attachment, perceived intimacy, and identification. The PRISM Scale is also increasingly in applied research to describe parasocial relationships more fully as related to impacts on user actions, users' self-perceptions, and users' mental status in the realm of social media (Schramm Hartmann, 2008).

Procedure

Google Forms was used to collect data in the study. Informed consent was obtained from all subjects at the survey's start. The choice of method was simple random, in that the survey link was emailed within the platform (i.e. Whatsapp), for the first few study participants were told to forward it to otherâ€¯people. On top of this, the survey was posted on the net and some other social media (e.g., Instagram) which twice broaden the number of reach and respondents. People were also contacted personally and were given the link to the survey. Reminders were via WhatsApp and social media on a consistent basis to improve response rate. All answers were automatically recorded by the use of Google forms and securely recorded. They were exported at periodic times to a secure database for exploitation and confidentiality and integrity of data were guaranteed to the end of the study. The research complied with ethical standards and comprised voluntary participation, informed consent, and the right to withdraw at any time, without penalty.

Table 1.1

Descriptive Statistics for Parasocial Relationships, Loneliness, and Personality Traits

The descriptive statistics provide insights into the central tendency (mean) and variability (standard deviation) of the study's key variables: parasocial relationships, loneliness, and the Big Five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness).

	Mean	Std. Deviation	N
Parasocial	63.98	16.357	104
Loneliness	49.48	8.930	104
Extraversion	6.10	1.710	104
Agreeableness	7.23	1.572	104
Conscientiousness	6.22	1.314	104
Neuroticism	6.48	1.718	104
Openness	6.51	1.520	104

Table 1.1 presents the descriptive statistics of the key variables, highlighting notable variability across measures. The mean score for parasocial relationships (M = 63.98, SD = 16.357) indicates moderate variability, reflecting individual differences in the intensity of emotional

attachments to media figures. According to Attachment Theory (Bowlby, 1982), such variability may arise from differences in attachment styles, with individuals who exhibit insecure or anxious tendencies seeking emotional fulfillment through parasocial bonds. Loneliness (M = 49.48, SD = 8.93) also demonstrated significant variation, consistent with Social Connection Theory (Baumeister & Leary, 1995), which posits that feelings of social isolation drive individuals to seek alternative connections, including parasocial relationships, to fulfill psychological needs like belongingness. Similarly, neuroticism (M = 6.48, SD = 1.718) exhibited high variability, suggesting that emotional instability significantly influences susceptibility to intense parasocial bonds. Stress Generation Theory (Hammen, 1991) supports this finding, suggesting that neurotic individuals amplify their stress and are more likely to rely on parasocial relationships as coping mechanisms, a relationship further corroborated by Cohen and Hershman-Shitrit (2017).

Table 1.2

Correlation Coefficients for Parasocial Relationships, Loneliness, and Personality Traits

****p<0.01,*p<0.05**

Table 1.2 presents the correlations among parasocial relationships, loneliness, and personality traits.

		Parasocial	Loneliness	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Pearson Correlation	Parasocial	1.000	-.005	.033	-.140	-.049	.065	.023
	Loneliness	-.005	1.000	-.280	-.137	-.159	.309	-.057
	Extraversion	0.33	-.280	1.000	.021	.025	-.069	.041
	Agreeableness	-.140	-.137	.021	1.000	.125	-.074	-.001
	Conscientiousness	-.049	-.159	.025	.125	1.000	-.168	.235
	Neuroticism	0.65	.309	-.069	-.074	-.168	1.000	.058
	Openness	.023	-.057	.041	-.001	.235	.058	1.000
Sig. (1-tailed)	Parasocial	.	.479	.368	.078	.309	.257	.410
	Loneliness	.479	.	.002	.083	.054	.001	.283
	Extraversion	.368	.002	.	.418	.401	.244	.341
	Agreeableness	.078	.083	.418	.	.102	.228	.496
	Conscientiousness	.309	.054	.401	.102	.	.044	.008
	Neuroticism	.257	.001	.244	.228	.044	.	.280
	Openness	.410	.283	.341	.496	.008	.280	.
N	Parasocial	104	104	104	104	104	104	104
	Loneliness	104	104	104	104	104	104	104
	Extraversion	104	104	104	104	104	104	104
	Agreeableness	104	104	104	104	104	104	104
	Conscientiousness	104	104	104	104	104	104	104
	Neuroticism	104	104	104	104	104	104	104
	Openness	104	104	104	104	104	104	104

The relationship between parasocial relationships and loneliness was weak and non-significant (r = -0.005), suggesting that loneliness alone does not directly predict parasocial relationship intensity. This finding is consistent with Self-Determination Theory (Deci & Ryan, 1985), which highlights the moderating role of intrinsic psychological needs, such as autonomy and competence, in the development of parasocial bonds. In contrast, a strong positive correlation was observed between parasocial relationships and neuroticism ($r = 0.65$, $p < 0.01$), supporting the Displacement Hypothesis (Katz et al., 1973), which posits that emotionally unstable individuals are more likely to form parasocial bonds as substitutes for real-life social interactions. Openness to experience showed a weak and non-significant correlation with parasocial relationships ($r = 0.023$), consistent with previous findings (Hartmann et al., 2008) that emotional regulation, rather than novelty-seeking or intellectual engagement, drives the formation of parasocial connections

Table 1.3

Regression Analysis: Predictors of Parasocial Relationship Intensity

Model	R	R Square	Adjusted R Squre	Std. Error of the estimate	Change Statistics				
					R Square Change	F Change	df1	df2	SigF Change
1	.163[a]	.027	-.034	16.629	.027	.443	6	97	.849

a. Predictors (Constant), Openness to experience, Agreeableness, Extraversion, Neuroticism, Conscientiousness, Loneliness
b. Dependent Variable: Parasocial

The regression analysis summarized in Table 1.3 provides insights into the predictive power of loneliness and personality traits on parasocial relationship intensity. The overall model was non-significant ($F = 0.443$, $p = 0.849$), with predictors accounting for only 2.7% of the variance ($R^2 = 0.027$, Adjusted $R^2 = -0.034$). These results suggest that while individual predictors like neuroticism are strongly associated with parasocial intensity, the combined influence of loneliness and the Big Five traits is insufficient to explain its complexity. This aligns with the Uses and Gratifications Theory (Rubin et al., 1985), which emphasizes the diverse motivations—such as escapism, validation, and entertainment—underpinning parasocial behaviors. The low explanatory power underscores the need to incorporate media-related factors, such as content type and exposure frequency, into predictive models, as suggested by Media Dependency Theory (Ball-Rokeach & DeFleur, 1976)

Table 1.4

ANOVA[a] Results for Parasocial Relationships by Demographic Variables

Model	Sum of squares	df	Mean Square	F	Sig.
1.Regression	734.345	6	122.391	.443	.849[b]
Residual	26823.617	97	276.532		
Total	27557.962	103			

a. Dependent Variable: Parasocial
b. Predictors: (Constant), Openness, Agreeableness, Extraversion, Neuroticism, Conscientiousness, Loneliness

Table 1.4 reports the ANOVA results for parasocial relationship intensity, loneliness, and personality traits across demographic variables. High within-group variance (26,823.617) relative to between-group variance (734.345) indicates that unmeasured individual differences play a significant role in determining parasocial intensity. The lack of significant gender differences ($F = 0.443$, $p = 0.849$) supports prior findings by Tukachinsky and Stever (2019), who reported comparable parasocial tendencies across genders, though with qualitative differences in the nature of these bonds (e.g., emotional connections vs. admiration-based relationships). These results suggest that the psychological mechanisms driving parasocial relationships are largely universal, transcending demographic distinctions. Future studies should investigate other moderating variables, such as cultural norms and socioeconomic status, to further unpack the nuanced dynamics of parasocial bonds.

RESULTS AND DISCUSSION

The present study investigated the relationships among parasocial relationship intensity, loneliness, and personality traits, with a focus on the Big Five personality dimensions. The findings provide insights into the predictors of parasocial relationships and highlight the complexity of these psychological phenomena.

Parasocial Relationships and Loneliness

The descriptive statistics (Table 1.1) indicated moderate variability in parasocial relationship (PSR) intensity ($M = 63.98$, $SD = 16.357$), suggesting individual differences in the emotional bonds participants form with media figures. According to Attachment Theory (Bowlby, 1982), individuals with insecure or anxious attachment styles are more likely to seek emotional stability through PSRs, which offer a sense of consistency and safety without the demands of reciprocal interaction. Stever (2013) further emphasizes that PSRs are particularly appealing to those who lack robust real-world social connections, acting as compensatory mechanisms for unmet attachment needs.

Despite the theoretical connection between loneliness and PSRs, the correlation analysis (Table 1.2) revealed a weak and non-significant relationship between the two variables ($r = -0.005$). This finding is contrary to prior research suggesting that loneliness is a primary driver of PSRs (Rubin et al., 1985). One possible explanation for this discrepancy lies in the moderating influence of intrinsic psychological needs, as proposed by Self-Determination Theory (Deci & Ryan, 1985). This theory posits that while loneliness creates an initial predisposition for PSRs, the strength of these relationships may depend on additional factors such as autonomy, competence, and relatedness. Furthermore, the weak association may reflect the diverse strategies individuals use to cope with loneliness, with some turning to PSRs while others engage in alternative coping mechanisms such as socializing or seeking professional support.

Neuroticism and Parasocial Relationships

A strong positive correlation was observed between neuroticism and PSR intensity ($r = 0.65$, $p < 0.01$), underscoring the significant role of emotional instability in driving these relationships. This finding aligns with the Stress Generation Theory (Hammen, 1991), which suggests that individuals high in neuroticism are prone to self-amplifying stress and are more likely to adopt maladaptive coping strategies, including forming intense PSRs. Cohen and Hershman-Shitrit (2017) reported similar findings, noting that neurotic individuals often rely on PSRs to fulfill their need for emotional security while avoiding the complexities and risks associated with real-life relationships.

From a theoretical perspective, the Displacement Hypothesis (Katz et al., 1973) further explains this relationship, suggesting that neurotic individuals replace real-world social interactions with PSRs, as these one-sided bonds are less demanding and offer a controlled environment for emotional regulation. Giles (2002) also highlighted the role of PSRs as a form of emotional buffering, providing stability for those with heightened emotional reactivity.

The Role of Other Personality Traits

The results showed weak or non-significant correlations between PSRs and other Big Five traits, including openness ($r = 0.023$) and agreeableness ($r = -0.14$). These findings suggest that while emotional regulation is a critical factor, traits related to intellectual curiosity (openness) and interpersonal harmony (agreeableness) have limited influence on the intensity of PSRs. This aligns with research by Hartmann et al. (2008), which found that PSRs are primarily motivated by emotional needs rather than by curiosity or social conformity. Moreover, agreeableness may play a more prominent role in real-life social interactions, where reciprocity and empathy are required, rather than in the context of one-sided parasocial bonds.

Regression Analysis: Predictors of Parasocial Relationships

The regression analysis (Table 1.3) revealed that the combination of loneliness and personality traits accounted for only 2.7% of the variance in PSR intensity ($R^2 = 0.027$, Adjusted $R^2 = -0.034$), and the overall model was non-significant ($F = 0.443$, $p = 0.849$). These findings highlight the limitations of using only these variables to predict PSRs, emphasizing the multifaceted nature of these relationships. While neuroticism emerged as a significant individual predictor, the weak explanatory power of the overall model underscores the importance of integrating additional variables into future analyses.

The Uses and Gratifications Theory (Rubin et al., 1985) provides a valuable framework for understanding these findings, suggesting that PSRs serve diverse motivations such as escapism, entertainment, and self-validation. For instance, individuals may engage with media figures not solely due to loneliness or personality traits but also as a response to media content that resonates with their personal experiences or aspirations. Media Dependency Theory (Ball-Rokeach & DeFleur, 1976) further supports this perspective, emphasizing the role of external media-related factors—such as the frequency and type of content consumption—in shaping parasocial bonds.

ANOVA Results: Demographic and Within-Group Variability

The ANOVA results (Table 1.4) demonstrated high within-group variance (26,823.617) relative to between-group variance (734.345), indicating that individual differences beyond the measured predictors contribute significantly to PSR intensity. The lack of significant gender differences ($F = 0.443$, $p = 0.849$) aligns with prior research by Tukachinsky and Stever (2019), which found that while men and women may form qualitatively different types of PSRs (e.g., admiration-based vs. emotionally supportive), the overall intensity of these relationships remains comparable across genders.

The absence of significant gender differences suggests that the psychological mechanisms underlying PSRs are largely universal, transcending demographic distinctions. However, cultural norms and societal expectations may influence the nature and implications of these bonds. For instance, Schramm and Hartmann (2008) found that collectivist cultures often exhibit more intense PSRs due to their emphasis on interpersonal connectedness, whereas individualist cultures may prioritize admiration and personal aspiration.

Implications for Theory and Practice

The findings of this study contribute to a growing body of literature on parasocial relationships, offering both theoretical and practical insights. The strong association between neuroticism and PSRs underscores the importance of addressing emotional instability in interventions aimed at reducing reliance on these one-sided bonds. Therapeutic approaches should focus on enhancing emotional regulation and promoting adaptive coping mechanisms, as suggested by Cohen and Hershman-Shitrit (2017). Cognitive-behavioral therapy (CBT) may be particularly effective in helping individuals recognize and modify the thought patterns that drive maladaptive PSR formation.

Media literacy programs also hold promise as tools for mitigating the negative effects of PSRs. By teaching individuals to critically evaluate media content and recognize the curated nature of celebrity portrayals, these programs can reduce unrealistic expectations and foster healthier media consumption habits. This approach aligns with recommendations by Lather and Murgai (2020), who advocate for digital literacy campaigns as a means of promoting balanced media use and encouraging offline social engagement.

Limitations and Future Directions

While this study offers valuable insights, several limitations should be acknowledged. The reliance on self-reported measures may introduce bias, as participants may underreport or overreport their levels of loneliness or PSR intensity. Future research could address this limitation by incorporating objective measures, such as behavioral tracking of media consumption patterns. Additionally, the study's cross-sectional design precludes causal inferences, leaving open questions about the directionality of the relationships observed.

Future studies should also explore the role of media-specific variables, such as content type and relatability, in shaping PSRs. For example, the extent to which individuals identify with a media figure's values or experiences may amplify the intensity of these bonds. Cultural and socio-economic factors should also be investigated, as these variables may moderate the impact of personality traits and loneliness on PSRs.

CONCLUSION

The present study highlights the intricate interplay between personality traits, loneliness, and parasocial relationships, emphasizing the critical role of neuroticism in driving these bonds. While loneliness was not a significant predictor of PSR intensity, the findings underscore the importance of considering broader motivational and contextual factors in understanding these relationships. By integrating theoretical frameworks such as the Displacement Hypothesis and the Uses and Gratifications Theory, this study offers a nuanced perspective on the psychological dynamics of PSRs. Future research and interventions should adopt a holistic approach, addressing both individual differences and media-related factors to promote healthier interactions with media figures and mitigate the potential negative effects of parasocial relationships.

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"Social Media as a Stress Coping Mechanism: The Hidden Cost of Digital Escapism and Growing Obsession"

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Abstract

This era of social media has already infiltrated daily life, making many people seek these means of dealing with stress, where it's believed to provide relaxation and emotional support. However, the more time spent on social media may not achieve the expected reduction in stress, but rather increase it. This study delves into the paradox of using social media as a stress management tool and explores the psychological impact of prolonged engagement, social comparison, and pressure to maintain online personas. The research highlights how platforms designed to connect instead foster anxiety, loneliness, and addictive behavior. This meta-analysis aims to explore the developing fixation with social media and its link to increased stress, reduced actual life social interactions, and mental wellness. The ethical considerations pertaining to data privacy and emotional manipulation are also included in this meta-analysis. The study concluded that although social media seems to provide short-term relief and distraction, it increasingly generates stress and mental illness conditions, which call for critical thinking to reassess its importance in modern stress management. This study provides insights into the complex relationship between digital escapism and emotional well-being in the digital age.

Keywords: Social media use, perceived stress management, unhealthy coping mechanism, perceived emotional support

Introduction

The significant number of social media platforms, for example, Instagram, have become a regular part of our lives over the years, and people turn to them in order to communicate and reduce stress. Therefore, social networking sites have formed a platform through which individuals can easily fantasize or have a break from reality. New research has it that while the platforms offer some relief, they might be detrimental to the health of users showing increased use can worsen symptoms of concern, loneliness and low self-esteem.

The PIU in turn or problematic interaction with the internet can be described as an interaction with Internet-based media that is not controllable and consumes time to the extent that basic tasks are neglected. It is a negative behaviour since it attracts a host of harms, which include social exclusion, academic underachievement, and possibly poor health. Another subset of PIU is social networking dependency in which the users use the internet for comfort while avoiding face-to-face communication and even utilization of problem solving skills . As today's teenagers and young people increasingly resort to social networking sites to alleviate stress this has become a major concern in public health.

And studies show that pathologic users of Internet as well as other platform users often tend to use the Internet especially the Social Networking Sites for coping styles that are maladaptive in dealing with issues and emotions. Instead of decreasing stress, this sort of digital escape can only delay actual-life problems and even aggravate psychological discomfort that leads to unfavorable mental effects.

Moreover, social media addiction affects people's emotional and cognitive performances through such social processes as social comparison. In these platforms, there is common practice by the users where they always compare themselves with the role models. Suffering from anxiety, low self-esteem and IINs (Inadequacy Imposter Image), many people get trapped in the cycle of social network addiction due to negative emotions that result from the VIE (Virtual Image Establishment) – REAL life divergence.Attitudes and emotional reactions stimulated by shell pictures lead to deeper involvement and spend-time increases.

The idea of utilization of media is particularly destructive for teenagers and young adults, whose coping skills are still under construction. From research done it is evident that social network sites offer a gripping release for those who feel uncomfortable or pressured. Evidently, routine execution of this conduct undermines the capacity for constructive coping strategies. Stress isn't tackled directly but rather dealt with through distractions that afford a brief period of relief than going to the root of the problem that causes stress.

Social media has grown rapidly and a vast part of the population have been affected in their interacting and communicating styles and the way they deal with stress. Although the purpose of utilizing SM was to support communication and teamwork, people often become addicted to it. From the point of view of psychological well-being, and cognitive functioning, high levels of engagement are often characterized by the patterns observed in behavioural and substance use disorders (Andreassen et al., 2012). The continuously repeated pattern of scrolling and the intermittent variable cues like, likes and comments lead to compulsive use which creates ambiguity between use and abuse (Kuss & Griffiths, 2017).

Same as other forms of addiction, social media addiction mainly occurs due to the ability of social media to exploit the brain reward system. A study shows that with the social rewards expectation, the mesolimbic reward system, ventral tegmental area, and nucleus accumbens in the brain are activated (Volkow et al., 2011). These areas are related as well as they pertain to drug use disorders having same neural circuit connection. By these, the addictive loop becomes more closed by the 'hit' of satisfaction the users get from positive social media feedback reminiscent of entailing drug consumption (Montag et al., 2019).

In particular, addicts receive signals in parts of the brain that are necessary for regulating emotions and decision making as well as the reward system. In constant users of social media, there is the low activation of the prefrontal cortex, which is accountable for impulse control alongside, and reasoning (Brand et al., 2019). This reduced function accords with the findings in drug addiction where prefrontal activation is impaired leading to obsessional behaviour. There is another study that supports the mood regulation hypothesis for involvement with SNSs because, in addition to greater activation of the amygdala to angry and sexual stimuli, compulsive use seems to be related to the ability to control emotions (Turel et al., 2014).

In today's world, people find social media as an irresistible distraction for anyone with stress or any emotional disturbance. But such avoidant coping shifts the activity of the brain that is related to self-state and desire, which is mediated by the interoception (Li et al., 2019). It is also avoided, and when such access is blocked, withdrawal-like symptoms are associated with increased insular activity like the case of most drug addiction, hence affecting the neurological link between both illnesses (Zhou et al., 2020).

More connection in SMI is also found in the default mode network (DMN), which regulates self-referential and introspective processing. Two patterns that are associated with this overactivity which augment poor self-images are rumination and social comparison (Raichle, 2015). These patterns have amplified neural substrates typical of all forms of addiction since they correlate with other cognitive biases observed in other addictive disorders (Lin et al., 2012).

Facebook dependency is a type of problem behaviour in which prolonged use leads to certain structural changes in the brain.Over time, the neural circuits may become depressed requiring much more activity to achieve the same amount of pleasure from reward-based platforms. The behavioral changes were evidenced from the present results, which is similar to the tolerance effect found in drug addiction, and impacts the brain plasticity and emotion regulation of the users (Andreassen et al.,2013).

It is for this reason that even if these digital platforms could have offered a long-term solution, offering a temporary escape from the effects of an undesirable reality, such as a wearying position, these negative emotions are unavoidable: anxiety, long-term mental suffering , and dependence on the emotions stirred up by the content. The irony is that the platforms created for connection cause users to feel sadder, more anxious, and less satisfied. In the present paper, the issue at hand is examined further by analyzing the life of Priya Sharma, a 22 year old college student who uses Instagram as a coping mechanism to escape from reality. In an effort to determine the psychological impacts of protracted utilization of social media and the concern of emotions, the study focuses on her. The case study will also highlight that it is very important to have stabilised healthy coping mechanisms in the age of electronic leisure distractions.

CASE STUDY

A 22 year old media studies student, Priya Sharma went for help after she was an obsessive user of Instagram as a leisure activity to deal with stress. Priya joined a cycle of running away from life after using the app for more than six hours a day with an intensity especially high during academic pressure. Instagram was like a curious and temporary entertainment, but it generated in her more curiosity, disturbed her sleep, and intensified her feeling of insecurity. There she relied on the platform to help her deal with her emotions and that meant fewer face to face interactions and high levels of loneliness. This paper provides a real-life example of Priya in which addiction to social media instead of helping to decrease stress actually contributes to its rise.

Background Information

Instagram became a part of Priya's life back when she was in high school and for the first time she made accounts for the reasons of demonstrating her artistic skills and being friends with classmates. But once she started college, her use increased, especially when she was under pressure to perform well academically. Instagram became her main coping strategy as deadlines and societal demands increased. But this dependence on electronic escapism quickly started to backfire. Due to the fact that she could only engage with others virtually, Priya started to feel cut off from reality. Social comparisons brought on by constant exposure to well chosen Instagram material resulted in emotions of inadequacy and self-doubt. She felt more alone the more she utilized the app to avoid facing her worries.

Psychological Observations

Priya's actions demonstrated a tendency to use Instagram as a coping mechanism for stresses including interpersonal disputes and academic demands. She became exhausted and performed worse academically as a result of her increasing usage interfering with her sleep routine.Her emotional condition was greatly influenced by cognitive distortion, especially in the form of social comparison. Priya had anxiety and feelings of inadequacy as a result of frequently comparing her life on Instagram to the seemingly ideal lives of others. She described feeling disconnected and lonely even though she was interacting virtually a lot. Her stress and emotional health were further worsened by her social disengagement and disregard for her practical obligations.

METHODOLOGY

The methodology of this paper utilizes a qualitative case study design, which focuses on Priya Sharma's experience and follows her journey to understand social media addiction and its various implications. Data for analysis were synthesized from peer-reviewed literature covering psychological, neurobiological, and behavioral dimensions of extreme use of Instagram. Priya's case was analyzed in terms of thematic patterns such as social comparison, escapism, and maladaptive coping strategies, relating them to existing theoretical frameworks such as social comparison theory and neurobiological models of addiction. The study contributes to knowledge by providing context to behavior and its neural correlates based on related literature. While the analysis of one case provides density, extensiveness is lacking. The research urges the further examination of the variety of the population samples, as well as the emergence of a normative database on the dependency of social networking site use.

RESULTS

S. NO	TITLE OF THE PAPER	AUTHOR(s) AND YEAR OF PUBLICATIO N	AIM OF THE PAPER	KEY INSIGHTS
1.	Social Media Use, Stress, and Coping	Meshi, D., & Ellithorpe, M.(2022)	To explore how social media causes stress, serves as a resource, and acts as a coping	Social media can both alleviate and exacerbate stress. Effectiveness in mitigating stress depends on timing, context, and

			tool.	content.
2.	Social Networks Use as Adaptive or Maladaptive Strategy for Coping with Stress	Marino, C., Gini, G., & Vieno, A. (2023)	To examine whether social network use is adaptive or maladaptive in coping with stress and emotions.	Social networks can help alleviate stress for some users, but for those with problematic use, they worsen emotional and mental health.
3.	Social Media Use and Misuse, Stress, and the Development of Coping	Wright, M. F., & Wachs, S. (2021)	To explore how social media is linked to stress and the development of coping strategies.	Social media is both a source of stress and a coping mechanism. Individual usage patterns and differences shape its impact on mental health.
4.	Social Media Addiction, Escapism, and Coping Strategies	Boursier, V., Gioia, F., & Griffiths, M. D. (2024)	To evaluate the relationship between social media addiction, escapism, and coping strategies.	Escapism plays a mediating role between social media addiction and coping, leading to the development of addictive behaviors.
5.	Who Can Help Me? Reconstructin g Users' Psychological Journeys on Social Media	Morini, V., Citraro, S., & Riva, G. (2023)	To analyze users' psychological and linguistic profiles during depression-related social media interactions.	Social media interactions reveal varied user journeys, ranging from seeking support to expressing emotional distress, informing mental health interventions.

DISCUSSION AND ANALYSIS

The factors that require attention in psychological analysis of a learned behavior that manifests as social media addiction are illustrated in Priya's case. In this respect, applications like Instagram and other forms of social media platforms always adopt the use of content filtering mechanisms that are based on the ranking system in an effort to help capture the long attention span of the users. These algorithms make users remain on the site all day because they are constantly fed with information that encourages the action. Such findings are collaborated by Priya's experience as she noted worry to be higher with increased use of Instagram because it caused her anxiety and made her develop negative comparisons with others.

That is why the impact of social comparison on Priya's psychological state was among the most significant facets of her experience.A number of researchers stated that social media users who received well chosen information may have adverse attitudes to themselves in case they compare their lives with the pics published by other people. This made Priya's mental anguishment grow because she thought her life was less successful or interesting than that of other individuals she follows. This tendency is known as the “social comparison theory” and can greatly influence mental health leading to anxiety, despair, and chronically inadequate feelings.

The case of Instagram, which has become a distraction for Priya, is not unique because in this modern society, people turn to social and other related platforms as a way of breaking the stress. Temporary activities could help one escape reality, however, the dungeons of society’s issues are unresolved hence coming up with a loop of avoidance. Due to excessive use of Instagram, Priya failed to face her personal problems as well as university challenges directly. Maladaptive coping strategies, in which temporary diversions have long-term emotional repercussions, are typified by this avoidance habit.

The case study demonstrates how Instagram's algorithmic design, which continuously displays tailored material to encourage user involvement, feeds addiction. This cycle is consistent with studies on problematic internet usage, which show how algorithms take advantage of psychological weaknesses, including the desire for social validation, in order to maintain user focus. These processes emphasize their importance in reinforcing compulsive behaviors by paralleling reward pathways in other addictions, such as drug use (Montag et al., 2019).

The influence of social comparison, which increased Priya's stress and poor self-perception, is a significant component of her experience. Research indicates that well chosen social media posts encourage irrational expectations and self-doubt. According to social comparison theory, this tendency is especially harmful to mental health since people who are exposed to idealized representations frequently suffer from increased anxiety and depression symptoms (Andreassen et al., 2012).As seen by Priya's deteriorating mental health, the reinforcing nature of these comparisons feeds a vicious cycle of discontent.

From a neurobiological perspective, social media addiction is primarily caused by the stimulation of the brain's mesolimbic reward system. Regular usage strengthens the brain circuits linked to pleasure and the development of habits by triggering the release of dopamine. As seen by Priya's incapacity to restrict her Instagram use despite its detrimental effects, this can eventually impair executive processes including decision-making and impulse control (Volkow et al., 2011). This is consistent with research that shows obsessive digital activities are linked to prefrontal brain impairment.

Priya's dependence on Instagram as a means of escape serves as an example of the unhealthy coping strategies linked to problematic internet use. Although digital escapism provides momentary solace, it reinforces avoidance tendencies and keeps people from facing their fundamental problems.This pattern is characteristic of other more general addictions, such as behavioral one – because hedonic pleasure narrows the sphere of values, it affects one’s emotional well-being in the long term.

Pathological users of social networks have extensive adverse consequences for all society and are not just an isolated incidence with minimal impact on people’s connectedness. Less work gets done, other people are not liked as before, and meeting new people is often limited. The result of avoidance and preference for communicating through virtual contact rather than face-to-face interaction is best understood through the case of Priya. The problems of virtual contact over face-to-face relationships should serve to show the continued need for public health interventions to address this growing issue.

Effective therapies can only occur when the psychological processes that underlie thought and behavior, the neural substrates of such processes, and the effects of modern society on people are all considered. They require behavioral therapy, neurofeedback, comprehensive psychoeducation; promoting healthy attitudes and behaviour towards enhancing resilience and being informed about the fact that if the reported social media data are heavily regulated, they might lead to social comparison consequences.

As with Priya's story, this study aims to explain the multiple facets of social media addiction – psychological, neurological, and societal – when operating in harmony and conflict. Thus, the addiction can be seen as a result of algorithms, social comparison, and improper approach to dealing with everyday problems. That aside, there are certain constraints inherent in the study despite these discoveries. We cannot state that it is highly precise to have only one case study and focus only on Instagram. Further research is required and their interaction between the elements of personality and cultural background together with the presence of pre-existing mental condition.The current neurobiological findings only underscore the need for additional direct experimental research analyses of the various cognitive neural networks involved in social media.

Accordingly, future research must involve other samples and time series designs to overcome these limitations and enhance the generality of the findings. Meanwhile, measures should be derived on enhancing usage of digital platforms, effective management of stress and understanding the techniques used by social media. Eliminating the influence of social media addiction is still a problem solved through a combined effort involving behavioral therapy, neurofeedback, and psychoeducation.

CONCLUSION

Social media networks play a significant role in everyone's lives today and, in fact, people use it to deal with stress. But its over use might make a person develop PIU which means abnormal dependence on internet hosted media at the cost of regular responsibilities. Such maladaptive behaviour deepens isolation, truancy, and lack of proper academic achievement, and poor well-being. Facebook addiction leads to procrastination and deferral of issues provoking either increased stress and anxiety.

It was found out that anxiety, low self-esteem, and feelings of inadequacy that arise from social comparison which is associated with the comparison of self with that of the ideal pictures depicted in the content are some of drivers to user addiction. Social media gets hooked to the brain reward system and people get pulled into this cycle of using it as if it is the same as using a substance. Addiction is related to reduced activity of the prefrontal cortex involving impulse control capabilities and decision making while increasing ruminative thinking and social comparison through the DMN.

These effects are nicely captured by the case of Priya Sharma, a 22-year-old Instagram addict. Instagram was the main source of handling academic as well as emotional stress but as observed Priya's compulsive usage adversely affected her sleeping patterns, increased feelings of loneliness and increased self-doubts. She claimed that Instagram with its specific algorithm and the culture that society creates with the help of social media treaded on her mental well-being.

According to the research, behavioral therapy and other psychoeducation and resilience training to treat social media addiction should be launched as public health interventions. It postulates that more studies with various samples and with reference to inclinations on the neurobiology of BPD are necessary for such treatment paradigms.

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AI's Accuracy in Detecting Emotions For Risk Assessments

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Abstract

AI-based Emotion Detection Systems as Fundamental Tools in Risk Assessment Finding Application in Mental Health Monitoring and Security Operations, Work-safe The systems use the highest methodologies, including natural language processing and computer vision, and machine learning in the identification of cues from text, speech, and facial expressions. And its strengths in this domain are velocity, scalability, and the ability to understand multimodal data sources and detect consistent and accurate patterns of emotion. Its very ability to recognize the emotional distress patterns of increasing anger or sadness is quite predictive and can be applied in most fields, from workplace stress detection to early signs of mental health crises or potential aggression in enforcement scenarios. The technology is not without its limitations. Cultural and contextual biases, the intrinsic complexity of human emotions, and concerns about privacy present significant challenges. A reliance on observable emotional expressions could lead to an underestimation of them or, more probably, a misreading of others who are unusually inexpressive or are repressing emotions. Misinterpretation could lead to false positives or negatives, and so the reliability of the system in high-stakes situations would be undermined. The current limitations of AI include the continuous development of deep learning, contextual

awareness, and effective implementation of ethical AI practices. Hybrid approaches that combine both AI and human expertise provide a more balanced and effective frame for high-stakes applications. AI promises substantial improvement in emotion-based risk assessment, but its prospects will depend on robust training, ethical implementation, and how synergistic it is towards human oversight.

Keywords: AI-based Emotion Detection, Risk Assessment, Mental Health Monitoring, Security Operations, Natural Language Processing (NLP), Computer Vision, Machine Learning, Multimodal Data Sources, Emotional Cues Identification.

Introduction

Emotion detection systems, powered by advancements in artificial intelligence (AI), are revolutionizing the way we understand and interact with human emotions. By analyzing data from facial expressions, voice tone, text, and physiological signals, these systems can identify emotional states such as happiness, anger, sadness, or fear with remarkable precision. Their applications span a wide range of industries, including healthcare, security, customer service, and workplace management, where emotional insights can drive actionable outcomes and improve overall efficiency.

The increasing demand for real-time emotional insights has led to the rapid development of core technologies like natural language processing (NLP), computer vision, and machine learning (ML). These innovations have made emotion detection systems more accurate, scalable, and capable of processing vast amounts of data instantly. Despite their transformative potential, challenges such as cultural biases, the complexity of human emotions, and ethical concerns remain at the forefront, emphasizing the need for responsible implementation and continuous improvement.

This comprehensive overview explores the strengths, limitations, ethical considerations, and future prospects of emotion detection systems, shedding light on their growing role in addressing critical issues like mental health, public safety, and workplace well-being.

Functions in Risk Evaluation

Mental Health Monitoring

Emotion detection systems play a crucial role in identifying early indicators of emotional distress, such as anxiety or depression. By providing timely insights, these systems enable early interventions and personalized support, potentially improving mental health outcomes.

Security Operations

In security contexts, emotion detection systems enhance situational awareness by identifying harmful activities or emotional states like stress, anger, or dislike. This proactive approach helps mitigate risks and prevent potential incidents.

Core Technologies

- **Natural Language Processing (NLP):** Analyzes sentiment and emotional cues in speech and text to uncover underlying emotions.
- **Computer Vision:** Employs image and video data to detect facial expressions and emotions in real time.
- **Machine Learning (ML):** Recognizes patterns and improves detection accuracy through continuous learning.
- **Multimodal Data Sources:** Integrates visual, auditory, and textual data for a holistic understanding of emotional states.

Strengths of Emotion Detection Systems

1. **Velocity**:
   Emotion detection systems are designed to process vast amounts of data in real time, allowing organizations to analyze emotional responses almost instantaneously. This rapid processing capability enables businesses to respond quickly to customer feedback, adapt marketing strategies in real time, or monitor employee well-being on the spot. For instance, in customer service, these systems can instantly detect frustration or dissatisfaction, allowing for immediate intervention to resolve issues.
2. **Scalability**:
   These systems are highly adaptable, making them suitable for diverse demographic groups and industries. They can be deployed across various platforms, including social media, customer call centers, education systems, and healthcare. Scalability also means the systems can handle increasing volumes of data as an organization grows, ensuring consistent performance regardless of the workload or application. This adaptability makes emotion detection valuable in industries like retail, entertainment, healthcare, and even law enforcement.
3. **Accuracy**:
   Modern emotion detection systems leverage advanced algorithms, such as machine learning and deep neural networks, to analyze emotional patterns effectively. By combining data from multiple sources—such as facial expressions, voice tone, text analysis, and physiological signals—they deliver a more holistic and accurate understanding of human emotions. These systems can detect subtle emotional cues that might be overlooked by humans, ensuring a high degree of precision in their assessments. This accuracy is crucial for applications like mental health monitoring, where misinterpretation of emotions could have significant consequences.

Applications of Emotion Detection Systems

Mental Health Monitoring

- Facilitates early detection of mental health conditions such as PTSD, anxiety, or depression.
- Provides personalized psychotherapy recommendations tailored to individual needs.

Security Operations

- Detects potential violent or aggressive behaviors to improve situational awareness for law enforcement.
- Strengthens public safety by identifying critical emotional cues in high-risk scenarios.

Workplace Stress Management

- Identifies employees experiencing stress or challenging circumstances in the workplace.
- Develops data-driven interventions to boost well-being and enhance productivity.

Limitations of Emotion Detection Systems

1. **Cultural and Contextual Biases**:

   Emotional expressions vary significantly across different cultures and social contexts. For instance, a smile in one culture might signify happiness, while in another it could indicate politeness or discomfort. Emotion detection systems often struggle to account for these variations, leading to inaccuracies in recognizing emotions. Additionally, contextual factors, such as environment or situational nuances, can affect emotional expressions, further complicating accurate detection.

2. **Complexity of Human Emotions:**

   Human emotions are rarely straightforward. They are often layered, nuanced, and sometimes conflicting—someone might feel both joy and sadness simultaneously. Emotion detection systems, which typically categorize emotions into predefined categories like "happy," "sad," or "angry," may oversimplify these complex emotional states. This oversimplification risks overlooking the richness and depth of human emotional experiences, especially in ambiguous or mixed-emotion scenarios.

3. **Privacy Issues**:

   The collection, analysis, and storage of personal emotional data raise significant ethical and privacy concerns. Emotion detection systems often rely on sensitive inputs such as facial images, voice recordings, or text communications. Improper handling of this data could lead to misuse, unauthorized access, or breaches of privacy. Additionally, individuals may feel uncomfortable or violated knowing their emotional states are being monitored, especially in environments like workplaces or public spaces.

4. **Misinterpretation**:

   These systems are prone to errors, such as false positives or false negatives, particularly when dealing with individuals who have unique or atypical emotional expressions. For example, people with neurodivergent traits or certain medical conditions may express emotions differently, leading to inaccurate readings. Misinterpretation can have significant consequences, such as providing misleading insights or making incorrect decisions based on flawed data. This limitation underscores the importance of incorporating human oversight and continuous system improvement.

Ethical Considerations

1. **Data Privacy:** Safeguarding individuals' personal data is paramount. Systems must obtain informed consent before gathering or analyzing emotional data.
2. **Preventing Abuse:** It is essential to prevent misuse of emotion detection technologies, such as coercion or unauthorized surveillance, to uphold individual rights.
3. **Reducing Bias:** AI models should strive for fairness and inclusivity, ensuring accurate outcomes regardless of cultural, gender, or demographic differences.

Future Prospects

Advancements in Artificial Intelligence

- Improved context awareness and more sophisticated deep learning algorithms will enhance emotional analysis.
- Ethical AI practices will become integral, ensuring fairness, transparency, and consistency in system operations.

Integration in Daily Life

- Emotion detection systems are expected to see increased adoption in public safety, workplace environments, and healthcare applications.
- Integration with health apps and personal devices will enable seamless emotional monitoring in daily life.

Conclusion

Emotion detection systems represent a groundbreaking advancement in the intersection of artificial intelligence and human interaction, offering valuable insights into emotional states with applications across diverse fields such as mental health, security, and workplace management. These systems excel in velocity, scalability, and accuracy, making them a powerful tool for real-time analysis and decision-making. From identifying early signs of emotional distress to enhancing public safety and fostering workplace well-being, their potential for positive impact is vast.

However, the limitations of emotion detection systems, including cultural biases, the inherent complexity of human emotions, and ethical concerns, underscore the need for cautious and responsible implementation. Safeguarding privacy, ensuring fairness, and integrating ethical AI practices are critical to addressing these challenges and fostering trust in these technologies.

As advancements in AI continue to refine the accuracy and contextual understanding of emotion detection systems, their integration into daily life is expected to grow, driving innovations in health monitoring, public safety, and personal productivity. By combining technological sophistication with human oversight and adhering to ethical principles, emotion detection systems can evolve into a transformative force that benefits individuals and society at large.

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Dark Side of Employee Engagement: Challenges and Consequences for Workplace Well-Being

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Abstract

Employee engagement is a crucial factor in fostering a productive and positive work environment. However, the dark side of employee engagement presents potential challenges that can undermine the intended benefits of engagement initiatives. Overemphasis on engagement activities can lead to burnout, as employees may feel pressured to participate in constant, often superficial, initiatives that demand excessive time and energy. This can create unrealistic expectations around happiness and work performance, resulting in stress and disengagement. Additionally, engagement programs can sometimes be superficial, lacking authenticity, and are used by organizations as a tool for manipulation rather than fostering genuine employee well-being. The push for continuous engagement may detract from addressing underlying organizational issues such as poor management, inadequate compensation, or toxic workplace culture. Furthermore, employees might feel alienated if engagement activities are misaligned with the company's values or culture. As a result, the focus on engagement can inadvertently shift attention away from systemic problems, causing long-term disengagement despite short-term morale boosts. Organizations must strike a balance between fostering engagement and addressing core issues in the workplace. Employee engagement strategies should prioritize authenticity, employee well-being, and meaningful involvement to ensure their effectiveness and prevent potential negative outcomes.

Keywords: *Employee Engagement, Burnout, Workplace Stress, Employee Engagement, Workplace Stress, Engagement Fatigu*e

Introduction

Employee engagement has become a prominent focus in organizational development, hailed as a driver of productivity, innovation, and employee satisfaction. As workplaces evolve to prioritize employee-centric practices, engagement initiatives have grown in popularity, with companies investing heavily in activities aimed at fostering connection, loyalty, and performance. However, beneath the surface of this seemingly positive phenomenon lies a complex reality. Overly ambitious or misaligned engagement strategies can lead to unintended consequences, including employee burnout, disengagement, and workplace dissatisfaction. This paper delves into the intricate dynamics of employee engagement, exploring its potential benefits and the challenges that arise when strategies lack authenticity or alignment with organizational values. By addressing both the positive and negative aspects, this research aims to provide a holistic understanding of engagement's role in workplace well-being.

Methodology

Literature Review

This study draws upon existing academic literature, journal articles, and industry reports to examine the dual nature of employee engagement. Sources include scholarly works on engagement's psychological impact, organizational theories on workplace culture, and industry case studies addressing the consequences of engagement fatigue. The literature identifies recurring themes, such as the importance of aligning engagement practices with organizational values and the psychological toll of misaligned strategies. By synthesizing findings from multiple disciplines, this review highlights both the benefits and challenges associated with employee engagement.

Symptoms of Engagement Fatigue

Engagement fatigue is becoming an increasingly common issue in today's workplaces, yet it often goes unnoticed until it causes significant problems. It shows up as behavioral and emotional challenges like feeling drained, a drop in enthusiasm, and employees taking more time off work. These issues usually arise when engagement activities are poorly planned, placing unrealistic demands on employees without understanding their capacities or motivations.

Feeling emotionally exhausted is one of the first signs of engagement fatigue. When employees are constantly asked to participate in activities meant to increase involvement, they may start to feel overwhelmed. While these programs aim to boost morale, poorly executed initiatives can leave employees feeling overburdened and unproductive. This kind of exhaustion can affect their creativity, focus, and overall performance.

Another red flag is a noticeable decline in morale. When engagement activities don't align with employee interests or seem insincere, they often end up having the opposite effect. For example, an organization might plan regular team-building events but fail to address key workplace issues like workload or career development. Over time, employees may see these activities as shallow attempts to distract from more pressing concerns, leading to resentment instead of enthusiasm.

Increased absenteeism is another visible outcome of engagement fatigue. Employees who feel burnt out might take more time off to avoid workplace stress. This not only affects individual productivity but also impacts team dynamics and organizational efficiency. If left unchecked, absenteeism can lead to higher turnover rates, as employees seek healthier work environments where they feel genuinely valued.

To tackle engagement fatigue, organizations need to act early. Regular feedback sessions can help identify and resolve problems before they escalate. Employers should also provide options, allowing employees to choose which activities to participate in, ensuring that these initiatives feel more like opportunities than obligations.

Cultural Alignment

The success of engagement programs largely depends on how well they align with an organization's culture. When engagement efforts reflect the core values of the company and resonate with employees' beliefs, they create meaningful connections. On the flip side, poorly aligned strategies can lead to frustration and disconnect between employees and their organization.

Cultural alignment means designing activities that are not just trendy but genuinely connected to the organization's mission and the people who work there. For instance, a company that prioritizes sustainability might focus its engagement efforts on green initiatives. Employees who value the environment will feel a deeper connection to these activities, fostering a sense of shared purpose and belonging.

However, when engagement initiatives don't reflect the culture, they can cause confusion and disengagement. Imagine a workplace that champions collaboration but introduces highly competitive engagement events. Employees might feel that these activities contradict the company's values, leading to disillusionment. Similarly, programs that ignore diversity—by catering to only a specific group or interest—can unintentionally alienate parts of the workforce.

To ensure cultural alignment, organizations should take the time to understand their employees' values and preferences. Regular surveys, open conversations, and feedback sessions can provide valuable insights. When engagement programs are tailored to these findings, employees feel seen and appreciated, increasing their participation and enthusiasm.

Authenticity vs. Manipulation

One of the biggest challenges in employee engagement is distinguishing between genuine efforts and superficial ones. Authentic engagement is rooted in care and transparency, focusing on employee well-being and fostering trust. Manipulative engagement, on the other hand, is more about optics—creating the appearance of a supportive workplace without addressing deeper issues.

Authentic engagement begins with open communication. Employees are more likely to trust and participate in initiatives when they understand the purpose behind them. For instance, a company introducing flexible working hours should clearly explain how the change supports employee well-being and aligns with its broader goals. This transparency builds trust and ensures employees see these actions as genuine. Inclusivity is another hallmark of authenticity. Engagement strategies that cater to diverse needs and empower employees to have a say in shaping these programs are far more effective than one-size-fits-all approaches. Giving employees the freedom to opt in or out of activities also shows respect for their personal boundaries and preferences. Manipulative engagement, by contrast, often focuses on short-term gains or improving an organization's image. For example, hosting extravagant events without addressing systemic issues like pay disparities or toxic workplace culture can leave employees feeling undervalued. Such approaches erode trust over time, making employees skeptical of future initiatives. Another form of manipulation involves coercing employees into participation. Forcing attendance at after-hours events or penalizing those who choose not to take part undermines the purpose of engagement activities. Instead of fostering connection, such tactics breed resentment and push employees further away. To build lasting trust, organizations must prioritize authenticity in their engagement strategies. This involves a shift in perspective, viewing engagement not as a checkbox but as a meaningful part of organizational culture. Genuine initiatives, grounded in empathy and mutual respect, foster a workplace where employees feel valued and motivated to contribute.

Discussion

Employee engagement enhances collaboration, innovation, and productivity when balanced appropriately. However, excessive emphasis on engagement can blur boundaries between personal and professional lives, leading to exhaustion. Symptoms of engagement fatigue include increased absenteeism, emotional detachment, and declining morale. This fatigue often arises when engagement activities fail to resonate with employees' intrinsic values, creating a sense of disconnection. Furthermore, superficial engagement initiatives often prioritize organizational optics over employee well-being, alienating employees and fostering distrust and cynicism. Authentic engagement requires aligning activities with employees' needs and the organization's core values to ensure credibility and meaningful employee relationships.

Outcomes

When executed effectively, engagement initiatives foster innovation, strengthen communication, and improve overall job satisfaction. Employees feel valued, leading to enhanced loyalty and performance. However, overemphasis on engagement can backfire, resulting in burnout, disengagement, and heightened workplace stress. Superficial activities may undermine trust, with employees perceiving them as performative rather than genuine. Additionally, organizations focusing solely on engagement risk ignoring systemic issues such as poor leadership, inequitable pay, and toxic cultures. These underlying problems, if unaddressed, can cause long-term disengagement, despite short-term morale boosts.

Conclusion

The dark side of employee engagement highlights the necessity of balanced, authentic strategies that prioritize employee well-being over superficial metrics. By aligning engagement activities with organizational values and addressing systemic workplace issues, companies can create sustainable, productive environments. Future research should delve deeper into the intersection of engagement and psychological safety, exploring how organizations can mitigate risks while fostering meaningful connections with their workforce.

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Digital Overload: Employee Stress in the Era of Constant Connectivity

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Abstract

In today's hyper-connected world, the workplace has become a space where digital tools dominate, often blurring the line between work and personal life. This constant connectivity, while convenient, has led to a growing issue known as digital overload. Employees frequently find themselves overwhelmed by the endless stream of emails, messages, notifications, and informal digital grapevine communication—unofficial and often excessive exchanges through digital platforms—resulting in mental fatigue, emotional exhaustion, and heightened stress levels. This study takes a closer look at digital overload by analyzing existing research to understand its impact on employees' well-being, productivity, and ability to maintain a healthy work-life balance. The findings highlight how the "always-on" culture, the constant demands of digital communication, and the proliferation of grapevine communication contribute to burnout, disengagement, and workplace misunderstandings. At the same time, the absence of clear boundaries and guidelines around digital tools exacerbates the problem. The research emphasizes the urgent need for organizations to address these challenges by creating healthier digital habits. Strategies such as setting clear boundaries for after-hours communication, managing informal digital interactions, encouraging periodic breaks from technology, and fostering a culture that values employees' mental health can help reduce the strain. By prioritizing digital well-being and addressing the complexities of digital grapevine communication, organizations can create more supportive and sustainable work environments that allow employees to thrive in an increasingly digital age.

Keywords : Digital Overload, Employee Stress, Employee Well-being, Burnout, Social Media, Workplace Communication, Work Life Balance

Introduction

Technology is playing an increasingly significant role in modern life. More than three billion people worldwide had Internet connection in 2015, according to InternetWorldStats (2015). Although that number represented slightly less than half of the world's population, approximately 90% of North Americans had access to the Internet, indicating that access is more widespread in developed countries (Internet World Stats, 2015). Rapid advancements in digital technology have simplified tasks such as work, social interaction, and access to information. However, the impact of digital technology is not always positive, especially concerning employees' stress levels at work.

The recent COVID-19 pandemic has intensified workplace stressors, with burnout and digital overload emerging as critical issues. According to a 2019 Workplace Productivity Report, 87% of 1,057 surveyed office workers in the US spent an average of seven hours per day staring at screens, and over 50% reported feelings of depression or exhaustion due to digital overload. In response, the World Health Organization (WHO) formally recognized burnout as an "occupational phenomenon" in 2019, acknowledging its potential impact on health and workplace performance.

Rosen et al. (2013) define digital overload as the excessive volume of digital information and communication people encounter through various devices, such as computers, tablets, and smartphones. This continuous stream of emails, notifications, and social media posts can lead to stress, mental fatigue, and decreased productivity. Employees often experience technostress, a form of anxiety specifically linked to the use of technology, which can negatively impact their psychological health (O'Driscoll et al., 2010). Barley, Meyerson, and Grodal (2011) further highlighted that workers who spend more time managing emails feel increasingly overburdened.

In addition to digital overload, grapevine communication—unofficial and informal exchanges of information—can exacerbate organizational issues. The unregulated flow of information through digital channels often spreads rumors and misinformation, increasing workplace anxiety and misunderstandings (Bordia, 2000). Grapevine communication, coupled with digital overload, disrupts collaboration and fosters a negative work environment, leading to emotional exhaustion, stress, and burnout.

The combined effects of digital overload and grapevine communication pose significant challenges to employee well-being, productivity, and organizational culture. Addressing these issues is essential for fostering sustainable work environments. Organizations must adopt strategies such as clear boundaries for after-hours communication, effective management of informal digital interactions, and promoting mental health awareness. By prioritizing digital well-being and mitigating the negative impacts of grapevine communication, businesses can create supportive workplaces that enhance employee performance and satisfaction.

Methodology

The methodology involved reviewing of existing literature found through the Google Scholar search engine, which was used to identify relevant research papers and journal articles. This approach was useful in providing a complete understanding of the body of knowledge and existing solutions within the scope of the topic. Additionally, online published articles were examined to collect statistical data and factual insights related to the topic, ensuring that the arguments presented are grounded in credible evidence and current trends.

Key Factors Leading to Digital Overload

The expectation for employees to remain constantly reachable and responsive, even beyond standard working hours, has given rise to an "always-on" work culture (Dawson, 2024). This shift reflects a departure from traditional boundaries, where work was confined to office hours as outlined in employment contracts. In the past, employees were not accessible outside the workplace, allowing them the right to disconnect after their workday ended. Today, however, the lines between work and personal time have become increasingly blurred. Many individuals routinely check emails on personal devices outside of their designated hours, effectively making themselves available around the clock.

Employees today are bombarded with a constant stream of digital communication, from emails to instant messages and notifications, which can leave them feeling mentally drained, less productive, and more stressed. On average, professionals receive a staggering 121 emails each day, according to Venngage (Clayton, 2024). A 2022 survey of workers in the U.S. and U.K. found that most employees handle about 32 emails daily, along with over 20 chat messages, 12 phone calls, and 13 text messages (Ceci, 2024). Managing this flood of communication takes a huge chunk of time—about 2 hours and 45 minutes every day. For some, the numbers are even higher, with 14% receiving more than 50 emails daily, while 17% receive fewer than 10 (Phillips & Ellis, 2024). These figures highlight just how demanding modern workplace communication has become and the impact it’s having on employees' ability to focus and recharge.

Grapevine communication refers to the informal and unofficial exchange of information within a workplace, often taking the form of rumours, gossip, false statements, or half-truths. Unlike formal communication, it lacks structure or a defined agenda (Keka Technologies, n.d.). With the rise of digital platforms, this type of interaction has expanded significantly. Employees now engage in grapevine communication through emails, messaging apps, social media, and online forums, enabling information—whether accurate or not—to spread quickly and widely. This digital evolution has amplified the reach and influence of informal communication, making it a prominent feature of modern workplaces (Swift, 2024). For organizations, understanding and managing the dynamics of digital grapevine communication is crucial to maintaining transparency and fostering a positive work environment.

The absence of clear rules and guidelines for using digital tools can lead to significant challenges, particularly in managing their influence on mental health and work-life integration. Establishing boundaries around technology use plays a crucial role in reducing stress, anxiety, and the risk of burnout. Research and workplace trends consistently highlight the importance of creating structured limits to foster both personal well-being and professional success. In many cases, setting boundaries with technology mirrors the practice of establishing limits in other areas of life. Whether individuals are striving to maintain a healthy work-life balance or quietly disengaging from overwhelming workplace demands—a trend often referred to as "quiet quitting"—the implementation of digital boundaries serves as a protective measure. These guardrails ensure that employees can manage their mental health effectively while sustaining productivity and career development (Rachel B., n.d.) Organizations and individuals alike benefit from recognizing the importance of clear digital usage guidelines, as they create an environment where well-being and performance can coexist harmoniously.

The sheer number of digital platforms and tools employees are expected to use has become a major challenge in today's workplaces. When the 2020 pandemic forced a global shift to remote work—often called "the world's largest work-from-home experiment" (Banjo et al., 2020)—digital tools became essential for getting work done. But the explosion of these tools has added mental strain, as employees often have to stop and figure out which platform to use for each task. From company intranets to messaging apps, digital workplace tools are only helpful if everyone has access and knows how to use them. When teams rely on too many communication channels and not everyone is active on each one, it can quickly lead to confusion, duplicated efforts, and broken communication (Kaley & Rosala, 2019). Instead of simplifying work, this overload of tools often makes things more complicated, leaving employees frustrated and workflows disrupted.

Organizational Issues

Constant use of digital technology by employees may lead to work-related stress, which can have an adverse effect on their mental and physical health (Wikansari et al., 2023). Employees can communicate with clients and coworkers more quickly and effectively thanks to digital tools like social media, email, and instant messaging (Ausat & Suherlan, 2021), but they can also lead to harmful work stress (Ter Hoeven et al., 2016). According to Chen et al. (2022), stress at work can have a detrimental effect on an employee's productivity, mental and physical well-being, and overall success of the company. Furthermore, the distinction between the work and nonwork realms has become hazier due to technology (Ramarajan & Reid, 2013; Reyt & Wiesenfeld, 2015). Email, the Internet, and even social media are essential tools for business, but they also make it simple to connect with friends and family, purchase online, and engage in other non-work-related activities while at work. The majority of workers (83%) acknowledge using technology for personal purposes while at work (Cisco, 2008). Organizational issues like miscommunication, conflicts, reduced teamwork and collaboration, negative work culture, etc can occur due to effects of digital overload in grapevine communication at workplace, increasing employee stress.

Digital overload often results in fragmented and unclear communication, as employees are inundated with emails, instant messages, and notifications. When digital tools dominate workplace interactions, the likelihood of misinterpreted messages increases, leading to misunderstandings and errors (Carlson et al., 2016). Grapevine communication—informal, unregulated exchanges of information—further compounds the problem by spreading unverified or inaccurate details, creating confusion and mistrust (Bordia, 2000). Miscommunication arising from digital overload can escalate stress levels as employees struggle to make sense of inconsistent information.

Conflicts and increased workplace tension can result from the constant onslaught of digital information. Non-verbal clues like tone and facial expressions, which are crucial for determining context and intent, are frequently absent from digital communication (Byron, 2008). Interpersonal disputes may increase as a result of this ambiguity, which could be interpreted as rudeness or poor judgment. Because rumours and false information spread swiftly, grapevine communication exacerbates misconceptions by fostering animosity and mistrust among team members (Kurland & Pelled, 2000). Such disputes erode workplace harmony by causing stress and emotional strain.

Employee concentration is impacted by digital overload, which lowers output and hinders teamwork. Employees' capacity to work together efficiently is weakened when they are inundated with notifications, which results in disjointed efforts and missed deadlines (Mark et al., 2014). Additionally, grapevine communication leads to silos, where certain individuals are excluded from informal information-sharing networks, which undermines team cohesiveness and transparency (Noon & Delbridge, 1993). Ineffective collaboration can raise stress levels by causing dissatisfaction, disengagement, and low morale.

Work-life balance is disrupted by a "always-on" digital culture that creates irrational expectations and makes employees feel compelled to reply to messages outside of regular business hours (Mazmanian et al., 2013). Employees who are always connected often experience burnout and feel underappreciated and ignored. By encouraging rumours and partiality, grapevine communication worsens this bad culture and further undermines corporate morale and confidence (DiFonzo & Bordia, 2007). Employees' general well-being is impacted as a result of increased anxiety and discontent. Butts, Becker, and Boswell (2015) conducted a study on the daily intrusions of email during nonworking hours and discovered that the amount of time needed to reply to emails outside of work was linked to higher levels of anger, which in turn caused a rise in work–family conflict.

Digital technology use is sometimes unrestricted by time or location (Konca, 2022). This indicates that workers frequently feel compelled to be accessible to receive and reply to emails and messages, even when they are not in the office. As a result, workers may find it challenging to distinguish between work and leisure time. Unwanted distractions during working hours might be caused by digital technologies like social media and instant messaging (Subagja et al., 2022). Employee concentration may be hampered as a result, which could lead to lower production. Employees and the organization as a whole may suffer from job stress brought on by the use of digital technologies at work (Azzahra et al., 2022). In a business environment, work stress can reduce productivity, increase absenteeism rates, and increase employee turnover (Daniel, 2019).

Psychological Impact of Digital Overload on Employees

1. Perpetual Stress and Anxiety

The rise of an "always-on" culture, where employees feel pressured to remain constantly connected, has contributed significantly to the escalation of anxiety and stress in the workplace. With the overwhelming volume of digital communication—emails, messages, and constant notifications—employees are bombarded with information, leading to mental overload and exhaustion. The lack of clear digital boundaries increases this situation, as employees struggle to find a balance between work and personal life, making it difficult to disengage from work outside of regular hours. As a result, employees experience chronic stress, as the pressure to stay reachable at all times prevents them from mentally "switching off." This ongoing digital intrusion increases the risk of burnout, characterized by emotional exhaustion, diminished performance, and a lack of motivation. Additionally, the anxiety of potentially missing out on important communications or being judged for disconnecting only heightens feelings of inadequacy and insecurity, making it even harder to maintain a healthy work-life balance.

2. Reduced Team Cohesion and Isolation

The combination of informal digital grapevine communication and the increased usage of digital tools has significantly undermined team cohesion and fostered isolation within the workplace. The spread of rumours and misinformation through unregulated digital channels breeds distrust and division, leading to a fragmented work environment. Additionally, the overuse of multiple communication platforms has created silos, where certain individuals become excluded from key discussions and information, leaving them feeling disconnected and out of the loop. This exclusion contributes to a sense of social isolation, weakening collaboration and engagement among team members. The resulting miscommunication and lack of clarity from both digital tools and the grapevine further exacerbate feelings of alienation, making employees feel disconnected from their colleagues and the broader organizational mission. As misunderstandings and conflicts increase, trust erodes, leading to a decline in team morale. This breakdown in communication and cohesion not only weakens relationships but also lowers the overall sense of camaraderie, resulting in diminished productivity and heightened stress across the team.

3. Decreased Productivity and Work Engagement

The overwhelming volume of digital communication, coupled with the lack of clear boundaries around technology use and the pervasive "always-on" culture, has led to a significant decline in productivity and work engagement. Constant notifications, emails, and instant messages continuously disrupt employees' workflows, making it increasingly difficult to focus on important tasks. The inability to set clear limits on when and how digital tools should be used further exacerbates the issue, as employees struggle to balance work and personal life, leading to a drop in overall productivity. The psychological impact of these constant interruptions manifests as decreased motivation and engagement, as the unrelenting influx of tasks and communications leads employees to feel overwhelmed and detached from meaningful work. As their attention is constantly fragmented, cognitive overload sets in, impairing concentration and making it harder to complete tasks efficiently. This sense of frustration and helplessness, stemming from the chaotic and disjointed nature of digital communication, undermines employees' ability to perform at their best, ultimately resulting in diminished work performance and a decline in overall engagement.

4. Work-Life Imbalance and Personal Strain

The prevalent "always-on" culture, combined with a lack of clear digital boundaries, has significantly contributed to work-life imbalance, causing employees to struggle with disconnecting from work during their personal time. As digital tools continue to increase, they not only create distractions during non-work hours but also blur the lines between work and leisure, making it harder for employees to truly disengage from work. This constant pressure to remain accessible for work-related tasks outside of regular working hours leads to increased work-family conflict, where personal relationships are strained and emotional distress heightens. The inability to achieve a healthy balance between work and personal life often results in decreased job satisfaction, as employees feel resentful and dissatisfied, losing a sense of control over their own time. Prolonged exposure to digital overload compounds these issues, leading to burnout, emotional exhaustion, and a decline in overall well-being. As employees become mentally and physically drained, their productivity suffers, and their mental health deteriorates, further exacerbating the challenges they face in both their personal and professional lives.

Discussion

The findings underscore the significant impact of digital overload on employees' psychological well-being, workplace dynamics, and overall productivity. The "always-on" culture, excessive digital communication, and lack of clear boundaries exacerbate stress, anxiety, and burnout, leaving employees unable to mentally disengage from work. Furthermore, informal digital grapevine communication amplifies these challenges by spreading misinformation, creating misunderstandings, and reducing team cohesion. The overuse of digital tools leads to fragmented workflows, duplicated efforts, and decreased productivity, further straining employees' mental health and reducing engagement.

The psychological toll of digital overload manifests in perpetual stress, isolation, and an inability to maintain a healthy work-life balance. Employees experience reduced trust, increased conflict, and a weakened sense of camaraderie within teams, leading to disengagement and dissatisfaction. This imbalance not only affects individual well-being but also undermines organizational performance, as employees struggle to remain focused, motivated, and productive in the face of constant connectivity.

Implications

The implications of digital overload and informal grapevine communication in the workplace are far-reaching, necessitating targeted interventions by both organizations and individuals. To curb the challenges posed by informal grapevine communication, organizations must establish transparent communication channels and actively promote a culture of trust. Implementing clear policies on acceptable digital interactions and providing regular training on effective communication can minimize misinformation and rumours. Tools like anonymous feedback mechanisms can also help address employees' concerns constructively. Reducing digital overload requires a strategic approach, such as limiting the number of communication tools in use, setting boundaries for after-hours digital communication, and encouraging the prioritization of tasks to avoid unnecessary multitasking. Organizations can promote employee well-being by introducing "tech-free" periods (Bawden & Robinson, 2009), encouraging regular breaks, and fostering a culture that respects employees' right to disconnect outside work hours. At an individual level, employees can take proactive steps, such as setting personal boundaries for digital tool usage (Newport, 2019), prioritizing tasks effectively, and practicing mindfulness to manage stress. Organizations must also adopt robust digital well-being policies and monitor employee engagement and stress levels through regular surveys. By addressing the dual challenge of digital overload and informal grapevine communication, organizations and employees can create a balanced, productive, and supportive work environment.

Conclusion

In conclusion, the constant demands of the modern era, overwhelming digital communication, and the ripple effects of informal grapevine chatter take a profound toll on employees' mental health, relationships, and overall productivity. When work-life boundaries blur, stress and burnout become inevitable, leaving individuals struggling to find balance in their personal and professional lives.

To address this, organizations must take intentional steps to prioritize employees' digital well-being. By encouraging healthier communication practices, setting clear boundaries for after-hours work, and creating a culture of openness and mental health support, employers can help their teams feel valued and respected. Beyond improving productivity, such efforts foster trust and a sense of belonging, creating workplaces where people feel energized and empowered to give their best. However, after reviewing the existing literature it was found that there are certain gaps regarding the prevalence of digital grapevine in the workplace, and its contribution to digital overload and other organizational issues. It was also found that there is a lack of practical measures employed by organizations to monitor or mitigate this issue.

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"From Burnout to Breakthrough: Addressing Decision Fatigue in High-Pressure Work Environments"

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Abstract

Decision fatigue, a psychological phenomenon caused by the cumulative depletion of cognitive resources during prolonged decision-making, has become a critical issue in high-pressure work environments. This paper delves into its significant impacts on productivity, mental well-being, and decision accuracy, focusing on roles that are particularly susceptible: customer service agents, creative professionals, and healthcare workers. These job roles require constant, rapid, or high-stakes decision-making, which not only compromises the quality of outcomes but also leads to increased burnout, disengagement, and lower job satisfaction.

By analyzing existing literature and workplace case studies, the paper outlines how decision fatigue manifests across these sectors and highlights its broader organizational implications, such as reduced efficiency, increased errors, and higher turnover rates. Additionally, the study examines strategies to mitigate decision fatigue, including the adoption of decision-support tools like artificial intelligence, structured workflows to reduce cognitive load, and mindfulness practices for mental resilience.

The research emphasizes the importance of recognizing decision fatigue as a significant barrier to sustainable growth in high-pressure industries. It calls for a shift in organizational approaches to prioritize employee well-being and optimize decision-making processes. By adopting these solutions, companies can enhance performance, improve job satisfaction, and foster long-term productivity in challenging work environments.

Keywords: decision fatigue, high-pressure work environments, employee well-being, productivity, burnout mitigation.

Introduction

In modern work environments, the relentless pace of decision-making has become an integral part of daily operations. From responding to emails to making high-stakes decisions, employees across industries face an increasing cognitive burden that often goes unnoticed. This phenomenon, known as decision fatigue, refers to the gradual depletion of an individual's mental resources caused by the sheer volume and complexity of decisions made over time. While decision-making is a critical skill for organizational success, the exhaustion that results from it can lead to reduced productivity, impaired judgment, and increased mental strain.

Decision fatigue is particularly pronounced in high-pressure work settings, where employees are required to make rapid or high-stakes decisions with limited time and resources. Roles such as customer service representatives, creative professionals, and healthcare workers are especially vulnerable due to their demanding and dynamic nature. As the consequences of decision fatigue ripple through organizations, its impact extends beyond individual performance, influencing team dynamics, organizational efficiency, and employee well-being.

This paper aims to explore the causes, manifestations, and implications of decision fatigue in high-pressure work environments. By examining strategies to mitigate its effects, the study underscores the importance of addressing decision fatigue as a pivotal step towards fostering sustainable organizational growth and employee satisfaction.

Methodology

This study adopts a qualitative approach, drawing insights from existing literature and workplace case studies to analyze the phenomenon of decision fatigue in high-pressure work environments.

Key job roles—customer service representatives, creative professionals, and healthcare workers—were chosen for their high exposure to decision fatigue, based on prior research and their unique work demands. Data sources include peer-reviewed academic articles, organizational reports, and documented workplace interventions. A thematic analysis was conducted to identify common patterns in how decision fatigue manifests and its impact on productivity, mental health, and organizational outcomes.

By synthesizing findings from these diverse sources, this study aims to provide a comprehensive understanding of decision fatigue and actionable strategies to mitigate its effects in high-pressure work environments.

Understanding Decision Fatigue

Decision fatigue is a psychological phenomenon that arises when an individual's cognitive resources are depleted after prolonged decision-making. This mental exhaustion leads to a reduced ability to make optimal decisions, affecting both personal and professional outcomes.

The psychological basis of decision fatigue lies in the brain's limited capacity to process information and make choices. Each decision, regardless of its complexity, consumes mental energy. Over time, the cumulative effect of numerous decisions drains this energy, resulting in diminished focus, impulsivity, or avoidance of decision-making altogether.

Research indicates that decision fatigue impacts not only individual performance but also emotional well-being. Prolonged exposure can lead to irritability, frustration, and even long-term burnout, making it a significant concern for high-pressure work environments.

Impact on High-Pressure Job Roles

Customer Service

Customer-facing professionals often operate in fast-paced environments, where they must respond to a continuous influx of inquiries and complaints. These tasks require rapid decision-making, such as resolving issues, providing solutions, and managing customer expectations, all within limited time frames. The cumulative strain of maintaining composure while addressing varied and sometimes challenging requests can lead to significant mental exhaustion. This persistent stress diminishes their ability to recover mentally, resulting in reduced performance, increased irritability, and a higher likelihood of errors, ultimately impacting customer satisfaction and organizational reputation.

Creative Professionals

In roles such as graphic design, content writing, and marketing, creativity is a core requirement. These professionals are expected to ideate, innovate, and produce high-quality outputs under tight deadlines. However, the constant demand for originality can overextend their cognitive resources, particularly when decision-making about design elements, campaign strategies, or content direction becomes frequent and repetitive. This mental strain often compromises the quality of their work, leading to reduced innovation, lower job satisfaction, and eventual burnout if unaddressed.

Healthcare Workers

Healthcare and emergency professionals face some of the most intense decision-making environments. In these roles, decisions are not only rapid but also carry life-altering consequences. For example, doctors and nurses must quickly evaluate patient conditions, prioritize care, and administer treatments under immense time pressure. Emergency responders must make split-second choices in highly unpredictable scenarios. This relentless high-stakes decision-making intensifies the effects of decision fatigue, leading to increased error rates, slower response times, and heightened emotional distress. Over time, this pressure can cause chronic burnout, affecting not only the professionals themselves but also the quality of care provided to patients.

The Role of Workplace Culture in Exacerbating or Mitigating Decision Fatigue

Workplace culture plays a pivotal role in shaping employees' decision-making experiences and their susceptibility to decision fatigue. A culture that fosters excessive micromanagement, unrealistic expectations, or continuous high-pressure demands exacerbates cognitive overload. Employees in such environments often face a barrage of decisions without adequate support or clear priorities, leading to mental exhaustion. For instance, a lack of autonomy forces employees to seek constant approvals for minor tasks, further compounding their decision-making burden.

Conversely, a supportive workplace culture can act as a buffer against decision fatigue. Organizations that prioritize clarity, delegation, and employee autonomy reduce unnecessary decision-making pressures. A culture of psychological safety, where employees feel comfortable voicing concerns and seeking assistance, encourages collaboration and shared responsibility. For example, team-based decision-making frameworks allow individuals to pool cognitive resources, distributing the load and reducing fatigue.

Leadership also plays a critical role in setting the tone for workplace culture. Leaders who model balanced decision-making, emphasize the importance of rest, and provide clear guidance create an environment that mitigates stress. Additionally, promoting open communication and implementing flexible policies ensures employees can focus their cognitive efforts on high-value tasks rather than navigating organizational inefficiencies.

By cultivating a workplace culture that values well-being and efficiency, organizations can significantly diminish the impact of decision fatigue while fostering a more engaged and productive workforce.

The Consequences of Decision Fatigue on Job Performance and Long-Term Effects

Decision fatigue is a subtle yet powerful force that erodes both immediate job performance and long-term career satisfaction. As employees are faced with a constant barrage of decisions throughout their workday, the quality of their choices deteriorates. Initially, workers might make decisions quickly, but as mental energy depletes, their judgment becomes clouded, leading to rushed or suboptimal choices. This often manifests in critical roles, such as management, creative fields, or healthcare, where poor decisions can have far-reaching consequences. For instance, a manager might make less thoughtful decisions about team resource allocation late in the day, risking project delays or diminished team morale. In high-stakes environments like healthcare, where quick and accurate decisions are essential, decision fatigue can result in severe errors, compromising both employee health and patient safety.

The long-term effects of chronic decision fatigue are far-reaching, affecting not just the individual's well-being but also the organizational culture. As decision fatigue persists, employees may begin to disengage from their work, losing the mental sharpness required for creativity and problem-solving. This gradual disengagement can stunt personal development and hinder the innovative potential of the team. Furthermore, chronic decision fatigue may lead to mental health concerns, including burnout, stress, and anxiety. Over time, this mental exhaustion can make even routine decisions feel overwhelming, leading to a phenomenon known as "decision paralysis," where employees become incapable of making any decisions at all. This breakdown can severely affect an organization's ability to operate efficiently, increasing turnover rates and leading to a cycle of low morale and high employee attrition.

Ultimately, the effects of decision fatigue extend beyond the individual to impact the broader organization's performance and growth. As fatigue mounts, employees may become less productive, less motivated, and less engaged with the organization's goals, resulting in diminished output and a decline in overall organizational health.

Strategies to Mitigate Decision Fatigue

Addressing decision fatigue requires a proactive approach at both the organizational and individual levels. Organizations can implement streamlined workflows to simplify daily operations and reduce the cognitive burden on employees. For instance, clear guidelines and standardized processes minimize the need for repeated decision-making on routine tasks. Additionally, integrating decision-support tools, such as artificial intelligence and automated systems, enables employees to focus on complex, high-value decisions. Flexible work arrangements further empower employees by allowing them to work during their most cognitively optimal times, enhancing both productivity and well-being.

At the individual level, adopting effective prioritization and time management strategies is essential. Employees benefit from categorizing tasks based on urgency and importance, ensuring their cognitive resources are allocated effectively. Practices such as mindfulness meditation, journaling, and regular breaks throughout the day can also play a significant role in reducing stress and improving focus. Engaging in restorative activities, like walking or socializing, during these breaks allows employees to recharge, enhancing their mental resilience and decision-making capabilities.

Leadership initiatives are equally critical in mitigating decision fatigue. Leaders who delegate decision-making responsibilities and encourage collaboration help distribute cognitive resources across the team. A supportive work culture where employees feel comfortable seeking assistance reduces the pressure of constant decision-making. By fostering open communication and prioritizing employee well-being, leaders can create an environment where employees are both engaged and equipped to handle workplace demands effectively.

Implications

The implications of decision fatigue are far-reaching, affecting employees, leaders, and organizations as a whole. For individuals, persistent decision fatigue can lead to reduced productivity, errors, and burnout. This not only compromises their job performance but also impacts their mental and physical health over time. Providing tools like decision-making frameworks, stress management training, and opportunities for mental breaks can empower employees to make better choices and maintain long-term well-being.

For organizations, decision fatigue poses risks such as decreased innovation, lower employee engagement, and higher turnover rates. Creating decision-friendly environments—by automating repetitive tasks, decentralizing authority, and implementing clearer decision processes—can significantly reduce cognitive overload. These changes lead to improved collaboration, enhanced creativity, and a healthier organizational culture, ultimately driving sustainable growth.

Leadership plays a vital role in mitigating decision fatigue. Leaders who encourage autonomy and model balanced decision-making create supportive environments where employees feel valued and less overwhelmed. Recognizing signs of fatigue early and redistributing workloads are key strategies for maintaining productivity and morale.

Finally, organizational policies must adapt to prioritize decision fatigue as a critical factor. Simplifying decision-making structures, promoting flexible work schedules, and integrating technology to reduce cognitive strain can transform workplace dynamics. Addressing decision fatigue not only benefits employees but also strengthens the organization's ability to innovate and thrive in competitive environments.

Discussion

The phenomenon of decision fatigue presents a multifaceted challenge in high-pressure work environments, impacting employees, leaders, and organizational outcomes. This paper has demonstrated how the cumulative effect of constant decision-making diminishes cognitive resources, leading to impaired judgment, reduced productivity, and mental exhaustion. The implications are particularly pronounced in roles requiring frequent, high-stakes decisions, such as those in healthcare, management, and creative fields.

One key takeaway is the dual responsibility of individuals and organizations in addressing decision fatigue. On the one hand, employees can benefit from personal strategies like prioritization, time management, and mindfulness. On the other hand, organizations must recognize their role in creating decision-friendly environments through policy changes, streamlined processes, and supportive leadership. The success of these interventions lies in balancing employee autonomy with structured guidance, ensuring that decision-making becomes more efficient without compromising creativity or morale.

However, implementing these solutions comes with challenges. For instance, while automating routine decisions can reduce cognitive load, it may also lead to over-reliance on technology and decreased critical thinking skills. Similarly, decentralizing decision-making authority requires fostering a culture of trust, which may take time to develop, particularly in hierarchical organizations.

Another critical point of discussion is the role of leadership. Leaders not only influence the decision-making dynamics within teams but also set the tone for addressing decision fatigue. Encouraging transparent communication, providing mental health support, and promoting work-life balance are essential steps in reducing cognitive strain on employees.

By addressing decision fatigue comprehensively, we can unlock greater organizational innovation, improve employee well-being, and pave the way for sustainable workplace practices.

Conclusion

Decision fatigue poses significant challenges in high-pressure work environments, influencing employee performance, decision quality, and overall well-being. This paper has examined the causes, consequences, and solutions to mitigate decision fatigue, emphasizing the need for organizational strategies that support both individual employees and the overall work culture.

Key strategies for combating decision fatigue include simplifying decision-making processes, decentralizing authority, and integrating stress-reduction practices. Providing employees with the tools and support they need to make informed decisions without overloading their cognitive resources can improve both performance and mental health.

Leadership plays a critical role in creating environments where decision fatigue is minimized. Leaders who foster open communication, provide guidance, and encourage mental breaks can help their teams make better decisions and maintain creativity and engagement.

Addressing decision fatigue not only enhances productivity but also contributes to a healthier, more innovative workplace. Future research should investigate the effectiveness of emerging technologies and industry-specific interventions in managing decision fatigue. Ultimately, combating decision fatigue is essential for sustaining employee well-being and achieving long-term organizational success.

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Evolving Talent Management: HR and Psychological Approach from Millennials to Gen Z

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Abstract

As workplaces become increasingly multigenerational, addressing the psychological needs of Millennials and Gen Z is essential for effective talent management. This study examines how human resource strategies can integrate psychological insights to meet the distinct expectations of these cohorts. Millennials often seek purpose, flexibility, and work-life balance, whereas Gen Z prioritizes mental health, career stability, and growth opportunities. By utilizing psychological frameworks such as Maslow's hierarchy of needs and self-determination theory, the study explores how personalized learning paths, flexible work models, and inclusive leadership practices can bridge these generational differences. Case studies of successful organizations highlight how aligning HR strategies with the psychological drivers of these groups improves employee engagement, retention, and overall organizational culture. The findings emphasize the importance of fostering a supportive and adaptive work environment to meet the evolving expectations of younger generations. This research demonstrates the synergy between HR and psychology in creating workplaces that promote both employee well-being and business success.

Keywords: Millennials, Gen Z, talent management, human resources, psychology, workplace engagement, psychological frameworks, employee well-being.

Introduction

Talent management is a comprehensive approach to attracting, developing, retaining, and engaging employees to achieve organizational goals. It involves creating strategies that cater to the diverse needs of a multigenerational workforce, particularly focusing on aspects such as skill development, leadership, succession planning, and employee satisfaction. In the context of Millennials and Gen Z, talent management has become increasingly complex, as these groups bring new priorities to the workplace. While Millennials often seek meaningful work, opportunities for personal growth, and a balance between professional and personal lives, Gen Z emphasizes mental health support, career stability, and a collaborative, inclusive culture. Addressing these priorities requires integrating psychological insights into HR practices, ensuring they resonate with the evolving workforce dynamics

The modern workplace is undergoing a profound transformation driven by the increasing dominance of Millennials and Generation Z (Gen Z) in the workforce. As these two generational cohorts now form the majority of employees across industries, their unique expectations, work values, and psychological drivers demand that organizations revisit and evolve their talent management practices. Unlike previous generations, Millennials and Gen Z prioritize factors such as flexibility, mental health, purpose, and career growth, pushing organizations to adopt more dynamic and employee-centric human resource (HR) strategies. This shift underscores the need to align workplace practices with the distinct psychological needs of these groups to enhance engagement, well-being, and overall organizational performance.

Concepts such as Maslow's Hierarchy of Needs and Self-Determination Theory (SDT) offer valuable frameworks for identifying and meeting the intrinsic and extrinsic motivators of Millennials and Gen Z. For instance, while Millennials may strive for self-actualization and purpose (as per Maslow's framework), Gen Z often prioritizes safety and belongingness, particularly in uncertain and competitive job markets. SDT further emphasizes the importance of autonomy, competence, and relatedness, which are critical drivers of workplace engagement for these younger generations.

However, while the theoretical foundations of motivation and well-being are well-documented, there is limited exploration of how these principles translate into practical HR strategies. The intersection of psychological approaches with HR practices presents an opportunity for organizations to develop robust, future-ready talent management frameworks. This study aims to fill this gap by analyzing how organizations can effectively adapt their HR strategies to the evolving expectations of Millennials and Gen Z, with a focus on integrating psychological theories into talent management practices.

Using a case study approach, this research examines real-world examples of industries that have successfully navigated the generational shift by addressing the psychological needs of Millennials and Gen Z. From flexible work arrangements to mental health programs and inclusive leadership practices, these organizations demonstrate the benefits of aligning HR strategies with the intrinsic motivators of younger employees. The findings underscore the critical role of psychological insights in creating workplaces that not only meet the needs of these cohorts but also drive organizational success.

Methodology

This study adopts a qualitative research design centered on Case Study Analysis, supplemented by psychological frameworks and thematic data analysis, to explore how industries address the psychological needs of Millennials and Gen Z. By integrating theoretical insights with practical applications, this methodology provides a comprehensive understanding of generational dynamics in workplace contexts.

1. Case Study Analysis

The study uses a multiple-case approach to examine diverse HR practices implemented in various industries, including technology, healthcare, retail, and education. These cases were selected based on their reputation for innovative and employee-centric HR strategies. Key aspects of the analysis include:

- Identifying practices aimed at improving employee engagement and retention.
- Assessing initiatives that align with the psychological needs of Millennials and Gen Z.
- Evaluating the outcomes of these interventions on employee satisfaction and workplace culture.

Data for the case studies were collected through secondary sources, such as industry reports, organizational publications, and publicly available best-practice documents. Insights from HR professionals and organizational psychologists further enriched the analysis.

2. Psychological Framework

Two core psychological frameworks underpin the study, providing a lens to interpret generational behaviors and preferences:

1. **Maslow's Hierarchy of Needs**
   This framework categorizes human needs into five levels: physiological, safety, social, esteem, and self-actualization. It serves as a foundational model to understand how HR practices address the progression of needs:

   Millennials often seek **esteem (recognition)** and **self-actualization (purpose)** at work.

   Gen Z prioritizes **safety (mental health, stability)** and **belonging (inclusion, collaboration).**

2. **Self-Determination Theory (SDT)**
   SDT emphasizes the importance of autonomy, competence, and relatedness in fostering motivation and satisfaction. The framework helps evaluate how HR

policies promote:

- Autonomy: Flexible work arrangements, personalized learning paths.
- Competence: Skill-building programs, mentorship.
- Relatedness: Collaborative work cultures and inclusivity initiatives.

By applying these frameworks, the study bridges theoretical insights with practical applications, highlighting the psychological underpinnings of HR interventions.

3. Data Analysis

Thematic data analysis was employed to synthesize findings from case studies and psychological frameworks. This process involved:

- **Data Coding**
  A thematic coding approach was used to categorize data into recurring themes, such as flexibility, career development, and mental health support.

- **Framework Mapping**
  Identified themes were mapped against the constructs of Maslow's hierarchy and SDT to determine how well HR strategies aligned with generational needs.

- **Cross-Case Synthesis**
  Insights from multiple case studies were compared to identify:
  - Commonalities in successful practices across industries.
  - Challenges and limitations in implementation.
  - Generational differences in preferences and expectations.
- **Interpretive Analysis**
  Patterns and relationships were interpreted to derive actionable insights for organizations seeking to enhance employee engagement and satisfaction.

Discussion

The study reveals the critical role of psychological factors in shaping talent management strategies, particularly in the context of Millennials and Gen Z. These two generations bring distinct expectations to the workplace, shaped by their unique life experiences, societal influences, and psychological needs. Addressing these needs requires organizations to align their HR strategies with a deeper understanding of the psychological drivers that motivate employees. The following psychological and other key factors are crucial for fostering an environment that resonates with the values of Millennials and Gen Z:

1. Psychological Factors

- **Autonomy and Flexibility (Self-Determination Theory)**
  One of the key psychological drivers for both Millennials and Gen Z is the need for

autonomy and flexibility. Millennials, having grown up during the rise of the digital age, highly value the ability to control their work schedules and environment. Flexible work models, including remote and hybrid work options, give Millennials the autonomy they seek, leading to increased engagement and job satisfaction. Gen Z, while valuing stability and structure, also thrives in environments that offer flexibility in how they manage their tasks. This need for autonomy links to SDT, which highlights that when individuals feel they have control over their work, they experience higher levels of motivation and performance.

- **Belongingness and Inclusion (Maslow's Hierarchy of Needs)**

Gen Z places a significant emphasis on mental health and a sense of belonging within the workplace. Having entered the workforce during a period of social and economic upheaval, they prioritize psychological safety and a supportive work environment. Companies that create an inclusive culture, where employees feel valued and accepted regardless of their background or identity, are more likely to retain Gen Z talent. Maslow's Hierarchy of Needs emphasizes the importance of belongingness at the foundational level of human motivation, which explains why Gen Z gravitates toward workplaces that foster diversity, equity, and inclusion.

- **Mental Health Support**

Gen Z is particularly attuned to mental health, with many members of this generation having grown up in an era where mental health discussions have become more mainstream. Providing access to mental health resources, such as counseling services, stress management programs, and wellness initiatives, is crucial for retaining Gen Z employees. For Millennials, mental health support is equally important but often manifests in the desire for a work-life balance that allows for downtime and personal reflection. Organizations that prioritize mental health support signal to their employees that their well-being is a top priority, which strengthens employee loyalty.

2. Other Key Factors

- **Career Growth and Development**

Both Millennials and Gen Z place a high value on career development opportunities. Millennials seek roles that offer a clear path to advancement and personal growth. They are motivated by learning opportunities and the chance to develop new skills. This demand for continuous learning is reflected in the increasing popularity of personalized learning paths and professional development programs. Gen Z, similarly, desires clear career trajectories but with a stronger focus on stability and long-term prospects. Companies that offer mentoring programs, training workshops, and pathways to leadership roles will be more successful in retaining both generations.

- **Work-Life Balance**

While work-life balance has always been essential, it has become a defining feature of the contemporary workplace, particularly for Millennials and Gen Z. Millennials, especially, have expressed their desire for jobs that align with their personal lives, resulting in increased demand for flexible hours, paid time off, and remote working options. Gen Z, while pursuing stability, also seeks a balance between work and personal life, particularly regarding mental health management. Organizations that offer flexibility and respect for personal time will see higher employee satisfaction and retention.

- **Inclusive Leadership and Transparency**

Inclusive leadership is another key factor that influences employee engagement across both generations. Millennials and Gen Z expect leaders to be transparent, empathetic, and capable of fostering a culture of mutual respect and collaboration. Inclusive leadership ensures that all employees feel their voices are heard, and their contributions are valued. This leadership style also emphasizes open communication, where feedback is encouraged, and decision-making processes are transparent. By cultivating a leadership culture that prioritizes inclusivity, organizations can enhance employee loyalty and promote a sense of community within the workplace.

Outcomes

The integration of psychological factors and HR strategies focused on Millennials and Gen Z has led to several positive outcomes for organizations. These outcomes highlight the importance of aligning talent management practices with the psychological drivers of these generations, resulting in improved employee engagement, retention, and overall organizational success.

1. Increased Employee Engagement

By aligning HR strategies with the psychological needs of Millennials and Gen Z, organizations have seen increased employee engagement. Millennials, motivated by autonomy and purpose, thrive in workplaces that offer flexible work schedules, meaningful work, and personal development opportunities. Gen Z, while more focused on stability and mental health, also experiences greater engagement when companies offer clear career paths and mental health support. These tailored strategies not only increase motivation but also enhance job satisfaction, as employees feel that their personal and professional needs are being met.

2. Higher Retention Rates

Organizations that provide opportunities for career growth, mental health support, and work-life balance have seen lower turnover rates among Millennials and Gen Z. These generations are more likely to stay with companies that offer clear career advancement opportunities, professional development, and a supportive, inclusive work culture. Companies that prioritize psychological safety and belonging, where employees feel valued and supported, tend to build stronger relationships with their employees, leading to long-term loyalty. In contrast, organizations that fail to address these factors face higher turnover and a loss of talent to competitors who offer more attractive work environments.

3. Enhanced Organizational Culture

The implementation of inclusive leadership practices has led to a more cohesive organizational culture. Inclusive leadership ensures that employees feel respected, valued, and understood, which fosters collaboration and mutual trust. When employees, particularly Millennials and Gen Z, see that their leaders are empathetic, transparent, and open to feedback, it encourages them to engage more fully with their work and with their colleagues. This leads to a more positive and productive work environment, where innovation and creativity can flourish.

4. Improved Organizational Performance

Aligning HR strategies with the psychological needs of Millennials and Gen Z has also resulted in improved overall organizational performance. When employees are engaged, supported, and motivated, their productivity and commitment to the organization increase. Companies that integrate flexible work models, personalized development programs, and strong mental health support report higher levels of performance across teams. This alignment not only drives individual productivity but also contributes to a more collaborative and innovative organizational culture, which is crucial in today's fast-paced business environment. The outcomes demonstrate that organizations that integrate psychological insights into their talent management practices experience enhanced engagement, retention, and organizational culture, ultimately contributing to better overall performance. Addressing the psychological needs of Millennials and Gen Z is not just a matter of adapting to new generational trends, but also a strategic approach to building a resilient, motivated, and successful workforce.

Conclusion

As the workforce becomes increasingly multigenerational, organizations must evolve their talent management strategies to meet the distinct psychological needs of Millennials and Gen Z. This study underscores the critical role of integrating psychological theories, such as Maslow's Hierarchy of Needs and Self-Determination Theory, into HR practices to enhance employee engagement, satisfaction, and retention. By aligning HR strategies with the intrinsic motivators of these younger generations, such as purpose, flexibility, mental health support, and career growth, organizations can create work environments that not only meet the needs of these cohorts but also foster long-term success.

The research highlights that Millennials and Gen Z are driven by different psychological needs, and addressing these differences is key to effective talent management. Millennials seek work that offers purpose, flexibility, and opportunities for personal growth, while Gen Z prioritizes stability, mental health, and a sense of belonging. By adopting HR strategies that cater to these varying needs—such as flexible work arrangements, mental health resources, and inclusive leadership—organizations can cultivate a motivated, engaged, and loyal workforce. This approach not only benefits employees but also contributes to organizational growth and performance. Inclusive leadership and a culture of psychological safety emerge as central factors in bridging the generational gap. As organizations work to foster collaboration between employees of different generations, it is crucial that leadership practices promote diversity, empathy, and emotional intelligence. Organizations that prioritize inclusivity and open communication are more likely to create a cohesive, innovative, and productive work environment, where all employees regardless of age feel valued and supported.

Ultimately, the integration of psychological insights into talent management strategies represents a holistic approach to managing today's workforce. As Millennials and Gen Z become the dominant cohorts in the workplace, organizations that understand and address their psychological needs will be better positioned to attract, develop, and retain top talent. This study demonstrates the synergy between HR and psychology in creating workplaces that not only support the well-being of employees but also drive business success. By fostering supportive, adaptive work environments, organizations can meet the evolving expectations of younger generations, ensuring a prosperous future for both employees and employers alike.

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Impact of Digital Detox on Sleep Quality in Remote Workers

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Abstract

The overwhelming dependence on electronic devices in our daily lives has raised concerns about their impact on sleep quality, given the blue light exposure leading to mental overstimulation, and disrupted sleep patterns. This study focuses on the influence of digital detox—deliberate breaks from electronic device usage—on sleep quality. Research has shown that increasing use of screen time reduces melatonin secretion, disrupts sleep onsets and disrupts sleep cycles. While on the other hand, practicing digital detox one to two hours before sleep has shown positive results in overall sleep quality.Taking a break from our screens is what we often call a digital detox which can do wonders for our well-being. It helps our natural body clocks, or circadian rhythms, get back on track, eases the stress and anxiety tied to constant online interactions, and prevents our sleep from being disrupted by endless notifications. This idea highlights how stepping away from devices can improve sleep and overall mental health, urging us to explore more ways to measure its long-term benefits for people from all walks of life.

Keywords: Sleep, Sleep Quality, Digital Detox, remote workers

Introduction

The era of AI and Digital Transformation has been a boon and a curse at the same time. Whereas remote working has benefits of flexibility of working from the comfort of home at our convenient time. It also has drawbacks of having to attend endless zoom calls and doom scrolling before going to sleep, which makes the remote workers glued to the screen and leads to disturbance in the sleep cycle.

Hence, digital detox is required,i.e., taking time off of the screen. It is helpful because screens emit blue light, which messes with your body's natural sleep hormone, melatonin. This makes it harder to fall asleep and can leave you feeling groggy the next day.

Apart from the blue light, the constant mental buzz about late-night work email or a binge-worthy show, can keep our brain active when it should be winding down. Addicting, the blurred boundaries between work and home life, can lead to restless nights—especially for remote workers.

Digital detox is more than cutting off digital distractions but it involves setting clear boundaries and developing healthy relationships with technology. It helps remote workers to step aside from their work and screen before bedtime. Digital detox further is helpful in improving sleep pattern and sleep quality, and leads to healthier routine and reduction in stress levels.

To start digital detox, it is important to start small so the changes are effective. Furthermore, the process of completely giving up digital content can be impossible and might lead to giving up. So the small changes that can be made at first can include setting tech-free zones at home, like bedroom, furthermore downtime can be fixed or screen setting like night mode can be used, which filters out the blue light. Additionally, routine can be modified to replace nighttime scrolling with healthier habits like journaling.

Literature Review

The following table provides a concise summary of key findings on digital detox and its impact on sleep cycle, highlighting their objectives, methodologies and outcomes for mental health, productivity, and well-being.

S.No	Title	Author	Year Of Publication	Summary
1	Digital Detox and Well-Being	Marciano, L., Jindal, S., & Viswanath, K.	2024	The review discusses the absence of a clear definition and consistent evaluation methods for digital detox interventions. It highlights that reducing social media and smartphone use, rather than total abstinence, can have better effects on well-being. It calls for more rigorous research to identify effective conditions for digital detox interventions.
2	The Outbreak of Digital Detox Motives and Their Public Health Implications for Holiday Destinations	Díaz-Meneses, G., & Estupinán-Ojeda, M.	2022	The study explores intrinsic and extrinsic barriers to digital detox during holidays and examines the influence of socio- demographic factors on digital behavior. It emphasizes the potential of understanding these motives to encourage healthier digital habits and enhance public health outcomes.
3	Break From Digital Screen Using Digital Detox Program in Nursing Students	Upendra, S., & Kaur, J.	2024	This research demonstrates the benefits of digital detox programs for nursing students, including reduced stress and enhanced mental well-being. It advocates incorporating these programs into nursing education to promote healthier screen habits.
4	Digital Detox: The Effect of Smartphone Abstinence on Mood, Anxiety, and Craving	Wilcockson, T. D. W., Osborne, A. M., & Ellis, D. A.	2019	The study finds that abstaining from smartphones significantly improves mood, reduces anxiety, and decreases craving levels. It supports digital detox as a viable strategy for mitigating the negative psychological impacts of excessive smartphone use.
5	Impacts of Digital Social Media	Ramadhan, R. N., et al.	2024	This systematic review highlights the positive effects of digital

	Detox for Mental Health: A Systematic Review and Meta-Analysis			social media detox on mental health, including reduced anxiety, depression, and stress. It stresses the need for additional empirical studies to confirm these findings and examine long-term impacts.
6	Taking a Break: The Effects of Partaking in a Two-Week Social Media Digital Detox on Problematic Smartphone and Social Media Use, and Other Health-Related Outcomes Among Young Adults	Coyne, P., & Woodruff, S. J.	2023	The study concludes that a two-week social media detox effectively reduces problematic smartphone and social media use in young adults. Participants also reported better mood, sleep quality, and overall well-being, indicating significant health benefits from periodic social media breaks.
7	The Perceptions of Social Media Users of Digital Detox Apps Considering Personality Traits	Nguyen, V. T.	2022	This research explores the role of personality traits in shaping perceptions of digital detox apps. It finds that conscientious individuals with lower neuroticism levels are more likely to view such apps as helpful for managing social media use.
8	A Comprehensive Review on Digital Detox: A Newer Health and Wellness Trend in the Current Era	Anandpara, G., et al.	2024	The review focuses on the rising popularity of digital detox as a health and wellness trend. It discusses strategies like reducing screen time and technology-free periods, emphasizing their benefits for mental health, productivity, and social interactions.
9	Does Digital Detox Work? Exploring the Role of Digital Detox Applications for Problematic	Schmuck, D.	2020	The study evaluates digital detox apps' effectiveness in addressing problematic smartphone use and enhancing well-being among young adults. It highlights the need for personalized approaches

	Smartphone Use and Well-Being of Young Adults Using Multigroup Analysis			to achieve optimal results, especially for those with severe smartphone addiction.
10	Effect of Digital Detox Program on Electronic Screen Syndrome Among Preparatory School Students	Mohamed, S. M., Abdallah, L. S., & Ali, F. N. K.	2023	This study examines how digital detox programs help mitigate electronic screen syndrome (ESS) in preparatory students. Findings show significant reductions in symptoms like eye strain, headaches, and sleep disturbances. It advocates integrating digital detox programs into school curricula.
11	Detox for Success: How Digital Detoxification Can Enhance Productivity and Well-Being	Sharma, A. K. & Sharma, R.	2024	This chapter signifies how digital detoxification can significantly boost productivity and well-being. By reducing digital distractions, individuals can sharpen their focus, foster creativity, and improve mental health. The chapter provides actionable strategies for businesses, emphasizing the positive impacts on employee performance and overall organizational success.
12	Digital Detox by Balancing Screen Time and Offline Experiences: Reclaiming Well-Being in a Hyper-Connected World	Bajwa, R. S.	2024	This chapter advocates for balancing screen time with offline activities to help reclaim well-being in today's highly connected world. The author stresses that reducing digital consumption can reduce stress and enhance physical and mental health. Practical advice is provided for integrating digital detox into daily life, enabling individuals to experience greater overall health.
13	A Comprehensive Review on Digital	Anandpara, G., Kharadi,	2024	This review highlights the growing popularity of digital

	Detox: A Newer Health and Wellness Trend in the Current Era	A., Vidja, P., Chauhan, Y., Mahajan, S., & Patel, J.		detox as a crucial health and wellness trend. It discusses different methods of digital detox, such as limiting screen time and creating tech-free zones, and the associated benefits, including reduced anxiety, better sleep, and improved social interactions. The authors call for more research to better understand the long-term effects of digital detox practices.
14	Digital Detox: An Effective Solution in the Smartphone Era? A Systematic Literature Review	Radtke, T., Apel, T., Schenkel, K., Keller, J., & von Lindern, E.	2022	This systematic literature review evaluates digital detox interventions and their effectiveness in addressing the challenges posed by smartphones. The authors conclude that digital detox can reduce smartphone addiction and improve mental health, though they emphasize the need for standardized definitions and measurement tools to more accurately assess the impacts of such interventions.
15	Disconnect to Reconnect: Your Path to Physical and Mental Wellbeing	Zaidi, H., AlJadaan, O. T., Al Faress, M. Y., & Jabas, A. O.	2024	In this chapter, the authors explore how disconnecting from digital devices can promote both physical and mental well-being. They discuss the benefits of digital detox, such as reduced stress, improved sleep, and stronger social connections. Practical tips are shared for making digital detox a part of daily routines, encouraging mindful use of technology.
16	Off: Your Digital Detox for a Better Life	Goodin, T.	2017	This book presents the concept of digital detox and its profound benefits for life quality. The author offers practical advice on how to disconnect from digital devices, encouraging readers to invest more time in meaningful

				activities. The book highlights the positive effects of reducing screen time on mental health, relationships, and overall well-being.
17	Disconnect to Reconnect: Employee Wellbeing Through Digital Detoxing	Umasankar, M., Boopathy, S., Padmavathy, S., & Leena, N. F.	2022	This article investigates the effects of digital detox on employee well-being. The authors find that reducing screen time significantly improves mental health, reduces stress, and enhances productivity. They suggest integrating digital detox programs into workplace culture to promote a healthier work-life balance.
18	Studies on Digital Diet and Digital Detox: A Meta-Analysis	Koçoğlu, E., Avcu, K. M., Demir, F. B., & Öteleş, Ü. U.	2024	This meta-analysis reviews various studies on digital diet and detox programs. The authors assess the effectiveness of these interventions in improving mental health and reducing digital addiction. Their findings show that structured digital detox programs lead to significant improvements in well-being, offering a solution to the negative effects of excessive digital device use.
19	Disconnect to Reconnect: The Phenomenon of Digital Detox as a Reaction to Technology Overload	Miksch, L., & Schulz, C.	2018	This article examines the phenomenon of digital detox as a response to the overload of technology in modern life. The authors explore the reasons behind the increasing popularity of digital detox, such as stress reduction and mental health improvement. The study highlights how regular breaks from digital devices can restore balance and boost overall life satisfaction.

20	Digital Detox Experiences of Generation Z	Karapinar, D. Ç., Daş, A., & Daş, N.	2024	This study focuses on the digital detox experiences of Generation Z. The authors find that young adults experience improved mental clarity, better social interactions, and increased productivity as a result of digital detox. The study suggests that incorporating digital detox strategies can help Generation Z manage their digital lives more effectively and develop healthier habits.

Results

This paper highlights the positive impact of digital detox on sleep quality and mental health, as shown in various studies. Increased screen time, especially before sleep, is known to disrupt melatonin production and sleep cycles, leading to poorer sleep quality. Findings indicates that practicing digital detox—especially one to two hours before sleep—can restore circadian rhythms and improve sleep outcomes (Marciano et al., 2024; Coyne & Woodruff, 2023).

In terms of mental health, digital detox programs have been found to reduce anxiety, stress, and improve mood. For instance, a study by Wilcockson et al. (2019) found that smartphone abstinence led to significant improvements in mood and anxiety. Similarly, nursing students reported reduced stress and better mental well-being after engaging in digital detox programs (Upendra & Kaur, 2024).

The findings also points out that while the immediate benefits are clear, further research is needed to assess the long-term effects of digital detox (Ramadhan et al., 2024). Additionally, factors like personality traits influence the effectiveness of digital detox interventions. Conscientious individuals with lower neuroticism tend to benefit more from digital detox apps (Nguyen, 2022). Overcoming barriers to digital detox, such as societal pressures and digital habits, is essential for broader adoption (Díaz-Meneses & Estupinán-Ojeda, 2022). Integrating digital detox practices into daily routines can significantly improve sleep quality and mental well-being.

Discussion

The growing dependence on electronic devices, particularly smartphones and computers, has led to significant concerns regarding their impact on both physical and mental health. Among the most widely discussed effects is the disruption of sleep quality, largely attributed to the blue light emitted by screens, which interferes with melatonin secretion and circadian rhythms. In this paper, we have explored the benefits of digital detox, particularly its role in improving sleep quality and enhancing mental well-being. While the evidence supporting the positive effects of digital detox is compelling, the findings also highlight the complexity of this issue and underscore the need for further research to understand the long-term and personalized benefits.

Impact of Digital Detox on Sleep Quality

One of the most immediate and observable benefits of digital detox is its positive effect on sleep quality. Studies have consistently shown that excessive screen time, particularly before bed, negatively impacts sleep patterns. Blue light exposure suppresses melatonin production, a hormone that regulates sleep, which delays sleep onset and disrupts sleep cycles (Marciano et al., 2024). By taking a digital detox—defined as a conscious break from electronic devices, especially in the hours leading up to bedtime—individuals can help reset their circadian rhythms and improve the quality of their sleep.

Research by Coyne & Woodruff (2023) found that participants who took a two-week break from social media and smartphones reported improved sleep quality and a reduction in sleep disturbances. Similar findings were reported by Upendra & Kaur (2024), who demonstrated that digital detox interventions, particularly for nursing students, led to improvements in sleep duration and quality. These results explain that even short-term breaks from digital devices can have a significant impact on improving sleep outcomes. Digital detox works by reducing mental overstimulation, which is a common problem in the digital age, especially with constant notifications and interactions online.

However, while the short-term effects on sleep quality are well-discussed, more research is needed to explore the long-term benefits of digital detox. Longitudinal studies could help clarify whether the improvements in sleep are sustained over time and whether periodic detox programs can be integrated into daily routines for lasting benefits. The current evidence suggests that the restorative effects on circadian rhythms and sleep quality may be temporary, emphasizing the need for continuous, mindful engagement with screen time.

Mental Health Benefits of Digital Detox

In addition to improving sleep quality, digital detox has also reported benefits in mental health. Increased screen time, particularly on social media, is often linked to elevated levels of anxiety, stress, and depression. Several studies in this review highlighted the positive effects of digital detox on mood regulation and mental well-being. Wilcockson et al. (2019) demonstrated that abstaining from smartphones for a period led to significant improvements in mood and reductions in anxiety. Similarly, Ramadhan et al. (2024) conducted a systematic review that found social media detox interventions were effective in reducing anxiety, depression, and stress, emphasizing the role of digital detox in mitigating the negative psychological effects of constant online engagement.

Moreover, studies by Mohamed et al. (2023) and Upendra & Kaur (2024) found that digital detox interventions had positive mental health outcomes, particularly for students and young adults. Nursing students, in particular, reported lower stress levels and greater mental well-being after participating in digital detox programs, indicating the potential of such interventions to alleviate stress, promote relaxation, and improve overall mental health.

One of the key benefits of digital detox is its ability to reduce "cognitive overload"—the mental exhaustion that results from constant multitasking and screen engagement. Taking breaks from screens allows individuals to regain mental clarity, reduce stress, and improve emotional regulation. This process can be particularly beneficial for those in high-stress professions or academic settings, where screen time is often excessive.

However, the relationship between digital detox and mental health is not entirely straightforward. While many studies have reported positive outcomes, it is important to note that the effectiveness of detox programs can also vary based on individual factors, including personality traits, lifestyle, and the specific nature of device use. For instance, Nguyen (2022) found that individuals with higher conscientiousness and lower neuroticism are more likely to perceive digital detox apps as helpful. This suggests that personality traits play an important role in determining how individuals respond to digital detox interventions, highlighting the importance of adapting detox strategies based on an individual's needs.

Limitations

Despite the clear benefits of a digital detox, there are several personal and social factors that make it difficult for many people to embrace. According to Díaz-Meneses & Estupinán-Ojeda (2022), one of the biggest challenges is the addictive nature of social media and the pressure from society to stay constantly connected. The overwhelming flow of information, along with the fear of missing out (FOMO), makes it hard for people to disconnect, even when they understand the positive effects it could have on their well-being.

The rapid growth of technology and the role it plays in nearly every part of our lives only adds to the complexity of digital detox. For example, remote workers and students depend on digital devices for communication, collaboration, and learning. Finding a way to strike a balance between being digitally connected and taking time for a detox is tough in such environments. To make digital detox more achievable, it may be helpful to adopt structured strategies, such as setting regular breaks, practicing mindfulness, or using apps designed to track and limit screen time.

Conclusion

Digital detoxing can be a game-changer for improving sleep quality, especially for remote workers. Cutting down on blue light exposure, creating moments of relaxation, and setting clear boundaries between work and personal life are just a few ways it helps tackle the sleep challenges that come with working remotely. As remote work becomes more common, adopting these habits isn't just about better sleep—it's about taking care of your overall health and staying productive. The secret is learning to unplug intentionally and making it a regular part of your day for lasting benefits.

Future Directions and Recommendations

While digital detox has shown promising results in improving sleep quality and mental well-being, there are several areas that needs further investigation. First, longitudinal studies are needed to assess the long-term impacts of digital detox on sleep and mental health. These studies could help determine whether periodic detox interventions result in sustained improvements over time or whether ongoing engagement with digital devices nullifies the benefits of digital detox.

Second, personalized approaches to digital detox should be explored. As noted by Nguyen (2022), individuals with different personality traits may respond differently to digital detox interventions. Therefore, developing tailored detox programs based on individual needs and differences could enhance their effectiveness. Additionally, the role of digital detox apps, which can track screen time and help users reduce excessive device use, deserves further exploration. These tools can provide valuable insights into an individual's digital habits and help them make more conscious decisions about their screen time.

Finally, the integration of digital detox practices into educational and workplace settings could play a promising role in promoting healthier screen habits. By incorporating digital detox programs into curricula and workplace wellness initiatives, it is possible to foster a culture of mindfulness around technology use and its impact on mental health and sleep quality.

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THE IMPACT OF AI ON CREATIVITY ASSESSMENTS

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Abstract

Artificial intelligence (AI) impact on creativity assessments is a subject of rapidly growing interest, with tremendous potential in evaluating divergent and convergent thinking skills. This paper examines how AI-driven tools are reshaping creativity assessments, including standard tests like the Passi Test of Creativity. AI technologies provide significant advantages such as enhanced objectivity, validity, and reliability in scoring creativity metrics while introducing challenges related to ethical considerations and cultural biases. Utilizing AI-powered Natural Language Processing (NLP) and generative models enables dynamic, real-time evaluations of creative responses, transcending traditional techniques. Through case studies and research papers, we illustrate applications of AI in creativity assessments and analyze its effects on global educational and organizational contexts. Despite these benefits, unresolved concerns remain, such as overreliance on algorithmic interpretations and the inability to capture the subjective essence of creativity. Future work involves using AI to create adaptive assessments tailored to individuals' cognitive profiles and promoting inclusive frameworks for diverse cultural contexts. This review highlights the promise of AI in shaping creativity and calls for interdisciplinary collaboration to ensure inclusive advances in AI-driven creativity assessments.

Keywords: Passi Test of Creativity, Psychometrics, Creativity Assessments, Artificial Intelligence, Divergent Thinking, Convergent Thinking

INTRODUCTION

Creativity is one of the human cognitive components, which is the ability to generate original, valuable and meaningful ideas. It encompasses two primary processes: Divergent Thinking and Convergent thinking. Divergent thinking is where we brainstorm multiple ideas or solutions, whereas in convergent thinking, where we whittle ideas or solutions down to sensible and clear outcomes. During the past years, researchers have explored the quantification of creativity by means of psychometric tests such as the Torrance Tests of Creative Thinking (TTCT) and Passi Test of Creativity (PTC). The insights generated from these tools have been useful, but they tend to be circumscribed by subjectivity, reliance on statistical scoring techniques, and inability to adapt to a variety of contexts.

Artificial intelligence has been taken into the act to address these limitations in recent years. In an attempt to evaluate creativity more objectively, more efficiently, and e scale—AI technologies (machine learning algorithms, NLP, and generative models) have brought new methods to assess creativity. Unlike traditional methods which typically rely very much on human evaluators, AI driven assessments feature automated processes that allow them to analyze survey responses, which ensures consistency as well as an absence of biases.

In this paper we analyze how AI alters creativity assessments and what are the applications, benefits, challenges, and future directions. The integration of AI into creativity evaluation frameworks allows researchers and practitioners to resolve longstanding issues, and create more inclusive, adaptive and meaningful criteria for this important area.

LITERATURE

D'all'Asta & Di Marco (2024) AI Machine Learning in the Creative Architectural Design Process. It appears in Creativity in the Age of Digital Reproduction. The aim of this paper is to explore how artificial intelligence (AI) and machine learning powered by style transfer techniques can be integrated into architectural education to better support creativity and inspire design. For over three years, master's students in architecture explored neural networks, developing applications of these tools to specific design problems. It found that, in an AI informed design process, students used a 'learning by doing' methodology. This approach questioned the design and architectural practice's traditional perspective of singular solutions and instead enacted an exploratory and iterative approach. Machine learning in creativity, the authors argue, is dependent on inputs which must be fully understood and results that are hugely abstracted, and suggests collaboration between AI and designers in the creative phase.

Hubert, Awa, & Zabelina, (2024) the current state of artificial intelligence generative language models is more creative than humans on divergent thinking tasks. This research measures the creative capability of language models from AI versus those of human beings by comparing responses to the Alternative Uses Task versus the Consequences Task versus the Divergent Associations Task. Findings reveal that AI models, especially GPT-4, are exceptional in creative capability on all lines of the divergent thinking tests compared with human subjects. AI-generated answers were much more creative and also more elaborative when taking response fluency into account. This premise is questioned-the perception that creativity is something human-unique; for they argue that, actually, modern AI language models are beyond the creativity of human responses therein.

Czerkawski (2024) AI and the Learning Experience Design: From Divergent Creativity to Convergent Precision. Artificial intelligence (AI) has emerged as an important area in learning experience design as it relates to both divergent and convergent thinking. The author goes on to say that AI can create the conditions of the creative process by facilitating a divergent thinking process that generates multiple ideas and then convergent processes that enable students to refine and select the best solutions. Real-life experimental situations in which AI could bring forth the beneficial changes in the educational experience show personalized learning paths, adaptive feedback, and cutting-edge strategies for problem solving. AI is introduced into an educational environment to finally balance precision with creativity in improving outcomes in learning.

Kuo (2024) Transforming Tomorrow: This work presents a Practical Synthesis of STEAM and PBL for empowering students' creative thinking. International Journal of Science and Mathematics Education. This research is finding Science, Technology, Engineering, Arts, and Mathematics (STEAM) integration with project-based learning (PBL) to increase student's creative skills. This study presents a Tri-Phase STEAM PBL (TPSP) model and case study in a case school, describing how educational objectives and technologies can be synthesized so that students are empowered. The combined findings suggest this integrated approach promotes the learning environment that reinforces creativity, critical thinking and solution making. Based on this, combining the STEAM and PBL methodologies becomes the author’s conclusion: it constitutes a practical framework for developing students’ creative competencies and equipping them with the capabilities to meet future challenges.

Smith, Johnson, Lee, & Patel (2024), Enhancing Cognitive Engagement in AI-Enabled Healthcare: A Path to Improved Health Outcomes and Patient Satisfaction". Healthcare artificial Intelligence (AI) has been making some noise about how it can help improve patients, efficiency and decision making processes. Various AI applications have been studied from diagnostic tools, to personalized treatment plans, to patient monitoring systems. One of the key factors responsible for AI’s successful implementation is just patient engagement, the first of which is cognitive engagement, which includes a patient’s mental investment and active participation during interactions with AI technologies. Evidence suggests that more engaged cognitive activity with AI tools suggests better health outcomes and more patient satisfaction. Perceived ease of use, usefulness, and trust of AI systems are among the factors influencing cognitive engagement with AI systems. Demographic variables like age, education level, and experience with previous technology helps shape patients’ engagement level. The literature also points out possible barriers such as data privacy concerns, ethical considerations and digital divide, which could impede patient engagement with the use of AI technologies. Solving these problems is necessary for realizing all the benefits of AI in healthcare. In summary, this serves as sufficient evidence to maintain that stimulating cognitive engagement with AI enabled technology is a proposed method to augment value creation in Healthcare. For future research, patient engagement should be improved through strategies, ethical issues concerning privacy should be addressed and equitable access regarding healthcare solutions with the help of AI should be ensured.

Tyagi, Singh, Tiwari (2024) Artificial Intelligence Based Chatbots is Killing Creative Minds: An Effective Discussion on Modern Education. In: Abraham, Bajaj, Hanne, Siarry, P. (eds) Intelligent Systems Design and Applications. ISDA 2023: The chapter titled "Review of Methods Used in Forensic Human Identification" is part of the publication "Nature Inspired Methods for Smart Healthcare Systems and Medical Data." It was written by Youssef Mohamed, Noran Mohamed, and Ahmed M. Anter and covers a variety of forensic science identification methods.The authors have elaborated in as many as 16 pages-from traditional fingerprint analysis, dental records, and DNA profiling to the most modern science of face recognition and motion analysis. In this context, the chapter explains nature-inspired algorithms focusing on improving efficacy and accuracy in such identification methods and points towards a combination of biological concepts with computational processes for solving problems within forensics science.

CASE STUDIES

The case studies taken into consideration while analyzing the key areas of this paper involves:

Case study 1: A study published in the Journal of Medical Internet Research (Using Conversational AI to Facilitate Mental Health Assessments and Improve Clinical Efficiency Within Psychotherapy Services: An AI self referral tool for mental health services (Real World Observational Study) was implemented. By reducing assessment times, shortening wait time for treatment, decreasing dropout rates, improving treatment allocation accuracy and improving rates of recovery, clinical information from patients were collected by the AI system prior to assessments. This benefit was based on the study's emphasis of presenting clinical information prior to assessments.

Case study 2: When agent technology in artificial intelligence is introduced to the psychological health and educational support system of Japanese middle school students, that is the focus of the study. The study uses a sample group of 320 students divided into both experimental and control groups who received education on mental health through an AI-based family education system vs traditional health education. Results were remarkable showing psychological gains in the experimental group versus the control group, in relation to their obsessional symptoms, interpersonal tension, depression, anxiety, emotional imbalance, significantly reduced. The system being driven by AI could provide individualized, self-sufficient, and interactive support; and the system was capable of changing the family education practices forever and delivering improved mental health outcomes.

Case study 3: In this case study we examine how artificial intelligence (AI) can be integrated into mental health care, how it can transform the mental healthcare system and the associated challenges. AI, by analyzing multiple data sources such as speech patterns and physiological responses tackles diagnostic precision and personalization, delivering specialized treatments and predicting moods, and early psychosis. And it also makes digital interventions cheaper and more accessible at scale, especially in areas of low access. In addition to these problems of the digital divide, algorithmic bias, and privacy risks, there remain systemic problems. AI is extremely good at processing data, but it doesn't have what emotional intelligence, cultural sensitivity, and relational things that we have as people therapists, so it's important that there is a collaborative approach to it. XAI tools and hybrid models assure that AI complements human expertise; it doesn’t replace it. Ethical oversight, robust infrastructure, patient centered designs and sustainable and equitable adoption are necessary for adoption of mental healthcare for the sake of bridging the gap but without it empathy and dispositions will be lost.

Case study 4: Artificial intelligence (AI) integration in mental healthcare is the leading application of AI driven tools for transforming traditional methodologies. The power of using speech patterns, physiological responses and behavioral analytics to create personalized interventions is huge, enabling AI to provide significant advancements in personalization, diagnostic precision, and accessibility. Predictive tools can give us real time mental health condition insights, allowing early detection, and dynamic treatment plan adjustments.

While this case study illustrates that AI presents many critical challenges, we also see the critical challenges AI poses: the ethical issues of data privacy, risks in algorithmic bias and the need for human oversight to mitigate the limitations of automated systems. These limitations, however, underscore the need to sustain the human experience of therapeutic practice, as the emotionally rich, the culturally rich, and the relational complexity of mental health care are not fully captured by machine. AI complements the weakness of human expertise as a side tool to make human expertise very efficient and scalable, but not take away the core human interface.

The combination of state of the art technological capabilities with ethical considerations and human centered approaches can underpin the use of AI in evaluation by exhibiting itself through this case study propagating insightful application of AI in various fields in particular in the area of creativity assessments.

Case study 5: Collaborative AI enhanced digital mind mapping as a tool for stimulating creative thinking in inclusive education digital mind mapping as a tool for stimulating creative thinking in inclusive education for students with neurodevelopmental disorders: a pilot study: It is a study that investigates the possibility of combining AI generated prompts into the digital mind mapping, to promote creative thinking in inclusive learning environments.28 students with neurodevelopmental impairments were among the 163 participants in the study, which involved administering the Torrance Figural Creativity Test to evaluate creativity indicators such as originality, elaboration, and fluency. AI tools have been demonstrated to dramatically enhance creative thinking in all participants, particularly in kids who are neurodevelopmentally at risk. This suggests that these tools could benefit a range of learners. This paper explains this by highlighting how AI is changing creativity and developing inclusive teaching methods to accommodate the various cognitive life profiles.

Case study 6: This study has been titled “Putting GPT 3’s Creativity to the (Alternative Uses) Test” and looks at the creative wares that OpenAI’s GPT 3 language model offers in comparison to human’s responses to Guilford’s Alternative Uses Test (AUT). Divergent thinking is assessed by the AUT by asking people to produce as many 'alternatives' that the original object can be used for. Scientists used GPT3 results and human responses to assess their uniqueness, utility, surprise, and adaptability. Overall, the results demonstrate that human participants outperformed GPT-3 in terms of creative production. In some creative tasks, however, the study suggests that advancements in language models like GPT-3 will eventually match human performance. These findings inform future creation appraisal and provide insights into the function of AI in creative processes.

METHODOLOGY

This study methodology utilizes systematic review of the extant literature, case study and technological analysis of this intersection of AI and creativity assessment. The following steps outline the approach:

Literature Review: As a starting point, the research reviews with a detailed study of the academic papers, the journal articles and experimental studies of AI applications in creativity evaluation. It also covers tools like NLP, generative models and adaptive algorithms that are changing the way the field proceeds.

Case Studies: Through a case study analysis, practical applications of AI-driven creativity assessments are analyzed. AI integration can be included in well established and accepted tests like the Passi Test of Creativity and also in organizational and educational contexts.

Technological Analysis: Specific AI techniques including deep learning models and pattern recognition algorithms, as well as real time evaluation tools, are explored in the study of how they can help evaluate creativity.

Comparative Analysis: A comparison is made between traditional and AI based creative assessment to highlight the degree to which objectivity, scalability, and dynamic capabilities have been improved. The data sources for this research are based on professional context and global educational platforms, such as peer reviewed publications, reports, documents, and case reports. The study tries to analyze and highlight the theoretical comprehension from the papers reviewed in the field of AI to showcase how AI affects the creativity assessment process. The study combines theoretical insights and practical assessments to provide a complete overview of the concept of how AI impacts creativity assessments.

CREATIVITY ASSESSMENT APPLICATIONS

Improvements of Objectivity and Validity: Creativity assessments that use traditional methods of human evaluation are subject to subjective biases created by human evaluators. For instance, things like cultural predisposition, personal preference, biasing, all of which affect scoring consistency. These problems are solved by AI, which standardizes the evaluation process on the basis of certain criterias or parameters. Replies to algorithms can be analysed for their originality, fluency, flexibility and elaboration, so that there is no scoring that is subjective and doesn't reproduce the same way for different contexts.

Multidimensional scoring models are its strong point when it comes to quantifying creativity metrics with the help of AI powered tools. This is in contrast to human evaluators who tend to emphasize one aspect of creativity, like novelty, but AI systems do all at once: looking at both the practicality and emotional resonance of creative outputs. For instance, in the Passi Test of Creativity, AI can rate the originality of the responses, taken into consideration at feasibility and the relatedness to the task. From this perspective, creating a holistic creativity assessment creates a valid, reliable and applicable tool.

Real and Dynamic Evaluations: Real-time evaluation of creative outputs is one of the biggest advances brought by AI. However, much of the current assessment technology relies solely on static scoring frameworks; response can be scored after the fact. However, AI driven systems built on top of the NLP and generative models allows for the dynamic analysis of responses that get generated.

This capability is especially useful in education settings where students get instantaneous feedback on how they are approaching the creative tasks. Say an AI system can look at a student's written or visual response in real time, for example insights into what works well and what can be improved. Fostering such an interactive and engaging assessment experience gives learners more power to experiment and refine their ideas, while also allowing real time evaluation data a basis for improvement.

It is used in the professional contexts to evaluate team creativity in brainstorming sessions as well as while working on collaborative projects in real time. What AI tools can do is analyze group interactions to find the patterns of innovative thinking, and areas for improvement.

However, this application has huge implications for the advancement of agility in organizational settings.

Case Studies: Through various case studies and practical applications, this thesis demonstrates the transformative potential of AI for creativity assessments.

Educational Contexts: The Air Powered Creative Writing Assignments: Analysis of Originality, Coherence, and Stylistic Elements have been adapted by AI platforms such as Turnitin and Grammarly. The tools supply a great amount of detail, helping students refine their inventive expression.

Organizational Applications: For example, IBM and Google use AI tools to evaluate team creativity, finding high potential employees and encouraging creativity. Brainstorming sessions are analyzed by AI-driven platforms which provide information on the dynamic functioning of the team, as well as contributions to creative output.

Integration with Established Tests: To expand its ability to evaluate difficult and layered responses, we have augmented the Passi Test of Creativity with AI algorithms. With these tools we have been able to understand an individual's creative potential, and this allows us to perform targeted interventions, and personalized development plans.

AI driven tools are revolutionizing the evaluation process by streamlining the process and deepening the analysis of creativity across wide swathes of professional applications.

CHALLENGES AND LIMITATIONS

Ethical Concerns: Integration of AI and creativity assessments brings in many ethical challenges – from privacy of data, transparency, and misuse of results. Typically, AI systems rely on data created by humans themselves — often data that contains their sensitive personal information. Being limited to collecting, storing, and processing such data is a concern regarding compliance with privacy rules like GDPR, CCPA. Prevent breaches and misuse requires that organizations anonymize and securely store data and can only use it for legitimate purposes.

Also, transparency is important. Most AI models, especially those based on deep learning, are 'black box': their result cannot be explained. This lack of transparency can destroy trust in AI assessment of creativity, especially without a workable way to explain the workings of an AI driven creativity score. In order to deal with this, developers have to focus on the explainability and so they have to design algorithms which can provide explicable and understandable insight in their contracting process.

Misuse is also possible, where AI generated assessments may be turned against people or people groups by discriminating against it. For instance, for example, in contexts under organizational settings, employees might be subjectively under judged regarding their creativity scores when important contextual factors are not taken into consideration. They prevent such scenarios from happening, they help build ethical frameworks and be regulated accordingly to make sure that AI tools are used responsibly and equally.

Cultural Biases: All that AI is only as unbiased as the data it learns from. Unfortunately many datasets used to train creativity evaluation algorithms are narrowly focused and orthogonally varied by themes, causing cultural bias towards some groups more than others. For example, when an AI system learns predominantly on old Western-centric data, it won't be able to learn and evaluate creative expressions developed out of non-Western traditions out of bias.

And those biases can show up in a number of ways: overemphasis on one particular form of language, or undervaluation of culturally specific art forms. Developers need to upload diverse datasets in order to create more inclusive AI tools: datasets that capture a lot of different perspectives. A further enhancement of the system's ability to identify and appreciate diversity of forms of creativity would be possible through collaborating with cultural experts and linguists.

Nature of Creativity - Subjective: Despite its great potential for capability, AI is lacking in the ability to grasp the highly subjective and multiple examples of human creativity. Algorithms don’t know what it means to ‘write,’ to make a work personal and contextual — these are things that mean a great deal to human creativity but aren’t easy to quantify algorithmically. Let’s take a poem or an artwork for instance: If a poem, for example, draws deep resonance with human evaluators because it struck an emotional nerve but an AI cannot respect this subtlety as it is not primarily concerned with any other metrics apart from a preset set of metrics – originality and coherence, for example.

Moreover, creativity is often situational and situation dependent, so one thing can be considered creative in one context and not the same the next. However, AI systems work on generic regularities that can miss out these contextual details. This, however, serves as a reminder that AI tools should enhance — not replace — the human aspect of judgment.

FUTURE DIRECTIONS

Adaptive Assessments: One promising avenue for further research will be to develop adaptive AI systems which can adapt creativity assessment to individual cognitive profile. Such systems could dynamically adjust to real time analysis of a participant's response to dynamically adjust criteria of the evaluation for more personalized insights that will help in self awareness and creative growth.

One example of this might be the AI app starts with a baseline task like creating as many uses for a common object as it can. The system could gradually increase in complexity of or abstraction from, based on the participant's response, so as to introduce more complex or abstracted tasks that require creative thinking. This adaptive approach keeps assessments exciting and up to date, by need of the individual's strengths and weaknesses.

Cultural Frameworks: To solve this problem of cultural bias, future AI systems will need to build more inclusive systems, namely, by using more diverse datasets and culture sensitive evaluation frameworks. It entails creating larger sets of available training data as well as redefining evaluation metrics around a greater variety of creative expressions.

For example, AI tools might be created to see and appreciate traditional art forms, indigenous storytelling methods and all the other ways that society creates that are culturally specific. These systems can be further deepened with the collaborations of cultural anthropologists, linguists, and artists to make the integration of diversity instead of augmentation of the previous biases.

Cross Disciplinary Collaboration: To develop robust AI driven creativity assessment tools, you will need to collaborate with the domain of data science, psychology, education and ethics. By providing understanding of the cognitive processes behind creativity, psychologists can help with insights; doing the same for these cognitive processes themselves for data scientists would mean designing algorithms to mimic the same. Starting with practical reflections on how these tools may be incorporated into learning environments, educators can provide practical perspectives, and ethicists can guarantee that the systems are congruent with societal values and norms.

Mutual exchange between researchers and practitioners can offer the opportunity for development of holistic assessment tools simultaneously respecting ethical principles and being scientifically rigorous and practically relevant.

IMPLICATIONS

The implications of AI driven creativity assessments are progressive for all fields of education, organizational development, and psychological research.

Educational Contexts: AI tools can make an incredible difference in how creativity in the education setting is nurtured, and with the help of AI tools, how creativity can properly be evaluated. For example, AI can be used for tailoring the teachers' feedback about their students' creative work, enabling them to determine where students can improve, and how to improve their creative potential. Additionally, real time evaluation allows the transition from episodic testing to continuous assessment so a more dynamic and engaging learning environment can take place.

Likewise, AI driven assessments can also democratize access to creativity evaluation by making the tools available to underserved communities. Using scalable and cost efficient cloud based platforms, schools and educational institutions around the globe will use creativity assessments.

Organizational Applications: AI tools can be useful at weeding out creative talent in professional settings and growth organizations shall attempt to cultivate. Let's say some companies can utilize AI-driven evaluations of employees and their problem solving, innovation potential and collaborative creativity. With their help, talent management strategies, team building efforts and innovation programs can be shaped.

One way in which AI tools enable organizational learning is by finding patterns and trends in team creativity. It's for example that an AI system might be watching brainstorming sessions to investigate which strategies are more effective at creating new ideas for an organization to better the adventure process.

Research and Policy Development.: AI driven creativity assessments provide researchers with an important tool to understand the cognitive and social aspects of creativity. Analyzing large scale datasets helps researchers learn new information about how creativity evolves in terms of populations and contexts.

These tools also can be used by policymakers to guide both education and workforce policies. For example, data on creativity trends generated by the AI driven assessments can guide policymakers to develop programmes to promote innovation and creativity at the society level.

DISCUSSION

The case studies discussed lend strong support to the integration of Artificial Intelligence (AI) into creativity assessments, as explored in this paper. They offer practical insights into the transformative potential of AI and situate its application in real world settings, while presenting implications for education and organizational settings alike.

Relevance of Case Studies

Mental Health Assessments using Conversational AI: The results of the study on conversational AI in mental health assessments point out the potential of AI in speeding up the assessment time, reducing dropouts and improving allocation of treatments. These findings correlate with the goals of AI-driven creativity assessments given efficiency and precision are key. To give an illustration, conversational AI can even customize mental health support based on individual cognitive profiles; likewise, in creativity assessments, AI can deliver evaluations tuned to personal cognitive profiles to advance more inclusive and adaptive assessment design.

Japanese Educational Support Systems with AI: A case study of AI based psychological and educational support for Japanese middle school students illustrates the capacity of the system to provide personalized and interactive support. This is in line with approaches used by AI driven creativity tools aiming to tailor tasks and assessments to the various learning needs. What's more remarkable is the psychological gains seen in the experimental group, which show how AI can increase engagement and creativity—key features for underrepresented and neurodiverse learners.

Inclusive education through AI enhanced mind mapping: AI enhanced digital mind mapping for neurodevelopmentally diverse students is explored in a pilot study which also provides an example of how AI supports creative prowess. By using Torrance Figural Creativity Tests in assessing the earlier ones, whether it is fluency, originality, or elaboration, we can see that using AI in the work makes creativity assessment more inclusive and more effective. In this study, AI is shown to support diverse cognitive portfolios, a highly pertinent aspect of developing equitable assessment frameworks.

The discussed case studies are spectacular evidence towards the potential that AI could bring to creativity assessments. In this, AI can address challenges like cultural bias and ethical constraints, and draw support from an interdisciplinary collaboration in order to provide for more inclusive and adaptive assessment frameworks. These frameworks have the promise of being able to measure, but also nurture, creativity in 'place' — across a range of educational and organizational settings.

CONCLUSION

While artificial intelligence can transform creativity assessment, overcoming decades of subjectivity, scalability and cultural bias. AI tools can provide the objective, the adaptive, the dynamic evaluation frameworks thus enabling unprecedented understanding and measurement of creativity.

However, while successful, there are ethical, cultural and practical challenges to be worked through in integrating AI into creativity assessments. To ensure that AI tools are equitable, they must first be transparent, inclusive and collaborative. In addition, future work is needed to fine tune these tools and address their limitations, in particular, their ability to capture the subjective, subjective, subjective and subjective aspects of Creativity.

With continued growth in AI, the creative potential of individuals, organizations and societies will be empowered to recognize and learn to cultivate. This means we can bring to bear the full capabilities of AI to bring us a future where creativity is celebrated, understood, and cultivated on a worldwide scale by fostering interdisciplinary partnerships and taking a balanced approach.

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Leveraging Artificial Intelligence to Transform Human Resource Management: Challenges and Opportunities

An analysis of the integration and impact of AI in HR Practices

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Abstract

The incorporation of Artificial Intelligence (AI) into Human Resource Management (HRM) is transforming conventional HR practices, allowing for more effective, data-informed decision-making. This paper examines the transformative impact of AI in different HR areas, such as talent acquisition, employee engagement, performance management, and training. By automating tedious tasks and examining intricate datasets, AI enables HR professionals to concentrate on strategic initiatives that promote organizational growth. Nevertheless, the implementation of AI poses obstacles like algorithmic biases, ethical issues, and the necessity for a balance between automation and human involvement in decision-making. This document also explores approaches to address these challenges while utilizing AI for the best results. The conversation highlights the significance of synchronizing AI abilities with company values and nurturing employee trust to guarantee effective implementation. In the end, the research emphasizes that AI can be a significant asset to improve HRM, as long as its incorporation is handled with careful planning and accountability.

Keywords: Artificial intelligence, Human Resource, Automation, Organizational Growth

Introduction

Artificial intelligence has revolutionized the way we use AI tools in different fields of work, and human resource management is one of them. Human resource management is vital to the growth and success of any organization, and integration of AI in talent management, employee engagement, training and development, and performance management is highly necessary in this time of technological advancements and rapidly evolving work dynamics.

Data-driven decision-making, efficiency, and technology are steadily replacing the repetitive tasks and intuitive decision-making of traditional HRM. This has been possible mainly due to globalization, a diversified workforce, and growing complexity of employee expectations. The role of HR teams has also changed from administrative functions to contributing to strategic organizational goals and adding value to service.

Artificial intelligence has immensely contributed to the field of HR in some of its core domains like recruitment, training, and operations. These AI tools help us to automate the functions in HR and save time. The integration of AI is not just a trend, it is a necessity for organizations if they aim to remain competitive in a rapidly changing business environment.

Methodology

This paper employs a qualitative case study approach and analyzes real- world examples from leading organizations. These cases were selected based on their relevance to key HR domains and the availability of measurable outcomes. Data was gathered with the help of Organizational reports, published studies, digital publications, and web articles.

Case studies:

Case Study 1: Recruitment and Talent Acquisition

Organization: Walmart; AI tool: Eightfold.ai

Overview: The global retail behemoth Walmart hires thousands of workers annually to meet their various business requirements. They needed a way to minimize hiring prejudice, ensure skill alignment, and handle and expedite high-volume hiring.

Implementation: Walmart adopted **Eightfold.ai**, it is an AI powered talent acquisition tool which uses machine learning as well to identify the best candidates by analyzing their resumes, work history, and other parameters which in turn enhanced its recruitment process.

Key features of Eightfold.ai:

- ➢ **AI Matching:** Matches the candidates to suitable roles based on their skills and potential instead of job titles
- ➢ **Bias Detection:** Identifies potential bias in job descriptions and evaluations thereby ensuring fairness in hiring decisions
- ➢ **Talent Rediscovery:** Utilizes past applicant data and identifies suitable candidates for new roles
- ➢ **Predictive Analytics:** Forecasts hiring needs and talent supply using available data

Outcome:

- Reduced hiring time by 40%.
- Streamlined application process enhanced the candidate experience.
- Increased internal mobility by 25% and enabled employees to transition to new roles.
- Improved diversity metrics across recruitment pipelines.

Case Study 2: Employee Engagement

Organization: Nestlé; AI Tool: NesGPT

Overview: Nestlé, which has operations in more than 190 nations, aimed to raise goal alignment and employee engagement. It required a platform that allowed for real-time collaboration and offered meaningful insights into employee opinion because of its sizable and diverse staff.

Implementation: Nestlé created NesGPT, an internal AI-powered application that uses generative AI to boost productivity and staff engagement. Nestlé's communication channels and HR systems are integrated with the tool.

Key Features of NesGPT:

- ➢ **Sentiment Analysis:** Tracks employee morale and identifies areas of concern through survey data and feedback.
- ➢ **Goal Setting and Tracking:** Assists employees in setting SMART goals aligned with organizational objectives.
- ➢ **Real-Time Collaboration:** Provides instant recommendations for team collaboration and task prioritization.

Outcome:

- 20% increase in employee engagement scores.
- Enhanced communication between teams, fostering a collaborative culture.
- Reduced employee turnover by 15% through better satisfaction and alignment.

Case Study 3: Learning and Development

Organization: Coca-Cola HBC; AI tool:Cornerstone OnDemand

Overview: In order to adapt to changes in the industry and guarantee ongoing innovation, Coca-Cola HBC sought to upskill its employees. Conventional training programs lacked individuality and required a lot of resources.

Implementation:To provide customized training, Coca-Cola HBC implemented Cornerstone OnDemand, an AI-powered learning management system. The platform analyzes skill gaps and suggests courses using artificial intelligence.

Key features of Cornerstone OnDemand:

- ➢ **Personalized Learning Paths**: AI suggests relevant training modules for each employee.
- ➢ **Skill Gap Analysis:** Identifies gaps and matches them with development opportunities.
- ➢ **Progress Tracking:** Provides real-time dashboards to monitor learning outcomes.

Outcome:

- 30% increase in training program participation.
- 40% improvement in employee skills relevant to organizational needs.
- 25% reduction in training costs due to targeted learning interventions.

Case Study 4: Performance Management

Organization: Accenture; AI tool: Workday

Overview: Accenture switched to a continuous performance management methodology from traditional performance evaluations. Real-time feedback, dynamic goal alignment, and staff development were the objectives.

Implementation: Accenture's new performance management strategy was supported by the implementation of Workday, an AI-powered HR system. The software provides analytics, individualized coaching, and real-time tracking.

Key features of Workday:

- ➢ **Continuous Feedback:** Enables frequent performance discussions between employees and managers.
- ➢ **Goal Alignment:** Tracks progress on individual and team goals in real time.
- ➢ **AI Recommendations:** Suggests development opportunities and personalized learning paths.

Outcome:

- 35% increase in employee satisfaction with the appraisal process.
- 25% improvement in goal achievement rates.
- Managers saved 40% of time on evaluations and goal tracking.

Challenges:

Data security and privacy issues, algorithmic biases and ethical concerns, and management and employee resistance to change are some of the obstacles to the incorporation of AI in HRM. Adoption is made more difficult by high upfront investment costs and a lack of expertise in administering AI systems, necessitating thorough preparation and training.

Opportunities:

Numerous advantages of AI in HRM include improved decision-making with data-driven insights, more personalization in employee experiences, and increased efficiency and scalability of HR procedures. By identifying and correcting biases, it promotes diversity and inclusion while enabling cost savings through automation and predictive analytics.

Discussion:

The Walmart, Nestlé, Coca-Cola HBC, and Accenture case studies demonstrate how AI has the ability to revolutionize important HR areas including hiring, employee engagement, learning and development, and performance management. These companies have effectively used AI solutions such as NesGPT, Workday, Cornerstone OnDemand, and Eightfold.ai to improve decision-making, increase personalization, and streamline processes. Reduced hiring times, higher employee engagement, cost savings, and better training attendance are some of the results.

But issues including algorithmic biases, data privacy concerns, change aversion, high implementation costs, and a lack of expertise in managing AI systems continue to be major obstacles. Notwithstanding these challenges, the advantages of AI—such as increased productivity, scalability, and diversity as well as data-driven insights—make its implementation a strategic necessity for businesses hoping to prosper in a business environment that is changing quickly.

Conclusion

The results show that AI is a strategic facilitator for HRM rather than merely an automation tool. AI improves company effectiveness and streamlines procedures from hiring to performance management. Organizations must make investments in ethical AI systems, ongoing learning, and employee trust-building strategies in order to realize its full potential. Future studies should investigate AI's long-term effects on HRM and create frameworks for adoption that are sustainable.

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Effectiveness of AI Platforms on Increasing Employee Engagement

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Abstract

The study on AI Platform effectiveness in fostering employee engagement globally as well as within India reveals tremendous potential for enhancing employee satisfaction and productivity. Such artificial intelligence tools like automated feedback systems, chatbots, and predictive analytics have contributed to real-time support and personalized intervention along with continuous feedback leading to greater engagement and motivation among the employees. These technologies streamline HR processes, improve communication, and offer timely recognition, fostering a positive work environment. Studies in India show that AI improves employee engagement by providing personalized and timely interventions. However, challenges remain with transparency, data security, and ethics in artificial intelligence applications. Employees who might be concerned about the impact of AI on their role may also be opposed to AI. Despite all these challenges, the overall benefits of AI in enhancing employee engagement through efficient, personalized, and real-time solutions make it a valuable asset for modern organizations globally and in India.

Keywords: Employee engagement, AI platforms, organization.

Introduction

Employee engagement is vital to the success of an organization. It refers to the level of commitment, passion, and excitement that employees have for their work and organization. Engaged employees are more productive, innovative, and loyal and thus bring better business results.

The rise of AI in the workplace has opened doors for increasing employee engagement. AI-powered systems can automate tasks, personalize experiences, and provide deep insights into employee behaviour. Therefore, this research delves into whether AI platforms on employee engagement.

Work engagement is a broad concept that includes many facets of the work experience. This includes:

Employees are emotionally committed to their work and the organization's mission. Cognitive involvement: Employees actively consider their work and how to enhance it. Behavioural commitment: Employees go above and beyond their job description, taking initiative and contributing in ways that are not required.

The Rise of AI in the Workplace

Artificial intelligence is revolutionizing the workplace at a breakneck pace, affecting many parts of labour, including:

Automation. AI automates time-consuming processes, freeing employees for more strategic and creative pursuits.

Data analysis: AI scans huge datasets to identify patterns and trends, which can be useful in understanding the behaviour and preferences of employees.

Personalization: AI makes the employee experience more individualized, such as in training programs and communication.

AI Applications Platforms Employee engagement employs numerous technologies including several AI technologies.

Chatbots: AI Chatbots respond immediately and as a result, employees immediately respond without feeling frustrated.

Personal learning platforms: Artificial intelligence supports customized learning experiences for different staff needs and preferences, elevating engagement and effectiveness.

Performance management tools: AI analyses employee performance information to identify areas of enhancement and provides personalized feedbacks.

Employee recognition platforms: AI identifies and rewards employees for their efforts, thus enhancing morale and motivation.

AI-based mental health and wellness platforms offer personalized support to employees, thus reducing stress and improving overall well-being.

Literature

Recent research has focused on the integration of Artificial Intelligence (AI) in employee engagement strategies. This overview presents 15 relevant lines of research (ROLs) derived from various studies, articles, and publications that illustrate the effectiveness of AI platforms in enhancing employee engagement.

1. **Real-Time Feedback Mechanisms**: AI tools provide real-time feedback through sentiment analysis and natural language processing, allowing organizations to monitor employee morale continuously rather than relying on static annual reviews. This immediacy enhances responsiveness and makes employees feel heard, fostering greater engagement (Sodale Solutions, 2024)
2. **Predictive Analytics for Retention**: AI-driven predictive analytics can identify potential turnover risks by analyzing employee feedback and performance metrics. This proactive approach enables organizations to intervene before disengagement escalates, ultimately improving retention rates (Gap Bodhi Taru, n.d.
3. **Personalized Engagement Initiatives**: AI technologies facilitate the customization of employee engagement strategies based on individual preferences and performance indicators. Such personalization fosters a sense of belonging among employees, which is crucial for enhancing job satisfaction and overall engagement (Gap Bodhi Taru, n.d.)
4. **Augmentation of Human Interaction**: Rather than replacing human interaction, AI augments it by providing HR professionals with actionable insights that allow for timely and empathetic responses to employee concerns, thus deepening relationships within the workplace (Sodale Solutions, 2024)
5. **Enhanced Communication Channels**: AI platforms improve communication between employees and management through chatbots and automated feedback loops, enabling immediate responses to concerns and suggestions. This promotes organizational transparency and trust (Gap Bodhi Taru, n.d.)

6. **Streamlined HR Processes**: AI in HR processes—such as onboarding, training, and performance management—reduces administrative burdens on HR teams, allowing them to focus more on strategic initiatives that enhance employee engagement (Leena AI Blog, n.d.)
7. **Data-Driven Decision Making**: AI empowers organizations to make informed decisions based on data-driven insights rather than intuition alone. This shift leads to more effective engagement strategies tailored to the evolving needs of the workforce (Sodale Solutions, 2024)
8. **Increased Productivity**: Studies indicate that AI-enhanced employee engagement correlates with increased productivity levels as employees feel more connected and valued within their roles (ResearchGate, n.d.)
9. **Support for Remote Work**: AI tools facilitate effective communication and collaboration among remote workers, addressing the challenges posed by distance and promoting a cohesive work culture even in virtual settings (Leena AI Blog, n.d.)
10. **Continuous Learning Opportunities**: AI platforms can identify skill gaps and recommend personalized learning opportunities for employees, thereby fostering a culture of continuous development that enhances engagement (ResearchGate, n.d.)
11. **Reduction of Bias in Recruitment**: By leveraging AI in recruitment processes, organizations can minimize bias and ensure a more diverse workforce, which is linked to higher levels of employee engagement and satisfaction (Leena AI Blog, n.d.)
12. **Empowerment through Autonomy**: AI allows employees to take ownership of their work by providing them with tools that enhance their ability to manage tasks independently while receiving support when needed (ResearchGate, n.d.)
13. **Cognitive Engagement Enhancement**: Research shows that AI positively impacts cognitive aspects of employee engagement by providing tools that help employees manage their workload more effectively (Tandfonline, 2024)
14. **Emotional Engagement Support**: The emotional dimension of employee engagement is bolstered through AI's ability to analyse sentiments expressed in communications, enabling timely interventions that address emotional well-being (Tandfonline, 2024)
15. **Holistic Engagement Frameworks**: The development of comprehensive AI-enabled frameworks for employee engagement integrates various dimensions—physical, cognitive, and emotional—leading to a more engaged workforce overall (ResearchGate, n.d.)

DISCUSSION

There are plenty of advantages with the AI systems with regard to increasing employee engagement. Immediately Appreciating Systems describe one's level of output or effort and through feedback, these systems boost morale since they can instantly recognize and appreciate efforts. Career development and learning needs of workers are taken into consideration by the targeted learning systems which offer appropriate development opportunities on a per – employee basis. The employees who are at high risk of leaving or not performing are much easier for the employer to get support since Artificial Intelligence Systems have the predictive insights of employee leaver trends. Artificial Intelligence Systems assist in collaborative working and communication as well as eliminate monotony in answering routine questions through AI powered virtual assistants.

Challenges of Implementing AI in Employee Engagement

While beneficial, the use of AI in employee engagement presents challenges. Data privacy concerns are paramount as employees may feel wary to AI systems collecting and analyzing data related to their work. Algorithmic bias can reinforce biases that exist if AI systems are not designed and supervised properly. Human interaction replacement can invoke a sense of detachment in the employees in the case that AI systems are overused as a communication and feedback tool. Technical expertise is needed to introduce and operate the AI tools which can be expensive and time consuming. Moreover, operational cost can also be a constraint particularly to small businesses.

There are key considerations when implementing AI into employee engagement. Firstly, transparency about the functioning of AI systems and the use of data increases the trust of employees toward it. Strong security measures help to protect sensitive employee information. Ethical applications of AI tools enhance inclusiveness and fairness in their application. Human-AI collaboration: This should help improve rather than replace human interaction. Continuous monitoring and refinement of AI systems will lead to addressing arising issues as well as to making it effective and relevant.

CASE STUDIES

1. Delta Air Lines: Delta Air Lines utilizes AI surveillance software to monitor the sentiment of employees through communication, which helps them gather feedback and maintain official records of all the interactions.

2. Google: Google employs AI-driven feedback tools, which provide timely insights to employees, thereby enhancing their performance and satisfaction.
3. IBM: IBM uses the AI learning platforms to diagnose employees' skills and recommend personalized developing paths, keeping their force motivated and engaged.
4. Qualtrics: Qualtrics uses AI for sentiment analytics; it analyses text data from employee communications to deduce mood and morale, with an aim to address before things get out of control.
5. Eightfold.ai - Eightfold.ai uses AI to identify fatigue and burnout in middle management by offering proactive support to retain top talent and maintain high levels of engagement.

Significant employee engagement advantages of AI platforms Real-time feedback and recognition improves morale and productivity. Personalized learning as based on individual career objectives, predictive analytics in real-time to provide proactive support for them to work more efficiently with smart communication and collaboration efficiency due to intelligent virtual assistants. However, it is not without challenges; some of the main ones include data privacy issues, algorithmic bias, the potential to replace human interaction, requires technical expertise, and it's quite costly to implement.

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Changing Dynamic in the Workplace in the Era of AI

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Abstract

Artificial Intelligence (AI) is radically changing workplaces and how businesses handle employee welfare and human resource management (HRM). AI encourages creativity, innovation, and the growth of emotional intelligence in data-driven organisations by automating repetitive tasks and improving strategic decision-making. A more flexible and emotionally aware workforce is supported by emerging technologies like augmented intelligence and emotion artificial intelligence (AI), which provide tools for interpreting emotions and addressing mental health issues.

Even though research indicates that emotional intelligence is better indicator of organisational success that IQ, many businesses continue to disregard the importance of emotional well-being. By facilitating focused interventions, enhancing mental health, and increasing overall productivity, AI's capacity to recognise and manage human emotions at work is changing workplace dynamics.

With an emphasis on how AI can improve organisational effectiveness, employee happiness, and emotional resilience, this study examines how AI is changing conventional workplaces

practices. Businesses can establish a cooperative workplace where technological advancements and human abilities coexist harmoniously by incorporating AI into workplace strategies.

Keywords- Artificial Intelligence, Role of AI, Human resource management, Workplace dynamics, Workplace and AI.

Introduction

The workplace is a significant part of our lives, where we spend many hours daily. A revolutionary era has been ushered in by the development of Artificial Intelligence (AI) in the field of Human Resource Management (HRM), which has changed traditional methods and opened up new possibilities for strategic workforce management (Sesha Bhargavi Velagaleti, 2024). AI in HRM is reshaping the conventional era of HRM by changing how organisations function and how they handle their employee welfare. AI helps organisations to focus on strategic objectives and to promote innovation. It improves the decision-making processes of the organisations and also automates repetitive tasks performed by them.

When we talk about the changing dynamics, we cannot miss to highlight one of the most significant shifts brought by AI which is Emotional Intelligence. AI is bringing big changes to workplaces by helping build emotional intelligence. New technologies like augmented intelligence and emotion AI can understand human emotions and support mental health. These tools can create a more caring and supportive work environment. Research shows that emotional intelligence is more important for workplace success than IQ, but many companies still don't focus on it enough. Forbes claims that Augmented Intelligence is a different approach to Artificial Intelligence that places and emphasis on improving human performance. In data-driven organisations, AI and Machine Learning foster creativity, innovation and the development of social and emotional competencies (Hu A., 2024). This paper looks at how AI is changing workplace practices, improving employee well-being and helping people become more emotionally sound.

Methodology

Literature Review

This study combines the findings from existing literature and research to show how AI is being used in the workplace.

Defining the term AI

The literature defines Artificial Intelligence in a variety of ways, all expressing its capacity for human-like thought, learning and performance (e.g., Wilkens et al., 2021a, b). “The ability of a system to accurately interpret external data, learn from it, and apply that learning to accomplish particular tasks and goals through adaptable flexibility” is what a study defines it as (Fenwick et al., 2023).

Emergence of AI

AI can simply be referred to as machines or computer systems that imitate human intelligence. AI may be the rage now but the concept of AI dates back to the 1950s when scientists started exploring how machines could solve problems like humans. Even in earlier times, computers exhibited the ability to process information, which is far more refined and enhanced now.

The developmental journey of AI started at a conference held at Dartmouth College in the year 1956, where the term “Artificial Intelligence” was first used, moving further with other important milestones (Jaakkola et al., 2019). The 1980s was the growth of AI with the development of expert systems, which applied rules to resolve challenging issues. In the 2000s, a subset of AI called Machine Learning made it possible for computers to learn from data without explicit programming. The 2020s are remarkable as they saw advancements in the form of Deep Learning and Natural Language Processing (NLP), which allowed AI to comprehend and react to human speech (Shimada, 2023).

Application of AI

Today, AI is at its peak, is more sophisticated and is applied across many fields. AI integration into HRM is strategically significant for reasons other than just improving operations. It represents a fundamental change in how talent management is approached, enabling HR professionals to handle the complexities of hiring, employee engagement, and overall organisational productivity in a constantly changing environment, along with taking care of mental health and workplace wellbeing (Mody & Mody, 2019).

Organisations are adopting modern technology and embracing this digital transformation primarily because they have recognised the immense power of data and how crucial it is to both individual and organisational performance.

Business environments are changing quickly, so quick responses are needed. The first and most important stage in HRM is human resource planning. In this process, the Human Resource Information System (HRIS) is important. HRIS can be understood as "A methodical process for gathering, storing, preserving, retrieving, and verifying information required by an organisation. It concerns its personnel activities, human resources, and organisation unit attributes" (Vijh et al., 2021b). HR planning, creating job descriptions, assessing performance, creating training plans, and other tasks can all benefit from HRIS.

Discussion

AI is changing the workplace by introducing tools that boost productivity and improve employee satisfaction. One major change is automation, which takes over repetitive tasks. This gives employees more time to focus on creative and strategic work. For example, AI tools can help with project schedules and use data to predict market trends.

Another big development is Emotion AI. This technology reads facial expressions, voice tones, and texts to understand how employees feel. It can detect stress or unhappiness, helping companies take steps to support their teams. AI-based mental health tools, like virtual therapists and stress trackers, also offer real-time support to help employees handle emotional challenges.

AI also makes it easier to be more flexible at work. Remote work tools powered by AI help teams communicate and collaborate smoothly. This flexibility improves work-life balance, which boosts job satisfaction and increases productivity.

However, using AI in the workplace comes with challenges. Privacy is a big concern because emotion analysis needs a lot of personal data, which can make employees uncomfortable. Companies must set rules to protect data and use AI responsibly. Another challenge is the lack of skills needed to use AI tools, so proper training is necessary. Lastly, some people worry about losing their jobs or doubt AI's abilities, which makes them resist these changes.

Outcome

Using AI at work has many benefits. Companies have seen better productivity because workflows are faster and resources are used more effectively. Emotion AI tools have improved communication and helped employees build emotional strength, creating a better workplace environment. AI mental health tools have boosted employee happiness and made them more likely to stay with their jobs meeting their emotional and mental health needs.

Conclusion

AI is definitely changing how workplaces operate by making tasks more productive, encouraging creativity and supporting emotional well-being. However, businesses need to balance using new technology with being ethical and focusing on employees. This includes providing proper training, solving privacy concerns, and working together to adopt AI. By doing so, companies can create a space where technology and human skills work side by side.The fast-growing adoption of specialised AI systems is markedly upending human resource management. Big Data, Machine Learning, and Artificial Intelligence are transforming the way businesses run- automating mundane and manual tasks, allowing professionals to focus on learning newer skills and evolving role (Kulik & Fletcher, 2016). Numerous organisations already employ semi-automated systems are already employed gathering, sorting, and analysing data for hiring, performance and retention. As there will be continuous improvement of AI, it is anticipated that it will improve HR related functions and we will have a machines and human work together. As AI continues to grow, it will play and important role in improving work processes and supporting employee wellness.

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OPTIMIZING TECHNOPRENEURSHIP FOR ENTREPRENEURSHIP DEVELOPMENT IN NIGERIA

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Abstract

Technopreneurship is currently regarded as one of the most widely used neologisms in the field of entrepreneurship in Nigeria. It is aligned with the ongoing Fourth Industrial Revolution. Technopreneurship pertains to the entrepreneurial and intrapreneurial activities carried out by both existing and new firms operating within sectors driven by technology. The primary aims of this study are twofold: firstly, to emphasize the potential of technopreneurship in fostering the development of entrepreneurship in Nigeria. Secondly, that various other entrepreneurship neologisms can equally be leveraged for entrepreneurship development in Nigeria. Therefore, this conceptual paper has brought attention to additional neologisms in the field of entrepreneurship, in addition to technopreneurship. At a higher level of analysis, we employed the analytical

methodology and Joseph Alois Schumpeter's innovation theory to examine significant concepts such as technopreneurship processes, the evolution of technopreneurship, the Internet of Things (IoT), the Industrial Internet of Things (IIoT), and the Four Industrial Revolutions, among others. Based on this premise, we have successfully outlined a set of proposals that highlight the potential for the Nigerian economy to utilize technopreneurship as a means to foster the growth and development of entrepreneurship.

Keywords: Technopreneurship, Entrepreneurship, Technology

INTRODUCTION

The neologism, "technopreneurship" emerged in 1987 as a combination of the words, "technology" and "entrepreneurship," (Khofiyah, Sutopo, & Hisjam, 2020)and it has gained significant recognition and popularity with the aid of the internet. Technopreneurship, a nascent and auspicious category within the realm of entrepreneurship, is well-suited for individuals who possess a proclivity for innovation, a strong inclination towards technology, and a fervent desire, along with a willingness to undertake calculated risks. It is concerned with the entrepreneurial, interpreneurial and intrapreneurial endeavours undertaken by established and emerging firms functioning within technology-driven sectors (Thérin, 2007). Technopreneurship sifts the technophobe, who is averse to technology from the technophile, who loves technology.

Technopreneurship, a neologism coined in 1987, combines the terms "technology" and "entrepreneurship" and has gained popularity over time through the internet. It is a nascent field in entrepreneurship for individuals with a strong interest in technology, innovation, and calculated risk-taking mindset and skills. It encompasses entrepreneurial and intrapreneurial activities in technology-driven sectors (Thérin, 2007), separating technophobes from technophiles.

Technopreneurship and entrepreneurship are collaborative endeavours that require strong passion, innovative thinking, and technology proficiency. Both require systematic integration of technological and entrepreneurial skills to boost innovation and value generation for wealth creation, wealth multiplication, wealth diversification, wealth distribution, wealth domestication, and sustainability(Godson, 2014).Hence, technopreneurship combine entrepreneurial skills with technological proficiency (Jusoh & Halim, 2006), to showcase originality, inventiveness, adaptability, and passion.

On the hand, Entrepreneurship involves systematic ideation, idea screening, identifying opportunities, strategic teamwork, resource allocation, risk management, and value generation(Kuratko,2005; Schumpeter,2013; Kao,2006; Drucker,1985). It aims to create wealth, personal autonomy, and financial security, leading to increased satisfaction and accomplishment.

Therefore, technopreneurship is the fusion of technological expertise and entrepreneurial acumen to create commercial entities generating value. It involves transforming theoretical ideas into tangible actions, focusing on potential impacts for individuals, organizations, governments, and the global community, and involves new innovations, manufacturing, and distribution (Okorie, Kwa, et al,2014; Oakey,2003; Foo & Foo, 2000).

TECHNOPRENEURSHIP: A CONCEPTUAL LITERATURE REVIEW

The primary objective of this conceptual literature review is to classify and elucidate several concepts appertaining to technopreneurship in order to enhance better comprehension and appreciation of the subject matter. Technopreneurship is a nascent concept that is gaining high level of acceptance among scholars in diverse fields such as business, science, technology, and professionals in the business sectors. Its emphasis is basically on the integration of technology with entrepreneurship to better results (Oyedele, et al, 2020; Okafor, Adeleye,& Adusei,2021).

Hence, such terms as "technology-based entrepreneurship," "technical entrepreneurship," "hi-tech entrepreneurship," “high-tech firms,” “high-tech new ventures,” or "high tech industry" are employed in various literatures to refer to businesses that integrate entrepreneurial abilities and technology (Wolf & Terrell, 2016; Guo, 2019; Marvel, 2013;Jones-Evans,1996; Cooper,1973; Hsu,2008).

THE FOUR INDUSTRIAL REVOLUTIONS

The trajectoryof the Four Industrial Revolutions is a historical framework that outlines significant technological advancements and societal transformations. The First Industrial Revolution began in 1765 with coal as a primary energy source, leading to a shift in the economy from agrarian to industrialization. The Second Industrial Revolution saw the development of gas as an energy source in 1870, resulting in the introduction of electricity, gas, and oil. The Third Industrial Revolution in 1969 saw advancements in electronics and nuclear technology, with nuclear power becoming prominent in the contemporary landscape. The Fourth Industrial Revolution began in 2000 with the integration of the internet and renewable energy sources. The transition towards renewable energy sources, such as solar, wind, and geothermal power, is driven by digital technology. The Industrial Internet of Things(IIoT), cloud technology, and artificial intelligence are accelerating the convergence between virtual and physical realms, enabling more intelligent corporate decision-making and enhanced work order solutions. The global economy has undergone significant transformations due to these revolutions.

A CHRONICLE OF THE EVOLUTION OF TECHNOPRENEURSHIP

Technopreneurship, a term derived from the combination of "technology" and "entrepreneurship," has been a topic of debate since 1970. The concept has gained prominence with the advent of the internet since 2000. Technopreneurship has evolved into three generations: The Seed Era (1970-2000), the Startup Era (2001-2015), and the third stage (present day). The Seed Era saw significant advancements in communication and technology, leading to the development of open-source software, social media platforms, mobile devices, LTE networks, and cloud computing. The Startup Era saw the proliferation of digital technologies, including open source software, social media platforms, mobile devices, LTE networks, and cloud computing. The third stage is the growth and development of technopreneurship, with the integration of digitization in all aspects of human life.The present-day landscape has been significantly impacted by technopreneurship as a result of these breakthroughs.

THE TECHNOPRENEURIAL PROCESS

The technopreneurial process is a systematic approach used by individuals or corporations to identify, develop, and capitalize on technological advancements.It involves stages such as ideation and scanning of the environment, evaluation of ideas, concept feasibility analysis, business analysis, prototyping, marketing and salesevaluation. Other key components of technopreneurial process encompass commercialization, that is, production, distribution, marketing, sales, customer service, as well as supervision, monitoring and periodic evaluation.

Ideation and scanning of the environmentinvolvethe process of brainstorming and conducting a thorough environmental scan for viable business ideas to embrace, while evaluation of ideas or idea screening evaluates feasibility and eliminates non-viable ones.Conceptfeasibility analysis uses surveys and qualitative methods to assess customer acceptance and potential success. Business analysis involves understanding company activities, prototyping evaluates product functionality and user experience, while marketing and sales evaluation observe market conditions and customer behavior. Commercialization involves transforming a conceptual idea into a market-ready product. Supervision, monitoring and periodic evaluation involve monitoring program execution to ensure quality and quantity. It is conducted through direct interaction with employees and regular report analysis within the organization, ensuring activities are carried out in line with the vision of the organization.

THE INTERNET OF THINGS (IoT) AND THE INDUSTRIAL INTERNET OF THINGS (IIoT)

The Internet of Things (IoT) is a technology that integrates devices into non-responsive objects, such as automobiles, electrical systems, roofs, and lighting fixtures, to measure environmental parameters and generate data. These devices communicate with the cloud via various methods, and data is processed by software to trigger actions like alerts or autonomous sensor adjustments. IoT networks can be classified into cellular networks, Local Area Networks, Personal Area Networks, Low Power Wide Area Networks, and mesh protocols. Wireless communication technologies like Bluetooth and WiFi are used in IoT applications, while LPWAN provides long-range connectivity with low power consumption.

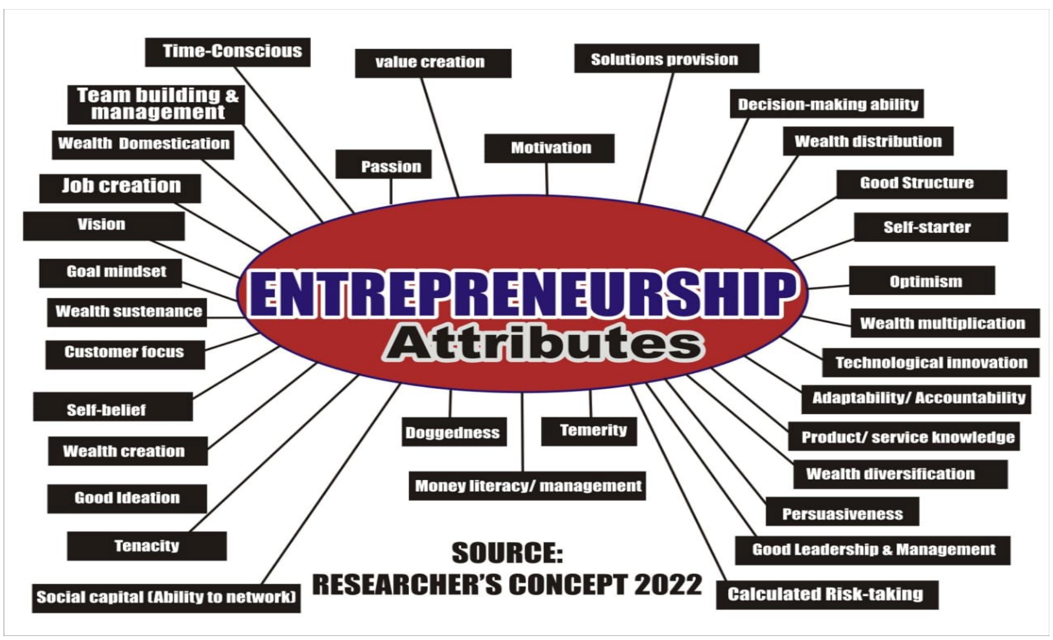
The Industrial Internet of Things (IIoT) is a technology that connects industrial equipment to the internet, enabling more efficient and digitized operations. Its primary objective is to enhance monitoring and maintenance of assets, leading to improved process automation, visibility into logistics and supply chain functions, and more efficient maintenance operations. IIoT has become a catalyst for digital transformation and Industry 4.0, emphasizing cyber-physical systems and advanced communication networks. An IIoT ecosystem comprises various components, each fulfilling a distinct role in data monitoring, capturing, transferring, and analysis. Machine operators play a crucial role in maintaining a robust IoT ecosystem, overseeing equipment operation, and using IIoT insights to inform data-driven business decisions.

In summary, the integration of both IoT and IIot technologies, despite challenges like integration and cyber security, enhances efficiency and operational success in various industries by implementing secure execution zones, cryptographic protocols, and data authentication

ENTREPRENEURSHIP ATTRIBUTES

Certain attributes can ease the business of entrepreneurship. The see-through concept below was developed by Godson(2022) with regard to the definitional impasse of entrepreneurship. There are about thirty three (33) entrepreneurial attributes shown below.

Thorough analysis of the see-through concept shows that entrepreneurship could be submitted as a vision and commission for the mission of using the right team, while deploying time, talent, temerity, trust, tenacity, and treasure, to create and add values leading to wealth creation, distribution, multiplication, diversification, domestication, and sustenance (Godson,2022). These are all aimed at poverty alleviation and better well-being for all and sundry with the requisite technological innovations and advancements that help to create jobs, improve health, infrastructures, and the general standard of living.



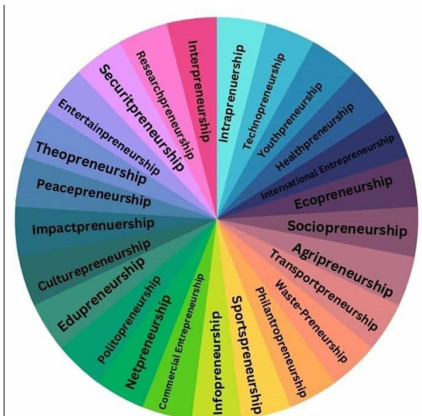
Source: Godson (2022)

BURSTING SOME ENTREPRENEURSHIP BUBBLES

Entrepreneurship has been grossly misconceived, misdefined, and misapplied across different cadres. Historically, entrepreneurship has always assumed a nebulous definitional challenge from various scholars, researchers, students, real entrepreneurs, and the wannabes or pretenders, among others (Shane, 2012; Eze, 2022). Hence, there is need to burst some entrepreneurship bubbles. For instance, entrepreneurship is not just about commercial profit-making, but also goes beyond that, focusing on value creation for solution-provisions. It is a methodical venture for intentional critical thinkers, optimists, and solutions providers who think outside the box. Teamwork is essential for efficiency and good results, and entrepreneurship is not about mechanical risk-taking, as it is calculative and methodical; calculative risk-taking.

Entrepreneurship is not about meeting personal aggrandizement and family needs, but about providing solutions and common goods. It is not about a candle in the wind or a magnificent edifice without foundation, as sustainability is hardly achieved. A solid and well-structured foundation is needed in entrepreneurship. Entrepreneurship is not biologically or genetically transmitted, gender-sensitive, politically or culturally transmitted, ethnically or culturally transmitted, religiously transmitted, or bogusly transmitted. It is not about profit-making, but about value creation. In conclusion, entrepreneurship is not about affluenza or acquiring money purposelessly, but about creating value through innovative, strategic, and methodical approaches by passionate, intentional, and purposeful individuals. Hence, self-belief and single-mindedness are essential for success in entrepreneurship.

ENTREPRENEURSHIP: A SYNOPTIC REVIEW OF SOME ENTREPRENEURHIP NEOLOGISMS



Source: Researcher's Concept 2023

Source: Godson (2023)

Entrepreneurship neologisms are essential in the business landscape as they reflect human preferences and trends. These coinages evolve from nothing to something through popular usage, such as Nigeria, which is a fusion of "Niger" and "Area." Technopreneurship, like other entrepreneurship neologisms, is a module or branch with unique characteristics that promote understanding and popularity of the field of entrepreneurship

1. **Intrapreneurship:** Intrapreneurship, introduced by Gifford Pinchot III in 1978, is a strategic business approach that acknowledges entrepreneurial individuals within large organizations. It promotes rapid innovation and mutual benefits for both organizations and consumers (Cadar,& Badulescu,2015;Nielsen,Peters,& Hisrich,1985). therefore, Intrapreneurs enhance existing products or develop new ones, requiring strategic frameworks, effective advertising, skilled workforce, and collaboration.
2. **Edupreneurship:** Edupreneurship is a strategic entrepreneurial approach that improves societal well-being by managing educational systems, using social networks, and utilizing technology to foster inclusivity and value creation, influencing international teaching, coaching, and STEM education.
3. **Social Entrepreneurship (Sociopreneurship):** Social entrepreneurship is the application of creative and innovative solutions to address societal problems, focusing on both environmental and cultural issues. It involves identifying social issues and applying entrepreneurial ideas, processes, and strategies to bring about positive social transformation. Social entrepreneurs possess novel approaches and are driven by a strong determination to succeed (Peredo, & McLean, 2006; Haugh, 2005).
4. **Agripreneurship**: Agripreneurship, or agribusiness, is a strategic approach to addressing economic challenges in the agricultural sector, focusing on the production and dissemination of agricultural inputs (Otache, 2017; Bairwa, et al,2014). At another level, Digital technologies, such as remote sensing, GIS, and IIoT, can enhance agricultural output, reduce wastage, and augment farmers' income (Xu, & Tian,2022)
5. **Infopreneurship:** Infopreneurship involves using knowledge and experience to create value, generate, and monetize information with or without formal training (Adetayo, Suleiman, & Ayodele, 2022). Responsibilities include creating educational materials, engaging target groups, developing promotional content, facilitating communication,

managing administrative tasks, building websites, and establishing brand connections (Ivwurie,2015). Success depends on niche selection, firm size, and strategic outsourcing.

6. **Netpreneurship (E-Entrepreneurship/Cyberpreneurship):**The internet has transformed business operations, enabling online transactions for individuals, organizations, and societies. Netpreneurship, a cost-effective alternative to traditional models (Jalan,& Gupta,2019), has led to te growth of global giants like Google, eBay, Amazon, and Flipkart (Beňo,2018;Kim,& Parker,2021). However, this field is vulnerable to cyber-crimes like hacking and phishing, though it is easier for self-employed individuals to work from home (Olowu,2009).
7. **Ecopreneurship**: Ecopreneurship, also known as 'Green Entrepreneurship', is a market-oriented strategy aiming to enhance environmental conditions and harness private sector potentials (Mukonza,2020). It emphasizes individual initiative, environmentally responsible practices, social orientation, and replacing conventional manufacturing methods with environmentally better products and services, gaining popularity for market-driven environmental quality enhancement (Schaper,2002).
8. **Culturepreneurship (Cultural Entrepreneurship):**Culturepreneurs utilize cultural, financial, social, and human capital to generate economic returns through cultural endeavors. They create, produce, and promote cultural goods and services, enhancing cultural value for creators and consumers (Jonasson, Smith,& Scherle, 2011;Sebayang,et al, 2020). They use persuasive communications and peer influence for positive societal transformation.
9. **Interpreneurship:** Interpreneurship is entrepreneurship that involves inter-organizational alliances, integrating resources and competencies between enterprises to gain a competitive advantage. This involves amalgamating internal and external resources to achieve superior organizational outcomes (Moore, et al, 2007; Richter, & Teramoto, 1995).
10. **International Entrepreneurship (Globepreneurship):**International entrepreneurship involves executing commercial ventures beyond national borders, offering benefits like reduced costs, enhanced sales, skilled personnel, and expansion opportunities (Keupp, & Gassmann,2009). It facilitates domestic market expansion, internationalizing customers, and enhancing survival and expansion prospects for enterprises (Naldi, 2008;

Abosede, Fayose & Eze, 2018; Eze, 2018; Oladimeji, Eze, & Adebayo, 2018; Oladimeji, Abosede, & Eze, 2018).

There are other neologisms we have not mentioned here for want of space. However, relevantNeologisms should be encouraged in entrepreneurship to create awareness and individuality.

SOME EMPIRICAL REVIEWS

Theempiricalresultsshowthatthelevelofdigitaltechnologyis positively associated with the output of national entrepreneurial ecosystems, and thispositive relationship is strengthened in nations with a supportive culture, high-quality institutions, supportive policies, accessible resources, and well-developed service industries.Thefindingshighlighttheimportanceof digital Technology,providefreshinsightsintothe interdependence between elements and causal mechanisms in national entrepreneurialecosystems(Zhang, et al, 2023).

THEORETICAL FRAMEWORKJOSEPH SCHUMPETER'S THEORY OF INNOVATION (DYNAMIC THEORY)

Entrepreneurship is an intellectual and conceptual pursuit aimed at promoting economic development. Joseph A. Schumpeter's innovation or dynamic theory suggests that entrepreneurs are characterized by psychological elements such as willpower, self-perception, and the ability to endure uncertainty. Entrepreneurs are known for their inventiveness and initiative, which involves implementing new products and services, adopting creative manufacturing methods, identifying unexplored markets, finding raw materials, and building innovative organizational frameworks.

However, Schumpeter also emphasizes the importance of deliberate calculative risk-taking, supervision, and cooperation. Entrepreneurs are motivated by their psychological drive and goals to earn values through innovative undertakings. He distinguishes between the roles of an innovator and an inventor, arguing that innovators leverage ideas to offer higher-quality products, leading to increased consumer satisfaction and significant financial profits. Schumpeter's theory encompasses a diverse range of individuals, including independent entrepreneurs, corporate executives, and stakeholders, providing a holistic perspective on entrepreneurship.

METHODOLOGY

This study used a holistic approach to analyze and synthesize information from various sources, including scholarly articles, textbooks, newspapers, journals, academic research, government position papers, and online resources. Supplementary sources included scholarly books, respected newspapers, and academic publications. The primary focus of subsequent discussions was based on the findings from these secondary sources.

CONCLUSION AND RECOMMENDATIONS

Nigeria's entrepreneurship development is facing challenges such as inadequate capital, government policies, insecurity, lack of awareness of business opportunities, incompetent management control, substandard goods production, falling economic trends, currency volatility, inadequate infrastructure, lack of strong patent law, and high business costs. However, technology's impact on the global business landscape, such as IoT, IIoT, Cloud tech solutions, and modernization of infrastructure, can help mitigate these problems and create innovative solutions tailored to various business interests.

From the foregoing, therefore, it is my conclusion that technopreneurship, a strategic approach leveraging technology to drive innovation and stimulate economic growth, has the potential to also address Nigeria's entrepreneurship development issues.

Below are some technological lines to tow for Nigeria'stechno-entrepreneurship development agendum:

1. First off, in Nigeria, there should be a deliberate policy framework to promote technology as driver for globalization, driving business growth, innovation, cost reduction, and customer acquisition.
2. Nigeria's government should promote technocentrism, encouraging STEM curricula and deemphasizing certifications. Education should focus on proven technical competencies for practical learning.

3. Entrepreneurs should promote digital marketing and other technological tools for business growth, focusing on user-friendliness, mobile responsiveness, and search engine optimization through platforms like pay-per-click advertising, email marketing, and social media marketing.
4. The Nigerian government and entrepreneurs should adopt cloud computing technology like Zoho for improved collaboration, marketing, invoicing, and financial functionalities, reducing costs and enhancing productivity. Ensuring data security with encryption and firewalls is also recommended.
5. Given that technology enhances automation, thereby boosting production, proper allocation of resources for specific roles and using time management and productivity tactics should be canvassed to ensure efficient operations at all times.
6. .Nigerian government should optimize technology to facilitate learning, break distance barriers, streamline tasks, provide entertainment, and contribute to increased productivity and efficiency in various industries.
7. At another level, technology should be acknowledged as an enhancer of customer-centric experience through personalized services and efficient communication channels that prioritizes the needs, preferences, and satisfaction of customers.
8. Overall, technological solutions should be leveraged to create new job opportunities in emerging fields for better standards of life; bring about advancements in healthcare and other medical technologies which increase life expectancy.

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Ters Yüz Öğrenme Modelinde Teknoloji Entegrasyonunun Uygulanabilirliği: Öğretmen Görüşleri*

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Özet

Değişen ve gelişen küresel dünyada teknolojinin eğitimde yaygınlaşması, öğretmenlerin teknoloji kullanımına ve öğrenme sürecine teknoloji entegrasyonuna ilişkin görüşlerinin incelenmesini önemli kılmaktadır. Eğitim ortamlarında teknolojinin etkili entegrasyonu, bireylerin yeni nesil mesleklere hazırlanmasını desteklemektedir. 21. yüzyılın teknoloji okuryazarlığına ve modern öğrenme yaklaşımlarına duyduğu ihtiyaç, bu araştırmanın önemini vurgulamaktadır. Araştırmanın amacı, farklı branşlardaki öğretmenlerin ters yüz öğrenme modelini teknoloji bağlamında değerlendirmelerine ilişkin görüşlerini incelemektir. Problem durumu ise öğretmenlerin mesleki deneyimlerinde teknoloji temelli ters yüz öğrenme modeli hakkındaki düşüncelerini anlamaktır. Çalışmada nitel araştırma metodolojisinden durum çalışması modeli kullanılmıştır. Araştırmanın çalışma grubu, kolay ulaşılabilir örnekleme yöntemiyle seçilen, Türkiye'nin çeşitli bölgelerindeki Millî Eğitim Bakanlığı'na bağlı ortaöğretim kurumlarında görev yapan 46 öğretmenden oluşmaktadır. Veriler, yarı yapılandırılmış görüşme formlarıyla toplanmıştır. Bu form, öğretmenlerin ters yüz öğrenme modeli hakkındaki bilgi düzeylerini, teknolojik materyal geliştirme yeterliliklerini ve modelin uygulanabilirliğine ilişkin görüşlerini belirlemek için tasarlanmıştır. Form, uzman görüşleri doğrultusunda ve beş öğretmenle yapılan pilot çalışmayla

düzenlenerek netleştirilmiştir. Araştırmacılar, kodlama sürecinde görüş birliği ve ayrılığını değerlendirmiş, uyum yüzdesini hesaplamıştır. Veri geçerliği doğrudan alıntılarla desteklenmiştir. Veriler tematik analiz yöntemiyle incelenmiş, öğretmenlerin teknoloji kullanımı ve ters yüz öğrenme modeli konusundaki deneyimleri kapsamlı şekilde analiz edilmiştir. Analiz sonucunda öğretmenlerin teknoloji kullanım yeterlilikleri, ters yüz öğrenme modeline yönelik farkındalıkları, modelin uygulanabilirliği hakkındaki görüşleri ve Türkiye'deki eğitim ortamlarının teknoloji entegrasyonundaki zorluklar ve fırsatlar ortaya konmuştur. Araştırma, öğretmenlerin yenilikçi öğretim yaklaşımlarına ilişkin görüşlerini belirleyerek uygulama ve politika geliştirme sürecine öneriler sunmuştur. Bu öneriler arasında eğitimde teknoloji kullanımının artırılması, öğretmenlere düzenli hizmet içi eğitimler verilmesi ve ters yüz öğrenme modelinin uygulanabilirliğini destekleyen kurumsal düzenlemeler yer almaktadır. Böylece eğitim sisteminin modern öğrenme yaklaşımlarını daha etkili biçimde benimsemesi ve uygulaması amaçlanmıştır.

Anahtar Kelimeler: Ters yüz öğrenme modeli, Teknoloji destekli öğrenme, Teknolojik yeterlilik, Eğitimde teknoloji entegrasyonu, Öğretmen görüşleri

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Applicability of Technology Integration in Flipped Learning Model: Teacher Opinions*

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Abstract

In today's rapidly evolving global landscape, technology has become ubiquitous in education. This makes it crucial to examine teachers' perspectives on educational technology use and models that integrate technology into learning. Effective technology integration in educational settings helps prepare students for next-generation careers. This research's significance stems from the 21st century's demands for technological literacy and modern learning approaches. This study aims to investigate teachers' views on the flipped learning model within a technological context. Specifically, it explores how teachers perceive and implement the flipped learning model in their professional practice. Using a qualitative case study methodology, the research examined 46 teachers from various secondary education institutions under Turkey's Ministry of National Education, selected through convenience sampling. Data collection utilized semi-structured interview forms designed to assess teachers' knowledge of the flipped learning model, their ability to create technological materials, and their views on the model's practicality. The interview form was refined through expert feedback and pilot testing with five teachers to ensure clarity and comprehension. Researchers employed a coding process to evaluate agreement levels, with data validity strengthened through direct quotations. The study applied thematic analysis to examine teachers' experiences and thoughts regarding technology use and the flipped learning model. The analysis revealed insights into teachers' technological competencies, their understanding of the flipped learning model, views on its applicability, and the opportunities and challenges in integrating technology into Turkish educational settings. The findings highlighted teachers' perspectives on innovative teaching approaches and generated practical recommendations for implementation and policy development. These include enhancing educational technology use, offering regular in-service training to boost teachers' technological skills, and establishing institutional frameworks that support the flipped learning model's implementation. These measures aim to facilitate more effective adoption of modern learning approaches in the education system.

Keywords: Flipped learning model, Technology supported learning, Technological competence, Technology integration in education, Teacher opinions

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Giriş

Teknolojinin insan hayatına girmesiyle birlikte; evlerden iş yerlerine, eğitim kurumlarından sosyal ortamlara kadar her alanda teknolojik aletler kullanılmaya başlanmıştır. Bu durum, teknolojinin günlük yaşantının ayrılmaz bir parçası haline gelmesine yol açmıştır. Eğitimde teknolojinin kullanımı özellikle etkili öğretim faaliyetlerinin gerçekleştirilebilmesi konusunda gerekli bir olgu haline gelmiştir. Akıllı tahta, projeksiyon cihazı, tablet, slayt, video, online eğitim sistemi gibi birçok teknolojik unsur eğitim ortamlarında etkin olarak kullanılmaya başlanmıştır. Ancak bu materyallerin öğretim ortamlarındaki kullanımlarının beklenilen yönde sağlıklı sonuçlara ulaşabilmesi önem taşımaktadır. Yapılan bir araştırmada sağlıklı sonuçlara ulaşabilmek için teknolojik araçların, toplumların istek ve ihtiyaçları doğrultusunda etkin kullanılması, ülkelerin bu konuda dünyada yaşanan gelişmeleri takip ederek teknoloji politikalarını revize etmeleri gerektiği ifade edilmektedir (Türel, Akgün, Aydın ve Yaratan, 2020). Bu kapsamda Türkiye'de eğitim ortamlarında yürütülen teknoloji politikalarının öğretim yöntemleri bağlamındaki sonuçlarının neler olduğunu, eğitim çıktılarının amaca hizmetin yansımalarını taşıyıp taşımadığını öğrenmek önemli bir araştırma konusu oluşturmaktadır.

21. Yüzyıl toplumları bilgiyi kullanmayı bilen, teknoloji okuryazarı bireyler yetiştirmeyi amaçlamaktadır ve bunun ancak eğitim ortamlarında teknolojik araçların doğru şekilde kullanılmasıyla mümkün olabileceği düşünülmektedir (Çakır ve Yıldırım, 2009). Uluslararası hazırlanan birçok araştırma, rapor ve incelemelerde 21. yüzyılda yaşayan bireylerin bireysel veya iş hayatlarında yaşamlarını sürdürebilmeleri için sahip olmaları gereken becerilerin öneminden bahsedilmektedir. ''21. yüzyıl becerileri'' olarak adlandırılan bu beceriler 21. yüzyılın bilgi toplumunda bireylerin iyi vatandaşlar ve nitelikli iş görenler olmalarını sağlayan özellikleri ifade etmektedir (Ananiadou ve Claro, 2009). Cansoy (2018), uluslararası çerçevelere göre 21. yüzyıl becerilerinin eğitim sistemlerine kazandırılması ile ilgili yaptığı çalışmasında OECD beceriler çerçevesi, ATSC21 beceriler çerçevesi, 21. yüzyıl öğrenme çerçevesi (P21), Wagner'in beceriler çerçevesi, NRC beceriler çerçevesi, enGauge (NCREL) beceriler çerçevesi, AACU beceriler çerçevesi, ISTE beceriler çerçevesi, Iowa beceriler çerçevesi, Türkiye yeterlikler çerçevesini incelemiştir. İncelemelerinin sonucunda öğretmenlerin bilgiyi aktarma telaşıyla hareket etmeyerek öğrencideki potansiyeli açığa çıkarmak için öğrencilerin yaparak yaşayarak öğrenmelerini sağlayacak öğrenme ortamlarını oluşturmaları gerektiğinden bahsettiği görülmektedir. Bu bakımdan eğitim ortamlarında bilgiyi aktarmaktan ziyade kaliteli öğrenme zamanları oluşturularak

öğrencilerin teknolojik gelişmelere bağlı olarak ortaya çıkan yeni mesleklere hazırlanmaları ve bu becerileri kazanmaları konusunda öğretmen rolü büyük bir pay taşımaktadır

Öğrenme ortamları; geleneksel yani öğretmenin bilgiyi aktaran, öğrencinin ise bilgiyi hazır bulduğu öğrenme anlayışından; öğretmenin rehber pozisyonunda olduğu ve öğrencinin kendi öğrenmelerini kendisinin gerçekleştirdiği yenilikçi ve teknolojiyi de içeren modern öğrenme yaklaşımlarına doğru evrilmektedir. Yenilikçi öğretim yaklaşımları eğitim materyallerinde ustalaşma ve öğretmen-öğrenci arasındaki etkileşim yollarını içeren yöntemleri barındıran; akıllı tahta kullanımları, ters yüz (flipped) sınıflar, iş birlikli grup çalışmaları, 3 boyutlu teknolojiler, sanal gerçeklik uygulamaları gibi örnekleri içeren yaklaşımlardır (Birgili, 2022). Covid-19 pandemisinin bütün dünyayı etkisine aldığı dönemden eğitimde etkilenmiş ve eğitimin sürdürülebilmesi için bilgisayar destekli ortamlar ve uzaktan öğrenme ortamları daha çok kullanılır duruma gelmiştir (Yiğit, Bektaş ve Ekinci, 2024). Bu öğrenme ortamlarını destekleyen ve online eğitim ortamlarıyla yüz yüze öğrenme ortamlarını harmanlayan bir model olan ters yüz öğrenme modeli özellikle salgın döneminden sonra daha sık adından söz ettirmektedir. Ters yüz öğrenme modeli; temeli 1990'lı yıllarda Mazur'un geliştirdiği akran öğretimine dayanan, 2007 yılında Bergman ve Sams'ın derse ait hazırlanan videoların öğrencinin bilgi boyutundaki öğrenmeleri için öğrencilere ders öncesinde verdiği, ders esnasında ise uygulama gibi daha üst düzey becerilerin geliştirilmesi amacıyla etkin olarak kullanmaya başladıkları bir modeldir (Hayırsever ve Orhan, 2018). Bergmann ve Sams (2014), odak noktanın videoların dersin işlenişi amacıyla nasıl kullanılacağı değil; sınıf içindeki zamanın en iyi şekilde nasıl geçirileceğinin olması gerektiğini belirtmiş ve ters yüz edilmiş sınıflar yerine ters yüz edilmiş öğrenme kavramını kullanmış; böylelikle yaklaşım, basit bir şekilde sınıfın ters yüz edilmesi anlamına gelen teknik boyuttan çıkarak, pedagojik bir yaklaşım olarak ele alınmaya başlanmıştır.

Ters yüz öğrenme modeli, öğrencilerin öğrenme sürecine aktif katılımını sağlama ve öğrenci merkezli bir öğrenme ortamı oluşturur. Bu modelde öğretmenin rolü ders konularını kapsayan video dersler, okuma materyalleri ve diğer dijital kaynakları hazırlamaktır. Bu materyaller, öğrencilerin okul dışında bireysel olarak çalışabilecekleri şekilde yapılandırılmalıdır. Bu sebeple öğretmenin teknolojik yeterlilikleri model için önemli bir araştırma konusudur. Öğretmenlerin hem modele yönelik hem de teknolojik yeterliliklerine yönelik görüşlerini belirlemek bu çalışmanın temel hedefini oluşturmaktadır.

Problem Durumu

Alan yazın taramasında fen bilgisi (Arslanhan, Bakırcı ve Altınova, 2022), ingilizce (Karamük-eskiköy ve Liman Kaban, 2023), ilköğretim matematik (Gökcen ve Kadıoğlu, 2020) öğretmenlerinin ters yüz öğrenme modeline hakkındaki görüşlerine yönelik çalışmaların branş bazlı çalışıldığı görülmektedir. Öğretmen adaylarının ters yüz öğrenme modeli hakkındaki görüşlerine yönelik çalışmalara da sık rastlanmaktadır (Kocabatmaz, 2016; Göğebakan Yıldız, Kıyıcı ve Altıntaş; 2016; Yiğit, Bektaş ve Ekinci, 2024). Ters yüz öğrenme ile ilgili öğretmen görüşlerine yönelik yapılan çalışmaların içeriklerine bakıldığında genellikle branş bazında öğretmenlerin ilgili konu hakkında çalışmalarda örneklem olarak kullanıldığı dikkat çekmektedir. Öğretmen adaylarının ise kolay ulaşılabilir örneklem grubu oldukları için çalışmalara dahil edildikleri görülmektedir. İlgili alan yazın taramasında öğretmenlerin ters yüz öğrenme modeline yönelik branş bazlı örneklem olarak kullanılması ve çeşitli branşların aynı örneklemde kullanıldığı örneğe rastlanmamıştır. Bu durum ise araştırma için bir problem durumu olarak belirlenmiştir.

Amaç

Bu araştırmada amaç Milli Eğitim Bakanlığı'na bağlı okullarda görev alan çeşitli branş öğretmenleri ile ters yüz öğrenme modelinin teknoloji bağlamındaki görüşlerini tek bir çalışmada açığa çıkarmaktır. Bu kapsamda bu araştırmanın problem sorusu ''Öğretmenlerin meslek yaşamlarında teknoloji bağlamlı ters yüz öğrenme modeli hakkındaki düşünceleri nelerdir?'' olarak belirlenmiştir. Bu kapsamda oluşturulan alt problem başlıkları şu şekilde belirlenmiştir;

-Öğretmenlerin teknolojik bağlamlı öğretim materyallerine yönelik yeterlilikleri hakkındaki görüşleri nelerdir?

-Öğretmenlerin Türkiye'de eğitim ortamlarında teknoloji kullanımına yönelik görüşleri nelerdir?

-Öğretmenlerin ters yüz öğrenme modelinin uygulanabilirliğine yönelik görüşleri nelerdir?

Yöntem

Nitel araştırmalar insanların olay ve olgular karşısındaki davranışlarının sebebini, tutumlarının arkasındaki nedenleri, kişi ve toplumların gerek birbirlerinden gerekse çevrelerinde olup bitenden nasıl etkilendiğini, kültürlerin neden ve nasıl oluştuğu ve geliştiğini, sosyal grupların nasıl iletişim kurduğunu açığa çıkarmaya çalışan bir araştırma yöntemidir (Baltacı, 2018; Baltacı, 2019). Bu araştırmada da ters yüz öğrenme modelinin öğretmen görüşleri kapsamında incelenmesi sosyal bir olgu kavramıyla ilişkilendirildiği için nitel araştırma yönetimi benimsenmiştir.

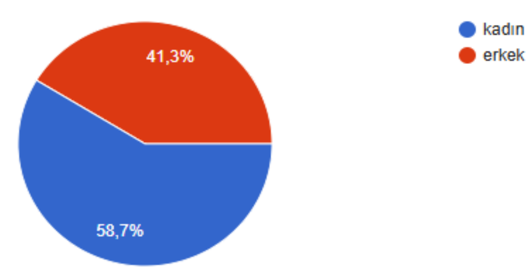
Araştırmanın Modeli

Bu çalışmanın araştırma modeli nitel araştırma metodolojisinden durum çalışması olarak belirlenmiştir. Durum çalışması; tek bir durum ya da olayın derinlemesine incelendiği, verilerin sistematik bir şekilde toplandığı ve gerçek ortamda neler olduğuna bakıldığı bir yöntem olup elde edilen sonuçlarla olayın neden o şekilde oluştuğu ve gelecek çalışmalarda nelere odaklanılması gerektiğini ortaya koymaktadır (Subaşı ve Okumuş, 2017).

Evren/Örneklem

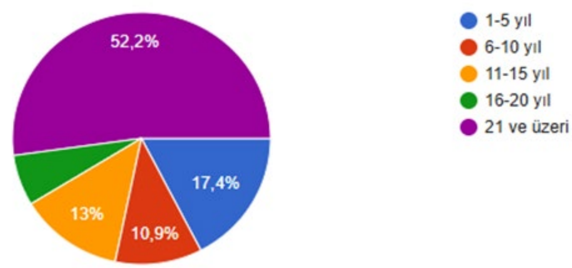
Bu araştırmanın çalışma grubu amaçlı örnekleme yöntemlerinden olan kolayda örnekleme yöntemiyle seçilmiştir. Kolayda örnekleme yöntemi, araştırmacının kendisine yakın, rahatlıkla ulaşabildiği birimleri örneklemine dâhil ettiği örneklem seçme yöntemidir (Baştürk ve Taştepe, 2013). Ortaöğretim kurumlarında görev alan öğretmenlerin ters yüz öğrenme modeli hakkındaki görüşlerine ulaşılmak istendiğinden, kolayda örnekleme yöntemi bu araştırma için uygun bulunmuştur. Milli Eğitim Bakanlığı'na bağlı ortaöğretim kurumlarında görev alan 46 öğretmen ile çalışma gerçekleştirilmiştir. Katılımcılara ait demografik bilgiler aşağıda grafiklerde verilmiştir.

Grafik 1. *Katılımcıların Cinsiyet Dağılımı*



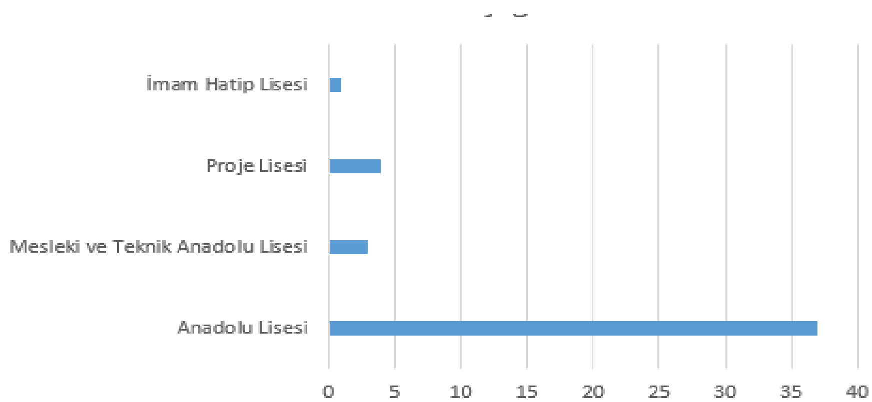
Grafik 1'de görüldüğü üzere çalışmaya katılanların %41,3'ü erkek; %58,7'si kadın katılımcılardan oluşmaktadır.

Grafik 2. *Katılımcıların Mesleki Kıdemleri (Yıl)*



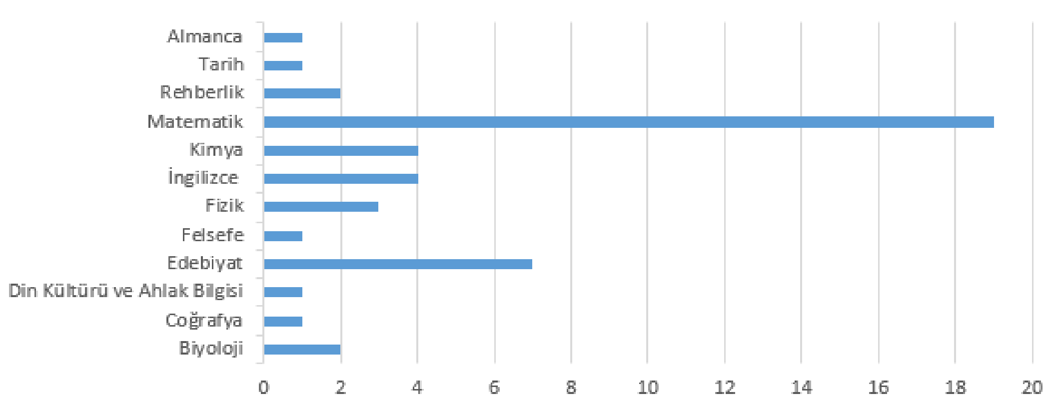
Grafik 2'de görüldüğü üzere çalışmaya katılanların %17,4'ü 1-5 yıl arası, %10,9'u 6-10 yıl arası, %13'ü 11-15 yıl arası, %6,5'u 16-20 yıl arası, %52,2'si 21 yıl ve üzeri, mesleki kıdemdeki katılımcılardan oluşmaktadır.

Grafik 3. *Katılımcıların Çalıştıkları Okul Türü Dağılımı*



Grafik 3'te görüldüğü üzere çalışmaya katılanların Anadolu Lisesinde, İmam Hatip Lisesinde, Proje Lisesinde, Mesleki ve Teknik Anadolu Lisesinde çalıştıkları görülmektedir.

Grafik 4. *Katılımcıların Branş Dağılımı*



Grafik 4'te görüldüğü üzere çalışmaya katılanların Tarih, Almanca, Rehberlik, Kimya, İngilizce, Fizik, Felsefe, Edebiyat, Din Kültürü ve Ahlak Bilgisi, Coğrafya, Biyoloji ve Matematik gibi farklı branşarda oldukları görülmektedir.

Veri Toplama Araçları

Veri toplama aracı olarak yarı yapılandırılmış görüşme formu kullanılmıştır. Yarı yapılandırılmış görüşme türünde önceden tasarlanan bir dizi soruyu içeren bir görüşme formu bulunmaktadır ve görüşme esnasında verinin detayına inilmek ya da eksik kalan bir noktanın tamamlanabilmesi için bu sorulara ek sorular getirilebilmektedir (Karataş, 2017). Yarı yapılandırılmış görüşme formları herhangi bir yapılandırılmış biçimden ziyade kelime ve soru sırasının her görüşülen için değiştiği esnek bir rehber form olmanın yanı sıra görüşülen konu ve sorunlara odaklanmayı, bireysel yaklaşımları, bakış açılarını ve deneyimleri elde edebilmeyi de mümkün kılmaktadır (Polat, 2022).

Görüşme formundaki sorular hazırlanırken ters yüz öğrenme modeli ile ilgili kuramsal çerçeve esas alınmıştır. Alan yazı çalışmalarından hareketle öğretmenlerin ters yüz öğrenme modeli hakkındaki bilgi düzeyleri, materyal oluşturma yeterlilikleri, modelin eğitim ortamlarındaki yansımaları ve modelin uygulanabilirliğine ilişkin görüşlerini teknoloji bağlamında belirlemek için aşağıda verilen 7 adet açık uçlu soru oluşturulmuştur.

1) Eğitim ortamlarında teknolojiyi kullanabilme becerilerinizi kendi alanınız bağlamında nasıl değerlendirirsiniz?
2) Türkiye'de eğitim ortamlarında teknoloji kullanımını hakkında neler düşünüyorsunuz?
3) Öğrencilerinizin teknolojik yeterlilikleri hakkında görüşleriniz nelerdir?
4) Meslektaşlarınızın teknolojiyi kullanma yaklaşımlarını nasıl değerlendirirsiniz?
5) Ters yüz öğrenme modeli hakkında neler biliyorsunuz? Ters yüz öğrenme dediğinizde aklınıza gelen kavramlar nelerdir?
6) Ters yüz öğrenme modelinin Türkiye'de uygulanabilirliği hakkında görüşleriniz nelerdir?
7) Teknoloji temelli modellerin öğretim süreçlerinde uygulanabilirliğine yönelik önerileniz nelerdir?

Geçerlilik ve güvenilirliği sağlamak için uzmanlarla pilot görüşmeler yapılarak sorular sınanmış ve işlevsiz sorular çıkarılıp yerine yeni sorular eklenmiştir. Soruların açık, anlaşılır ve araştırılan konu ile ilgili olmasını sınamak için 15 öğretmen ile pilot görüşme yapılmış ve bunun sonucundaki düzenlemelerle forma son şekli verilmiştir.

Verilerin Toplanması

Araştırmada önceden hazırlanmış görüşme soruları kullanılarak görüşmeler çevrim içi gerçekleştirilerek veriler toplanmıştır. Görüşme formunda aydınlatılmış onam formu sunularak gönüllülük esası dikkate alınmıştır. Onayları alınan katılımcılardan daha sonra demografik bilgileri istenmiştir. Cinsiyet, kıdem, branş ve çalıştıkları okul türlerini cevaplayan katılımcılar son olarak görüşme sorularını cevaplamıştır.

Verilerin Analizi

Yarı yapılandırılmış görüşme formlarıyla alınan cevapların analizi nitel veri analizi yöntemlerinden tematik analiz yöntemi ile gerçekleştirilmiştir. Tematik analiz; yapılan bir çalışmada elde edilen verilerin kodlanması, kodların bir araya gelerek temalaştırılması sonrası eleştirel bir bakış açısı ile kategorize edilmesi ve sentezlenmesi sürecine dayanır (Çalık ve Sözbilir, 2014). Çalışmada elde edilen verilerin analizi, kod ve temaların oluşturulması konusunda beş alan uzmanından destek alınarak gerçekleştirilmiştir**.** Katılımcıların cevapları uygulamaya her bir soru için ayrı ayrı aktarılmıştır. Cevaplar, anlamlı ve araştırma sorularına bulgu olacak nitelikte analiz edilerek kodlanmıştır. Tüm görüşmeler incelendiğinde, yedi tema ve 37 kod altında toplanan sonuçlar tablolaştırılarak analiz tamamlanmıştır. Araştırma kapsamında kod ve temaları destekleyici bazı katılımcı görüşleri de doğrudan alıntılar yapılarak aktarılmıştır.

Geçerlilik ve Güvenirlik

Geçerlik ve güvenirlik ölçütlerinin kullanılması araştırmaların bilimselliği açısından oldukça önemlidir. Nitel araştırmalarda; araştırmaların bilimselliğin sağlanabilmesi için araştırmacının geçerlik ve güvenirlik ile ilgili birtakım aşamaları geçmesi, tüm aşamaları süreçle birlikte okuyuculara raporlaması gerekmektedir (Başkale, 2016). Bu kapsamda öncelikle analiz sürecinde uzman görüşü istenilmiştir ve analizde ortaya çıkan temalar tartışılmış ve temaların oluşturulmasında fikir birliğine varılmıştır. Ayrıca bir başka güvenirlik yöntemi olan "doğrudan alıntı" yönteminden de yararlanılarak çalışmada doğrudan alıntılara yer verilmiştir. Araştırmada her bir öğretmen Ö1, Ö2, ….Ö46 şeklinde kodlanmış, katılımcıların gizli tutulmasına dikkat edilmiştir. Sonuçlar başka araştırmaların sonuçlarıyla karşılaştırılarak raporlaştırılmıştır. Nitel verilerin analizinde Miles & Huberman (1994) güvenirlik formülü (Güvenirlik = Görüş Birliği /

(Görüş Birliği + Görüş Ayrılığı) kullanılmıştır. Miles ve Huberman bu oranın %70 düzeyinde olmasını yeterli görmektedir. Huberman'ın formülüne göre güvenirlik farklı uzmanlar tarafından yapılan kodlamalar karşılaştırılır (Miles ve Huberman, 1994). Karşılaştırma sonucunda kodlamalarda uyuşum yüzdesi %70'in üzerindeki her değer kodlamanın güvenirliğini gösterir. Araştırmada kodlayıcılar arasındaki uyum oranı %89.7 olarak tespit edilmiştir.

Bulgular

Bu bölümde öğretmenlerin teknolojiyi eğitim ortamlarına entegre etmenin ters yüz öğrenme modeli bağlamında incelenmesine yönelik görüşlerine yer verilmiştir. Bu görüşler doğrultusunda ortaya çıkan temalara, kodlara ilişkin bilgilere ve kodları temsil eden görüşlere yer verilmiştir.

Öğretmenlerin Teknolojik Becerilerine İlişkin Bulgular

Görüşme yapılan öğretmenlerin "Eğitim ortamlarında teknolojiyi kullanabilme becerilerinizi kendi alanınız bağlamında nasıl değerlendirirsiniz?" şeklindeki soruya verdikleri cevaplar *Öğretmenlerin Teknolojik Becerileri* teması olarak adlandırılmıştır. Temaya ilişkin kodlar ve kodlara ilişkin frekans sayıları Tablo 1'de verilmektedir. Formu cevaplayan bütün öğretmenlerin yanıtları değerlendirilmeye alınmış, hiçbir öğretmenin görüşü çıkartılmamıştır.

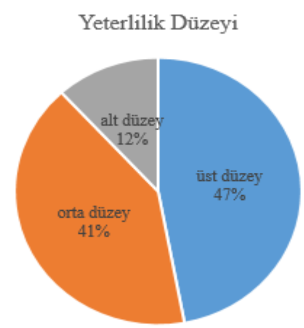
Tablo 1. *Öğretmenlerin Teknolojik Becerilerine İlişkin Bulgular*

Tema 1	**Kodlar**	***f***
Öğretmenlerin Teknolojik Becerileri	Yeterlilik düzeyi	34
	Alanına özgü materyal kullanımı	7
	Gelişime açık olma	6
	İşlevsel bulma	5

Tablo 1'de görüldüğü üzere öğretmenlerin teknolojik becerilerine ilişkin görüşleri belirtilmiştir.

Yeterlilik düzeyi: Öğretmenlerin mevcut teknoloji araçlarını ne kadar etkili ve verimli bir şekilde kullanabildiğini ifade eden bir kavramdır. Bu düzey, kişinin bilgisayar, internet, mobil cihazlar gibi teknolojik aletleri kullanma becerisi, yazılım programlarına hakim olma durumu ve dijital ortamlarda bilgiye erişme ve bu bilgiyi değerlendirme yeteneği gibi üst, orta ve alt düzey yeterliliği ifade etmektedir. Yeterlilik düzeyi kodu altındaki bu üç düzeye ait sayısal veriler Grafik 5'te gösterilmiştir.

Grafik 5. *Öğretmenlerin teknolojiyi kullanabilme becerilerinin yeterlilik düzeyi*



Grafik 5'te görüldüğü üzere öğretmenler teknolojiyi kullanabilme becerilerinin yeterlilik düzeylerinde %47 üst düzey, %41 orta düzey ve %12 de alt düzey olarak nitelendirmektedir.

Seviyelere ait görüşlere yönelik Ö11 alt ve Ö43 üst düzey yeterliliğe sahip olduklarını şu şekilde ifade etmişlerdir;

Ö11: *"Aslında etkileşimli tahta kullanımından öteye geçemiyorum."*

Ö43: *"İmkanlar dahilinde üst seviye de faydalanabilirim."*

Alana özgü materyal kullanımı: Öğrenme sürecinde öğrencilerin ilgi ve dikkatini çekmeyi başarma, onların konuyu daha iyi anlamalarını sağlayan ve kalıcı öğrenmeyi desteklemeyi ifade etmektedir. Bu kod için matematik alanına yönelik kullandığı programa yönelik görüş belirten matematik öğretmeni ders işleyişine ait şu ifadeleri kullanmıştır;

Ö2: *"Matematikte teknoloji kullanımı özellikle geometri dalında çok önemli çocukların 3 boyutlu şekilleri anlamada sıkıntı yaşadıklarında kullandığım programlar yardımcı oluyor. Geogebra en basiti ve kullanımı kolay."*

Gelişime açık olma: Teknolojik gelişmeleri takip ederek öğrenmeye ve değişime açık olmaktır. Katılımcılardan bazıları teknolojiyi kullanabilme konusunda öğrenmeye açık olduklarını ifade etmişlerdir. Bu konuda bir öğretmen kendisini şu şekilde tanımlamıştır;

Ö3: "*Gelişmeler ve yenilikleri takip eden, öğrenmeye ve gelişime açık.*"

İşlevsel bulma: eğitim ortamlarında teknoloji kullanımının derslerdeki kolaylaştırıcılığı ve öğrenme deneyimlerini çeşitlendirmesi ve faydalılığını içermektedir. Bu koda ilişkin psikolojik danışman ve rehber öğretmen kendi alanına yönelik teknolojinin işlevsel yönüne ilişkin şunları söylemektedir:

Ö18: "*Mesleğin ana alanı olan görüşme yapma, bireysel ve grupla psikolojik danışma süreçlerine teknolojinin bir etkisi olmazken, test teknikleri uygulamasında, kalabalık gruplara yapılan anket çalışmalarında, değerlendirme ve rapor aşamalarında teknolojinin çok hızlandırıcı etkisi olmaktadır.*"

Eğitim Ortamlarında Teknolojinin Kullanılmasına İlişkin Bulgular

Görüşme yapılan öğretmenlerin "Türkiye'de eğitim ortamlarında teknoloji kullanımını hakkında neler düşünüyorsunuz?" şeklindeki soruya verdikleri cevaplar *Eğitim Ortamlarındaki Teknolojinin Yordanması* teması olarak adlandırılmıştır. Buna ilişkin oluşturulan kodlar ve frekanslar Tablo 2'de verilmektedir. Soruya yönelik cevaplardan ikisi, soruyu yansıtmadığı için analize dahil edilmemiştir.

Tablo 2. *Eğitim Ortamlarında Teknolojinin Kullanılmasına İlişkin Bulgular*

Tema 2	Kodlar	*f*
Eğitim Ortamlarındaki Teknolojinin Yordanması	Teknolojinin tercih edilmesi	28
	Hedefe uygunluk göstermesi	10
	Geliştirilmesi gerekliliği	10
	Öğretmenler arası kuşak farkının olması	2
	Ülkeler arası farklılıkların olması	1
	Öğretim programı sınırlılıkları	1

Tablo 2'de görüldüğü üzere öğretmenlerin eğitim ortamlarındaki teknolojinin yordanmasına ilişkin görüşleri sunulmuştur.

Teknolojinin tercih edilmesi: Öğretmenlerin derslerinde teknolojiyi kullanmaları, 21. yüzyıl eğitim sisteminde kaçınılmaz hale gelmiştir. Teknoloji, öğrenme süreçlerini daha etkili, ilgi çekici ve öğrenci merkezli hale getirerek eğitimde önemli bir dönüşüm yarattığı için öğretmenlerde derslerinde teknolojiye yer vermektedir. Bu konuda bir öğretmen eğitim ortamlarında teknolojinin kullanılmasına yönelik şu şekilde bir olumlu görüş belirtmiştir;

Ö5: *"Yeterince kullanılıyor ve verimli olduğunu düşünüyorum."*

Daha detaylı olarak bir başka öğretmen eğitimde teknolojinin hangi platformlarda yoğunlaştığını şu şekilde detaylandırmıştır;

Ö35: "*Fatih projesi gibi özellikle akıllı tahtaya geçildikten sonra teknoloji kullanımı aktifleştirildi. Bunun yanı sıra Eba ile desteklendi. Phet, kanva, kahoot ile de yaygınlaştırılmaya çalışılıyor. Başarı sağlandığını düşünüyorum."*

Hedefe uygunluk göstermesi: Eğitim ortamlarında teknoloji kullanımı 21. Yüzyıl becerilerini kazanmaya yöneliktir. Öğretim etkinliklerinin etkili ve verimli şekilde gerçekleştirilmesi amaçlanmaktadır. Bu kolama ile ilgili görüşler genel anlamda olumlu ve olumsuz ifadelerden oluşmaktadır. Olumsuz görüşe yönelik bir öğretmen teknolojinin amacına uygun kullanılmasına kuşkuyla yaklaştığını şöyle dile getirmiştir;

Ö13: *"İyi; ama amaca yönelik oluşundan kuşkuluyum."*

Geliştirilmesi gerekliliği: Teknoloji kullanımın öğretmen, öğrenciler tarafından etkili bir şekilde kullanılabilmesidir. Gerekli olan programların, uygulamaların bilinmesi ve kullanım konusunda zorlanılmamasıdır. Bu koda cevap veren öğretmenlerin çoğu Ö37 ile benzer şekilde ifadelere yer vermişlerdir.

Ö37: *"Gelişmesi gerekiyor."*

Öğretmenler arası kuşak farkı: 1739 sayılı Milli Eğitim Temel Kanunu'nun 43. Maddesine göre Öğretmenlik mesleği; adaylık döneminden sonra öğretmen, uzman öğretmen ve başöğretmen olmak üzere üç kariyer basamağına ayrılmaktadır. Adaylık dönemini başarıyla tamamlayanlar mesleğe öğretmen olarak atanmaktadır (METK, 1973). Bu kod ile öğretmenlerin ifade etmek istedikleri ortak görüş, meslek hayatında yeni olan öğretmenlerle daha kıdemli öğretmenlerin teknoloji kullanımı konusunda farklılıklar göstermesidir. Mesleki çalışma yılı 1-5 arası olan bir öğretmen, öğretmenler arası kuşak farkının teknoloji kullanımına etkisini şu ifadelerle açıklamıştır;

Ö2: *“Yeni nesil öğretmenler akıllı tahta ve teknoloji kullanımında yeterli ancak meslekte eski öğretmenler bilgisayar bile kullanmıyorlar.”*

Ülkeler arası farklılıkların olması: Öğretmenlere göre ülkelerin gelir düzeyleri, eğitim stratejileri, öğrenci ve öğretmen potansiyeli gibi pek çok durum teknoloji kullanımında ülkeler arası farklılıklara sebep olmaktadır.

Öğretim programı sınırlılıkları: Öğretmenler özellikle ders saati sayılarının ve konu dağılımlarının, teknolojinin derslerde kullanılmasını zorlaştırdığını ifade etmişlerdir.

Öğrencilerin Teknolojik Becerilerine İlişkin Bulgular

Görüşme yapılan öğretmenlerin “Öğrencilerinizin teknolojik yeterlilikleri hakkında görüşleriniz nelerdir?’’ şeklindeki soruya verdikleri cevaplar *Öğrencilerin Teknolojik Becerileri* teması olarak adlandırılmıştır. Buna ilişkin oluşturulan kodlar ve frekanslar Tablo3’te verilmektedir. Soruya yönelik cevaplardan üçü, öğrencilerin teknolojik becerilerinin tanımlanmasının karşılığını yansıtmadığı için analize dahil edilmemiştir.

Tablo 3. *Öğrencilerin Teknolojik Becerilerine İlişkin Bulgular*

Tema 3	Kodlar	*f*
Öğrencilerin Teknolojik Becerileri	Yeterlilik düzeyi	33
	Amaca uygun kullanım	13
	Fırsat eşitsizliği	8
	Merak uyandırılması	5
	Öğretmen-öğrenci arası kuşak farkı	5
	Öğretmen nitelikleri	1

Tablo 3’te görüldüğü üzere öğretmenler tarafından öğrencilerinin teknolojik becerilerine ilişkin görüşleri sunulmuştur.

Yeterlilik düzeyi: Öğretmenlerin, öğrencilerinin mevcut teknoloji araçları ne kadar etkili ve verimli bir şekilde kullanabildiğini ifade ettikleri bir kavramdır. Bu düzey, öğrencilerin bilgisayar, internet, mobil cihazlar gibi teknolojik aletleri kullanma becerisi, yazılım programlarına hakim olma durumu ve dijital ortamlarda bilgiye erişme ve bu bilgiyi değerlendirme yeteneği gibi üst, orta ve alt düzey yeterlilikleri ifade etmektedir. Yeterlilik düzeyi kodu altındaki bu üç düzeye ait sayısal veriler Grafik 6'da gösterilmiştir.

Grafik 6. *Öğrencilerin teknolojiyi kullanabilme becerilerinin yeterlilik düzeyi*

Grafik 6'da görüldüğü üzere öğretmenler teknolojiyi kullanabilme becerilerinin yeterlilik düzeylerinde %47 üst düzey, %41 orta düzey ve %12 alt düzey olarak nitelendirmektedir.

Öğrencilerin teknolojiyi kullanabilme düzeylerine yönelik alt ve üzt düzey yeterlilikler benzer oranlarda bir sonuç göstermektedir. Üst düzey yada iyi seviyede teknolojik alet kullanabilmelerine ilişkin öğretmen görüşleri şu şekildedir:

Ö16: "*Öğrenciler bu konuda yeterli derecede beceriye sahipler.*"

Ö34*: "Teknolojik materyal kullanımında çok iyi olduklarını düşünüyorum."*

Öğretmenler, öğrencilerinin teknolojiyi kullanma konusundaki becerilerinin sebebi olarak teknoloji çağında doğmalarını göstermektedirler. Örnek bir görüş şu şekildedir:

Ö25: *"Çocuklar teknolojinin içine doğuyor bugün."*

Amaca uygun kullanım: Öğrencilerin teknolojiyi kendi bilgi ve becerilerini arttırmak, bilgiye ulaşmalarını kolaylaştırmak, etkili bir öğrenme gerçekleştirmek amacıyla kullanmalarıdır.

Öğretmen görüşlerinde dikkat çekici bir unsur, yeterlilik düzeyi koduna verilen cevapların çoğunda amaca uygun kullanım koduna da değinilmesi durumudur. Buna ilişkin bazı açıklamalar şu şekildedir:

Ö46: *"Yeterlilikleri var fakat bu yeterliliği eğitimleri için uygun alanlarda kullanmıyorlar."*

Ö18: "*Yüzeysel bir yeterlilikleri var. Kullandıkları teknolojik aygıtların nasıl çalıştığı ile ilgili merak duygusuna sahip değiller. Bunun yanında etkili ve verimli kullanım becerileri de zayıf."*

Fırsat eşitsizliği: Öğrencilerin yaşam standartlarının, ekonomik düzeylerinin, aile yapılarının, kültürel özelliklerinin birbirinden farklı olması ve bu farklılıkların öğrenci için dezanvantaja dönüşmesidir. Bu da öğrencilerin eğitimlerine teknolojiyi dahil edebilme imkanlarını doğrudan etkileyen önemli bir durumdur. Buna yönelik bazı öğretmen görüşleri şu şekildedir:

Ö38: *"Öğrencilerimizin teknolojik imkanlarının yetersiz olduğunu düşünüyorum."*

Ö41: *"Bütün öğrenciler aynı imkanlara sahip olmadığı için yeterliliklerinin genel olarak düşük olduğunu düşünüyorum."*

Merak uyandırılması: Öğretmenler bazı öğrencilerin derslerde veya sonrasında kullanılan teknolojik malzemelere karşı merak duymadıklarını ve bu konuda öğrencilerin teknolojiyi aktif kullanma anlamında güdüleyecek çalışmaların yapılması gerektiğini ifade etmektedirler. Eğitimde teknoloji kullanımının amacının kavratılması gerektiğini düşünmektedirler. Buna ilişkin bir öğretmen şu yorumda bulunmuştur:

Ö39: *"Bilinçlendirilmesi gereken bir seviyedeler."*

Öğretmen-öğrenci arasında kuşak: Bu kod için görüş bildiren öğretmenler genel olarak öğrencilerini teknoloji çağında doğmuş Z kuşağı olarak nitelendirmişlerdir. Z kuşağı 2000 yılından sonra doğmuş, teknoloji ile iç içe olan gençleri ifade etmektedir (Erten, 2019). Bu araştırma için örneklem grupta çalışma ve kıdem göz önüne alındığında Z kuşağı olarak nitelendirilebilecek öğretmenler bulunmamaktadır. Bu sebeple öğretmenler öğrencilerin kuşak olarak kendilerinden farklı olduklarını ve teknoloji çağında doğdukları için teknolojiye maruz kalarak büyüdüklerini ifade etmektedirler.

Ö25: *"Çocuklar teknolojinin içine doğuyor bugün."*

Ancak bu kodun ilişkilendirildiği bir diğer kod amaca uygun kullanım kodudur. Öğretmenlerin çıkarımı ise öğrencilerden bazılarının teknolojiyi sadece eğlence amaçlı kullandıkları, derslere yardımcı olacak şekilde amaca uygun kullanmadıklarıdır. Buna ilişkin görüşlerden biri detaylı bir şekilde şöyle belirtilmiştir:

Ö45: *"Öğrencilerimiz artık teknoloji ile büyüyen bir nesil ve teknoloji konusunda oldukça yatkınlar. Ancak bu teknolojik yeterlik maalesef son zamanlarda sadece tablet ve cep telefonundan video izleme, kaydırma düzeyine inmiş durumda. Bilgisayar becerileri olan Word, Excel, ppt vb. sunum programları gibi uygulamaları kullanma konusunda çok yeterli oldukları söylenemez."*

Öğretmen nitelikleri: Öğrencilerin teknoloji kullanımına ilişkin motiveyi sağlayacak olan en önemli etmenlerden birinin bu konudaki öğretmen tutumları ve teknoloji konusundaki yetkinlikleri olduğu belirtilen kavramdır. Bu koda ait örnek şu şekildedir:

Ö21: "*Yetkin bir öğretmenle daha iyi olabilir."*

Öğretmenlerin Meslektaşlarının Teknolojik Becerilerine İlişkin Bulgular

Görüşme yapılan öğretmenlerin "Meslektaşlarınızın teknolojiyi kullanma yaklaşımlarını nasıl değerlendirirsiniz?'' şeklindeki soruya verdikleri cevaplar *Öğretmenlerin Meslektaşlarının Teknolojik Becerilerini Yordaması* teması olarak adlandırılmıştır. Temaya ilişkin beş öğretmen görüşü temayı yansıtmadığı gerekçesiyle araştırmacılar tarafından analiz kapsamında değerlendirilmemiştir. Oluşturulan kodlar ve frekanslar Tablo4'te verilmektedir.

Tablo 4. *Öğretmenlerin Meslektaşlarının Teknolojik Becerilerine İlişkin Bulgular*

Tema 4	Kodlar	*f*
Öğretmenlerin Meslektaşlarının Teknolojik Becerilerini Yordaması	Yeterlilik düzeyi	22
	Değişime direnç	10
	Gelişime açıklık	6
	Öğretmenler arası kuşak farkı	3
	Alanına özgü materyal kullanımı	3
	Amaca uygun kullanım	2

Tablo 4'te görüldüğü üzere öğretmenlerin meslektaşlarının teknolojik becerilerini yordamasına ilişkin görüşleri sunulmuştur.

Yeterlilik düzeyi: Öğretmenlerin, meslektaşlarını mevcut teknoloji araçlarını etkili ve verimli bir şekilde kullanabilmelerine yönelik ifade ettikleri bir kavramdır. Bu düzey, diğer öğretmenlerin bilgisayar, internet, mobil cihazlar gibi teknolojik aletleri kullanma becerisi, yazılım programlarına hakim olma durumu ve dijital ortamlarda bilgiye erişme ve bu bilgiyi değerlendirme yeteneği gibi üst, orta ve alt düzey yeterlilikleri ifade etmektedir. Yeterlilik düzeyi kodu altındaki bu üç düzeye ait sayısal veriler Grafik 7'de gösterilmiştir.

Grafik 7. *Öğretmenlerin meslektaşlarının teknolojik becerilerini yordamasına ilişkin yeterlilik düzeyi*

Grafik 7'de görüldüğü üzere öğretmenlerin meslektaşların teknolojik becerilerini yordamasına ilişkin olarak yeterlilik düzeyleri hakkındaki görüşleri %50 üst düzey, %27 orta düzey ve %23 alt düzey olarak nitelendirmektedir.

Katılımcıların yarısı öğretmen arkadaşlarının teknoloji kullanabilme konusunda iyi olduklarını söylemişlerdir. Buna ilişkin olumlu bir görüş şu şekildedir:

Ö40: "*Dinamik, meslektaşlarımız güzel kullanıyor.*"

Orta ve düşük seviyeye ait yapılan görüşlerde ise şöyle belirtilmiştir.

Ö41: *"Orta seviye olduğunu düşünüyorum."*

Ö3: *"Yeterli düzeyde değil."*

Değişime direnç: Öğretmenler, meslektaşlarına yönelik gözlemlerinde derslerde klasik anlatım yönteminin tercih edildiğini, teknoloji kullanımına ilişkin önyargıların olduğunu ve bu sebeple teknoloji kullanımına mesafeli olduklarını belirtmişlerdir. Içinde yaşanılan teknoloji çağına ait becerilere yönelik ders içi etkinlikler yapmadıkları bir başka ifade olmuştur. Buna yönelik dikkat çekici yorumlardan üçü şöyledir:

Ö11: *"Yeniliklere ayak uydurmakta güçlük çekiyoruz sanırım. Büyük kısmımız bildiği yoldan gidiyor."*

Ö18: *"Çoğunluk itibariyle "ben kendi bildiğimden şaşmayayım" düşüncesiyle yeniliklere yeterince açık olmadıklarını düşünüyorum."*

Ö19: *"Klasik yöntemlere daha bağlı, teknolojiye daha mesafeli."*

Gelişime açıklık: Öğretmenler değişime direnç gösteren meslektaşlarının aksine, teknolojiyi kullanama becerilerini geliştirmeye açık olan öğretmenlerden bahsetmişlerdir. Bu koda ilişkin bir öğretmen, arkadaşlarını şu şekilde tanımlamaktadır:

Ö32: *"Yakinen takip eden arkadaşlarım da var, hiç ilgilenmeyen de…."*

Öğretmenler arası kuşak farkı: Bu temada yine kuşak farklarına ilişkin öğretmenler arası kuşak farkına ait bulgular çıkmıştır. Öğretmenler arasındaki kıdem farkının teknoloji kullanımı açısından değişkenlik gösterdiği yine bu tema ile ilişkilendirilmiştir. Bu kod için mesleki kıdem yılı 16 ve üzeri olan üç öğretmenin meslektaşlarına yönelik görüşleri şöyledir:

Ö16: *"Genç olanlar daha ilgili ve daha yetenekli."*

Ö15: *"Gençler daha bilgili."*

Ö31: "*Kıdemli arkadaşlarda düşük düzeyde."*

Alana özgü materyal kullanımı: Öğretmenlerin Tema 1'de belirttikleri gibi yine bu temada da değinilen kod alana özgü materyal kullanımı olmuştur. Öğretmenler meslektaşlarının bazı branşlarda teknoloji kullanımının çok daha faydalı olduklarını ifade etmişlerdir. Ayrıca meslektaşlarının kendi branşlarına yönelik program, uygulama ve teknolojik materyalleri kullanmaktan çekinmediklerini söylemişlerdir. Bu koda yönelik bir örnek şu şekilde verilmiştir:

Ö2: *"Matematik branşı çok kullanıyor ama bazı branşlar asla kullanmıyor."*

Amaca uygun kullanım: Tema 1'de belirtilen amaca uygun kullanım kodu bu tema da da yinelenmiş ve bu kod ile ilgili iki görüş bildiren öğretmenler meslektaşlarının teknoloji kullanımını amaca uygun kullanım konusunda yetersiz bulmuşlardır. Buna ilişkin örnek şu şekildedir:

Ö4: *"Hepsi verimli ve doğru kullanmıyor."*

Öğretmenlerin Ters Yüz Öğrenme Modeline İlişkin Bulgular

Görüşme yapılan öğretmenlerin "Ters yüz öğrenme modeli hakkında neler biliyorsunuz? Ters yüz öğrenme dediğinizde aklınıza gelen kavramlar nelerdir?" şeklindeki soruya verdikleri cevaplar Öğretmenlerin Ters Yüz Öğrenme Modeline Kavramsal Yaklaşımları teması olarak adlandırılmıştır. Buna ilişkin oluşturulan kodlar ve frekanslar Tablo'de verilmektedir.

Tablo 5. *Öğretmenlerin Ters Yüz Öğrenme Modeline İlişkin Bulgular*

Tema 5	Kodlar	*f*
Öğretmenlerin Ters Yüz Öğrenme Modeline Kavramsal Yaklaşımları	Modelin tanınmaması	16
	Hibrit öğrenme	11
	Teknolojik materyal	10
	Bireysel öğrenme	5
	Zaman tasarrufu	2
	Tartışma	2
	Yansıtma	2
	İletişim	2
	İşbirlik	1
	Aktif katılım	1

Tablo 5'te görüldüğü üzere öğretmenlerin ters yüz öğrenme modeline kavramsal yaklaşımlarına ilişkin görüşleri sunulmuştur.

Ters yüz öğrenme modelinin bilinirliğine yönelik on yedi kişi modeli tanımadığını ifade etmiştir. Buna ilişkin örnekler şu şekilde verilmiştir:

Ö17: *"İlk defa duydum."*

Ö20: *"Bilgim yok."*

Ö25: *"İlk defa duydum. Araştıracağım."*

Hibrit öğrenme: Hibrit öğrenme veya diğer adlarıyla harmanlanmış veya karma öğrenme, geleneksel sınıf ortamı ile online öğrenmenin en iyi özelliklerini bir araya getiren bir eğitim modelidir. Bu modelde öğrenciler, hem yüz yüze derslere katılırlar hem de online platformlar üzerinden öğrenme materyallerine erişirler (Taşkın ve Aksoy, 2023). Öğretmenler ters yüz öğrenme modeline ilişkin tanımlamalarında ‘’hibrit öğrenme’’ kavramını kelime olarak kullanmadıkları gözlemlenmiştir. Hibrit öğrenmenin tanımına uygun görüşlerini şu şekilde ifade etmişlerdir:

Ö37: *“Ters yüz öğrenme modeli öğrencinin evde teorik bilgiyi alıp okulda uyguladığı model.”*

Ö3: *“Çocuklar önce online ortamda öğreniyor sonra öğretmenle pekiştiriyor ve yanlışlarını düzeltiyor.”*

Ö33: “*Ters yüz öğrenme modelinde öğrenciler öğrenmesi gereken konuyu evde araştırmaları sonucu bireysel öğrenmelerini gerçekleştirir. Daha sonra okulda bununla ilgili aktivite yapar.’’*

Teknolojik materyal: Ters yüz öğrenme modelini bazı katılımcılar sadece teknoloji ile ilişkilendirmişledir. Ters yüz öğrenmeyi akıllı tahta gibi teknolojik materyaller ya da bilgisayar uygulamalarıyla bağdaştırmışlardır. Bu koda ait örnek görüş şu şekildedir:

Ö10: *“Teknolojinin derslerde aktif olarak kullanılması. Hazırlık, akıllı tahta, slayt, sunum.”*

Bireysel öğrenme: Öğrencinin kendi hızında, ilgi alanlarına ve öğrenme tarzına uygun olarak, kendi kendine yönlendirdiği bir öğrenme süreci olarak tanımlanan bu koda ilişkin verilen ters yüz öğrenme modelini destekleyici bir görüş şu şekildedir:

Ö16: *“Bireysel öğrenmeyi destekleyen bir model.”*

Katılımcılar *zaman tasarrufu*, *tartışma, yansıtma, iletişim, işbirlik* ve *aktif katılım* kodlarına ilişkin görüşlere de yer vermişlerdir.

Ters Yüz Öğrenme Modelinin Uygulanabilirliğine İlişkin Bulgular

Görüşme yapılan öğretmenlerin “Ters yüz öğrenme modelinin Türkiye’de uygulanabilirliği hakkındaki görüşleriniz nelerdir?’’ şeklindeki soruya verdikleri cevaplar *Ters Yüz Öğrenme Modelinin Uygulanabilirliği* teması olarak adlandırılmıştır. Temaya ilişkin yapılan analiz sürecinde on bir görüş temayı yansıtmayack cevaplara sahip olduğu için değerlendirmeye alınmamıştır. Buna ilişkin oluşturulan kodlar ve frekanslar Tablo6’da verilmektedir.

Tablo 6. *Ters Yüz Öğrenme Modelinin Uygulanabilirliğine İlişkin Bulgular*

Tema 6	Kodlar	*f*
Ters Yüz Öğrenme Modelinin Uygulanabilirliği	Tutum	17
	Teknik altyapı	12
	Bölgesel farklar	6
	Bireysel öğrenme	5
	Fiziki koşullar	4
	Değişime direnç	3
	Pilot uygulama	3
	Fırsat eşitsizliği	3
	İletişim	2

Tablo 6'da görüldüğü üzere öğretmenlerin ters yüz öğrenme modelinin uygulanabilirliğine ilişkin görüşleri sunulmuştur.

Tutum: Öğretmenlerin ters yüz öğrenme modelinin uygulanabilirliğine yönelik olumlu ve olumsuz değerlendirme, duygu ve davranışlarına ilişkin görüşler tutum koduna alınmıştır. Olumlu tutumların, olumsuz tutumlardan fazla olduğu tespit edilmiştir. Cevaplara ilişkin veriler yüzdelik dilimleriyle birlikte Grafik 7'de verilmiştir.

Grafik 7. *Öğretmenlerin ters yüz öğrenme modelinin uygulanabilirliğine yönelik tutumları*

Grafik 7'de görüldüğü üzere öğretmenlerin ters yüz öğrenme modelinin uygulanabilirliğine yönelik tutumları hakkındaki görüşleri %59 olumlu tutum, %41 olumsuz tutum olarak nitelendirmektedir.

Ö8: *"Uygulanmada aksaklıklar olacağı kanaatindeyim."*

Ö16 ve Ö22: *"Uygulanabilir.''*

Ö6: *"Teknoloji yüzyılı olarak adlandırılan bu dönemde mümkün ve kullanılabilir olduğunu düşünüyorum."*

Teknik altyapı: Eğitim ortamlarındaki teknolojik donanım ve yeterliliklerdir. Özellikle öğretmenlerin bu yeterliliğin sağlanması ile birlikte olumlu bir tutum sergileyeceklerini ifade ettikleri gözlemlenmiştir. Buna örnek olarak:

Ö21: *"Teknolojik imkanlar sağlandığında uygulanabilirliği söz konusu olabilir."*

Bölgesel farklar: Ülkedeki coğrafi bölge farklılıklarının eğitimde teknoloji kullanımına doğrudan etkisinin olduğunu belirten görüşler bu kod altında toplanmıştır. Yine öğretmenler olumlu tutum oluşturabilmeyi bu kodun iyileştirmesine bağlamışlardır. Örnek şu şekildedir:

Ö5: *"Teknoloji konusunda her bölge ayni seviyede değil gerekli on hazırlıkların yapılması gerekir."*

Bireysel öğrenme: Bu tema için bireysel öğrenmenin ilişkilendirildiği durum öğrencilerin kendi öğrenme süreçleri konusunda yetersiz olduklarıdır. Klasik yöntemlere alışmış öğrencilerin bu yöntem dışındaki başka yöntemlere olumsuz bir inanç geliştirerek öğrenme süreçlerini bireyselleştirmedikleri söylenmiştir. Buna ilişkin en açıklayıcı örnek şu şekildedir:

Ö44: *"Türkiye'de uygulanabilirliği elbette var ancak öğrenciler, gözlemlediğim kadarıyla derse hazırlanma alışkanlığına sahip değiller. Fiziki ortamda sadece öğretmeni dinleyerek ders işlendiğine inanıyorlar. Bu nedenle biraz zor olabilir öğretmen açısından."*

Fiziksel koşullar: Bu kod için özellikle sınıf mevcutları, okulların fiziki yapıları, derslik sayıları gibi ortak alt başlıklardan oluşmaktadır.

Değişime direnç, *pilot uygulama*, *fırsat eşitsizliği* kodları içinde görüşlere yer verilmiştir.

İletişim: Öğretmen ve öğrenci arasındaki bağın belirtildiği bu kod ile eğitimin manevi boyutuna değinilmiştir. Manevi boyut, öğrencinin sadece akademik değil, aynı zamanda ahlaki, sosyal ve duygusal gelişiminde de önemli bir rol oynamaktadır. Bir öğretmen bu iletişim kodunu şu şekilde açıklamıştır:

Ö32: *"Bir öğretmenin öğrencileriyle göz teması kurarak anlattigi bilgilerin onlara nüfuz edebileceği ölçüde hiçbir yol veya yöntemin etkili olabileceğini sanmıyorum."*

Teknoloji Temelli Modellerin Uygulanabilirliğine İlişkin Bulgular

Görüşme yapılan öğretmenlerin "Teknoloji temelli modellerin öğretim süreçlerinde uygulanabilirliğine yönelik önerileniz nelerdir?'' şeklindeki soruya verdikleri cevaplar *Teknoloji Temelli Modellerin Uygulanabilirliğine Yönelik Öğretmen Görüşleri* teması olarak adlandırılmıştır. Buna ilişkin oluşturulan kodlar ve frekanslar Tablo7'de verilmektedir. Bu tema için dokuz öğretmenin görüşleri temaya ilişkin soruyu yansıtan cevapları içermediği gerekçesiyle analiz sürecine dahil edilmemiştir.

Tablo 7. *Teknoloji Temelli Modellerin Uygulanabilirliğine İlişkin Bulgular*

Tema 7	Kategoriler	*f*
Teknoloji Temelli Modellerin Uygulanabilirliğine Yönelik Öğretmen Görüşleri	Bilinçlendirme çalışmaları	10
	Öğretmen eğitimleri	10
	Teknik altyapı çalışmaları	9
	Öğrencilere materyal sağlanması	8
	Pilot uygulama	2
	Teknolojiye merak uyandırılması	2
	İşbirliği	1
	Öğretim programlarının iyileştirilmesi	1
	Fiziki koşulların iyileştirilmesi	1

Tablo 7'de görüldüğü üzere öğretmenlerin teknoloji temelli modellerin uygulanabilirliğine yönelik görüşleri sunulmuştur.

Öğretmenler teknoloji temelli modellerin uygulanabilirliği bağlamında ilk altı temada bahsettikleri kodlara yönelik çözüm önerileri sunmuşlardır. Genel olarak çözüm önerisi sundukları noktalar gözlemledikleri veya kendi deneyimledikleri sorunlardan oluşmaktadır.

Bilinçlendirme çalışmaları: Öğretmenler öğrencilerin, velilerin teknolojiyi verimli kullanma konusunda bilinçlendirilmeleri için gerekli çalışmaların gerektiğini, ancak bu şekilde eğitim ortamlarında teknoloji kullanımın yoğunlaşacağını düşünmektedirler.

Ö10: "Öğrenci, öğretmen ve veliler bilgilendirilmeli ve de bilinçlendirilmelidir."

Öğretmen eğitimleri: Öğretmenlerin teknolojiyi daha iyi analamaları ve eğitim süreçlerine dahil etmeleri için seminer, hizmet içi eğitimler almaları gerektiği söylenmiştir. Ayrıca eğitim için hazırlanan program, yazılım, teknolojik materyallerin öğretmenlere tanıtılması gerektiğini ifade etmişlerdir. Bu gereklilik şöyle dile getirilmiştir:

Ö20: "*Öncelikle öğretmenler seminere alınmalı."*

Teknik alt yapı çalışmaları: Akıllı tahta, internet, tablet, program, yazılım, uygulama, teknolojik materyal gibi teknik altyapı çalışmalarının düzenlenmesi ile ilgili kod teknik alt yapı çalışmaları olarak adlandırılmıştır. Bu koda ait cevaplardan üçü şu şekildedir:

Ö27: *"Örneğin ders kitapları z kitap türüne getirilebilir."*

Ö38: *"Teknolojik araç ve gereçlerin akıllı tahta, telefon, bilgisayar gibi aletlerle sınırlı kalmaması gerekiyor. Ayrıca öğrencilerin sosyal iletişimini engellememeli ve teorik bilgilerin pratiğe dönüştürülmesi için uygun alanların oluşturulması gerektiğini düşünüyorum."*

Ö45: *"Okullarda hızlı bir internet altyapısı, akıllı tahtalarin çalışır durumda olması."*

Öğrenciye materyal sağlanması: Teknolojik modeler öğrencilerin eğitimleri için vardır ve buna ilişkin öğrencilerin gerekli bilgi beceri ve donanıma sahip olması gerekmektedir. Bunun içinde öğrencilerin bu teknolojiyi aktif olarak kullanabilmesi gerekmektedir. Koda yönelik bazı öğretmen görüşleri şu şekildedir:

Ö1: *"Öğrencilere donanımlı tabletler verilmelidir. Ayrıca bu tabletler tahta ile uyumlu olmalıdır."*

Ö33: *"Öğrencilere eğitim uygulamalarında geçerli olan bir internet paketi tanımlanabilir."*

Pilot uygulama: Teknoloji temelli modellerin eğitim ortamlarına dahil edilmeden önce belirli bir süre denenmesi gerektiğine yönelik görüşler bu kod altında toplanmıştır.

Teknolojiye merak uyandırılması: Öğrencilerin teknolojiyi eğitimlerinde kullanmayı istemelerini ve merak etmelerini sağlamak için çalışmalar yapılması gerektiği görüşlerini içermektedir.

Veli-okul işbirliğine yönelik *İşbirliği* kodu; öğretim programlarının iyileştirilmesine ve teknolojiyi kullanmayı sağlayacak konulara yer verilmesine yönelik *Öğretim programlarının iyileştirilmesi* kodu; okulların fiziksel anlamda iyileştirilmesi ve teknoloji kullanımına uygun hale getirilmesini içeren *Fiziki koşulların iyileştirilmesi* koduna ait birer görüş belirtilmiştir.

Tartışma, Sonuç ve Öneriler

Bu çalışmada; farklı branşlardaki öğretmenlerin ters yüz öğrenme modelini teknoloji bağlamında değerlendirmelerine ilişkin görüşlerini incelenmiştir. Araştırma bağlamında öğretmenlere yedi sorudan oluşan yarı yapılandırılmış görüşme formu yöneltilmiştir. Görüşlerin uzmanlar tarafından tematik analizi sonrasında her soruya ait birer tema açığa çıkmıştır. Bu temalar: "Öğretmenlerin Teknolojik Becerileri", "Eğitim Ortamlarındaki Teknolojinin Yordanması", "Öğrencilerin Teknolojik Becerileri", "Öğretmenlerin Meslektaşlarının Teknolojik Becerilerini Yordaması", "Öğretmenlerin Ters Yüz Öğrenme Modeline Kavramsal Yaklaşımları", "Ters Yüz Öğrenme Modelinin Uygulanabilirliği" ve "Teknoloji Temelli Modellerin Uygulanabilirliğine Yönelik Öğretmen Görüşleri" olarak isimlendirilmiştir. Temalara ait toplam otuz yedi kod oluşturulmuştur.

Katılımcılar özellikle derslerinde en çok akıllı tahtayı ve uygulamaları kullandıklarını belirtmişlerdir. Milli Eğitim Bakanlığı tarafından başlatılan, eğitim sistemine teknolojiyi entegre etmek amacıyla sınıflara yerleştirilen LCD akıllı ekran tahtalar Fatih Projesi olarak isimlendirilmektedir. (MEB, 2024). Bu projenin sınıflarda etkin olarak kullanılması ile öğretmenlerinde teknolojiyi eğitim ortamlarında kullanmalarını kolaylaştırdığı söylenebilir. Ancak bu araştırmada belirtilen bazı görüşlerde teknoloji kullanımına yönelik olumsuz görüşlere de rastlanmıştır. Analiz sonuçlarında derslerinin işlenişinde teknolojiden faydalanmayan, klasik anlatım biçimini tercih eden ve değişime direnç gösteren öğretmenlere yönelik görüşler bulunmaktadır. Özdemir ve Vural (2024) çalışmalarında öğretmenlerden bazılarının birtakım etkenlerden dolayı çeşitli yöntem ve teknik kullanım yerine klasik yöntemi tercih ettikleri sonucuna ulaşmışlardır.

Öğretmelerin derslerini işlerken kendi branşlarının içeriklerine göre geliştirilmiş uygulamaları kullanarak öğretimi daha kolay, pratik ve işlevsel hale getirdikleri görülmektedir. Akıllı tahtaların kullanımına yönelik yapılan bir öğretmen görüşleri araştırmasının sonucunda da yine derslerde teknoloji kullanımının öğrenme konusundaki işlevselliğine ilişkin sonuçlara rastlanmıştır (Banoğlu, Madenoğlu, Uysal ve Dede, 2014). Öğretmenler hem ters yüz öğrenme modeli bağlamında hem de teknoloji temelli modellerin zaman tasarrufu sağladığına yönelik Can, Sülun, Böçkün ve Duman (2023)'ın çalışmasına paralel görüş bildirmişledir. Ayrıca araştırmadaki ters yüz öğrenme modelinin kavramlarına ait aktif katılım, bireysel öğrenme, iletişim kodlarına yönelik görüşler Karamuk-eskiköy ve Liman Kaban (2023)'ın çalışmalarındaki öğretmen görüşleriyle benzer sonuçlar elde etmiştir.

Araştırmada bazı öğretmenler teknolojiyi öğrenmeye meraklı olduklarını ifade etmişledir. Vural ve Ceylan (2014) öğretmenlerin iletişim teknolojilerini kullanmaya yönelik istekli ve yeniliğe açık olduklarını söylemişlerdir. Yürektürk ve Coşku (2020)'da öğretmenlerin ihtiyaçlarına yönelik olan ve eğitim ortamında kullanılacak teknolojik gelişmeleri takip ettiğini belirtmektedirler.

Öğretmenler hem öğretmenleri hem de öğrencilerin teknolojinin hedefe uygun kullanılması destekleyen ve eleştiren görüşlere yer vermişlerdir. Erden ve Seferoğlu (2019) öğrencilerin teknolojik materyalleri hangi amaçlar için kullandıklarını belirlemeye yönelik sorulara verdikleri cevaplar analiz ettiklerinde ders amaçlı ve eğlence amaçlı kullanımı olmak üzere iki temanın ortaya çıktığı görmüşlerdir. Bu sonuçlar özellikle eğitimde teknolojinin neden kullanıldığının kavratılmasına yönelik bilinçlendirme çalışmalarına önem verilmesi gerektiğini göstermektedir. Yine araştırma öğretmenler hem meslektaşlarının, hem velilerin, hem de öğrencilerin teknolojinin faydalılığı ilkesine yönelik bilinçlendirilmesi gerektiklerini vurgulamışlardır. Kuzgun ve Özdinç (2017) teknoloji kullanımına yönelik yaptıkları çalışmalarında öğretmen ve öğrencilerin bu konuda bilinçlendirmeye ilişkin bir çalışmaya dahil edilmediklerini ifade etmişlerdir. Aynı şekilde yine bu konuda öğretmen eğitimlerine yoğunlaşılması gerektiğini belirten öğretmen görüşleri analiz edilmiştir.

Araştırmada dikkat çeken ve temalarda sıkça rastlanan kuşak farklılılarının teknoloji kullanımını etkilediği görüşler yer almıştır. Öğretmenlerin kendi arasında veya öğrencileriyle olan kuşak farklarına ilişkin yorumları özellikle yaş farkı ile ilişkilendirilmiştir. Buna benzer sonuçları Erdoğdu Aslan (2024) genç kuşağın teknolojiye daha yatkın olduğunu ifade ederek bulmuştur. Yine araştırmada rastlanan başka farklılıklar ülkeler arası, bölgeler arası ve öğrenciler arası yaşanan farklardan kaynaklı fırsat eşitsizlikleridir. Fırsat eşitsizliklerinin teknolojiye ulaşabilme bakımından dezavantaj olduğu görüşleri bulunmaktadır. Işık ve Bahat (2021) teknoloji bağlamında eğitimde fırsat eşitsizliğine ilişkin çalışmalarında öğrencilerin yerleşim yerleri, aile yapıları, gelir düzeylerine yönelik farklılıklarının öğrencilerin teknolojiye ulaşmaları konusunda dezantaj oluşturduğu ifade edilmiştir.

Ters yüz öğrenme modelini araştırmaya katılan kırk altı katılımcıdan on altısı bilmediğini ifade etmiştir. Buna sebep olarak modelin yeni bir model oluşu ve popülerliğini Covid19 salgını ile arttıran uzaktan eğitim süreci gösterilebilir. Okulların salgın sebebiyle kapanması ve eğitim sürecinin evlerden devam etmesi modelin dolaylı olarak uygulanmasını sağlamıştır. Bu sebeple katılımcılar modeli genellikle evde çalışma-okulda uygulama olarak hibrit öğrenmenin tanımına uygun açıklamalarla ifade etmişlerdir. Türk ve Ev Çimen (2022)'de öğretmen adaylarına yönelik ters yüz öğrenme modele ilişkin araştırmalarındaki uygulama öncesi bulgularda modele yönelik bazı adayların fikir sahibi olmadığı tespit edilmiştir. Yine aynı çalışmada modeli tanımlayan adayların ders videolarının önceden sunulması, öğrenmenin okul dışında gerçekleşmesi, öğrencilerin konuları önceden öğrenerek ders katılması gibi cevaplar verdikleri gözlemlenmiştir.

Öğretmenlerinin belirttiği görüşlerden yola çıkarak yapılan betimsel analiz sonucunda elde edilen temalardan *Teknoloji Temelli Modellerin Uygulanabilirliğine Yönelik Öğretmen Görüşleri* teması ve ilgili alan yazın incelendiğinde konu üzerinde çalışacak araştırmacılara ve öğretmenlere şu önerilerde bulunulabilir;

1. Bilinçlendirme çalışmalarıyla öğretmen, öğrenci, veli ve okul paydaşlarının teknolojiyi amaca uygun bir şekilde eğitim ortamlarına dahil etmesi sağlanabilir.
2. Öğretmen eğitimleri arttırılarak öğretmenlerin teknolojiyi eğitimde etkili bir şekilde kullanabilmeleri, farklı öğrenme stillerine hitap edebilmeleri ve öğrencilere pratik beceriler kazandırabilmeleri sağlanabilir.
3. Teknik altyapı çalışmalarıyla okulların teknolojik çağın gerektirdiği donanıma sahip olmasını sağlanarak eğitim kalitesi arttırılabilir.
4. Öğrencilerin kişisel öğrenme süreçlerini desteklemek için gerekli tüm dijital araç ve kaynaklara ulaşması sağlanarak fırsat eşitsizliğinin önüne geçilebilir ve öğrencilerin kendi hızlarında, ilgi alanlarına uygun şekilde öğrenmelerine olanak tanınabilir.
5. Pilot uygulama ile ters yüz öğrenme modelinin uygulamasına geçilmeden önce, sınırlı bir grup üzerinde deneme ve sonuçlarının değerlendirilmesi ile birlikte projedeki eksiklikler belirlenerek gerekli iyileştirmelerin yapılması sağlanabilir.
6. Öğretim programları teknolojik modellere uygun içeriklerle yeniden düzenlenebilir.
7. Öğrencilerin daha iyi öğrenmesi ve öğretmenlerin öğretim ortamlarını daha konforlu yürütebilmesi için sınıfların fiziksel yapıları teknolojik araçlara uygun hale getirilebilir.

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Farklılaştırılmış Öğretim Uygulamaları: Öğretim Kademelerine Yönelik Ders Planı Tasarılarının Analizi*

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Özet

Bu çalışmanın amacı, farklılaştırılmış öğretim yaklaşımına dayalı olarak farklı öğretim kademelerinde hazırlanan ders planlarını doküman analizi yöntemiyle incelemektir. Çalışma, ders planlarındaki farklılaştırma unsurlarının kapsamını, öğretim hedefleriyle uyumunu değerlendirmeyi ve uygulama önerileri geliştirmeyi amaçlamaktadır. Farklılaştırılmış öğretim, öğrencilerin bireysel farklılıklarını dikkate alarak öğrenme sürecini en verimli hale getirmeyi hedefleyen bir yaklaşımdır. Bu araştırma, lisansüstü eğitim alan öğretmenlerin farklı kademelerdeki ders planları üzerinden bu yaklaşımı uygulama yeterliliklerini ve karşılaştıkları zorlukları ortaya koymayı hedeflemektedir. Çalışma, öğretim programlarının daha etkili farklılaştırılmasına yönelik öneriler sunması açısından önem taşımaktadır. Araştırma, nitel bir desen olan doküman analizi yöntemiyle yürütülmüştür. Veri kaynağı olarak, Eğitim Programları ve Öğretim bölümünde 2022-2023 ve 2023-2024 akademik yıllarında yüksek lisans eğitimi gören farklı branşlardaki öğretmenlerin Farklılaştırılmış Öğretim dersi kapsamında hazırladıkları ders planları kullanılmıştır. Farklı öğretim kademelerine ait toplam 72 ders planı, içerik analizi tekniğiyle incelenmiştir. Planlar, farklılaştırılmış öğretimin temel unsurları olan içerik, süreç, ürün ve öğrenme ortamı boyutları açısından değerlendirilmiştir. Analiz için tematik bir kodlama şeması ve farklılaştırılmış öğretim uygulamalarını değerlendiren bir kontrol listesi geliştirilmiş, bu araçlar

alan uzmanlarının görüşleri doğrultusunda düzenlenmiştir. Kodlama sürecine birden fazla araştırmacı katılmış ve kodlayıcılar arası uyum incelenmiştir. Ders planları, farklılaştırma stratejilerinin kullanımı, hedef-öğrenci uyumu ve değerlendirme yöntemleri bakımından analiz edilmiş, veriler temalar halinde düzenlenmiştir. Bulgular, farklı öğretim kademelerinde farklılaştırma stratejilerinin kullanımında belirgin farklılıklar olduğunu göstermiştir. Araştırma sonuçları doğrultusunda, öğrencilerin öğrenme profillerinin daha iyi anlaşılması için öğretim materyal ve araçlarının çeşitlendirilmesi ve eğitim fakültelerinde farklılaştırılmış öğretime yönelik uygulamalı derslerin artırılması önerilmektedir. Bu çalışma, farklılaştırılmış öğretim uygulamalarının etkili planlanması ve uygulanması konusunda eğitim alanına önemli katkı sağlamaktadır.

Anahtar Kelimeler: Farklılaştırılmış öğretim, Ders planı tasarımı, Doküman analizi, Öğretim kademeleri

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Differentiated Teaching Practices: Analysis of Lesson Plan Designs for Educational Levels*

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Abstract

The purpose of this study is to examine lesson plans prepared at different educational levels based on the differentiated instruction approach using document analysis method. The study aims to evaluate the scope of differentiation elements in lesson plans, their alignment with instructional objectives, and to develop implementation recommendations. Differentiated instruction is an approach that aims to optimize the learning process by taking into account students' individual differences. This research aims to reveal the implementation competencies and challenges faced by graduate-level teachers through their lesson plans at different levels. The study is significant in terms of providing recommendations for more effective differentiation of instructional programs. The research was conducted using document analysis, a qualitative design method. The data source consisted of lesson plans prepared within the scope of the Differentiated Instruction course by teachers from various branches pursuing master's degrees in the Curriculum and Instruction department during the 2022-2023 and 2023-2024 academic years. A total of 72 lesson plans from different educational levels were examined using content analysis technique. The plans were evaluated in terms of the fundamental elements of differentiated instruction: content, process, product, and learning environment. A thematic coding scheme and a checklist for evaluating differentiated instruction practices were developed and these tools were arranged according to field experts' opinions. Multiple researchers participated in the coding process, and inter-coder reliability was examined. Lesson plans were analyzed in terms of the use of differentiation strategies, target-student alignment, and assessment methods, with data organized into themes. Based on the research results, it is recommended to diversify instructional materials and tools for better understanding of students' learning profiles and to increase practical courses on differentiated instruction in education faculties. This study makes a significant contribution to the field of education regarding the effective planning and implementation of differentiated instruction practices.

Keywords: Differentiated instruction, Lesson plan design, Document analysis, Educational levels

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Giriş

Eğitimin felsefi temelleri bağlamında eğitimin amacı bireylere yaşam becerisi kazandırmaktır (Kocaman, 2023). Bir başka ifade ile eğitim bireylerin ve toplumların gelişmesinde en önemli unsurlardan biri olarak kabul edilmektedir (Temiz ve Yavuz, 2024). Bu kapsamda okullarda bireyin gerçek hayata hazırlanması, bu konuda gerekli bilgi ve donanımı kazanması istenmektedir. Hayatın içerisinde yaşanan değişme ve gelişmelerin de bu işlevini sürdürmesi için eğitim programlarına yansıması gerekmektedir. Bu sayede bireyler 21. yüzyıl gelişmelerine ayak uydurabilecek şekilde yetişebilecektir. Eğitimde bireylerin bilişsel, duyuşsal ve sosyal gelişimi hedeflenir. Bireylerin bu alanlarda gelişimi için öğrenme ortamlarının da bireye göre farklılık gösteren bu özelliklere dikkat edilerek farklılaştırılmış olmasının katkı sağlayacağı düşünülmektedir. Temiz ve Yavuz (2024) bir yandan eğitim programları aracılığıyla bireylerin toplumsallaşması hedeflenirken, diğer yandan bireysel farklılıklarının (zekâ, yetenek gibi) geliştirilerek bireyin kendini gerçekleştirmesine olanak sağlanmasının eğitimin temel hedefleri arasında olduğunu belirtmektedir.

Bireysel farklılıklar kişilerin fiziksel özellikleri, zekası, algı düzeyleri ve yeteneklerinden oluşmaktadır (Soylu ve Altunbay, 2023). Bireysel farklılıkların başında gelen zekâ genetik olarak bireye geçen bir unsurdur (Temiz ve Yavuz, 2024). Bunun yanı sıra Vygotsky bireyin zekâ gelişiminin toplumsal etmenlere (aile, okul eğitimi, kitle iletişim araçları) bağlı olduğunu belirtmektedir (Gürel ve Tat, 2010). Kalıtımsal olarak bireylere aktarıldığı bilimsel temellere dayanan zekanın bireyin diğer özellikleri gibi eğitimle geliştirilmesi mümkündür. Yavuz ve Temiz'e (2024) göre bireylerin gelişim ve öğrenme sürecinde büyük ölçüde etkili olan zekâ, Piaget'ye göre bireyin çevreye uyum yapabilme yeteneğidir. Buradan hareketle zekanın çevresel unsurlarla (içinde yetiştiği toplumsal kesim, aile ve arkadaş ortamı gibi) etkileşim içerisinde olduğu söylenebilmektedir. Bunların yanı sıra 21. yüzyılda bilgi ve iletişim teknolojilerindeki gelişmeler çerçevesinde dijital unsurlar da bireyin farklı özelliklerine doğrudan etkileyen unsurlar arasındadır. Bu konuda Türkiye Yüzyılı Maarif Modeli Öğretim Programları Ortak Metni'nde (2024) de öğrenme ortamlarını farklılaştırmak teknoloji destekli öğrenme ortamları oluşturmak gibi örgütsel düzenleyicilerin öğrenme ortamının bileşeni olarak görülmesi yer almaktadır (MEB, 2024).

Bireye özgü farklılıklar dendiğinde zekâ kavramından hemen sonra gizil güçleri gelmektedir. Temiz ve Yavuz (2024) bireyin yapabildiklerinin ötesinde yapabilme potansiyeline sahip olduğu becerilerinin geliştirilmesine fırsat verilmesi ile kapasitesinin en üst düzeyde ortaya çıkarılması eğitimin başlıca hedeflerinden olduğunu belirtmektedir. Bu bağlamda bireylerin yetenek alanlarının tespit edilerek geliştirilmesi önem taşımaktadır. Öğrenci merkezli çağdaş eğitim ve öğretim uygulamalarında, öğrencilerin bilimsel kriterlere ve bireysel farklılıklarına uygun yetiştirilmeleri temel bir gerekliliktir (Engin, 2010). Yavuz ve Temiz'e (2024) göre herkese eşit şekilde sunulan eğitim değil, yetenek alanlarına göre eğitim adalet anlamına gelecektir. Dolayısıyla bireylerin ilgi ve yetenekleri doğrultusunda alacakları eğitim toplumsal sürdürülebilirlik açısından da en önemli katkı olacaktır. Unutulmamalıdır ki farklılaştırılmış öğretim kapsamında ele alınan zenginleştirilmiş eğitim uygulamaları ile öğrencilerin ilgi, yaratıcılık ve motivasyonları gözlemlenerek geliştirilebilmektedir.

Sosyal yapının her kesiminde bireye özgü farklılıklar dikkat çekmekle beraber, eğitim etkinliklerinin gerçekleştirildiği kurumlar olan okullarda da bu farklılıkların göz ardı edilmemesi bir gerekliliktir. Bu hususta alan yazında pek çok araştırmacı eğitim programlarında bireysel farklılıklara yer vermenin önemine dikkat çekmektedir (Aktepe, 2005; Çaycı, 2007; Selçuk, 1999; Engin, 2010; Soylu ve Altunbay, 2023).

Bu nedenle Joseph ve diğerlerinin (2013) de belirttiği gibi çağdaş öğretim yaklaşımlarını benimseyen ve uygulayan öğretmenlerin, öğrencilerinin hazır bulunuşluk, ilgi ve öğrenme profillerini göz önünde bulundurarak öğrenme ortamlarını farklılaştırmalarını gerektirmektedir. Bu gereklilikten hareketle ortaya çıkan farklılaştırılmış öğretim, çağdaş öğretim yaklaşımlarından birisidir. Farklı yetenek, ilgi ve ihtiyaca sahip öğrencilere yönelik geliştirilen farklılaştırılmış öğretim uygulamaları, öğrencilere bireysel olarak uygun eğitim sunmayı amaçlamaktadır (MEB, 2024).

Öğretimde farklılaştırma, 21. yy öğrenme ortamlarında öğrenenlerin bireysel ihtiyaçlarını karşılayabilmek ve öğretim programlarında belirlenmiş kazanımları edinmelerini sağlayabilmek için öğretmenlerin bireye uygun şekilde farklılaştırılmış planlar yapmasına fırsat veren bir yaklaşımdır (Gregory ve Chapman, 2020). MEB Türkiye Yüzyılı Maarif Modeli Öğretim Programı Ortak Metninde (2024) ise farklılaştırılmış öğretim, öğrencilerin öğrenme ihtiyaçlarını karşılamaya yönelik, bireyselleştirilmiş ve esnek bir yaklaşımı ifade etmektedir. Bu yaklaşım öğrenciler için en üst seviyede öğrenme deneyimleri oluşturmak adına öğretmenler başta olmak üzere tüm eğitim paydaşlarının işbirliği yapmasına olanak sağlamaktadır (Mulroy ve Eddinger, 2003) Öğretimde içerik, ürün, süreç ve öğrenme ortamlarından oluşmak üzere dört temel öğe farklılaştırılabilmektedir (Kavut, 2024; MEB, 2024). İçerik farklılaştırma öğrencilerin öğrenme materyallerine erişim yollarının değiştirilmesi ya da materyalin öğrenme sürecine uyarlanması olarak iki farklı şekilde gerçekleştirilebilmektedir (Joseph vd., 2013). Bu sayede öğretim süreci tüm öğrencilerin aynı materyalle öğrenebileceği varsayımından hareketle standardize edilmiş içeriklerle sınırlı kalmamaktadır. Bunun yanı sıra MEB Türkiye Yüzyılı Maarif Modeli Öğretim Programı Ortak Metnine (2024) göre eğitim içeriğinin farklılaştırılmasına kaynaklık etmesi açısından ön değerlendirme yapılması gerekmektedir.

Joseph ve diğerlerine (2013) göre süreç farklılaştırma; her öğrencinin öğrenme deneyimlerini en verimli hale getirebilmek için sınıf içi etkinlikleri çeşitli karmaşıklık düzeylerine göre kademelendirme, öğrencileri seviyelerine göre görevlendirme, çalışma hızını öğrencinin öğrenme hızına göre ayarlama, öğrencilere fikirlerini ifade etme özgürlüğü verme ve bu fikirlerin sürece yön vermesine izin verme, öğrencilere çalışabilecekleri alternatif konular ve ek etkinlikler sunma, süreçte farklılaştırılmış öğretim kapsamındaki yöntem ve tekniklerden yararlanma yoluyla gerçekleştirilebilmektedir. Süreci farklılaştırma sınıftaki öğrenci grubunun birden fazla öğrenme profilinde öğrenci bulundurduğunu göz önünde bulundurarak tüm öğrencileri kapsayan bir öğretim süreci gerçekleştirmeyi sağlamaktadır. Kavut'a (2024) göre öğrenme ortamı hem fiziksel hem de psikolojik ortamı ifade etmektedir. Fiziksel ortamda yapılan farklılaştırma sınıfta hali hazırdaki düzenden farklı bir düzende çalışmaları anlamına gelmektedir. Psikolojik ortam ise öğrencilerin sosyal yeteneklerini geliştirmelerini ve derse karşı olumlu tutum geliştirmelerine destek veren bir sınıf ortamı yaratılması anlamına gelmektedir. Bu açıdan değerlendirildiğinde farklılaştırılmış öğretimin olumlu sınıf ortamı yaratmak gibi bir amacının da bulunduğu söylenebilmektedir. Bunun yanında Kavut'a (2024) göre öğretim süreçlerinin öncesinde, esnasında ve sonrasında değerlendirme yapılması yoluyla öğrencilerin mevcut durumlarının tespiti ile öğretimin farklılaştırılması gerekmektedir.

MEB Türkiye Yüzyılı Maarif Modeli Öğretim Programları Ortak Metni'nde (2024) "Farklılaştırılmış öğretimde öğrencilerin bireysel öğrenme yollarını keşfetmelerine yardımcı olacak stratejiler geliştirilerek potansiyellerini en iyi şekilde gerçekleştirebilmelerine olanak sağlayan öğrenme ortamları oluşturulur. Öğretmen içerik, süreç ve ürün boyutlarını farklılaştırırken öğrencilerin ne öğrendiklerini, nasıl öğrendiklerini ve öğrendiklerini nasıl yansıttıklarını farklı yaklaşımlarla ele alır. Burada amaç, tüm öğrencilerin öğrenmelerine katkı sağlamaktır. Dolayısıyla eğitim programlarının birincil uygulayıcısı olan öğretmenlerin öğrenme süreç ve ortamlarında kullanacakları öğretim stratejileri öğrencilerin bireysel farklılıklarına hitap etmeli ve tüm öğrencilerin en üst düzeyde öğrenmelerine imkân tanımalıdır. Öğretmenlerin bu konuda yetkinlik kazanmaları ancak nitelikli öğretmen yetiştirme programları sayesinde olabilecektir. Dolayısıyla öğretmen yetiştirme programlarında çağdaş öğretim yaklaşımlarından biri olan farklılaştırılmış öğretim uygulamalarına ilişkin teorik ve uygulamalı derslerin yer alması gerekliliğinden hareketle bu çalışmada, farklılaştırılmış öğretim yaklaşımına dayalı olarak farklı öğretim kademelerinde hazırlanmış olan ders planlarında yer alan unsurlarının kapsamını, öğretim hedefleriyle uyumunu değerlendirmek ve uygulama önerileri geliştirmek amaçlanmıştır.

Yöntem

Araştırma Deseni

Bu araştırma nitel araştırma yöntemlerinden doküman analizi desende gerçekleştirilmiştir. Doküman incelemesi olarak da adlandırılan bu yöntem başlı başına bir araştırma yöntemi olabildiği gibi nitel araştırma yöntemlerinin kullanıldığı araştırmalarda araştırmacılara ek bilgi sağlayan bir kaynak olarak da yer alabilmektedir (Yıldırım ve Şimşek, 2018). Bowen'e (2009) göre doküman analizi, basılı ve elektronik materyallerin incelenmesi ile değerlendirilmesini içeren bir dizi işlem bütünü olup Yıldırım ve Şimşek (2018) bu tekniği araştırmaya konu olan olgu veya olgular hakkında bilgi içeren yazılı öğelerin incelenmesi olarak tanımlamaktadırlar. Araştırma verilerine birincil olarak kaynaklık eden yazılı belgelerin toplanması, gözden geçirilmesi, sorgulanması ve analizini (O'Leary, 2017) ifade eden bu yöntem araştırılan olguya ilişkin detaylı bilgi elde edilebilmesine imkân sağlamaktadır (Travers, 2001).

Bu araştırmada incelenen dökümanlar, Çanakkale Onsekiz Mart Üniversitesi Lisansüstü Eğitim Enstitüsü Eğitim Bilimleri Anabilim Dalı Eğitim Programları ve Öğretim tezli yüksek lisans programında Farklılaştırılmış Öğretim dersi almış olan farklı branşlardaki 19 öğretmenin 2022-2023 ve 2023-2024 akademik yılda hazırlamış olduğu 72 ders planındaki verilerden oluşturmaktadır. Tablo 1'de araştırmanın verilerini oluşturan doküman analizinin yapıldığı 72 ders planına ilişkin öğretim türü, eğitim kademesi, sınıf düzeyi ve ders adına ilişkin değişken frekans ve yüzde dağılımları sunulmuştur.

Tablo 1. Ders planlarının öğretim türü ve eğitim kademesi değişkenlerine göre frekans ve yüzde dağılımları

	Ders planları	
Öğretim türü	**f**	**%**
Temel Eğitim	53	73,6
Ortaöğretim	6	8,3
Yükseköğretim	13	18,1
Eğitim kademesi	**f**	**%**
İlkokul	18	25
Ortaokul	35	48,6
Lise	6	8,3
Lisans	2	2,8
Lisansüstü	11	15,3
Toplam	**72**	**100**

Tablo 1'de araştırmanın çalışma grubunu oluşturan ders planlarının öğretim türüne göre dağılımları temel eğitim kademesinde (f:53; %73,6), ortaöğretim kademesinde (f:6; %8,3) ve yüksek öğretim kademesinde (f:13; %18,1) olduğu görülmektedir. Buna göre katılımcıların temel eğitim (ilkokul ve ortaokul) kademesindeki derslere ilişkin farklılaştırılmış öğretim stratejilerini uygulamaya daha yatkın oldukları düşünülmektedir. Bununla beraber eğitim kademesi degişkenine göre ders planlarının frekans ve yüzde dağılımları incelendiğinde en fazla farklılaştırılmış öğretim kapsamında ortaokul (f:35; %48,6) kademesinde plan hazırlanmış olduğu görülmektedir. Araştırma çerçevesinde incelenen ders planlarının sınıf düzeylerine göre dağılımları Tablo 2'de sunulmuştur.

Tablo 2. Ders planlarının sınıf düzeyi değişkenine göre frekans ve yüzde dağılımları

Sınıf düzeyi	**Ders planları**	
	f	**%**
1.sınıf	1	1,4
2.sınıf	7	9,7
3.sınıf	4	5,6
4.sınıf	6	8,3
5.sınıf	10	13,9
6.sınıf	14	19,4
7.sınıf	6	8,3
8.sınıf	5	6,9

9.sınıf	3	4,2
10.sınıf	1	1,4
11.sınıf	1	1,4
12.sınıf	1	1,4
Lisans	2	2,8
Yüksek Lisans	11	15,3
Toplam	**72**	**100**

Tablo 2'de sınıf düzeyi değişkenine göre ders planlarının K12'nin tüm kademelerinde hazırlanmış olmasının yanı sıra Lisans ve Lisansüstü düzeylere yönelik olduğu görülmektedir. Farklılaştırılmış öğretim unsurları barındıran planların en çok 6.sınıf (f:14; %19,4), yüksek lisans (f:11; %15,3) ve 5.sınıf (f:10; 13,9) için hazırlandığı belirlenmiştir. Bunları sırasıyla 2.sınıf (f:7; %9,7), 4.sınıf (f:6; %8,3), 7.sınıf (f:6; %8,3) ve 8.sınıf (f:5; %6,9) takip etmektedir. Araştırma çerçevesinde incelenen planlarının ders adı bağlamında verileri Tablo 3'te sunulmuştur.

Tablo 3. Ders planlarının ders adı değişkenlerine göre frekans ve yüzde dağılımları

Ders adı	**Ders planları**	
	f	**%**
Analiz I	1	1,4
Anatomi ve Fizyoloji	1	1,4
Bilimsel Teori ve Araştırma Yöntemleri	1	1,4
Coğrafya	1	1,4
Çağdaş Psikoloji ve Danışma Kuramları	1	1,4
Eğitim Felsefesi: Kuramlar ve Uygulamalar	2	2,8
Farklılaştırılmış Öğretim	2	2,8
Fen Bilimleri	4	5,6
Fizik	1	1,4
Görsel Sanatlar	1	1,4
Hayat Bilgisi	3	4,2
Matematik	27	37,5
Öğrenme Öğretme Kuram ve Süreçleri	4	5,6
Program Geliştirme	1	1,4
Rehberlik	2	2,8
Sosyal Bilgiler	4	5,6
Türkçe	5	6,9
TC. İnkılap Tarihi ve Atatürkçülük	1	1,4
Yabancı Dil	10	13,9
Toplam	**72**	**100**

Tablo 3'te dersin adı değişkenine göre farklılaştırılmış öğretim planlarının dağılımı incelendiğinde derslerin çeşitlilik gösterdiği ve en fazla Matematik (f:27; %37,5) ders planının yer aldığı görülmektedir. Bunun temel sebebinin katılımcılar içinde İlköğretim ve Lise Matematik öğretmenlerinin sayıca diğer branş öğretmenlerden fazla olması olduğu düşünülmektedir.

Matematik dersini aynı gerekçe ile 10 ders planı (%13,9) ile Yabancı Dil (İngilizce ve Almanca) takip etmektedir. Türkçe (f:5; %6,9), Sosyal Bilgiler (f:4; %5,6) ve Fen Bilimleri (f:4; %5,6) derslerine yönelik hazırlanmış farklılaştırılmış öğretim unsurları barındıran ders planlarının sayısının diğer ders planlarından sayıca üstün olduğu tespit edilmiştir.

Verilerin Toplanması

Alan yazında doküman analizinin çoğunlukla diğer araştırma yöntemleri için tamamlayıcı bir teknik olarak yer almasına (Bowen, 2009; Saldana, 2011) karşın bu araştırmada doküman analizi veri toplama yöntemi olarak kullanılmıştır. Bu araştırmanın verileri araştırmacılardan birinin Farklılaştırılmış Öğretim dersi kapsamının bir ürünü olarak hazırlanmış olan yazılı ders planlarının doğrudan araştırmacılar tarafından temin edilmesi ile elde edilmiştir.

Verilerin Analizi

Elde edilen verilerin analizinde fenomenolojik yöntemlerden biri olarak kabul edilen içerik analiz tekniği kullanılmıştır. İçerik analizi, insanların yazdıklarının ve söylediklerinin nicelleştirilmesi, sayısallaştırılması süreci olarak tarif edilebilir. Bu metodun temelinde yazılan ve söylenenlerin kategorileştirilmesi ve hangi sıklıkta kullanıldıklarının araştırılması yatmaktadır. İçerik analizi, sosyal bilimlerde araştırma yapmak için en popüler ve hızla genişleyen tekniklerden biri haline gelmiştir. İçerik analizi toplumsal davranışı etkilemeden gerçekleştirilebilen bir araştırma tekniğidir. İçerik analizi, iletişimin açık / belirgin içeriğinin nesnel, sistematik ve nicel tanımlanmasına yönelik bir araştırma tekniği olarak da ifade edilmektedir. Gökçe, 2006). Bu araştırmada veri analiz sürecinde Braun ve Clarke'ın (2006) belirttiği tematik analiz aşamaları izlenmiştir.

1. *Verileri tanıma:* Bu aşamada araştırmanın veri seti yani ders planları araştırmacılar tarafından okunarak aşina olunması ve sonraki aşamadaki kodlamaya ilişkin notlar alınması sağlanmıştır.
2. *Başlangıç kodları oluşturma:* Araştırmacılar bu aşamada Microsoft Office Excel programını kullanarak veri setini sistematik biçimde kodlamışlar, sonraki aşama olan temaların aranmasına temel oluşturmuşlardır. Bu noktada katılımcıların ders planlarında belirtmiş oldukları farklılaştırmaya ilişkin temel dayanaklar (Ne farklılaştırıldı? Nasıl farklılaştırıldı? Neden farklılaştırıldı?) göz önünde bulundurulmuştur. Ayrıca ders planlarının hazırlanmış

oldukları derslere ilişkin kodlamalarda katılımcıların belirtmiş oldukları isimlerin eğitim programlarındaki karşılıkları irdelenerek ders isimleri kodlanmıştır.

3. *Temaları arama:* Önceki aşamada oluşturulan temalardan tümevarımsal bir yaklaşımla araştırmacılar tarafından temalar belirlenmiştir. Veri setini oluşturan 72 ders planından “öğretim türü”, “eğitim kademesi”, “sınıf düzeyi”, “dersin adı”, “ürün farklılaştırma”, “içerik farklılaştırma”, süreç farklılaştırma”, “farklılaştırma yöntem ve teknikleri”, “değerlendirme farklılaştırma”, “değerlendirme zamanı” ve “değerlendirme tekniği” olmak üzere toplam 11 tema oluşturulmuştur.
4. *Temaları gözden geçirme:* Bu aşamada kodlar ile temaların uyumu incelenmiş, kodlara ilişkin yapılan yeniden değerlendirme sonucunda “öğrenme ortamı” teması oluşturularak tema sayısı 12’ye çıkarılmış ve kod-tema tutarlılıkları hakkında görüş birliğine varılarak araştırma geçerliliği sağlanmıştır.
5. *Temaları isimlendirme:* Bu aşamada araştırmacılar nihai temalar hakkında uzman görüşüne başvurarak oluşturulan tema haritası üzerinden içeriği yansıtıp yansıtmadığını teyit etmişlerdir.
6. Raporlaştırma: Temaların temsil kabiliyetine ilişkin de alınan uzman görüşleri sonrasında elde edilen tema dizinine ilişkin yazma aşamasında kodların betimlenmesi tamamlanmıştır. Sonrasında tüm veriler SPSS 26 paket programına aktarılarak frekans ve yüzdeleri hesaplanmış, çapraz tablolar ile veri yığılmalarına ilişkin bulgulara ulaşılmıştır.

Çalışmanın güvenirlik hesaplaması (Miles ve Huberman, 1994), Uyuşum Yüzdesi Formülü [P = (Na / Na + Nd) x 100] (P: Uyuşum Yüzdesi, Na: Uyum Miktarı, Nd: Uyuşmazlık Miktarı) kullanılarak saptanmıştır. Yıldırım ve Şimşek’e göre (2013); güvenirlik hesaplamasındaki uyuşum yüzdesi %70 olduğunda güvenirlik yüzdesine ulaşılmış kabul edilir. Çalışmanın "uyuşum yüzdesi” %92 olarak bulunmuştur.

Bulgular

Bu bölümde Farklılaştırılmış Öğretim dersi almış olan farklı branşlardaki 19 öğretmenin 2022-2023 ve 2023-2024 akademik yılda hazırlamış olduğu 72 ders planındaki verilerden elde edilen bulgulara yer verilmiştir. Eğitim kademelerine göre ders planlarında ürün farklılaştırma durumu Tablo 4’de sunulmuştur.

Tablo 4. Eğitim kademesine göre ders planlarında ürün farklılaştırma durumu

Öğretim Türü	Eğitim Kademesi	Ürün Farklılaştırma		
		Var	Yok	Toplam
Temel Eğitim	İlkokul	16	2	18
	Ortaokul	22	13	35
Ortaöğretim	Lise	5	1	6
Yükseköğretim	Lisans	2	0	2
	Lisansüstü	9	2	11
Toplam		**54**	**18**	**72**

Tablo 4'te eğitim kademesi değişkenine göre ders planlarında ürün farklılaştırma durumu sayıca verilmiştir. Veriler incelendiğinde lisans kademesinde hazırlanan iki ders planının ikisinde de ürünün farklılaştırıldığı, diğer eğitim kademelerinde hazırlanan ders planlarının kendi içinde toplam sayısına kıyasla en çok ürün farklılaştırmasının ilkokul kademesinde (f:16) en az ise ortaokul kademesinde (f:22) gerçekleştirildiği, bu anlamda ürün farklılaştırmanın ortaokul ders planlarında diğer kademeler için hazırlanan ders planlarından daha az yapıldığı görülmektedir. Araştırmada ders adlarına göre ders planlarında ürün farklılaştırma durumuna ait bulgular Tablo 5'te sunulmuştur.

Tablo 5. Ders adına göre ders planlarında ürün farklılaştırma durumu

Ders Adı	Ürün Farklılaştırma		
	Var	Yok	Toplam
Analiz I	1	1	1
Anatomi ve Fizyoloji	1	1	1
Bilimsel Teori ve Araştırma Yöntemleri	0	0	1
Coğrafya	1	1	1
Çağdaş Psikoloji ve Danışma Kuramları	1	1	1
Eğitim Felsefesi: Kuramlar ve Uygulamalar	2	2	2
Farklılaştırılmış Öğretim	2	2	2
Fen Bilimleri	4	4	4
Fizik	1	1	1
Görsel Sanatlar	1	1	1
Hayat Bilgisi	3	3	3
Matematik	16	16	27
Öğrenme Öğretme Kuram ve Süreçleri	3	3	4
Program Geliştirme	1	1	1
Rehberlik	1	1	2
Sosyal Bilgiler	4	4	4
TC. İnkılap Tarihi ve Atatürkçülük	1	1	1
Yabancı Dil	6	6	10
Türkçe	5	5	5

Toplam	**54**	**18**	**72**

Tablo 5'te ders adına göre ders planlarında ürün farklılaştırma olup olmadığına ilişkin bulgular sunulmaktadır. Veriler incelendiğinde bilimsel teori ve araştırma yöntemleri dersi için hazırlanan yalnız 1 ders planı olduğu ve bu ders planında ürün farklılaştırma yapılmadığı, rehberlik dersi için hazırlanan 2 ders planı olduğu ve bu planlardan 1 tanesinde ürün öğesinin farklılaştırıldığı 1 tanesinde ise farklılaştırılmadığı, öğrenme öğretme kuram ve süreçleri dersi için hazırlanan toplam 4 ders planında 3 tanesinin ürün öğesinin farklılaştırıldığı 1 tanesinin farklılaştırılmadığı, yabancı dil için hazırlanan 10 ders planının 6 tanesinde ürün farklılaştırma gerçekleştirildiği ve 4 tanesinde gerçekleştirilmediği, matematik dersi için hazırlanan 27 ders planının ürün öğesinin 16 ders planında farklılaştırıldığı, 11 ders planında farklılaştırılmadığı ve diğer dersler için hazırlanan tüm ders planlarının ürün öğesinin farklılaştırıldığı görülmektedir. Eğitim kademelerine göre ders planlarında içerik farklılaştırma durumu Tablo 6'da sunulmuştur.

Tablo 6. Eğitim kademesine göre ders planlarında içerik farklılaştırma durumu

Öğretim Türü	**Eğitim Kademesi**	**İçerik Farklılaştırma**		
		Var	**Yok**	**Toplam**
Temel Eğitim	İlkokul	17	1	18
	Ortaokul	33	2	35
Ortaöğretim	Lise	6	0	6
Yükseköğretim	Lisans	2	0	2
	Lisansüstü	9	2	11
Toplam		**67**	**5**	**72**

Tablo 6'da eğitim kademesi değişkenine göre ders planlarında içerik farklılaştırma durumu sayıca verilmiştir. Veriler incelendiğinde lise (f:6) ve lisans (f:2) kademelerinde hazırlanan ders planlarının tamamında içeriğin farklılaştırıldığı, diğer eğitim kademelerinde hazırlanan ders planlarının çoğunda (f:59) içerik farklılaştırma gerçekleştirildiği görülmektedir. Araştırmada ders adlarına göre ders planlarında içerik farklılaştırma durumuna ait bulgular Tablo 7'te sunulmuştur.

Tablo 7. Ders adına göre ders planlarında içerik farklılaştırma durumu

Ders Adı	**İçerik Farklılaştırma**		
	Var	**Yok**	**Toplam**
Analiz I	1	0	1
Anatomi ve Fizyoloji	1	0	1
Bilimsel Teori ve Araştırma Yöntemleri	1	0	1
Coğrafya	1	0	1

Çağdaş Psikoloji ve Danışma Kuramları	0	1	1
Eğitim Felsefesi: Kuramlar ve Uygulamalar	2	0	2
Farklılaştırılmış Öğretim	2	0	2
Fen Bilimleri	4	0	4
Fizik	1	0	1
Görsel Sanatlar	1	0	1
Hayat Bilgisi	3	0	3
Matematik	26	1	27
Öğrenme Öğretme Kuram ve Süreçleri	3	1	4
Program Geliştirme	1	0	1
Rehberlik	2	0	2
Sosyal Bilgiler	4	0	4
TC. İnkılap Tarihi ve Atatürkçülük	1	0	1
Yabancı Dil	8	2	10
Türkçe	5	0	5
Toplam	**67**	**5**	**72**

Tablo 7'de incelenen ders planlarında ders adı değişkenine göre içerik farklılaştırma durumu sayıca verilmiştir. Değerler incelendiğinde çağdaş psikoloji ve danışma kuramları dersi için hazırlanan yalnız 1 ders planı olduğu ve planda içerik farklılaştırma yapılmadığı, yabancı dil için hazırlanan 10 ders planından yalnızca 2 tanesinde içeriğin farklılaştırılmadığı, öğrenme öğretme kuram ve süreçleri dersi için hazırlanan 4 ders planından yalnızca 1 tanesinde içeriğin farklılaştırılmadığı, matematik dersi için hazırlanan 27 ders planından sadece 1 tanesinde içeriğin farklılaştırılmadığı, diğer dersler için hazırlanan ders planlarının tamamında içerik öğesinin farklılaştırıldığı görülmektedir. Eğitim kademelerine göre ders planlarında süreç farklılaştırma durumu Tablo 8'de sunulmuştur.

Tablo 8. Eğitim kademesine göre ders planlarında süreç farklılaştırma durumu

Öğretim Türü	**Eğitim Kademesi**	**Süreç Farklılaştırma**		
		Var	**Yok**	**Toplam**
Temel Eğitim	İlkokul	18	0	18
	Ortaokul	34	1	35
Ortaöğretim	Lise	6	0	6
Yükseköğretim	Lisans	2	0	2
	Lisansüstü	11	0	11
Toplam		**71**	**1**	**72**

Tablo 8'de eğitim kademesi değişkenine göre ders planlarında süreç farklılaştırma durumu sayıca verilmiştir. Değerler incelendiğinde ortaokul dışındaki tüm kademelerde hazırlanan ders planlarının tamamının (kademelere göre sırasıyla ilkokul f:18, lise f:6, lisans f:2, yüksek lisans f:11) ürün öğesinin farklılaştırıldığı, ortaokul kademesindeki 35 ders planı içerisinde ise yalnızca 1 ders planının farklılaştırılmadığı görülmektedir. Araştırmada ders adlarına göre ders planlarında süreç farklılaştırma durumuna ait bulgular Tablo 9'da sunulmuştur.

Tablo 9. Dersin adına göre ders planlarında süreç farklılaştırma durumu

Ders Adı	**Süreç Farklılaştırma**		
	Var	**Yok**	**Toplam**
Analiz I	1	0	1
Anatomi ve Fizyoloji	1	0	1
Bilimsel Teori ve Araştırma Yöntemleri	1	0	1
Coğrafya	1	0	1
Çağdaş Psikoloji ve Danışma Kuramları	1	0	1
Eğitim Felsefesi: Kuramlar ve Uygulamalar	2	0	2
Farklılaştırılmış Öğretim	2	0	2
Fen Bilimleri	4	0	4
Fizik	1	0	1
Görsel Sanatlar	1	0	1
Hayat Bilgisi	3	0	3
Matematik	26	1	27
Öğrenme Öğretme Kuram ve Süreçleri	4	0	4
Program Geliştirme	1	0	1
Rehberlik	2	0	2
Sosyal Bilgiler	4	0	4
TC. İnkılap Tarihi ve Atatürkçülük	1	0	1
Yabancı Dil	10	0	10
Türkçe	5	0	5
Toplam	**71**	**1**	**72**

Tablo 9'da hazırlanan ders planlarında ders adı değişkenine göre süreç farklılaştırma durumu sayıca verilmiştir. Değerler incelendiğinde matematik dersi için hazırlanan 27 ders planından 26 tanesinde süreç öğesi farklılaştırıldığı, 1 tanesinde farklılaştırılmadığı görülmektedir. Diğer dersler için hazırlanan ders planlarının ise tamamının (f:71) farklılaştırıldığı ortaya çıkmıştır. Araştırmada süreç farklılaştırmada kullanılan öğretim yöntemleri e teknikleri Tablo 10'da sunulmuştur.

Tablo 10. Süreç farklılaştırmada kullanılan öğretim yöntemleri ve teknikleri

Öğretim Yöntem ve Teknikleri	**f**	**%**	**Öğretim Yöntem ve Teknikleri**	**f**	**%**
5E Modeli	1	0,7	İstasyon	17	11,7
Akran Öğretimi	2	1,4	İşbirlikli Öğrenme	5	3,4
Argümantasyon	1	0,7	Kar Topu Tekniği	1	0,7
Ayrılıp Birleşme	4	2,8	Karmaşık Öğretim	8	5,5
Balık Kılçığı	1	0,7	Katlı Öğretim	17	11,7

Beyin Eseri	1	0,7	Kubaşık Öğrenme	1	0,7
Beyin Fırtınası	12	8,3	Küçük Grup Çalışması	2	1,4
Buluş Yolu	6	4,1	Merkezler	17	11,7
Büyük Grup Tartışması	3	2,1	Öğrenme Ajandaları	3	2,1
Deney	1	0,7	Öğrenme Sözleşme	1	0,7
Doğaçlama	1	0,7	Örnek Olay	3	2,1
Drama	1	0,7	Rol Oynama	5	3,4
Duvar Yazıları	1	0,7	Rulman/Top Taşıma	1	0,7
Eğitsel Oyun	2	1,4	Tartışma	5	3,4
Giriş Noktaları	7	4,8	Yaparak Yaşayarak Öğrenme	1	0,7
Görüş Geliştirme	1	0,7	Yaratıcı Drama	2	1,4
Gösterip Yaptırma	2	1,4	Yaratıcı Yazma	1	0,7
Grup Tartışmaları	6	4,1	Yörünge Çalışmaları	2	1,4
Toplam				**145**	**100**

Tablo 10'da ders planlarında süreç farklılaştırmada kullanılan yöntem ve tekniklerinin frekansları verilmiştir. Bazı ders planlarında birden fazla öğretim yöntem ve tekniği kullanılmış olduğu için toplam yöntem ve teknik sayısı hazırlananmış ders planı sayısından fazla olduğu görülmektedir. Değerler incelendiğinde en çok kullanılan öğretim yöntem ve teknikleri olan küçük grup çalışması, karmaşık öğretim ve ilgi merkezleri tekniklerinin her biri 17 ders planında kullanılmış olup bunu 12 ders planında kullanılan beyin fırtınası tekniğinin takip ettiği görülmektedir. Eğitim kademesine göre değerlendirmede farklılaştırma durumuna ait bulgular Tablo 11'de sunulmuştur.

Tablo 11. Eğitim kademesine göre değerlendirme farklılaştırma durumu

Öğretim Türü	Eğitim Kademesi	Değerlendirme Farklılaştırma		
		Var	**Yok**	**Toplam**
Temel Eğitim	İlkokul	17	1	18
	Ortaokul	28	7	35
Ortaöğretim	Lise	6	0	6
Yükseköğretim	Lisans	2	0	2
	Lisansüstü	9	2	11
Toplam		**62**	**10**	**72**

Tablo 11'de eğitim kademesi değişkenine göre ders planlarının değerlendirme boyutunda farklılaştırma durumu sayıca verilmiştir. Değerler incelendiğinde Lise (f:6) ve Lisans (f:2) kademelerinde hazırlanmış olan ders planlarının tümünde değerlendirmenin farklılaştırıldığı, ortaokul kademesinde 35 ders planından 7 tanesinin farklılaştırılmadığı ve bu anlamda değerlendirmenin farklılaştırılması boyutunda ortaokul planlarının diğer kademeler için hazırlanan ders planlarına kıyasla daha az farklılaştırıldığı görülmektedir. Ders adına göre değerlendirmede farklılaştırma durumuna ait bulgular Tablo 12'de sunulmuştur.

Tablo 12. Ders adına göre değerlendirme farklılaştırma durumu

Ders Adı	**Değerlendirme Farklılaştırma**		
	Var	**Yok**	**Toplam**
Analiz I	1	0	1
Anatomi ve Fizyoloji	1	0	1
Bilimsel Teori ve Araştırma Yöntemleri	1	0	1
Coğrafya	1	0	1
Çağdaş Psikoloji ve Danışma Kuramları	1	0	1
Eğitim Felsefesi: Kuramlar ve Uygulamalar	2	0	2
Farklılaştırılmış Öğretim	2	0	2
Fen Bilimleri	4	0	4
Fizik	1	0	1
Görsel Sanatlar	1	0	1
Hayat Bilgisi	3	0	3
Matematik	25	2	27
Öğrenme Öğretme Kuram ve Süreçleri	2	2	4
Program Geliştirme	1	0	1
Rehberlik	2	0	2
Sosyal Bilgiler	3	1	4
TC. İnkılap Tarihi ve Atatürkçülük	0	1	1
Yabancı Dil	8	2	10
Türkçe	3	2	5
Toplam	**62**	**10**	**72**

Tablo 12'de ders adı değişkenine göre ders planlarındaki değerlendirme farklılaştırma durumu sayıca verilmiştir. Tablodaki değerler incelendiğinde T.C. İnkılap Tarihi ve Atatürkçülük dersi için yalnızca 1 ders planı hazırlandığı ve planın değerlendirme öğesinin farklılaştırılmadığı, öğrenme öğretme kuram ve süreçleri dersi için hazırlanan 4 ders planının 2 tanesinde değerlendirme öğesinin farklılaştırıldığı ve 2 tanesinde farklılaştırılmadığı, sosyal bilgiler dersi için hazırlanan 4 ders planının 3 tanesinde değerlendirme öğesinin farklılaştırıldığı ve 1 tanesinde farklılaştırılmadığı, türkçe dersi için hazırlanan 5 ders planının 3 tanesinde değerlendirme öğesinin farklılaştırıldığı ve 2 tanesinde farklılaştırılmadığı, matematik dersi için hazırlanan 27 ders planının 25 tanesinde değerlendirme öğesinin farklılaştırıldığı ve 2 tanesinde farklılaştırılmadığı görülmektedir. Diğer dersler için hazırlanan ders planlarının tamamında değerlendirme öğesi farklılaştırılmıştır. Araştırmada analiz edilen ders planlarında değerlendirmenin gerçekleştirildiği zamana yönelik bulgular Tablo 13'de sunulmuştur.

Tablo 13. Değerlendirmenin gerçekleştirildiği zaman

Değerlendirme Zamanı	f	%
Öğretim Süreci Öncesinde	26	29,54
Öğretim Sürecinde	11	12,6
Öğretim Süreci Sonrasında	51	57,95
Toplam	**158**	**100,0**

Tablo 13'te ders planlarında değerlendirmenin hangi zamanlarda gerçekleştirildiği gösterilmiştir. Bazı planlarda birden fazla zamanda değerlendirme yapıldığı için toplam sayı 158 olarak görülmektedir. Tablodaki veriler incelendiğinde değerlendirmenin en çok öğretim süreci sonrasında (f:51), en az ise öğretim sürecinde (f:11) gerçekleştirildiği anllaşılmaktadır. Araştırmada incelenen ders planlarındaki değerlendirme farklılaştırmada kullanılan teknikler Tablo 14'de sunulmuştur.

Tablo 14. Değerlendirme farklılaştırmada kullanılan teknikleri

Değerlendirme Teknikleri	f	%	Değerlendirme Teknikleri	f	%
3-2-1 Kartı	2	2,0	Katlı Öğretim	1	1,0
Büyük Final	4	4,1	Kelime İlişkilendirme	1	1,0
Daha Fazla Fikir	4	4,1	Konuşma Halkası	6	6,1
Döngüsel Yansıma	1	1,0	Köşe Kapmaca	8	8,2
Duvar Yazıları	11	11,2	Kutu Yapma	8	8,2
Eğitsel Oyun	1	1,0	Özel Teknik Yok	29	29,6
Evet-Hayır Kartları	6	6,1	Parmakla İşaretleme	7	7,1
Gerçekle Yüzleşme	4	4,1	Simit Tekniği	3	3,1
Kâğıt Döngüsü	1	1,0	Yumruk Yapma	1	1,0
Toplam				**98**	**100**

Tablo 14'te değerlendirme farklılaştırmada kullanılan değerlendirme tekniklerinin frekansları verilmiştir. Değerler incelendiğinde değerlendirme farklılaştırma yapılan ders planlarında farklılaştırma yapılırken öğretmenlerin mevcut değerlendirme farklılaştırma teknikleri yerine en çok kendi çözümlerini ürettikleri özel teknik yok maddesi ile görülmektedir.

Değerlendirme farklılaştırma tekniklerinin kullanılarak değerlendirme öğesinin farklılaştırıldığı ders planlarında ise en fazla kullanılan değerlendirme tekniğinin duvar yazıları olduğu, bunu ise kutu yapma ve köşe kapmaca tekniklerinin takip ettiği görülmektedir. Eğitim kademesine göre öğrenme ortamını farklılaştırma durumuna ilişkin bulgular Tablo 15'de sunulmuştur.

Tablo 15. Eğitim kademesine göre öğrenme ortamını farklılaştırma durumu

Öğretim Türü	**Eğitim Kademesi**	**Öğrenme Ortamını Farklılaştırma**		
		Var	**Yok**	**Toplam**
Temel Eğitim	İlkokul	8	10	18
	Ortaokul	12	23	35
Ortaöğretim	Lise	1	5	6
Yükseköğretim	Lisans	0	2	2
	Lisansüstü	2	9	11
Toplam		**23**	**49**	**72**

Tablo 15'te eğitim kademesi değişkenine göre ders planlarında öğrenme ortamını farklılaştırma durumu sayıca verilmiştir. Değerler incelendiğinde lisans kademesinde hazırlanan iki ders planının ikisinde de öğrenme ortamının farklılaştırılmadığı, ilkokul kademesinde hazırlanan 17 ders planından 8 tanesinin, ortaokul kademesinde hazırlanan 35 plandan 12 tanesinin öğrenme ortamı öğesinin farklılaştırıldığı, diğer eğitim kademelerinde hazırlanan ders planlarının önemli kısmında öğrenme ortamında farklılaştırma yapılmadığı görülmektedir. Dersin adına göre öğrenme ortamını farklılaştırma durumuna ilişkin bulgular Tablo 16'da sunulmuştur.

Tablo 16. Dersin adına göre öğrenme ortamını farklılaştırma durumu

Ders Adı	**Öğrenme Ortamını Farklılaştırma**		
	Var	**Yok**	**Toplam**
Analiz I	0	1	1
Anatomi ve Fizyoloji	1	0	1
Bilimsel Teori ve Araştırma Yöntemleri	0	1	1
Coğrafya	0	1	1
Çağdaş Psikoloji ve Danışma Kuramları	0	1	1
Eğitim Felsefesi: Kuramlar ve Uygulamalar	0	2	2
Farklılaştırılmış Öğretim	0	2	2
Fen Bilimleri	2	2	4
Fizik	0	1	1

Görsel Sanatlar	0	1	1
Hayat Bilgisi	2	1	3
Matematik	9	18	27
Öğrenme Öğretme Kuram ve Süreçleri	1	3	4
Program Geliştirme	1	0	1
Rehberlik	1	1	2
Sosyal Bilgiler	3	1	4
T.C. İnkılap Tarihi ve Atatürkçülük	0	1	1
Yabancı Dil	2	8	10
Türkçe	1	4	5
Toplam	**23**	**49**	**72**

Tablo 16'da dersin adı değişkenine göre ders planlarında öğrenme ortamı öğesinin farklılaştırma durumu sayıca verilmiştir. Tablodaki değerler incelendiğinde anatomi ve fizyoloji dersi için hazırlanan yalnız 1 ders planı olduğu ve planın öğrenme ortamı öğesinin farklılaştırıldığı, aynı şekilde program geliştirme dersi için hazırlanan yalnız 1 ders planı olduğu ve planın öğrenme ortamı öğesinin farklılaştırıldığı, fen bilimleri dersi için hazırlanan 4 ders planından 2 tanesinde öğrenme ortamının farklılaştırıldığı 2 tanesinde ise farklılaştırılmadığı, hayat bilgisi dersi için hazırlanan 3 ders planından 2 tanesinin öğrenme ortamı öğesinin farklılaştırıldığı 1 tanesinin farklılaştırılmadığı, matematik dersi için hazırlanan 27 ders planından 9 tanesinde öğrenme ortamı öğesinin farklılaştırıldığı 18 tanesinde farklılaştırılmadığı, öğrenme öğretme kuram ve süreçleri dersi için hazırlanan 4 ders planından 1 tanesinde öğrenme ortamı öğesinin farklılaştırıldığı 3 tanesinde farklılaştırılmadığı, rehberlik dersi için hazırlanan 2 ders planının 1 tanesinde öğrenme öğesinin farklılaştırıldığı 1 tanesinde farklılaştırılmadığı, sosyal bilgiler dersi için hazırlanan 4 ders planının 3 tanesinde öğrenme ortamı öğesinin farklılaştırıldığı 1 tanesinde farklılaştırılmadığı, yabancı dil için hazırlanan 10 ders planından 2 tanesinde öğrenme ortamı öğesinin farklılaştırıldığı 8 tanesinde farklılaştırılmadığı, Türkçe dersi için hazırlanan 5 ders planından 1 tanesinde öğrenme ortamının farklılaştırıldığı 4 tanesinde farklılaştırılmadığı görülmektedir. Diğer 9 ders için hazırlanan ders planlarının hiçbirinde öğrenme ortamı öğesinin farklılaştırılmadığı görülmektedir.

Tartışma, Sonuç ve Öneriler

Bu çalışma, farklılaştırılmış öğretim yaklaşımına dayalı olarak öğretim kademelerine yönelik ders planlarının doküman analizi yöntemiyle incelenmesi gerçekleştirilmiştir. Araştırmanın bulguları, öğretmenlerin farklı öğretim kademelerinde farklılaştırma stratejileri kullanma düzeylerinde belirgin farklılıklar olduğunu ortaya koymaktadır. Bu durum, öğretim kademesi ve öğretmenlerin branşlarına göre farklılaştırılmış öğretim yaklaşımını uygulamada karşılaşılan güçlü ve zayıf yönlerin daha detaylı incelenmesi gerektiğini göstermektedir.

Bu çalışmada Eğitim Programları ve Öğretim tezli yüksek lisans programında eğitimine devam eden öğretmenlerin Farklılaştırılmış Öğretim dersi kapsamında hazırlamış oldukları ders planları incelenmiştir. İnceleme sonucunda en çok ders planının öğretim türü değişkenine göre temel eğitim, öğretim kademesi değişkenine göre ise ortaokul düzeyinde hazırlandığı görülmektedir. ders adı değişkenine göre en çok ders planı matematik dersi için hazırlanmıştır. Çalışmada incelenen ders planlarını hazırlayan öğretmenlerin çoğunun branşının matematik olduğu gerçeği dikkate alındığında öğretmenlerin farklılaştırılmış ders planı hazırlarken çoğunlukla kendi branşlarında ders planı hazırlamayı tercih ettikleri anlaşılmaktadır.

Ders planlarında farklılaştırılan öğeler incelendiğinde en çok farklılaştırılan öğenin 72 ders planından 71 tanesinde farklılaştırılan süreç öğesi olduğu en az farklılaştırılan öğenin ise 72 ders planından 23 tanesinde farklılaştırılan öğrenme ortamı öğesi olduğu görülmektedir. Bu bağlamda öğretmenlerin en çok öğrenme ortamı farklılaştırırken zorluk yaşadıkları ya da öğrenme ortamını farklılaştırmayı göz ardı ettikleri sonucu çıkarılabilmektedir. Ders planlarında değerlendirmenin gerçekleştirildiği zaman incelendiğinde 51 ders planında öğretim süreci sonunda, 26 ders planında öğretim süreci öncesinde, 11 ders planında ise öğretim sürecinde değerlendirme yapıldığı görülmektedir. Bun bağlamda öğretmenlerin en çok sonuç değerlendirmeye odaklandığı, süreç değerlendirmenin ise en göz ardı edilen değerlendirme türü olduğu sonucu çıkarılabilmektedir. Benzer bir şekilde bozan ve yılmaz (2024) tarafından gerçekleştirilen sınıf öğretmeni adaylarının kapsayıcı türkçe öğretimine yönelik ders planlarının incelendiği çalışmada da öğretmen adaylarının sadece sonuç değerlendirmeye odaklandığı sonucuna ulaşılmış ve bu durum olumsuz bir özellik olarak nitelenmiştir. Toplam 72 ders planının 23 tanesinde öğrenme ortamı öğesinin farklılaştırıldığı 49 tanesinde farklılaştırılmadığı görülmektedir. Bu bağlamda öğrenme ortamını farklılaştırmanın diğer öğelere kıyasla daha az sayıda gerçekleştiği görülmektedir. Ayvacı ve Yamaçlı (2022) kapsayıcı öğretime yönelik hizmet içi eğitim almış fen bilimleri öğretmenlerinin ders tasarımlarına bakış açısını inceledikleri araştırmada ise öğretmenlerin bireysel farklılıklara göre öğrenme ortamını şekillendirdikleri sonucuna ulaşılmıştır.

Öğretimi farklılaştırabilmek için öğretmenlerin farklılaştırılmış öğretim ve farklılaştırma tekniklerine ilişkin bilgi ve deneyim sahibi olmaları gerekmektedir. Bu noktada Farklılaştırılmış Öğretim dersinin bir alt kademe olan lisans düzeyinde de öğretmen yetiştirme programlarında yer almasının faydalı olabileceği düşünülmektedir. Nitekim alan yazında öğretmen adaylarının mesleğe başlamadan önce lisans eğitimi sürecinde kapsayıcı eğitime yönelik eğitimler almasının ve bu konuda ders planı hazırlama deneyimi kazanmasının önemini vurgulayan çalışmalar (Bozan ve Yılmaz, 2024; Burkett, 2013) kapsayıcı öğretim kavramıyla farklılaştırılmış öğretim kavramının arasındaki benzerlik göz önünde bulundurulduğunda bu görüşü desteklemektedir.

Araştırmada en sık farklılaştırılan unsurun süreç, en az farklılaştırılan unsurun ise öğrenme ortamı olduğu görülmüştür. Süreç farklılaştırma sıklığının yüksek olması, öğretmenlerin ders içi etkinlikleri farklı öğrenme profillerine göre uyarlamada daha başarılı olduklarını göstermektedir (Gregory ve Chapman, 2020). Ancak, öğrenme ortamının farklılaştırılmasındaki düşük oran, öğretmenlerin bu alandaki bilgi ve becerilerinin geliştirilmesi gerektiğini işaret etmektedir. Özellikle, öğrenme ortamlarının fiziksel ve psikolojik olarak düzenlenmesi, bireysel farklılıkları destekleyen bir eğitim süreci için kritik bir unsurdur (Kavut, 2024; Ayvacı ve Yamaçlı, 2022).

Değerlendirme farklılaştırmasının daha çok sonuç odaklı olduğu, süreç değerlendirme ve ön değerlendirme yöntemlerinin ise göz ardı edildiği bulgulanmıştır. Benzer şekilde, Bozan ve Yılmaz (2024) da öğretmen adaylarının genellikle sonuç değerlendirmeye odaklandığını ve bu durumun kapsayıcı öğretim uygulamalarını sınırladığını belirtmiştir. Bu durum, öğretmenlerin farklılaştırılmış değerlendirme teknikleri hakkında daha fazla bilgiye ve uygulama deneyimine ihtiyaç duyduğunu göstermektedir. Ayrıca, Bowen (2009), değerlendirme süreçlerinde yenilikçi yöntemlerin öğretim etkinliklerine entegrasyonunun önemini vurgulamıştır.

Araştırma bulgularında, öğretmenlerin çoğunlukla kendi branşlarında ders planları hazırladıkları gözlenmiştir. Matematik öğretmenlerinin, diğer branşlara kıyasla farklılaştırılmış ders planı hazırlamada daha yoğun bir şekilde temsil edilmesi, bu branşta farklılaştırmanın daha kolay entegre edilebilir olmasından kaynaklanıyor olabilir. Ancak, farklı branşların da eşit şekilde desteklenmesi, farklılaştırılmış öğretimin tüm disiplinlerde etkili bir şekilde uygulanması açısından önemlidir (Joseph vd., 2013; Mulroy ve Eddinger, 2003).

Öğretmenlerin farklılaştırılmış öğretim tekniklerini kullanma becerilerini artırmaya yönelik daha geniş çaplı bir eğitim programına ihtiyaç vardır. Yavuz ve Temiz (2024), bu tür bir eğitimin, öğretmenlerin bireysel farklılıkları daha iyi anlamalarını ve öğretim süreçlerine entegre etmelerini kolaylaştıracağını savunmaktadır. Aynı zamanda, Türkiye Yüzyılı Maarif Modeli (MEB, 2024), öğrenme ortamlarının ve içeriklerin bireyselleştirilmesi gerekliliğine dikkat çekmektedir.

Bu çalışma, farklılaştırılmış öğretim yaklaşımının ders planlarına entegre edilmesinde öğretmenlerin genel olarak başarılı olduğunu, ancak bazı alanlarda iyileştirme gerekliliği bulunduğunu ortaya koymuştur. Süreç farklılaştırma konusunda yüksek bir başarı oranı yakalanırken, öğrenme ortamı ve değerlendirme farklılaştırma alanlarında önemli eksiklikler olduğu görülmüştür. Özellikle öğrenme ortamlarının bireysel farklılıklara uygun şekilde düzenlenmesinde öğretmenlerin daha fazla rehberliğe ve desteğe ihtiyaç duyduğu sonucuna varılmıştır.

Öneriler

1. Farklılaştırılmış öğretim konusundaki lisans ve lisansüstü programlarda, öğrenme ortamı tasarımı ve farklılaştırılmış değerlendirme yöntemlerine daha fazla yer verilmelidir. Özellikle uygulamalı eğitimlerle öğretmenlerin deneyim kazanmaları sağlanmalıdır (Burkett, 2013). Öğretmenlerin meslek içi gelişim programlarına, öğrenme ortamını ve değerlendirme yöntemlerini farklılaştırma üzerine odaklanan eğitimler eklenmelidir (Ayvacı ve Yamaçlı, 2022).

2. Farklılaştırılmış öğretim uygulamalarının tüm branşlara eşit şekilde yaygınlaştırılması için branşa özel materyal ve stratejiler geliştirilmelidir.

3. Dijital araç ve kaynakların öğrenme ortamını farklılaştırmada daha etkin kullanılması sağlanmalıdır. Bu, öğretmenlerin hem öğrencilerin bireysel ihtiyaçlarına yanıt vermesini hem de öğretim süreçlerini daha esnek hale getirmesini kolaylaştırabilir (MEB, 2024).

4. Eğitim kademelerine göre farklılaştırılmış öğretim uygulamalarının etkisini değerlendiren uzun vadeli araştırmalar yapılmalı ve bu doğrultuda uygulama rehberleri geliştirilmelidir.

Sonuç olarak, farklılaştırılmış öğretim yaklaşımı, bireysel farklılıklara duyarlı bir eğitim ortamı oluşturmak adına önemli bir potansiyele sahiptir. Ancak bu potansiyelin tam anlamıyla hayata geçirilebilmesi için öğretmenlerin bu alandaki bilgi ve becerilerinin desteklenmesi kritik öneme sahiptir.

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Matematik Öğretmenlerinin Beceri Temelli (Yeni Nesil) Matematik Sorularına İlişkin Görüşlerinin İncelenmesi*

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Özet

Bu araştırmanın amacı, beceri temelli (yeni nesil) matematik sorularına ilişkin öğretmen görüşlerini incelemektir. Çalışma, nitel bir araştırma olup olgubilim (fenomenoloji) deseni kullanılarak gerçekleştirilmiştir. Araştırmanın katılımcıları, amaçsal örnekleme yöntemiyle seçilen 32 matematik öğretmeninden oluşmaktadır. Veriler, araştırmacılar tarafından geliştirilen, yarı yapılandırılmış 9 sorudan oluşan bir görüşme formu aracılığıyla toplanmıştır. Görüşme formunun geçerlik ve güvenirliği uzman görüşleri alınarak sağlanmıştır. Toplanan veriler içerik analizi yöntemiyle çözümlenmiştir. Bulgular, öğretmenlerin beceri temelli sorulara ilişkin farkındalık düzeylerini ortaya koymuştur. Öğretmenler, beceri temelli matematik sorularını okuduğunu anlama, analiz ve muhakeme etme gibi üst düzey bilişsel becerileri geliştiren, rutin problemlerin ötesine geçerek gerçek yaşam bağlamlarıyla ilişkilendirilen matematik problemleri olarak tanımlamıştır. Genel olarak öğretmenlerin görüşleri olumlu olmakla birlikte, bazı eksikliklere de dikkat çekilmiştir. Katılımcılar, Millî Eğitim Bakanlığı ders ve kaynak kitaplarının beceri temelli sorular açısından yetersiz olduğunu belirtmiş; bu tür soruların sayısının artırılması ve kullanılan dilin daha anlaşılır hale getirilmesi gerektiğini vurgulamıştır. Araştırmanın sonuçları

doğrultusunda, eğitim-öğretim müfredatının, beceri temelli soruların çözümünde gerekli üst bilişsel becerileri geliştirecek öğretim hedefleri doğrultusunda düzenlenmesi ve geliştirilmesi önerilmektedir.

Anahtar Kelimeler: Beceri temelli soru, Yeni nesil soru, Matematik öğretmenleri, Matematik problemleri, Öğretmen görüşleri

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Examination of Mathematics Teachers' Opinions on Skill-Based (Next Generation) Mathematics Questions*

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Abstract

This study examines teachers' views on skill-based (new generation) mathematics questions. Using a phenomenological design, this qualitative research gathered data from 32 mathematics teachers selected through purposive sampling. The researchers developed a nine-question semi-structured interview form, which underwent validity and reliability testing through expert review. Data analysis was conducted using content analysis methods. The findings illuminated teachers' awareness of skill-based questions. Teachers characterized these questions as mathematical problems that develop advanced cognitive skills; including reading comprehension, analysis, and reasoning while connecting to real-life contexts and moving beyond routine exercises. While teachers' overall responses were positive, they identified several areas for improvement. They noted that Ministry of National Education textbooks and resource materials lack sufficient skill-based questions and recommended increasing their number while making the language more accessible. Based on these findings, the study suggests reorganizing the education curriculum to develop the metacognitive skills needed for solving skill-based questions.

Keywords: Skill-based question, Next generation question, Mathematics teachers, Mathematics problems, Teacher opinions

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Giriş

İnsanlığın başlangıcından beri kendini geliştirmekte olan insanoğlunun, 18.yy Endüstri Devrimi'nden bu yana teknolojinin hızlı değişimi ile gelişimi daha da hızlanmıştır. Değişimin bu hızlı ve yukarı yönlü ivmelenmesi geçmişten günümüze süregelen toplumlar arası rekabeti de arttırmıştır. Toplumların bu bilim ve teknolojiye önem veren yenilikçi çağa adapte olabilmesi ve çağın gerisinde kalmaması için kendi toplum yapısı içindeki bireylerini bir takım becerilerle donatması gerekmektedir. Bu becerilere *"21.yy becerileri"* denilmiştir. 21.yüzyıl becerilerilerini 4 ana başlıkta inceleyebiliriz: iletişim ve işbirliği, eleştirel düşünme ve yaratıcılık, medya ve teknoloji okuryazarlığı, kariyer ve yaşam becerileri (Partnership for 21st Century Skills, 2009). Bu becerilerin kazandırılmasında şüphesiz ki en temel olgu eğitimdir. Çünkü eğitim bireyleri istendik yönde değiştirip geliştirmemizi sağlayan süreçtir. Eğitimin öneminin bilincinde olan toplumlar, eğitimin birey ve dolayısıyla toplumsal değişim üzerindeki etkisinin farkındadır (Dinçer, 2003).

Eğitim anlayışındaki değişimler ve 21.yüzyılın ihtiyaçları, geleneksel eğitim anlayışını yetersiz kılmış ve yeni bir eğitim anlayış ortaya çıkarmıştır (Uçak & Erdem, 2020). Eğitim bundan böyle toplumun geçmiş kuşaklardan gelen bilgiyi yeni nesillerine aktardığı bir yapı değil bilgiyi anlayan, kullanmasını ve bilgiyi üretmesini bilen bireyler yetiştirmeye yöneliktir (Numanoğlu, 1999). Bundan ötürü toplumlar; eleştirel ve inovatif düşünebilen, üstbilişsel özelliklerinin farkında, kendini geliştirmeye açık, teknolojiyi doğru ve etkili kullanarak teknoloji okuryazarlığına sahip, iletişim yönüyle güçlü ve çağa adapte olmakla birlikte kendi toplumunun kültürel özelliklerinin ve değerlerinin bilincinde bireyler yetiştirmeyi hedeflemektedir.

Eğitim anlayışındaki bu köklü değişim eğitim-öğretimin her basamağında etkili olmuştur. Bu basamaklardan birisi de eğitimin 'ölçme değerlendirme' basamağıdır. Ölçme değerlendirmede yapılan değişikliklerde uluslararası PISA, TIMSS, PIRLS, TALIS sınavları dikkate alınmıştır (Uzun, Bütüner, & Yiğit, 2010). Bu uluslararası sınavların ortak özellikleri; ulusal düzeyde öğrenci profillerini açığa çıkarmak (Reyhanlıoğlu & Tiryaki, 2021), ülkelerin kendi eğitim-öğretim programlarının ve müfredatının ne derece etkili olduğunu diğer ülkelerle kıyaslayabilmesi için ortam oluşturmak ayrıca da varolan eğitim-öğretim eksiklerini iyileştirilmesi ve verimliliğinin arttırılmasına katkı sağlamaktır. Böylece eğitim politikaları ve öğretim programları geliştirilebilir. Uluslararası bu sınavlardan en çok öne çıkan ve dikkate alınan sınavlar PISA ve TIMSS sınavlarıdır (Gürlen, Demirkaya, & Doğan, 2019). Uluslararası Matematik ve Fen Eğilimleri Araştırması (TIMSS), dört yılda bir 4. ve 8.sınıflardaki öğrencilerin matematik ve fen alanlarındaki bilgi, uygulama ve akıl yürütme becerilerini ölçen uluslarası bir ölçme değerlendirme sınavıdır (MEB, 2019). Amacı, küresel çapta matematik ve fen bilgisinin geliştirilmesidir (Oral & McGivney, 2011). Matematik alanındaki veriler incelendiğinde 2015 yılı TIMSS sonuçlarında Türkiye 4. sınıf matematik başarısında 483 puanla ölçek orta noktasının (500 puan) altında kalmış ve 49 ülkeden 36. sırada yer almıştır. 8.sınıf bazında da ölçek ortalama noktasının altında kalmış ve 458 puan ile 39 ülke arasında 24. sırada yer almıştır (Yıldırım, Özgürlük, Parlak, Gönen , & Polat, 2016). TIMSS 2019 çalışmasında Türkiye, matematik alanındaki performansıyla 4.sınıf düzeyinde 523 puan ile 58 ülke arasından 23. sıraya yükselmiş ve ortalamanın üstünde kalmıştır. 8.sınıf düzeyinde 496 puan ile tam ortalama puanda ve 39 katılımcı ülke arasından 20.sıradadır. Yıllara göre TIMSS verilerinde matematik başarısında artan bir eğilim olduğu görülmektedir. İlk kez 2019 verilerinde görüldüğü üzere Türkiye'nin matematik puanı ortalama değerde, fen puanı ise ortalamanın üstünde sonuç vermiştir (Suna, Şensoy, Parlak , & Özdemir, 2020).

Türkiye, 2003'ten bu yana üçer yılda bir yapılan Uluslararası Öğrenci Değerlendirme Programı (PISA) sınavına katılmaktadır. Ekonomik İşbirliği ve Kalkınma Teşkilatı (OECD) tarafından gerçekleştirilen PISA sınavı 15 yaş grubundaki öğrencilerin okuma, matematik ve fen okuryazarlığı becerilerini değerlendirmektedir (Taş, Gönen, Çalık, Ozarkan, Kılıç, & Taşkın, 2022). Türkiye ve diğer birçok ülke PISA sınav sonuçlarıyla ilgili araştırmalar yürütmüştür (Altun, Gümüş, Akkaya, Bozkurt, & Ülger, 2018).Türkiye'nin PISA sınav sonuçları incelendiğinde TIMSS sınav sonuçlarında olduğu gibi yıllara göre başarısını yükselttiği görülmektedir. MEB'in yayınlamış olduğu raporlar da her ne kadar olumlu bir tablo çizmiş olsa da Türkiye hala istediği başarı düzeyine erişememiştir. Gürlen, Demirkaya ve Doğan (2019)'nın, akademisyen ve uzmanların PISA ve TIMSS sınavlarına ilişkin görüşlerini incelediği araştırmasında akademisyenlerden biri, Türkiye'nin başarı ivmesinin yeterli olmamasına, tüm ülkelerin başarısında artış yaşadığına ve Türkiye'nin diğer ülkelerle arasındaki eğitim açığının zaman içinde artacağına değinmiştir. Başarının istenen düzeyin altında olması eğitim sistemimizin bazı eksikliklerine ve yetersizliklerine işaret etmektedir (Şahin, 2007; Erdoğan, Kayır, Kaplan, Ünal, ve Akbunar, 2015).

2023 Eğitim Vizyonu (2018) doğrultusunda öğrenmeyi iyileştirecek düzenlemelerden birisi tüm merkezi sınavlarda yapılacak değişikliklerle amacı ve içeriği düzenlenmek, soru kalıbını hedefe uygun hale getirmek olarak belirtilmiştir. Türkiye'de eğitim-öğretim beş kademeden oluşmaktadır ve ilköğretimden sonra kademeler arası geçişte ölçme değerlendirme sınavı uygulanmaktadır (Atılgan, 2017; Küçüker, 2017; Kuzu, Kuzu, ve Gelbal, 2019). 2018 yılında ilköğretimden ortaöğretime geçiş sınavı, Liseye Geçiş Sınavı (LGS) olarak değiştirilmiştir (Kuzu, Kuzu, & Gelbal, 2019). MEB (2023), yapılan merkezi sınavlarda okuduğunu anlayarak yorumlama ve sonuç çıkarma, problem çözerek analiz yapma ve eleştirel düşünme becerilerini ölçecek nitelikteki sorulara yer verildiğini belirtmiştir. Ayrıca hazırlanan sorular uluslararsı sınavların odaklandığı beceriler baz alınarak oluşturulmaktadır (Erden, 2020). Üstbilişsel becerilere odaklanan bu yeni soru stiline "beceri temelli (yeni nesil) soru" denilmektedir. Yeni nesil soru stili beceri temelli mantık muhakeme yeteneğini, eleştirel düşünebilme, yorumlama, tahmin etme gibi zihinsel becerileri ölçmeyi hedefleyen yapıdadır. Beceri temelli (yeni nesil) sorularla ilgili yapılan araştırmaların içeriği incelendiğinde; soruların Yenilenmiş Bloom Taksonomisi'ne göre ele alınması, kavramsal ve kuramsal çerçevesi, öğrenci ve öğretmen görüşleri ile ilgili araştırmalara ulaşılmıştır. Araştırmalar neticesinde beceri temelli soruların daha çok alt bilişsel basamakları ölçebilecek nitelikte olduğu, LGS sınavındaki beceri temelli soruları kazanımlarla uygun olmadıkları, soruların fazla uzun olduğunu ve öğrencilerin çözerken zorluk yaşadığı belirtmiştir. Bir diğer bulgu ise var olan eğitim öğretim programlarının öğretmenlere iyi kılavuzluk etmediği ve ders kitaplarının da beceri temelli sorular için yeterince donanımlı olmadığı yönündeki ortak görüşlerdir.

Yukarıda bahsi geçen araştırmalar dışında bir başka üzerinde durulması gereken araştırma konusu ise öğretmenlerin beceri temelli sorular hakkındaki görüşleridir. Eğitimin paydaşlarından biri olan öğretmenler, eğitimde meydana gelen değişim ve gelişimlerin uygulanmasında önemli bir role sahiptir. İrfan Erdoğan *"Öğretmen eğitimin başlatıcısı, geliştiricisi ve uygulayıcısıdır."* demiştir (Cüceloğlu & Erdoğan , 2013). Eğitim-öğretimin uygulayıcıları olan öğretmenlerin beceri temelli soruların sınıf içi uygulama alanlarına, öğrenciye katkısına ve soru çözüm aşamasında karşılaşılan zorluklara ilişkin görüşlerinin dikkate alınması önemlidir. Bu doğrultuda yapılmış olan araştırmalar incelenmiştir. Bu araştırmalar ışığında ortak görüş olarak öğretmenler beceri temelli soruların öğrencilerin bir takım bilişsel becerilerini (akıl yürütme, ilişkilendirme, problem çözme gibi) geliştirdiği görüşünde bulunmuştur. Öğretim programlarının yetersiz kaldığını, ders kitaplarındaki soru sayısının az olduğunu ve öğretmenlerin ekstra kaynak kullanmak zorunda olduğu belirtilmiştir. Geçen zaman içinde öğretmen görüşlerinin değişimi, yöntemlerin işe yararlığı ve bahsi geçen problemlerin bir sonuca ulaşıp ulaşmadığı merak konusu olmuştur. Özetlenen bu araştırmalar neticesinde bu araştırmanın gerekçesi ortaya konmuştur. Dolayısıyla bu araştırmanın amacı LGS, denemelerde ve hatta okul sınavlarında sorulmakta olan beceri temelli (yeni nesil) matematik sorularına ilişkin öğretmen görüşlerini ortaya çıkarmaktır. Araştırmanın amacı doğrultusunda aşağıdaki 4 araştırma sorusuna cevap aranmıştır:

1. Beceri temelli sorular hangi becerileri geliştirir?
2. Öğretmenlerin beceri temelli soruları öğretiminde ve öğrencilerin öğreniminde karşılaşılan sorunlar nelerdir?
3. Beceri temelli soru çözümünde karşılan problemlerle başa çıkma yolları nelerdir?
4. Öğretmenlere göre beceri temelli soruların öğrencilere çözdürülmesinde eğitim-öğretimine ve günlük hayatına katkısı nelerdir?

Yöntem

Nitel araştırmalar, insanların olaylar ve olgular karşısındaki davranışlarının sebeplerini, tutumlarının arkasındaki nedenleri, bireylerin ve toplumların hem birbirleriyle hem de çevrelerindeki gelişmelerle nasıl etkileşimde bulunduğunu, kültürlerin oluşum ve gelişim süreçlerini, sosyal grupların iletişim biçimlerini anlamaya yönelik bir araştırma yaklaşımıdır (Baltacı, 2019). Bu çalışmada da ters yüz öğrenme modeline ilişkin öğretmen görüşleri incelenmekte olup, bu durum sosyal bir olgu bağlamında ele alındığından nitel araştırma yöntemi tercih edilmiştir.

Araştırmanın Modeli

Bu araştırma, nitel araştırma metodolojisi çerçevesinde durum çalışması modeliyle tasarlanmıştır. Durum çalışması, belirli bir durumun ya da olayın derinlemesine incelendiği, verilerin sistemli bir şekilde toplandığı ve bu verilerin gerçek ortamda analiz edildiği bir yöntemdir. Bu yaklaşım, incelenen olayın neden bu şekilde ortaya çıktığını ve gelecekteki çalışmalarda hangi noktalara odaklanılması gerektiğini anlamaya yönelik sonuçlar sunar (Subaşı ve Okumuş, 2017).

Evren/Örneklem

Araştırmanın çalışma grubu, amaçlı örnekleme yöntemlerinden biri olan kolayda örnekleme yöntemi ile belirlenmiştir. Bu yöntem, araştırmacının kolayca erişebildiği ve ulaşılabilir durumda olan birimleri örnekleme dahil ettiği bir seçme yöntemidir (Baştürk ve Taştepe, 2013). Araştırmada, ilköğretim matematik öğretmenlerin beceri temelli (yeni nesil) sorular hakkındaki görüşlerine odaklanılmıştır. Bu doğrultuda, kolayda örnekleme yöntemi uygun görülerek 32 ortaöğretim öğretmeni çalışma grubuna dahil edilmiştir. Katılımcıların demografik özelliklerine ilişkin bilgiler Tablo 1'de sunulmuştur.

Tablo 1. Araştırmanın çalışma grubunu oluşturan öğretmenlerin demografik özellikleri

	Değişkenler		f	%
Matematik Öğretmenleri	Cinsiyet	Kadın	20	62,5
		Erkek	12	37,5
	Mesleki Kıdem	0-5 yıl	17	53,1
		6-10 yıl	4	12,5
		11-15 yıl	3	9,4
		16-20 yıl	4	12,5
		21-25 yıl	0	0
		26 ve üstü yıl	4	12,5
		Lisans	25	78,1
		Yüksek Lisans	7	21,9
		Doktara	0	0
	Görev Yapılan Okul Türü	Devlet Okulu	17	53,1
		Özel Okul	15	46,9
	Yeni nesil soru çözme	Evet	31	96,9
		Hayır	1	3,1

Tablo 1 matematik öğretmenlerinin cinsiyet, mesleki kıdem, eğitim durumu, görev yaptıkları okul türü ve yeni nesil soru çözme konusundaki durumlarına ilişkin verileri sunmaktadır. Bu veriler, katılımcıların demografik ve mesleki özelliklerini ortaya koymaktadır. Katılımcıların %62,5'i kadın (20 kişi), %37,5'i ise erkek (12 kişi) öğretmenlerden oluşmaktadır.

Bu durum, araştırma grubunun çoğunluğunun kadın öğretmenlerden oluştuğunu göstermektedir. Öğretmenlerin mesleki kıdem dağılımına bakıldığında; %53,1'i 0-5 yıl, %12,5'i 6-10 yıl, %9,4'ü 11-15 yıl, %12,5'i 16-20 yıl, %12,5'i 26 yıl ve üzeri kıdeme sahip olduğu görülmektedir. 21-25 yıl kıdem aralığında öğretmen bulunmamaktadır. Bu dağılım, katılımcıların çoğunluğunun meslek hayatının başlarında olduğunu göstermektedir. Katılımcıların eğitim durumları incelendiğinde; %78,1'i (25 kişi) lisans mezunu, %21,9'u (7 kişi) yüksek lisans mezunudur. Bu durum, öğretmenlerin büyük çoğunluğunun lisans seviyesinde eğitim aldığını ortaya koymaktadır. Katılımcıların %53,1'i (17 kişi) devlet okullarında, %46,9'u (15 kişi) ise özel okullarda görev yapmaktadır. Dağılım, devlet ve özel okullar arasında dengeli bir şekilde dağıldığını göstermektedir. Katılımcıların %96,9'u (31 kişi) yeni nesil soru çözümüne yönelik olumlu görüş belirtirken, yalnızca %3,1'i (1 kişi) olumsuz görüş belirtmiştir. Bu sonuç, öğretmenlerin büyük çoğunluğunun yeni nesil soru çözme becerisine ve yöntemine aşina olduğunu ve bunu uyguladığını göstermektedir. Tablo 1 incelendiğinde genel olarak katılımcıların meslekte yeni olan öğretmenlerin ağırlıkta olduğunu ve lisans mezuniyetinin yaygın olduğunu göstermektedir. Ayrıca, yeni nesil soru çözme becerilerine olan yüksek düzeydeki olumlu eğilim, öğretmenlerin yenilikçi yaklaşımlara açık olduğunu ortaya koymaktadır.

Verilerin Toplanması

Araştırmada, önceden hazırlanan görüşme sorularıyla çevrim içi görüşmeler gerçekleştirilmiş ve bu süreçte veriler toplanmıştır. Görüşme formuna, katılımcıların bilgilendirilmesi amacıyla bir aydınlatılmış onam formu eklenmiş ve gönüllülük esasına özen gösterilmiştir. Onamları alınan katılımcılardan demografik bilgileri (cinsiyet, kıdem, branş ve çalıştıkları okul türü) paylaşmaları istenmiş, ardından görüşme sorularına cevap vermeleri sağlanmıştır.

Verilerin Analizi

Görüşme formlarıyla toplanan veriler, nitel araştırmalarda sıklıkla kullanılan içerik analiz yöntemi ile analiz edilmiştir. Bu çalışmada, temaların ve kodların oluşturulması aşamasında beş alan uzmanından destek alınmıştır. Katılımcıların verdiği cevaplar, her bir soru için ayrı ayrı analiz edilmiş ve araştırma sorularına yönelik anlamlı bulgular içerecek şekilde kodlanmıştır. Elde edilen kod ve temaları desteklemek amacıyla bazı katılımcı görüşlerine doğrudan alıntılar şeklinde yer verilmiştir.

Geçerlilik ve Güvenirlik Çalışmaları

Araştırmanın geçerlilik ve güvenirliğini sağlamak amacıyla uzmanlarla pilot görüşmeler gerçekleştirilmiş, görüşme soruları bu süreçte test edilmiştir. İşlevsiz bulunan sorular çıkarılmış, yerlerine yenileri eklenmiştir. Soruların açık, anlaşılır ve araştırma konusuyla uyumlu olup olmadığını değerlendirmek için 8 öğretmenle pilot görüşmeler yapılmış ve bu doğrultuda gerekli düzenlemeler yapılarak görüşme formunun nihai hali oluşturulmuştur.

Nitel araştırmaların bilimsel geçerliliğini ve güvenilirliğini sağlamak için belirli standartların izlenmesi gerekmektedir (Başkale, 2016). Bu doğrultuda, analiz sürecinde uzman görüşlerinden yararlanılmış, ortaya çıkan temalar tartışılarak fikir birliğine varılmıştır. Ayrıca, güvenirliği artırmak amacıyla doğrudan alıntı yöntemine başvurulmuş, çalışmadaki her bir katılımcı Ö1, Ö2, ... Ö32 şeklinde kodlanarak anonimlik sağlanmıştır. Sonuçlar, literatürdeki diğer araştırmaların bulgularıyla karşılaştırılarak raporlanmıştır. Nitel veri analizinde Miles ve Huberman'ın (1994) güvenilirlik formülü kullanılmıştır: Güvenilirlik = Görüş Birliği / (Görüş Birliği + Görüş Ayrılığı) Miles ve Huberman, bu oran için %70'in yeterli olduğunu belirtmektedir. Araştırmada farklı uzmanlar tarafından yapılan kodlamalar karşılaştırılmış ve kodlamalar arasındaki uyum oranı %89,7 olarak tespit edilmiştir. Bu oran, araştırma bulgularının güvenilir olduğunu göstermektedir. Nitel araştırmaların bilimsel geçerliliğini ve güvenilirliğini sağlamak için belirli standartların izlenmesi gerekmektedir (Başkale, 2016). Bu doğrultuda, analiz sürecinde uzman görüşlerinden yararlanılmış, ortaya çıkan temalar tartışılarak fikir birliğine varılmıştır. Ayrıca, güvenirliği artırmak amacıyla doğrudan alıntı yöntemine başvurulmuş, çalışmadaki her bir katılımcı Ö1, Ö2, ... Ö32 şeklinde kodlanarak anonimlik sağlanmıştır.

Sonuçlar, literatürdeki diğer araştırmaların bulgularıyla karşılaştırılarak raporlanmıştır. Nitel veri analizinde Miles ve Huberman'ın (1994) güvenilirlik formülü kullanılmıştır: Güvenilirlik = Görüş Birliği / (Görüş Birliği + Görüş Ayrılığı) Miles ve Huberman, bu oran için %70'in yeterli olduğunu belirtmektedir. Araştırmada farklı uzmanlar tarafından yapılan kodlamalar karşılaştırılmış ve kodlamalar arasındaki uyum oranı %86,7 olarak tespit edilmiştir. Bu oran, araştırma bulgularının güvenilir olduğunu göstermektedir.

Bulgular

Matematik öğretmenlerinin görüşleri incelenerek elde edilen bulgular aşağıda tablolarla ve kodlarla ifade edilmiştir.

Beceri Temelli (Yeni Nesil) Matematik Sorularını Geleneksel Matematik Sorularından Ayıran Özelliklerine Yönelik Öğretmen Görüşleri

Araştırmanın birinci sorusu olan beceri temelli (yeni nesil) matematik sorularını geleneksel matematik sorularından ayıran özelliklerine ilişkin matematik öğretmenlerinin görüşleri ve öğretmen sayısı (f) Tablo 2'de yer almaktadır.

Tablo 2. Beceri temelli (yeni nesil) matematik sorularını geleneksel matematik sorularından ayıran özelliklere ilişkin bulgular

Kod	Öğretmenler	f
Analiz ve muhakeme yapmayı gerektirmesi	Ö4, Ö5, Ö6, Ö14, Ö15, Ö16, Ö17, Ö20, Ö21, Ö24, Ö28, Ö29, Ö30, Ö32	14
Okuduğunu anlama ve yorumlama becerisini geliştirmesi	Ö2, Ö4, Ö5, Ö7, Ö9, Ö12, Ö16, Ö19, Ö21, Ö22, Ö23	11
Bilişsel becerileri geliştirmesi	Ö4, Ö12, Ö18, Ö21, Ö24, Ö27	6
Uzun ve anlaşılması güç olması	Ö1, Ö13, Ö17, Ö25, Ö26, Ö31	6
Farklı bakış açıları (perspektif) kazandırması	Ö22, Ö23, Ö10, Ö11	4
Güncel olması	Ö3	1
Disiplinler arası olması	Ö8	1

Tablo 2'de görüldüğü üzere geleneksel sorularla beceri temelli soruların arasındaki farkın sorulduğu soruda öğretmenlerin çoğunluğunun (f=13), beceri temelli soruların daha çok analiz ve muhakeme yapmayı gerektiren sorular olduğunu belirtmiştir. Geleneksel sorularda ezbere bilgiyle soru çözülebilirken beceri temelli sorularda bilişsel becerileri kulanmak gerekmektedir. Bununla birlikte öğretmenlerden bazıları (f=11) bu tarz sorularda okuduğunu anlama ve yorumlayabilmenin soru çözümünün önemli bir kısmını oluşturduğu vurgulanmıştır. Bazı öğretmen görüşleri aşağıda yer almaktadır.

“Beceri temelli sorular geleneksel sorulara göre öğrencinin okuma, anlama ve muhakeme etme gücünü daha fazla sınayan türden sorulardır.” (Ö5)

“Üst düzey düşünme becerileri ve analiz basamağına hitap eden sorular olduğunu düşünüyorum. Geleneksel matematik soruları daha çok bilgi ve kavrama basamağına hitap eden sorulardan oluşuyordu. Yeni nesil sorular ise matematiksel düşünme, muhakeme gerektiren, öğrencinin bilgiyi transfer ederek sentezlediği sorulardır.” (Ö24)

“Geleneksel (kazanım) soruları daha çok Bloom taksonomisinin alt bilişsel düzeydeki bilgi basamağına yönelik hazırlanan sorulardır. Yeni nesil sorular ise üst düzey düşünme becerisi gerektiren becerileri ölçmesi beklenir.” (Ö27)

“Geleneksel sorular daha çok bilgiyi ölçme işlem yeteneğini sınayan sorulardır. Beceri temelli yeni nesil sorular ise okuduğunu anlayıp, muhakeme ve analiz ederek sözel bilgiyi sayısallaştırmayı gerektiren problemlerdir.” (Ö29)

“Bana göre beceri temelli soruları geleneksel sorulardan ayıran en büyük fark ezber gerektiren sorular olmayışıdır. Çünkü aşina olduğunuz geleneksel soruları çözerken formülleri bilmemiz gerekmektedir. Fakat beceri temelli sorularda formülü soruda verir ve sizin formülü kullanabilme becerinizi ölçer. Bu durumda geleneksel eğitime de atıf vardır. Çünkü geleneksel eğitim ezber, günümüzün eğitimi olan yapılandırmacı yaklaşım ise öğrencinin becerisini ölçer. Bu yüzden beceri temelli sorular aslında var olan yapılandırmacı yaklaşımda kullanılması gereken ölçme ve değerlendirme araçlarıdır.” (Ö30)

Öğretmenlerin görüşlerinden de anlaşıldığı üzere beceri temelli soruları geleneksel sorulardan ayıran en belirgin farkının okuduğunu anlama, muhakeme ve analiz etmeyi gerektiren sorular olduğu görüşünün hakim olduğu söylenebilir. Bununla birlikte bu soru stilinin öğrencilerin bakış açısını geliştirdiğinin, çok yönlü düşündürerek farklı çözüm yolları bulmaya teşvik ettiğini belirten öğretmenler (f=2) de vardır.

“Ezbere eğitim dışında, bakış açısını farklılaştıran sadece matematik bilmenin yeterli olmadığı bildiğini kullanma, okuduğunu anlama diyebilirim.” (Ö22)

“Beceri temelli sorular geleneksel sorulara göre çocukları daha fazla düşünmeye ve farklı çözüm yolları bulmaya sevk etmektedir. Bu da çocuklardaki hayal dünyasının gelişiminden tutun gündelik hayattaki karşılarına çıkan her durumda olumlu yönde etki gösterir. Bir soruya tek bir çözüm yolu sunmaktansa farklı bakış açılarıyla yaklaşım gösterirler. Matematik dersi monoton ve sıkıcı bir ders halinden birazda olsa çıkmış olur. Çocukların ilgi ve isteklerinde artış gösterir. Ben şahsen çocuklarımın ileriki kademelere doğru önyargı kırılması yaşadıklarına şahit oldum. Bu da beni mesleğime ve tabi ki branşıma karşı daha şevkli hale getiriyor.” (Ö23)

Genel kanı soruların öğrenciyi bilişsel olarak geliştirdiği yönünde olmakla birlikte diğer taraftan öğretmenler (f=6) beceri temelli soruların geleneksel sorulardan çok daha uzun ve anlaşılmasının güç olduğuna yönelik eleştiride de bulunmuştur.

Beceri Temelli (Yeni Nesil) Matematik Sorularını Derslerinde Çözüp-Çözmediğine İlişkin Öğretmen Görüşleri

Aşağıda araştırmanın ikinci sorusu olan, öğretmenlerin beceri temelli soruları sınıflarında çözdürüp çözdürmediği sorusuna verdiği cevaplar Grafik 1'de gösterilmiştir.

Grafik 1. Matematik dersinde beceri temelli soru çözme

Matematik dersinde beceri temelli soru çözmeye ilişkin 32 matematik öğretmeninden yalnızca 1 kişi (%3) dersinde beceri temelli soru çözdürmezken diğer tüm öğretmenler (f=31, %97) derslerinde beceri temelli soruları kullandığını belirtmiştir. Fakat dersinde kullanan öğretmenlerden 2'si (%6) soruları çok sık çözdüremediğini sebepleriyle açıklamıştır. Öğretmenlerin derslerinde bu soru tarzını çözme-çözmeme nedenleri Tablo 3'te kodlanarak belirtilmiştir.

Tablo 3. Derslerde beceri temelli (yeni nesil) matematik sorularını çözme- çözmeme durumuna ilişkin bulgular

	Kod	Öğretmenler	f
Evet	LGS sınavında, denemelerde, okul sınavlarında sorulması	Ö2, Ö3, Ö4, Ö5, Ö6, Ö7, Ö8, Ö9, Ö10, Ö11, Ö12, Ö16, Ö18, Ö21, Ö25, Ö26, Ö29	17
	Matematiksel düşünme becerisini geliştirmesi	Ö13, Ö14, Ö18, Ö21, Ö22, Ö24, Ö28, Ö29, Ö31	9
	Soruların gerçek hayatla ilişkili olması	Ö1, Ö21	2
	Öğrencileri daha aktif kılması	Ö23, Ö24	2
	Üstbilişsel becerileri ölçmesi	Ö30	1

	Konuyu kavrayan öğrenciyi ayırt etmesi	Ö15	1
	Okullarda soru çözüm dersi olması	Ö17	1
Bazen	Derslerde yeterli vakit olmaması	Ö20, Ö32	2
Hayır	Öğrencilerin hazırbulunuşluğunun yeterli olmaması	Ö19	1

Tablo 3'den de anlaşıldığı üzere yeni nesil soru çözdürenlerin bu tarz soruları çözdürmesinin büyük oranda sebebi (f=17) ilköğretimden ortaöğretime geçiş sınavı LGS'de, okullarda yapılan denemede ve sınavlarında sorulan soruların yeni nesil sorulardan oluşmasından kaynaklanmaktadır. Soruları matematiksel becerileri geliştirdiği için çözen öğretmen sayısı (f=9) da azımsanmayacak kadar çoktur. Aşağıda bu öğretmenlerin görüşlerine yer verilmiştir.

"Evet kullanıyorum çünkü 5. Sınıf kademesinden itibaren öğrencilerin ileride girecekleri LGS sınavına hazırlık yapmaları gerektiğini düşünüyorum." (Ö5)

"Kullanıyorum. Öğrencilerin sınav sistemine alışabilmesi ve başarılı olabilmesi için ve disiplinler arası ilişkilendirme becerilerini geliştirebilmeleri için." (Ö8)

"Evet. Öğrencileri yeni nesil sorulara adapte edebilmek ve problem çözme becerilerini geliştirmek için kullanıyorum." (Ö18)

"Kullanıyorum. Hem günlük hayatlarında düşünme kabiliyetleri gelişsin diye hemde hayatları boyunca girecekleri tüm sınavlarda hemen hemen bu tarz sorular olacak olmasından." (Ö21)

"Tabiki kullanıyorum. Artık her sınavda beceri temelli sorular soruluyor bu yüzden bu soru stiline öğrenciler hazırlamak önemli. Ayrıca şahsi görüşüm bu soru stilinin öğrencilerin gerçekten matematiksel düşünmelerine katkı sağlıyor olması." (Ö29)

Öğretmenler çoğunlukla beceri temelli sorulara derslerinde yer verseler de dersinde yer vermek isteyen ama zamanın kısıtlı olmasından ötürü çok fazla kullanmayan (f=2) veya hiç kullanmayan (f=1) öğretmenler de vardır.

"Kullanamıyorum, öğrencilerle konunun özünü ancak verebiliyoruz. Beceri temelli sorular için hem öğrenci hazırbulunuşluğu hem de zaman yeterli değil." (Ö19)

"Çok sık kullanamıyorum, iki sebepten: birincisi kazanımları yetiştirecek kadar vakit olmuyor, ikincisi sınıflarda davranış-karakter eğitiminin daha önemli olduğunu düşünüyorum, dolayısıyla gerekli durumlarda bu konuya eğiliyorum." (Ö20)

“Evet çözdürüyorum ama pek fazla değil. Bunun sebebi müfredatın zaten çok yoğun olması konuları öğretirken oldukça zaman alıyor. Beceri temelli sorular da çok uzun olduğu için bir derste anca 2-3soru tartışılıp çözülebiliyor. Ders süresi, çok fazla soru çözebilmek için yetersiz. Oysaki artık sınavlarda bu sorular soruluyor ve öğrencilerin daha çok bu tarz soru görmesi gerek. Hatta bu yüzden çoğu öğrencim özel ders alıyor ve kurslara gidiyor.” (Ö32)

Yukarıda Ö19, Ö20 ve Ö32’nin bahsettiği üzere derslerinde beceri temelli sorulara ağırlık verememe nedenlerinin en başında “zamanın yetersizliği” gelmektedir. Soruların uzun ve komplike yapısı çözülmesi için zaman gerektirmektedir. Bunun dışında öğretmenlerden Ö20 kodlu, davranış karekter eğitiminin önemini vurgulamış, kendisinin bu konulara da önem verdiğinin altını çizmiştir.

Beceri Temelli Soruları Öğretirken Karşılaşılan Zorluklara Yönelik Öğretmen Görüşleri

Aşağıda araştırmanın üçüncü sorusu olan, öğretmenlerin beceri temelli sorularla karşılaştıkları zorluklara ilişkin ifadeler Tablo 4’te kodlanarak öğretmen sayılarıyla birlikte verilmiştir.

Tablo 4. Öğetmenlerin beceri temelli soruları öğretirken karşılaştıkları zorluklara ilişkin bulgular

Kod	Öğretmenler	f
Öğrencilerin okuduklarını anlama ve yorumlamada zorlanması	Ö2, Ö4, Ö5, Ö6, Ö7, Ö8, Ö9, Ö15, Ö16, Ö18, Ö19, Ö21, Ö24, Ö26, Ö28, Ö30, Ö31, Ö32	18
Sorular uzun ve anlamanın zaman alması	Ö1, Ö3, Ö9, Ö13, Ö14, Ö17, Ö20, Ö22, Ö23, Ö26, Ö27	11
Sınıflarda seviye farklılığının olması	Ö1, Ö4, Ö10, Ö11, Ö25, Ö29	6
Öğrencilerin önyargılarının olması	Ö12, Ö20, Ö21, Ö24, Ö27	5
Öğrencilerin motivasyonun düşük olması	Ö1, Ö14, Ö19, Ö22	4

Tablo 4 incelendiğinde öğretmenlerin, beceri temelli soruları öğretme sürecinde karşılaştıkları problemler 5 ana kod altında toplanmıştır. Bunlar: öğrencilerin okuduklarını anlama ve yorumlamada yaşanan zorluklar (f=18), sorunun çok uzun ve zamanın kısıtlı olması (f=11), sınıf içindeki öğrenci seviye farklılıkları (f=6) , öğrencilerin sorulara karşı önyargılı olması (f=5) ve öğrencilerin odaklanmakta zorlanması yani motivasyon düşüklüğü (f=4). Öğretmenlerin çoğunluğu (f=18), öğrencilerin beceri temelli soru çözümünde en çok okuduğunu anlama ve yorumlama kısmında zorluk yaşadığını belirtmiştir. Hatta öğrencinin işlem yeteneği iyi olsa bile soruyu anlamlandırmadığından ötürü matematiksel işleme dökememektedir. Aşağıda bu öğretmenlerden bazılarının görüşlerine yer verilmiştir.

> *"Çocukların konu eksikleri olduğunda önce onları tamamlayıp sonra yeni nesil sorulara alıştırmak zor olabiliyor. Çocuklar soruları anlayamıyor, okuduklarını anlamıyorlar ve çözüm yolu geliştiremiyorlar."* (Ö4)

> *"Okuma ve anlama kısmında çok zorluk yaşanıyor. Öğrenci matematik işlemlerinde çok iyi olsa da soruyu anlamlandıramadığı için çözemiyor. Günlük hayat ile bağlantılı sorularda bu bağlantıyı kuramıyor."* (Ö8)

> *"Öğrenciler fazla kitap okumadıkları için okuduklarını anlayıp işleme dökmekte zorluk çekiyorlar. Soruların çözümleri genellikle uzun zaman alıyor."* (Ö9)

> *"Noktalama işaretlerine bakılmadan sorunun okunması ve yanlış anlaşılması, soru biraz hikayeleştirilmiş ise sorunun uzunluğundan korkma, şekil karşılarına çıkınca hayal kuramama gibi sorunlarla karşılaşıyorum."* (Ö21)

> *"Beceri temelli matematik sorularında karşılaştığım zorluklardan biri "okuduğunu anlama" sorunudur. Öğrencilerimin gerek kitap okuma geçmişinin az olması, gerek göz tembelliklerinin olması ve teknoloji çağı öğrencileri olmaları nedeniyle okuduklarını anlamakta sıkıntı çektiklerini gözlemliyorum. Beceri temelli soruların okuma anlama üzerine kurulu sorular olduğu aşikar bu nedenle beceri temelli sorular çözerken ilk olarak okuduğunu anlama sorunu ile karşılaşıyorum. Diğer karşılaştığım sorunlardan biri ise aktarma sorunudur. Bilişsel olarak öğrencinin uygulama basamağına geçemediğini gözlemliyorum. Duyuşsal olarak ise aktarma kısmında takılı kalıyor. Çünkü bu becerilerin bir anda değil küçüklükten beri geliştirilmesi gerektiğine inanıyorum."* (Ö30)

Öğretmenler soruların uzun olmasından ötürü de okuduğunu anlamlandırmanın zor olduğu eleştirisinde bulunmuşlardır. Soruların uzun olması ayrıca sınıf içinde bazı öğrencilerin dikkatinin dağılmasına ve derse olan ilginin azalmasına sebep olmaktadır. Sınıf mevcutları yüksek olan devlet okullarında sınıfların kalabalık ve öğrenci seviyeleri arasındaki faklılıklar beceri temelli soruların çözümünün sınıf içinde daha da zorlaştığını ifade edilmiştir. Özellikle bazı çocuklar soruları çözebiliyorken bazısı çözemediğinde soruları çözemeyen çocukların çözmeyi bıraktığı ve sorulara karşı önyargı geliştirdiği görülmüştür.

> *"Uzun sorular olduğu için tüm sınıfın dikkatini ve ilgisini yeterli düzeyde tutmak zorlayıcı olabiliyor."* (Ö22)

> *"Sınıflar kalabalık olduğu ve öğrenciler arası öğrenme farklılıkları bulunduğu için yeni nesil sorulara geçiş zor."* (Ö25)

> *“Her öğrenci aynı bilgi birikimine ve muhakeme gücüne sahip olmuyor. Sınıflar kalabalık ve seviye farklılıkları çok oluyor. Bu yüzden iyi bir temel oluşturmalı ve öğrenci seviyelerini olabildiğince birbirine yakın hale getirmek gerek”* (Ö29)

Öğretmenlerin beceri temelli soruları öğretme sürecinde yaşadıkları zorluklar birbirine yakın ve ilişkilidir. Öğrencinin öğrenme aşamasında soruyu okuyarak anlamlandırması önem arz etmektedir. Sınıf içindeki seviye farklılıkları öğretme aşamasında öğretmenlere büyük zorluk çıkarmaktadır. Ve sınıf içinde soruları çözmekte zorlanan öğrenciler sınıf dinamiğini olumsuz etkilemektedir.

Beceri Temelli Soruları Çözerken Karşılaşılan Zorlukların Çözümüne Yönelik Öğretmen Görüşleri

Yukarıda bahsi geçen zorluklar karşısında akıllara öğretmenlerin bu zorluklarla nasıl başa çıktığı sorusu gelmektedir. Aşağıda araştırmanın dördüncü sorusu olan, öğretmenlerin beceri temelli sorularda kaşılaştıkları zorlukları nasıl çözüm ürettiklerine ilişkin ifadeler Tablo 5’te kodlanarak verilmiştir.

Tablo 5. Beceri temelli soruları çözerken karşılaşılan zorluklarlara yönelik çözüm önerilerine ilişkin bulgular

Kod	Öğretmenler	f
Günlük hayatın içinden örnekler vererek somutlaştırmak	Ö7, Ö8, Ö9, Ö11, Ö19, Ö22, Ö25, Ö28	8
Kitap okuma alışkanlığı edindirmek	Ö4, Ö9, Ö10, Ö14, Ö24, Ö25,	7
Soruları basitten zora çözmek	Ö3, Ö4, Ö13, Ö14, Ö20, Ö32	6
Problemi sade bir dille açıklamak	Ö5, Ö9, Ö15, Ö17, Ö21	5
İpucu ve pekiştireç vermek	Ö6, Ö8, Ö23, Ö24, Ö29	5
Şema ve tablolarla görselleştirmek	Ö7, Ö16, Ö27, Ö29	4
Bol soru çözmek	Ö2, Ö4, Ö12	3
Hazırbulunuşluklarına göre eksikliklerini gidermek	Ö1	1

Tablo 5’de görüldüğü üzere öğretmenler en çok günlük hayatla soruları bağdaştırma ve örnekler vererek çocuğun zihninde problemi somutlaştırma (f=8), öğrencilerin okuduklarını daha iyi anlaması için kitap okumaya teşvik etme (f=7), soruları basitten karmaşığa çözme (f=6) metodlarını benimsemişlerdir. Bunlarla birlikte bu tarz soruların çözümünde şemalar ve tablolarla görselliği arttırma (f=4), problemi sadeleştirererek öğretmenin problemi açıkladığını (f=5) veya ipuçları pekiştireçlerle (f=5) öğrenciye buldurmaya çalıştığını görüyoruz. Aşağıda öğretmenlerin zorluklara çözüm yolarıyla ilgili açıklamalarına yer verilmiştir.

“Öğrencilerime daha çok kitap okumalarını öneriyorum. Ders esnasında soruyu çözerken nelere dikkat etmemiz gerektiğini öğretiyorum. Soruyu önce okuyup soruda yazanları tablo haline getirmek gibi.” (Ö9)

“Sorun aslında bazı çocukların sorulara çaba göstermemesi olarak nitelendirilebilir. Bende bunu bazen ufak ödüller ile pekiştirip katılımı arttırmayı hedefliyorum.” (Ö23)

“Öğrencilerin okuduğunu anlamaları için ilgilerini çekebilecek kitap önerilerinde bulunuyorum. Bu kitaplardan bir çoğu da matematiksel kitaplar oluyor. Bundaki amacım hem matematiğe karşı merak duygularını arttırıp ön yargılarını kırmak hem de okuduğunu anlama becerilerini güçlendirmek. Derste çözeceğim yeni nesil sorularda soruları özellikle inceleyerek seçiyorum ve öğrencilerin seviyelerine yönelik sorular koymaya dikkat ediyorum çünkü başarı duygusunu tadarak ön yargılarını yıkmaya çalışıyorum. Matematiksel düşünmelerini arttıracak birkaç tane üst düzey soruya da mutlaka yer veriyorum. Zorlandıklarında ipuçları vererek sorunun çözülmesini sağlıyorum.” (Ö24)

“Soruyu çözmek için soruları şemalarla, tablolarla görselleştirmeye çalışıyorum. Böylece konu ya da problem zihinlerinde somutlaştırılmış oluyor.” (Ö27)

“Sorularda önemli noktalarla ilgili ipuçları veriyorum. Matematik sorularının sistematik çözülmesinin önemine vurgu yapıyorum. Soruda fazla veri varsa soruyu okurken tablo veya şemalar oluşturuyorum. Bazen öğrenciye soruyu okuduktan sonra soruyu kendi cümleleriyle anlatmasını istiyorum. Tüm bunların öğrenciler için bu tarz soruların çözümünde çok yararlı olduğunu gördüm.” (Ö29)

“Bahsettiğim sorunlardan ‘okuduğunu anlama’ ile ilgili öğrencilerime kitap okumalarını öneriyorum. Onlara ilgi çekici hikaye metinleri veriyorum. Derslerimde okuma hızlandırıcı etkinlikler ve dikkat etkinlikleri yapıyorum. Diğer bahsettiğim sorun için ise öğrencilerime ders sonlarında ‘Yansıtıcı Günlük’ yazdırıyorum ya da bir sonraki derse gelmeden rapor yazdırıyorum. Ders sonrasında ailelerine konuyu anlatmalarını istiyorum.” (Ö30)

“Muhakkak konunun temelinin iyice oturmuş olması gerektiğini düşünüyorum. Bu yüzden kazanım düzeyinde sorular çözdürerek başlıyorum. Daha sonra kademeli olarak soru zorluğunu arttırıyorum. Ve beceri temelli sorulara öyle geçiyorum. Soru çözümünde de okuduğunu anlamak çok önemli öğrenci soruyu okurken önemli noktalarla ilgili ipuçları veriyorum.” (Ö32)

Öğretmenlerin öğrencilerine kitap okuma alışkanlığı kazandırmaya çalıştığı aşikardır. Bol bol soru çözdürerek öğrencilerin farklı yöntemler geliştirmelerini sağlamaya çalışmaktadır. Ayrıca öğretmenler öğrencilerin motivasyonunu yüksek tutmaya ve matematiksel başarıyı tattırmak amacıyla soruyu kendi çözmek yerine öğrencinin çözmesini sağlamayı amaçlamaktadır.

Beceri Temelli (Yeni Nesil) Matematik Sorularının Öğrencilerin Matematiği Öğrenmesine Katkısına Yönelik Öğretmen Görüşleri

Aşağıda Tablo 6'da beceri temelli matematik sorularının öğrencinin matematiği öğrenmesine katkıları sorulduğu beşinci soruya ait öğretmen görüşleri yer almaktadır. Araştırmaya katılan 28 matematik öğretmeni beceri temelli soruların matematik öğrenmeye katkısı olduğunu savunurken 4 matematik öğretmeni bir katkısı olmadığını belirtmiştir.

Tablo 6. Beceri temelli (yeni nesil) matematik sorularının öğrencilerin matematiği öğrenmesine katkısına ilişkin bulgular

	Kod	Öğretmenler	f
Var	Anlamlı öğrenmeyi sağlar	Ö1, Ö3, Ö6, Ö7, Ö12, Ö16, Ö17, Ö19, Ö21, Ö22, Ö23, Ö28, Ö29, Ö30, Ö31, Ö32	16
	Üstbilişsel becerilerin gelişmesini sağlar	Ö8, Ö9, Ö18, Ö20, Ö24, Ö26, Ö27	7
	Çocukları pekiştirerek çalışma motivasyonunu arttırır	Ö14, Ö25	2
	Matematik temelini güçlendirerek bilgiyi derinleştirir	Ö5, Ö15	2
	Farklı bakış açıları kazandırır	Ö4	1
Yok	Matematik bilen çocuğu geliştiriyor, bilmeyene pek katkısı yok	Ö2, Ö10, Ö11, Ö13	4

Tablo 6'da görüldüğü üzere beceri temelli matematik soruları çözmenin matematik öğrenmeye katkısı olduğunu düşünen öğretmenler %87,5'tir. Katkısı olduğunu düşünenlerden çoğunluğunun (f=16) farklı cümlelerle ifade etmiş olsalarda verdikleri cevaplardan, beceri temelli soruların gerçek hayatla ilişkilendirilebilir olması matematikte anlamlı öğrenmeyi sağlar sonucu çıkarılmaktadır. Ezbere çözüm yapmak yerine anlamlı öğrenme, matematik öğrenme sürecinin önemli bir parçasıdır. Ayrıca beceri temelli soruların matematik öğrenmeye katkısı olduğunu düşünen öğretmenlerden (f=7) soruların üstbilişsel becerileri geliştirdiği ve temel bilgiyi daha da derinleştirdiği görüşündedir. Aşağıda bu görüşlere yer verilmiştir.

> *"Geleneksel soru çözüm yöntemlerinin öğrenciyi kolaya alıştırdığını formülü bilenin soruyu yaptığını düşünüyorum oysa ki bu tarz sorularda zekaya ve mantık yürütmeye dayalı olmasından dolayı daha çok efor sarfetmek gerekiyor."* (Ö6)

"Bazı soru örneklerinin 'günlük hayatta matematik nerede?' sorusuna karşılık gelmesi matematik dersini somutlaştırdığını düşünüyorum." (Ö19)

"Ezbere değil anlamlı öğrenmeye ve çok boyutlu düşünmeye katkısı olduğunu düşünüyorum." (Ö22)

"Konunun temel kavramlarını ve kurallarını kazanım düzeyinde anladıktan sonra öğrencilerin üst düzey düşünme becerilerini geliştirirken konunun günlük yaşamla ilişkilendirilmesini sağladığını düşünüyorum." (Ö24)

"Matematiği gerçek hayatla ilişkilendirdiği için matematiğe karşı motivasyonu artacak bu da öğrenmesine katkı sağlayacaktır." (Ö25)

"Öğrencilerin matematiği öğrenmesinde katkısının yanısıra öğrencilerin matematiği anlamasında katkısı olduğunu düşünüyorum. Yani artık ezber yapıp öğrenmek yerine mantığını kavrayarak öğrenciler matematiğe karşı tutumlarını değiştirebilir. Bu nedenle matematik eğitimlerine eğer ilkokuldan itibaren beceriler doğru geliştirilirse olumlu katkısı olacağını düşünüyorum." (Ö30)

Öğretmenler en çok ezber yapmadan soru çözümüne ve gerçek hayatla ilişkilendirilebilir olmasına vurgu yapmıştır. Yani soruların çözümü için anlamlı öğrenmenin gerçekleştirilmesi gerekmektedir. Bu da beceri temelli soruların matematik öğrenmeye katkısını gösterir. Tam tersi soruların matematik öğrenmeye katkısının olamadığını söyleyen öğretmenler de (f=4, %12,5) vardır. Beceri temelli soruların matematik öğrenmeye katkısının olmadığını düşünen öğretmenlerin görüşlerinin nedenlerine aşağıda yer verilmiştir.

"Pek bir katkısı yok, belki üst düzey öğrenci için olumlu ama çok büyük oranda korku had safhada öğrencide. Kazanım öğrenmeden yeni nesil soru çözmeye çalışıyor bir çoğu aslında çözemiyor..." (Ö2)

"Yeni nesil matematik sorularının matematik öğretiminden daha çok matematik bilen öğrencilerin bu konuda daha uzmanlaşmasını sağlıyor yani temel matematik becerilerini öğrenemeyen öğrencilerin yeni nesil soruları öğrenmesi ve bunun ona bir katkı sağlayacağını sanmıyorum." (Ö11)

"Matematiği öğrenme aşamasında bir katkısı olduğunu düşünmüyorum ancak konu anlatılıp öğrenci konuyu öğrendikten ve daha sonra üstüne kazanım düzeyinde sorular çözüldükten sonra yani kısaca konunun temeli oturduktan sonra daha iyi anlaşılması ve üst bilişsel becerilere geçilmesinde katkı sağlamaktadır. Fakat bu noktada gerçekten üst bilişsel becerileri ölçen beceri temelli sorular seçilip çözdürülmelidir." (Ö26)

Beceri temelli soruların katkısı olmadığı görüşündeki öğretmenler soruların sadece matematiği bilen, konuyu iyi öğrenip kavramış ve üst düzey düşünme becerisi olan çocuklar tarafından çözüldüğünü ifade etmiştir. Matematik bilmeyen çocuğun zaten çözemediği ve daha da matematikten korktuğu görüşündedir. Dolayısıyla bilmeyen çocuğa bir şey katmadığı için matematik öğrenimine de bir katkısı yoktur.

Beceri Temelli (Yeni Nesil) Matematik Sorularının Öğrencilerin Becerilerine Katkısına Yönelik Öğretmen Görüşleri

Beceri temelli sorular adından da anlaşıldığı üzere bazı becerileri geliştirmeye yardımcı olmalıdır. Öğretmenlere beceri temelli soruların hangi becerileri ortaya çıkardığı sorulmuştur. Alınan cevaplar Tablo7'de kodlanarak gösterilmiştir.

Tablo 7. Beceri temelli (yeni nesil) matematik sorularının öğrencilerin beceri gelişimine katkısına ilişkin bulgular

Kod	Öğretmenler	f
Analitik düşünme	Ö1, Ö4, Ö5, Ö8, Ö11, Ö12, Ö17, Ö18, Ö21, Ö22, Ö24, Ö25, Ö26, Ö27, Ö29, Ö31	16
Okuduğunu anlama ve yorumlama	Ö3, Ö6, Ö7, Ö8, Ö9, Ö10, Ö12, Ö15, Ö18, Ö19, Ö27, Ö29, Ö32	13
Problem çözme becerisi	Ö9, Ö15, Ö16, Ö22, Ö24, Ö25, Ö28	7
Farklı açılardan bakabilme	Ö2, Ö11, Ö13, Ö25	4
Odaklanma	Ö17, Ö19, Ö20	3
Yaratıcı düşünme	Ö8, Ö23	2
Eleştirel düşünme	Ö16, Ö32	2
Bilişsel, duyuşsal ve devinişsel beceriler	Ö30	1

Tablo 7 incelendiğinde öğretmenler analitik düşünme becerisi (f=16) ile okuduğunu anlama ve yorumlama (f=13) becerilerini geliştirdiği görüşlerinde çoğunluktadır. Öğretmenlere göre beceri temelli sorular rutin olmayan problem oldukları için öğrenciyi ezbercilikte uzaklaştırıyor ve öğrencide akıl yürütme, ilişkilendirme gibi analitik düşünme becerisini geliştiriyor. Bazı öğretmenler (Ö8, Ö12, Ö18, Ö27 kodlu) bahsi geçen her iki beceriyi de geliştirdiği görüşündedir. Tabloya bakıldığında benzer başka durumlar da vardır. Öğretmenler tek bir beceriden ziyade birkaç beceri üzerinde durmuştur. Örneğin Ö9 soruların okuduğunu anlam ile birlikte problem becerisini de geliştirdiğini söylemiştir. Ö17 analitik düşünme becerisini geliştirmekle birlikte odaklanmayı da geliştirdiğini belirtmiştir. Öğretmenlerin görüşleri aşağıda aktarılmıştır.

> *"İyi ve düzenli çalışanlar için yorum ve farkındalık oluşturuyor, ama diğerleri için korku ve kendine güvensizlik oluşturmuş durumda, bir çoğu için matematik bitti..."* (Ö2)

“Ben içinde bulunduğumuz çağın getirdiği bilgiye kolay ulaşabilme durumundan dolayı öğrencilerin soruyu çözmek için geleneksel sorulara göre daha fazla çaba sarf ettiğini görüyorum ve bu birazcık da öğrencileri ezbercilikten kurtarıyor.” (Ö5)

“Yaratıcı düşünme, ilişkilendirme, disiplinler arası bağlantı kurmaya, okuma-anlama becerilerini geliştireceğini düşünüyorum.” (Ö8)

“Okuduğunu anlama becerisi, problem çözme becerisi, verileri yorumlama becerisi, verileri tablo haline getirme becerisi, kazandırıyor.” (Ö9)

“Analitik düşünme becerisini geliştiriyor, düzenli çözdüklerinde dikkat dağınıklığına iyi geldiğini de düşünüyorum.” (Ö17)

“Üst düzey düşünme becerileri, problem çözme, modelleme, ilişki ve bağlantı kurma, mantıklı çıkarımlar yapma, muhakeme becerisi, gerçek yaşamla matematik arasındaki ilişkiyi anlamlandırma gibi becerilere katkı sağladığını düşünüyorum.” (Ö24)

Yukarıdaki bulgular ışığında beceri temelli soruların bazı becerilerin gelişmesinde katkısı olduğunu söyleyebiliriz. Hatta bir çoğu tek bir beceriden ziyade birkaç beceriyi geliştirdiği görüşündendir. Ö30 kodlu öğretmen beceri temelli soruların bilişsel becerilerin yanında duyuşsal ve devinişsel becerileri de geliştirdiğini savunmuştur. Kimi öğretmen ise sadece soruyu çözebilenler için becerileri geliştirdiği noktasına vurgu yapmıştır.

Beceri Temelli (Yeni Nesil) Matematik Sorularının Öğrencilerin Günlük Hayatlarına Katkısına Yönelik Öğretmen Görüşleri

Beceri temelli soruların öğrencilerin günlük hayatlarına ne katkısı olduğu sorusunu öğretmenlere yönelttiğimizde elde edilen veriler aşağıda Tablo8’de kodlanarak belirtilmiştir.

Tablo 8. Beceri temelli (yeni nesil) matematik sorularının öğrencilerin günlük hayatlarına katkısına ilişkin bulgular

Kod	Öğretmenler	f
Günlük hayatta karşılatığı problemlere çözüm üretmesini sağlaması	Ö2, Ö3, Ö5, Ö10, Ö11, Ö12, Ö14, Ö17, Ö19, Ö20, Ö21, Ö27, Ö29, Ö30	14
Farklı çözüm yollarının farkedilmesini sağlaması	Ö9, Ö13, Ö26, Ö28, Ö29	5
Bilişsel becerilerini geliştirmesi	Ö1, Ö7, Ö8, Ö32	4
Pratik düşünmeyi sağlaması	Ö7, Ö18, Ö24	3
Eleştirel düşünmeyi sağlaması	Ö4, Ö23	2
Sabırlı olmayı sağlaması	Ö6, Ö31	2
Karar almasını olumlu yönde etkilemesi	Ö24	1

Çok katkısı yok	Ö15, Ö25	2

Tablo 8'de görüldüğü üzere katkısı olduğunu düşünen öğretmen sayısı 30 (%93,75) iken çok katkısı olmadığını düşünen öğretmen sayısı da 2 (%6,25) dir. Tablo 8'den de anlaşıldığı üzere beceri temelli soruların günlük hayata en büyük katkısı karşılaşılan gerçek hayat problemlerine öğrenciyi hazırlamak ve problemlere çözüm üremesini sağlamaktadır (f=14) görüşüdür. Bunun dışında öğrencilere farklı çözüm yollarını farkettirebilmeyi sağladığı (f=5) yönünde görüşler de vardır. Öğretmenler günlük hayat içinde kullandığımız pratik (f=3) ve eleştirel düşünmenin (f=2) de bu soru stiliyle kazandırılabileceği görüşündedir. Aşağıda görüşlerin bazılarına yer verilmiştir.

> *"Yeni nesil öğrencilerinin düz mantıkla yetiştiklerini onlar için her seyi düşünen velilerinin olduğunu biliyoruz. Bu tarz sorulara alışan çocuklar bu düz mantıktan kurtulup günlük hayattaki sorunlarını da çözmeye katkısı olacağını düşünüyorum."* (Ö2)

> *"Sakin, adım adım, sabırla çözüme ulaşılabileceğini anlayıp yaşam tarzı edinmelerini umuyorum."* (Ö6)

> *"Çoğu öğrencinin ilişkilendirmesi ya da günlük hayatta matematiğin nerelerde kullanıldığına dair bir fikirleri oluşmuyor . Mesela bir kapının boyunu sorduğunda 10 m diyebiliyor. Beceri temelli sorular günlük hayatla ilişkilendirilerek öğrencinin somutlaştırmasına yardımcı olucaktır."* (Ö20)

> *"Soyut kalan bazı matematik konularının somutlaştırılmasına daha anlaşılabilir hale getirilmesine ve matematiğin gerçek yaşam içinde kullanılabilirliğinin öğrenci tarafından farkedilmesine fayda sağladığını düşünüyorum."* (Ö27)

> *"Sayısal zekası gelişmiş bir insan araba kullanmaktan yemek yapmaya bir çok günlük hayat becerisini geliştirmiş olur. Gerçek hayatta karşılaştığı problemlere daha kolay çözüm bulur. Farklı bakış açılarıyla olayları değerlendirebilir."* (Ö29)

> *"Matematiksel düşünme, analitik düşünme, problem çözebilme kavramlarına aşinasınızdır. Bu kavramların sizlerde çok iyi gelişmiş olduğunu düşünün, günlük hayata katkısı ne olurdu? İşte bu sorunun yanıtı aynı zamanda beceri temelli matematik sorularının günlük hayata katkısının neler olabileceğinin yanıtıdır. Karşınıza çıkan problemlerle baş edebilirsiniz bu bağlamda stres düzeyini düşük olur, Karşınıza çıkan olayların arasında bağlantı kurabilirsiniz ve hayatınız kolaylaşır, matematiksel düşünme ile var olan durumu analiz edersiniz ve sonraki adımlarınızı emin atarsınız. Bu ve bunun gibi birçok katkıdan bahsedilebilir."* (Ö30)

Beceri temelli soruların geliştirdikleri bir çok beceri sayesinde günlük hayattaki işlerin kolaylaşabileceği ve hayatı olumlu olarak etkileyebileceği görülmektedir. Öyleki öğretmen görüşlerine göre bu soru stili daha sabırlı olmayı (f=2) ve düzgün kararlar almayı (f=1) da etkilemektedir. Çok katkısı olmadığı görüşündeki öğretmenlerin oranı %6,25 (f=2) tir. Çok katkısı olmadığını düşünme nedenleri ise aşağıda görüşleriyle verilmiştir.

> *"Çok katkısı yok çünkü bazı soruların sırf konuyla ilgili soru yaratmak için yazıldığını düşünüyorum."* (Ö15)

> *"Hayır, gündelik hayat daha basittir, karmaşık ve farkındalık pek yoktur ergen için, bu yüzden katkısı sınırlıdır."* (Ö25)

Açıklamalardan anlaşılacağı üzere öğretmenler soruların gerçek hayattan uzaklaştığı ve fazla zor sorulardan oluştuğu görüşündedir. Sorular gerçekten gerçek hayatı karşılar nitelikten oluşturulursa bu probleme çözüm olunabilir.

Beceri Temelli (Yeni Nesil) Matematik Soru Çözümünde Faydalanılan Kaynaklar ve Materyallere Yönelik Öğretmen Görüşleri

Tablo 9'da öğretmenlerin beceri temelli soru çözümünde faydalandıkları kaynak ve materyallere yer verilmiştir.

Tablo 9. *Beceri temelli (yeni nesil) matematik soru çözümünde faydalanılan kaynaklar ve materyallere ilişkin bulgular*

Kod	Öğretmenler	f
Beceri temelli (yeni nesil) sorular içeren kaynak kitap, deneme ve testler	Ö1, Ö3, Ö7, Ö8, Ö10, Ö12, Ö13, Ö14, Ö16, Ö17, Ö18, Ö20, Ö21, Ö22, Ö23, Ö24, Ö28, Ö29, Ö30, Ö31	20
MEB'in yayınladığı beceri temelli matematik örnek sorular	Ö6, Ö9, Ö10, Ö11, Ö20, Ö25, Ö26, Ö29	8
Matematikle ilgili internet siteleri	Ö3, Ö7, Ö17, Ö19, Ö27,	5
Akıllı tahta, z kitaplar	Ö2, Ö4, Ö11, Ö15	4
Geçmiş yılların çıkmış LGS soruları	Ö9, Ö25, Ö32	3
ALES soruları	Ö23	1

Tablo 9'da görüldüğü üzere öğretmenler sınıf ortamında daha çok kaynak kitap, denemeler ve testlerden (f=20) yararlanmaktadır. MEB'in beceri temelli matematik örnek sorularını (f=8), geçmiş yılların LGS (f=2) ve ALES (f=1) sorularını çıktı alarak sınıflarında çözdüklerini söylemişlerdir. Beceri temelli sorular için teknolojiden de yararlanılmaktadır. İnternet siteleri (f=5), matematik programları, akıllı tahta ve z kitaplar (f=4) öğretmenlerin başlıca teknolojiden yararlandıkları kaynaklardır.

> *"Geogebra, canva, üç boyutlu şekiller ve bazı ilgi çekici matematik kitapları, çok sayıda materyallere ulaşabildiğim internet siteleri. Yeni nesil matematik kitapları(fenomen, kafa dengi, sinan kuzucu tarzı yayınlar."* (Ö3)

"Piyasadaki tüm yayın evlerini araştırıp kitaplarından faydalanıyorum. Ayrıyeten aplikasyonlardan da yararlanıyorum." (Ö5)

"Geçmiş yılların çıkmış LGS sorularını ve MEB tarafından yayınlanan soruları çözdürüyorum." (Ö9)

"Öncelikle Milli Eğitim Bakanlığı'nca yayınlanan örnek soruları dikkate alıyorum bunların yanında da birçok yayının z kitap uygulamalarını kullanıyorum." (Ö11)

"Eba, morpa kampüs, fenomen yayınlarından faydalanıyorum. Olabildiğince Web 2.0 araçlarını kullanmaya özen gösteriyorum." (Ö19)

"ALES soruları, mantık soruları, çeşitli yayın kitapları…" (Ö23)

"Beceri temelli matematik soruları için devlet kaynaklarından beceri temelli testlerden yararlanıyorum. Özel kaynaklardan beğendiğim birkaç yayınevinden yararlanıyorum." (Ö31)

Öğretmenler genel olarak tek bir kaynaktan hareket etmemekte farklı kaynakları harmanlayarak bir arada kullanmaktadır. Kaynaklarında MEB'in yayınladıklarını baz almaktadır ve kaynak kitapları da buna göre seçmektedir. Ders işleyişini öğrencilere daha ilgi çekici hale getirmek için de matematikle ilgili eğitici sitelerden faydalanmaktadırlar.

Beceri Temelli (Yeni Nesil) Matematik Sorularıyla İlgili Milli Eğitim Bakanlığı'ndan Yapılması İstenen Düzenlemelere Yönelik Öğretmen Görüşleri

Öğretmenlere son olarak Milli Eğitim Bakanlığı'nın yapmasını istedikleri beceri temelli sorularla ilgili düzenlemeler sorulmuştur. Tablo 10'da elde edilen veriler gösterilmiştir.

Tablo 10. *Beceri temelli (yeni nesil) matematik sorularıyla ilgili Milli Eğitim Bakanlığı'ndan yapılması istenen düzenlemelere ilişkin bulgular*

Kod	Öğretmenler	f
Sınavlarda soruların zorluk seviyesi orantılı dağılmalı	Ö2, Ö3, Ö9, Ö12, Ö19, Ö20, Ö22, Ö25, Ö28	9
Sorular daha anlaşılabilir bir dille yazılmalı	Ö1, Ö11, Ö15, Ö16, Ö18, Ö29	6
MEB ders kitapları güncellenmeli ve soru sayısı arttırılmalı	Ö7, Ö10, Ö13, Ö14, Ö24, Ö31	6
Daha üstbilişsel becerileri ölçebilmeli	Ö15, Ö17, Ö27, Ö32	4
Sorular görünüş olarak göz korkutucu olmamalı	Ö6, Ö16, Ö18	3
Daha ilgi çekici hale getirilebilir	Ö5, Ö23	2
Seçmeli ders açılabilir	Ö25, Ö26	2
Müfredatta düzenlemeler yapılmalı	Ö8, Ö30	2

Beceri temelli sorular lise düzeyinden başlatılmalı	Ö4	1
Geliştirilebilir/eklenebilir soru havuzu olabilir	Ö21	1

Tablo 10 incelendiğinde araştırmaya katılan öğretmenlerin Milli Eğitim Bakanlığı'ndan beceri temelli sorularla ilgili istediği düzenlemelerde farklılıklar ortaya çıkmıştır. Bazı öğretmenler (f=9) soruların zorluğunu fazla bulduklarını öğrencilerin bir kısmını soruları çözemediğinden yakınmıştır. Bu yüzden soru zorluk seviyelerini kolay, orta, zor şeklinde eşit oranda dağıtmalarını istemektedir.

"Maalesef her öğrenci için yeni nesil düzeyindeki sorular yapılabilir nitelikte olmuyor. Yeni nesile karşı çok büyük bir önyargı var. Yeni nesil diye korkutucu sorularla değil de daha aşamalı sınavlar ve aşamalı şekilde yumuşak geçişler yapılabilir." (Ö3)

"Yeni nesil soruları yapabilen çocukları daha fazla geliştiriyor. Yapmakta zorlanan veya yapamayan çocuklar tamamen bırakıyor bu yüzden soruların zorluk dağılımı daha orantılı olmalı." (Ö9)

"Bazı sorular öğrencinin seviyesinin üzerinde olabiliyor. Lgs sınavına girecek öğrenciler için 5. Sınıftan itibaren yeni nesil soruları hayatlarına sokarak 8. Sınıfa daha iyi hazırlayabiliriz." (Ö19)

"Bazı beceri temelli soruları, gerçekten zor olsun istenirken sorunun zorluk seviyesinin fazla olduğu noktalar oluyor. Öğrenciler için zorluk seviyesinin daha doğru ayarlanması gerektiğini düşünüyorum." (Ö20)

"Bazı sorular öğrencinin sınıf seviyesinin çok üstünde oluyor öğrencinin bildikleriyle çözülemeyecek durumda olan sorular kaldırılmalı diye düşünüyorum zorlaştırmak adına öğrencide kafa karışılıklığına ve umutsuzluğa sebep oluyor." (Ö28)

Öğretmenler tarafından soruların anlatım diliyle de ilgili eleştiriler mevcuttur. Bu hususta hazırlanan soruların daha anlaşılabilir olması yönünde çalışmalar yapılması gerektiği (f=6) söylenmiştir. Ayrıca piyasadaki bazı yayın evlerinin hazırlamış olduğu soruların bu konuyla ilgili denetlenmesi görüşü de söylemler arasındadır. Bunun sebebi olarak öğrencilerin bu tarz sorulara mağdur kalıp ön yargı geliştirmeleridir.

"Bazı yeni nesil sorularda yazan kişinin neyi kastettiği öğrenciler tarafından anlaşılamayabiliyor. Daha sade bir dil kullanılarak daha net ifadelerin yer aldığı sorular yazılabilir. Bu soruların yanında yeni nesil etkinlikler altında öğrenciyi daha çok aktif kılan yaratma basamağına hitap eden etkinlikler oluşturulabilir." (Ö11)

“Bazı sorular ilk okumada anlaşılmıyor kesinlikle daha anlaşılır bir dil kullanılmalıdır. Hazırlanan sorular daha üst bilişsel becerileri ölçebilmelidir.” (Ö15)

“Soruların çözümlerini yaparlarken biraz daha sözel anlatım tercih etmesini ve çözümlerde biraz daha şablon kullanmalarını isterdim. Konu anlatımlarda da her matematiksel gösterimin parantez içinde nasıl okunduğunu ve sayfanın altında onun sözel anlatımını yapmasını isterdim.” (Ö16)

“LGS’de ve örnek sorularda daha sade ve anlaşılır paragraflar ve şekiller verilmesini isterim. Sadece soruyu yazanın anlayabileceği, öğrencilerin motivasyonunu düşürüp önyargısını arttıran sorular yazan yayınlara bir çözüm bulmasını isterim.” (Ö18)

Yukarıdaki açıklamalardan bazılarında beceri temelli soruların daha üstbilişsel basamakları da kapsayacak sorulardan oluşmasını (f=4) dile getirilmiştir. Milli Eğitim Bakanlığı’nın halihazırda var olan müfredatına yönelik de eleştiriler ve değişiklik istekleri (f=2) mevcuttur. Ayrıca öğretmenler (f=6) ders kitaplarının daha çok beceri temelli sorular için hazırlayıcı nitelikte olmasını ve soru sayılarının arttırılmasını istemektedir. Aşağıda bu görüşteki öğretmenlerin bazılarının söylemlerine yer verilmiştir.

“Müfredatı ve kitapları buna uygun hazırlamalarını istiyorum.” (Ö8)

“MEB ders kitaplarını bu sisteme yönelik güncelleyebilir ve kitaplarda bulunan yeni nesil soru sayısını arttırabilir.” (Ö10)

“Müfredat, müfredat, müfredat. Kesinlikle ilköğretim ile ortaöğretim arasında bağlantı kurulan küçüklükten itibaren becerilerin geliştirildiği sınıf kademeleri aralarında anlamlı bütün olan müfredat geliştirilmeli.” (Ö30)

Bazı önerilerde bulunan öğretmenler de olmuştur: beceri temelli soruları daha ilgi çekici hale getirmek (f=2), okullarda beceri temelli soru çözümü için isteyenlere seçmeli ders açmak (f=2), geliştirilebilir/eklenebilir soru havuzu oluşturmak (f=1) gibi.

“Kitaplar ve renkli broşürler hazırlanabilir. Posterler çıkarılıp okul panolarına asılabilir. Materyal desteği sağlanabilir.” (Ö5)

“Geliştirilebilir/Eklenebilir soru havuzları oluşturulmalı, bu soru havuzundan sorular seçerek kendi çalışma kağıtlarımızı hazırlayabilmeliyiz.” (Ö21)

“Genele değil özele hitap edebilir, seçmeli ders altında isteyene verilmeli, sınıflar kalabalık ve seviye düşük olunca ister istemez ayrışma başlıyor, kazanım ağırlıklı sorular çoğaltılmalı bence.” (Ö25)

“İlköğretim kademesinde beceri temelli soruları kapsayan seçmeli bir ders düzenlemesi yapılabilir.” (Ö26)

Yukarıda bulgulardan matematik öğretmenlerinin beceri temelli sorulara yönelik Milli Eğitim Bakanlığı’ndan beklentileri, istekleri ve önerileri özetlenmiştir. Daha çok yapılması beklenen düzenlemeler soruların zorluk derecesinin iyi belirlenmesi, daha anlaşılabilir bir dil kullanılması, soru görünüşünün sorunun içeriyle ilişkili olması yönündedir. Müfredatın, ders kitaplarının güncellenmesi de istekler arasındadır. Bunula birlikte öğretmenler beceri temelli soru çözümü için bazı önerilerde de bulunmuştur.

Tartışma, Sonuç ve Öneriler

Bu araştırmada öğretmenlerin beceri temelli matematik sorularına ilişkin görüşlerini ortaya çıkarmak amaçlanmıştır. Araştırmadan elde edilen bulgular neticesinde, beceri temelli (yeni nesil) matematik soruları hakkında ulaşılan genel kanıya göre bu soru stilinin çözümü için konuyu yalnızca bilgi düzeyinde bilmek yetersiz kalmaktadır. Öğrenilen bilgi, bir takım bilişsel süreçlerden geçirilmelidir. Bu bilişsel sürecin en başında kavrama, analiz etme ve uygulama basamakları yer almaktadır. Öğretmenlerin yapmış olduğu değerlendirmeye göre beceri temelli sorular geleneksel soru stiline kıyasla üstbilişsel becerileri geliştirmeyi ve ölçmeyi sağlamakta fakat Bloom Taksonomisi’nin daha üstbilişsel basamakları olan sentez ve değerlendirme basamağına yönelik sorulara pek rastlanmamaktadır. Alanyazıları incelendiğinde benzer bulgularla karşılaşılmıştır. Sanca, Artun, Bakırcı ve Okur (2021)’un yapmış olduğu çalışmada beceri temelli (yeni nesil) soruları ve bu soruların Yenilenmiş Bloom Taksonomisi’nde hangi basamaklara karşılık geldiği incelenmiştir. Bulgular sonucunda soruların daha çok alt bilişsel beceriler olan hatırlama, anlama ve uygulama düzeyinde olduğu sonucuna ulaşılmıştır. Bilişsel bilgi basamaklarından en çok anlama(%75,5) basamağında soru varken, yaratma basamağından hiç soru bulunmamıştır. Ders kitaplarındaki beceri temelli sorular üst düzey becerileri ölçmede yetersiz kalmakta ve daha çok alt düzey becerileri ölçebilmektedir (Biber ve Tuna , 2017; Us ve Güven, 2022). Yine de soruların günlük hayatla ilişkilendirilmiş olmasından ötürü anlamlı öğrenmeye çok büyük katkısı olduğu görüşü hakimdir. Bu soru stili sayesinde öğrenciler matematiğin günlük hayattaki pragmatikliğinin farkına varır. Matematiksel düşünme becerisi geliştirilir ve hayatla matematik arasındaki ilişkilendirmeyi yapar. Bunlar beceri temelli soruların öğrenciye olumlu katkılarıdır.

Öğretmenler, beceri temelli soruları nitelikleri bakımından değerlendirdiklerinde soruların uzun ve anlaşılmasınn güç olduğunu, bazı sorularda soru içeriğiyle soruda verilen resimlerin alakasız olduğu konusunda eleştirilerde bulunmuştur. Erden (2020)’nin “Türkçe, Matematik ve Fen Bilimleri Dersi Beceri Temelli Sorularına İlişkin Öğretmen Görüşleri” adlı nitel çalışmasında matematik öğretmenleri LGS sınavındaki beceri temelli soruları kazanımlarla uygun bulmadıklarını, soruların fazla uzun olduğunu ve öğrencilerin çözerken zorluk yaşadığını belirtmiştir. Kedikli ve Kantarcı (2022), matematik yeni nesil sorularındaki soruların içeriği ve sorunun görseli arasındaki ilişki üzerine yapmış olduğu çalışmada ortaokuldaki bazı yeni nesil soruların öğrencinin zihninde görselleştirilmesi için etkili olduğunu savunurken bazı sorulardaki görsellerin gereksiz veya soru içeriğinden farklılaştığına değinmiştir. Bu da soruların yapı geçerliliğini dolayısıyla kapsam geçerliliğini düşürmektedir.

Öğretmenlerden edinmiş olduğumuz bilgiler doğrultusunda beceri temelli soruların çözümüne ilişkin öğrencileri en çok zorlayan kısmın ‘okuduğunu anlama ve yorumlama’ olduğunu söyleyebiliriz. Okuduğunu anlama yalnızca Türkçe sorularında değil matematik sorularında da sorunun çözümünün gerçekleştirilebilmesi için önemli bir etkendir. Teknolojinin kucağına doğmuş bu yeni neslin, her şeyin hazırına alışmış olması ve yeni bir şeyler üretmeye karşı isteksizliği neticesinde okumaya ve kendini geliştirmeye çok da açık olmadığını söyleyebiliriz. Okumayan bir neslin okuduğunu anlamayı gerektiren sorularda başarısız olması çok muhtemeldir. Öğretmenler bu durumla baş edebilmek için öğrencilerine okuma alışkanlığı edindirmeye çalışmaktadır. Bununla birlikte beceri temelli soru çözümünde tek okuduğunu anlamak yeterli değildir. Problemi analiz edip matematiksel işlemlere dönüştürmek gereklidir. Nitekim öğretmenlerin sınıf içinde bu soruları çözebilmek için bazı yöntem ve teknikleri geliştirdiği sonucuna ulaşılmıştır. Somut örneklerle soruyu öğrenci zihninde anlaşılabilir kılma, gerçek hayatın içinden örnekler verme, soruyu basite indirgeme, şemalar ve görsel uyarıcılar gibi yöntemlerle öğrencinin soruyu çözmesine yardımcı olmaktadır. Sınıflarında akıllı tahta bulunan öğretmenler matematikle ilgili programlardan yardım alarak derslerini daha ilgi çekici bir hale getirmeyi amaçlamaktadır.

Beceri temelli soruların akademik anlamda daha başarılı öğrencileri daha çok motive edip başarısını arttırmaya teşvik ettiğini fakat soruları anlamakta zorlanan ve çözemeyen öğrencilerin tam tersi motivasyonunu düşürdüğü ve matematiğe karşı daha büyük bir ön yargı geliştirdiği ifade edilmiştir. Tortop ve diğerleri (2022), LGS sınavındaki beceri temelli matematik sorularına öğretmen görüşlerini araştırdıkları nitel çalışmada soruları yapabilen öğrencilerde bu soru stilinin matematiği daha çok sevdirdiğini, soruları yapamayan öğrencileri ise matematikten daha çok soğuttuğunu belirtmiştir. Bu sebepten ötürü soruların zorluk seviyesi orantılı olarak dağılım göstermesi önerilmektedir.

Öğretmen görüşlerinin incelenmesi sonucunda beceri temelli sorular için şu önerilerilerde bulunabiliriz:

- Farklı branş öğretmenleri işbirliğiyle çalışmalıdır. Özellikle öğrencilerin okuduğunu daha iyi kavrayabilmesi açısından matematik öğretmenleri Türkçe branş öğretmenleriyle birlikte çalışabilir.
- Çocukları küçük yaştan itibaren bu tarz soru stiline alıştırılmak için öğretim tekniklerini pasiflikten çıkarıp öğrencinin daha çok katılım gösterebileceği aktif öğrenme yöntemlerine başvurulabilir.
- Soruların ilgi çekiciliğini arttırmak açısından sorulara ilişkin daha fazla eğitici aplikasyon geliştirilebilir.

- Beceri temelli soru stilini yalnızca test usulü ölçme değerlendirme tekniğinden çıkarıp diğer ölçme değerlendirme teknikleriyle kullanarak daha üstbilişsel becerileri ölçebilecek sorular oluşturulabilir.
- Yeterli vakit olmamasından ötürü tüm kademelerde ekstra seçmeli dersler konulabilir. Ve bu seçmeli derste öğrenciler seviyelerine göre sınıflandırılabilir. Böylece öğrenciler arası seviye farkının en aza indirgenmesiyle daha efektif ders işlenebilir.
- Ders kitaplarındaki beceri temelli soruların nitelikleri ve soru sayısı arttırılabilir.

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Smart Production Technologies Used in the Clothing Industry

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Abstract

Smart manufacturing systems have begun to take place in many industries with numerous technological advances affecting different components of a product's value chain. These new technologies can enable temporal improvements and eliminate human errors, especially in decision-making processes. These innovations aim to enhance functionality, sustainability, and efficiency in clothing manufacturing. This overview highlights key smart production technologies and their applications in the clothing industry. This research paper includes examples of new technologies that have been used in clothing industry.

Keywords: Smart Technology, Clothing Industry, 3D Printing, 3D Garment Design, Artificial Intelligence, Machine Learning

INTRODUCTION

Manufacturing industries have a great impact on the development and economic growth of a country. Therefore, manufacturing processes must be open to constant change and must quickly adapt to new technologies to improve product efficiency and quality. Recently, a new technology has emerged in manufacturing industries, popularly known as "smart manufacturing" [1]. This technology accurately predicts product requirements and quickly identifies errors. In this way, manufacturing processes can be improved and as a result, products and services become newer. Currently, this technology can produce better outputs with less human intervention, which increases the quality and sustainability of manufacturing activities while simultaneously reducing their cost. Smart manufacturing processes are systems that minimize human errors, establish collaborative communication between machines and products (IoT - Internet of Things), and successfully receive customized instructions directly from customers [2]. This technology can make more accurate decisions in a short time by using smart devices and sensors in the production of goods with the decrease in the costs of sensor technologies. In general, smart manufacturing is the full integration and execution of all aspects of production processes by utilizing data-based understanding, reasoning and planning supported by advanced sensing, modeling, simulation and analytics technologies that respond in real time to constantly changing demands and conditions in the factory, supply network and customer needs [3]. The ultimate goal is to meet the needs for customized, smart and environmentally friendly goods and services [4].

The use of machine learning and cognitive computing in smart factories manages the real-time interaction between machines, humans, and the entire production system. Vast amounts of data are collected from the production process, product defects, customer reviews, market demands, and analytics, and better decisions are made to optimize production and efficiency. Moreover, cloud computing enables network-based data storage and data management that can be used for off-site analysis, and the results can be accessed by users via various mobile devices [5].

This study will provide examples of smart production systems that have been or may be used in the textile and apparel sector, an important sector for Turkey.

SMART PRODUCTION TECHNOLOGIES

Smart production refers to the use of digital technologies to optimize and automate production processes. It involves connecting machines, systems, and data to improve efficiency, quality, and flexibility. Smart production relies on key components such as automation, robotics, data analytics, and the Internet of Things (IoT) to enable real-time insights, predictive maintenance, and streamlined operations. These smart production technologies have some benefits;

- Increased Efficiency: Automation reduces manual labor, optimizes resource allocation, and streamlines production processes, leading to faster production cycles.
- Improved Quality: Precise control over machines and processes ensures consistent quality, minimizing defects and enhancing customer satisfaction.
- Reduced Costs: Automation lowers labor costs, minimizes waste, and optimizes resource utilization, resulting in significant cost savings.
- Enhanced Flexibility: Smart systems adapt to changing demands, enabling rapid response to market trends, new styles, and customized orders.

In the clothing industry, as in the rest of the manufacturing sector, there is no single best technical solution for the future. More than ever, this depends on finding the optimum combination of technology, organization and skills that will be suitable for the flexibility required by specific production schedules or market niches. Recent research in Germany shows that computer-aided machines are beginning to be used in the clothing industry [6]. The basic technologies in smart production for clothing can be grouped under the following headings:

- Integration of Electronics and Textiles: Smart textiles incorporate electronics such as sensors, actuators, and communication components directly into fabrics. This integration allows for functionalities like body monitoring, energy harvesting, and data transmission, transforming traditional garments into multifunctional smart clothing [7] [8] [9]
- Advanced Manufacturing Techniques: Techniques such as 3D printing, electrostatic spinning, and knitting are being used to create smart textiles. These methods enable the incorporation of electronic components into fabrics, offering flexibility and comfort while maintaining the garment's functionality [9] [10] .
- Artificial Intelligence and Big Data: AI and big data platforms are being utilized to optimize production scheduling and enhance customer interaction. These technologies help in managing complex production processes and tailoring products to meet specific consumer demands, thereby improving efficiency and customer satisfaction [11].

CONCLUSION

Smart manufacturing technologies hold significant promise for transforming the clothing industry by enhancing functionality, efficiency, and sustainability. While there are challenges to overcome, particularly in standardization and integration, ongoing research and development are paving the way for more widespread adoption of smart clothing technologies. As these technologies evolve, they are expected to offer innovative solutions across various applications, from healthcare to entertainment and beyond.

Challenges and Future Directions

Standardization and Usability: The lack of standardization in smart clothing technology poses challenges in terms of compatibility and usability. Establishing industry standards is crucial for ensuring the reliability and efficiency of smart garments [12].

Sustainability and Manufacturing: There is a growing emphasis on sustainable production methods and materials in smart textile manufacturing. The industry is exploring eco-friendly practices to minimize environmental impact while maintaining the functionality of smart clothing [8].

Integration and Complexity: The integration of complex electronic systems into textiles presents technical challenges, particularly in terms of durability and maintenance. Future research is needed to address these issues and improve the robustness of smart clothing [7] [11]

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Gold Mine in Textile and Leather Industrial Waste

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Abstract

After global warming and the search for a livable environment for the future came to the fore, scientific findings, data and new concepts began to gain importance. Green textiles, organic textiles, ecological, design for the environment, sustainability, carbon footprint, Life Cycle Assessment (LCA), Design for Sustainability (D4S) are among these new concepts.

In this study, in order to accurately evaluate the environmental impacts in textile and leather production, all processes that may generate waste will be reviewed and new symbiosis study examples that will be structured according to the waste produced will be presented.

Keywords: Waste Management, Clothing Industry, Symbiosis Production, Upcycle

INTRODUCTION

Today, the control of waste from various industries is an important issue due to its harmful impact on the environment, ecology and human well-being. For this reason, reuse and recycling of some wastes has become mandatory. Both fashion and industrial product designers use the concept of environmentally friendly, ecological and sustainable design in their work and reflect it on their products [1].

The industrialization process generates significant amounts of waste, particularly in the cloth and leather industries. These wastes pose environmental challenges due to their complex composition and the presence of hazardous chemicals. The textile and leather industries generate significant amounts of waste, which pose environmental challenges and economic burdens due to disposal costs. Effective management and innovative recycling strategies are crucial for minimizing their environmental impact and transforming waste into valuable resources.

ENVIRONMENTAL IMPACT AND EXAMPLES OF LEATHER WASTE MANAGEMENT

The leather industry and leather goods production system is actually a waste recycling method in itself. Apart from the initial production stage of leather, waste is also generated during the transformation stages into final products [2].

The leather industry generates significant solid waste, including chromium-containing materials, which pose environmental risks. Efficient waste management strategies, such as recycling and reusing waste, are essential to minimize pollution. Innovative approaches include using leather waste to produce new products, such as adsorbents for dye removal from wastewater, which offer a cost-effective alternative to traditional materials [3] [4].

However, the processing of the leather has an adverse effect on the environment as hazardous chemicals like chromium and hydrogen sulphide, which are used to treat leather can be discharged into rivers, soil, and air. In addition, worn-out leather clothes, small finished leather fragments, and hides trimmings, which are wastes further contribute to environmental pollution. Efficient waste management is important in minimizing leather waste by treating, recycling, and reusing waste. This may involve the production of new innovative products from the leather waste [4].

Figure 1. Cutting process by hand

The most obvious waste generation in the leather ready-to-wear stage occurs at the cutting stage. During this operation, a process is carried out in most businesses where a single person cuts all the patterns that will form one product and prepares them for sewing. The person performing the cutting process places the patterns that he/she will cut according to the defect or thinness difference of the leather and performs the cutting process. Of course, the percentage of usage of the leather surface may be low in this process depending on the experience of the person. Figure 1 shows the waste sections separated from a sheepskin that is cut by hand.

Figure 2. Leather earing

Figure 3. Leather bracelet

Figure 4. Leather neckless

Another way to utilize waste parts after cutting is to use them as raw materials for the production of other products. The parts called waste after the main cut parts are actually raw materials that can be used for the production of leather jewelry (Fig.2-4), personal items (Fig. 5) and some household (Fig. 6) necessities. Therefore, those wastes are sold as raw materials to sectors that produce other products. Of course, the main purpose of selling these wastes, which are sold at much lower prices than the original leather, is to reintroduce them into a production process rather than being thrown away. In this type of evaluation, a new design, a new production process and upcycling of the product are involved in order to produce a new product from waste.

Figure 5. Leather personal items

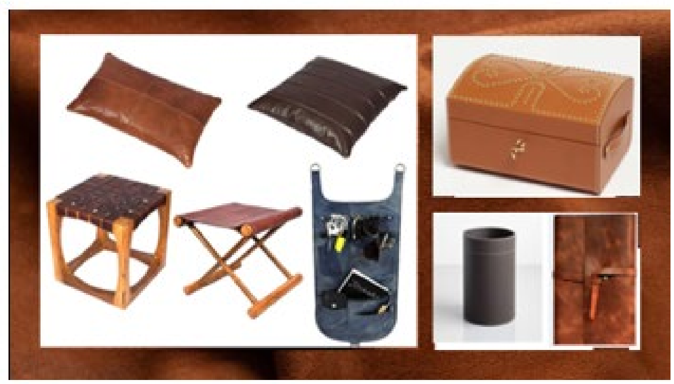

Figure 6. Leather households

ENVIRONMENTAL IMPACT AND EXAMPLES OF LEATHER WASTE MANAGEMENT

Like the piece wastes generated during the leather garment stage, wastes are also generated in the ready-made garment industry. Normally, these pieces sent to the recycling process can be used to produce yarns again. However, with a project carried out, textile and garment wastes from the organic production units of a company operating within the borders of Izmir were transformed into a brand new product group by applying advanced recycling applications. Some of the organic waste fabrics of this company were not sent to recycling companies, but instead organic toy production was carried out. Thus;

1- Contribution was made to sustainability,

2- A symbiosis production model example was applied for the zero-waste target by making a small change in its own production processes,

3- An application was made for the reduction of the company's carbon footprint.

Some of the pastry wastes generated as a result of the company's organic children's clothing production were not sent to the recycling process like normal waste fabrics and were separated. 15 different toy models were produced with these wastes and all of them were provided from the excess materials in the company's material warehouses. With this organic toy collection, a new product group has been developed for the company's own customers.

Figure 7. Some toy models produced from organic fabric waste

Some of the markers have gaps like the areas marked with an orange X in Figure 8. Toy patterns can be placed on the waste pieces left after the marker cutting, as in figure 9. When a symbiosis working model is created, that is, when the ongoing mass production areas can work together with the work systems that can transform these wastes into toys or different product groups, the molds of the extra products to be produced can be added to the product markers in computerized mold systems and the cutting of two different product groups can be provided together. With this type of cutting method, the normal cutting efficiency can be increased by 10-15%.

Figure 8. Spaces on the marker

Figure 9. Placing toy patterns onto marker waste

CONCLUSION

The management of cloth and leather industrial waste requires innovative strategies to mitigate environmental impacts and promote sustainability. By transforming waste into valuable resources through recycling and reuse, industries can contribute to a circular economy and reduce their ecological footprint. These efforts are crucial for achieving sustainable industrial practices and minimizing the adverse effects of waste on the environment.

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ÖZEL EĞİTİMDE EĞİTİM TEKNOLOJİLERİNİN KULLANIMINA YÖNELİK ÖĞRETMEN GÖRÜŞLERİNİN İNCELENMESİ

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Özet

Bu araştırmanın amacı, Millî Eğitim Bakanlığı bağlı özel eğitim kurumlarında eğitim öğretim sürecinde eğitim teknolojilerinin kullanımına yönelik öğretmen algılarının incelenmesi için yapılan bir fenomenoloji çalışmasıdır. Araştırmada nitel araştırma desenlerinden biri olan durum çalışması deseni kullanılmıştır. Durum çalışması, güncel bir olguyu kendi gerçek yaşam çerçevesi içinde çalışan, olgu ile içinde bulunduğu içerik arasındaki sınırların net olarak tanımlanmadığı, birden fazla kanıt veya veri kaynağının mevcut olduğu durumlarda kullanılan bir araştırma yöntemidir. Araştırmanın çalışma grubunu Van ilinde MEB'e bağlı özel eğitim okullarında ve bilim sanat merkezlerinde görev yapan amaçlı örnekleme yöntemlerinden ölçüt örnekleme yöntemi ile belirlenen, 25 özel eğitim öğretmeni oluşturmaktadır. Veriler, uzman görüşleri alınarak hazırlanan ve ön uygulaması yapılan yarı yapılandırılmış görüşme formu kullanılarak toplanmıştır. Görüşme formu, katılımcıların demografik bilgilerine ilişkin soruların yanı sıra açık uçlu sorulardan oluşmaktadır. Elde edilen veriler betimsel analiz yoluyla analiz edilerek veriler elde edilmiştir. Çalışma sonunda özel eğitim öğretmenlerinin görüşlerine dayanarak, özel eğitimde eğitim teknolojilerinin kesinlikle olması, öğretmenlerin teknoloji okuryazarlığı ile donatılmış olması, özel eğitim öğretmenlerinin öğretim teknolojileri eğitimlerinin farklı içeriklere sahip olması, öğretmen adayları için özel eğitim öğretmenliği lisans programında eğitim teknolojilerine yönelik derslerin amaçları, içeriği ve öğrenme çıktılarının farklı olması gerekliliği sonuçları ortaya çıkmıştır. Ayrıca, özel eğitim öğretmenliği lisans programında özel eğitimin tüm yönleriyle bireylerin ihtiyaçlarına uygun olarak öğretilebilmesi için öğretim teknolojilerine yönelik geliştirilecek derslerin öğrenme-öğretme süreci ve ölçme değerlendirmesinin de farklı ele alınması katılımcı öğretmenler tarafından dile getirilmiştir. Çalışmaya katılan özel eğitim öğretmenleri, özel eğitim öğretmenliği lisans programındaki öğretmen adayları için öğretim teknolojilerine yönelik geliştirilecek derslerin etkinlik odaklı ve öğrenenleri fiziksel aktiviteye

dâhil edecek yaş gruplarına uygun etkinliklerden olması gerektiğini dile getirmişlerdir. Özel eğitim öğretmenliği lisans programında öğretim teknolojileri öğretimine yönelik ders ve etkinliklerin olması, hem öğretmenlerin daha donanımlı hale gelmesi hem de çağın zorunlu gerekliliği haline gelmiş dijital konusunda özel eğitim kapsamındaki (özel eğitime muhtaç veya özel yetenekliler) bireylerin daha etkili bir eğitim öğretim süreci yaşamaları açısından oldukça önemli olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Özel eğitim, öğretmen eğitimi, eğitim teknolojileri, özel yetenekli öğrenciler, öğretmen görüşleri

EXAMINATION OF TEACHERS' OPINIONS ON THE USE OF EDUCATIONAL TECHNOLOGIES IN SPECIAL EDUCATION

Abstract

The aim of this research is a phenomenological study to examine teachers' perceptions about the use of educational technologies in the educational process in special education institutions affiliated to the Ministry of National Education. Case study design, one of the qualitative research designs, was used in the study. Case study is a research method that studies a current phenomenon within its real life framework, where the boundaries between the phenomenon and the context in which it is located are not clearly defined, and where multiple sources of evidence or data are available. The study group of the research consists of 25 special education teachers working in special education schools and science and art centres affiliated to the Ministry of National Education in Van province, determined by criterion sampling method, which is one of the purposeful sampling methods. The data were collected using a semi-structured interview form, which was prepared by taking expert opinions and pre-applied. The interview form consists of open-ended questions as well as questions about the demographic information of the participants. The data obtained were analysed through descriptive analysis. At the end of the study, based on the opinions of special education teachers, it was concluded that educational technologies should definitely be used in special education, teachers should be equipped with technology literacy, instructional technology training of special education teachers should have different contents, and the aims, content and learning outcomes of the courses related to educational technologies in the special education teaching undergraduate programme for prospective teachers should be different. In addition, the participant teachers stated that the learning-teaching process and measurement

and evaluation of the courses to be developed for instructional technologies should be handled differently in order to teach all aspects of special education in accordance with the needs of individuals in the special education teaching undergraduate programme. The special education teachers participating in the study stated that the courses to be developed for instructional technologies for prospective teachers in the special education teaching undergraduate programme should be activity-oriented and should include activities suitable for age groups that will involve learners in physical activity. It was concluded that having courses and activities for teaching instructional technologies in the undergraduate programme of special education teaching is very important both for teachers to become better equipped and for individuals in the scope of special education (individuals in need of special education or gifted ones) to experience a more effective education and training process in digital education, which has become a compulsory necessity of the age.

Keywords: Special education, teacher training, educational technologies, gifted students teacher opinions

1. INTRODUCTION

Educational technologies can be defined as a whole of applications and devices developed to facilitate individuals' access to information, enrich learning experiences and make teaching processes more effective (Brown, 2020). Today, the use of educational technologies offers various advantages in both general education and special education settings. The opportunities offered by technology in this field support the learning processes by providing solutions suitable for the individual learning speeds and needs of students (Erdem, Kaya and Demir, 2021).

Special education is one of the areas of education where individual differences are the most obvious. Teachers working in this field must use educational materials and methods that are appropriate to the individual needs of students. In this context, educational technologies offer a large number of opportunities for special education students. For example, technologies such as tablet computers, individualized learning software and alternative communication devices can be used effectively to support students' learning processes (Smith, 2019).

The use of educational technologies in special education not only enriches students' learning experiences, but also improves teachers' ability to plan and implement teaching processes.

However, the effective use of these technologies depends on a number of factors. These include teachers' attitudes to technology, technological competencies, infrastructure opportunities and in-service training opportunities (Yilmaz, 2022; Kaya and Decir, 2020). This study aims to examine the perceptions of special education teachers towards educational technologies and the problems they face when using these technologies. The findings obtained will shed light on what are the conditions and supports necessary for the effective use of technology in the field of special education (Davis and Lee, 2022). Recent studies have shown that the use of technology in special education positively affects students' academic achievements, social interactions and motivation (Johnson, 2021; Erdem et al., 2021). However, in order to create more added value in this area, it is necessary to increase the competencies of teachers and eliminate infrastructure deficiencies. Determining the opinions of teachers on this issue is important both for understanding the current situation and for developing strategies for future applications (Creswell, 2018).

Purpose of the Study

The aim of this study is to examine teachers' opinions on the use of educational technologies in special teacher education. In line with this main purpose, answers to the following sub-research questions were sought.

1. Can you share your experience using educational technologies in your special education classroom?
2. What benefits do you think educational technologies bring to the teaching and learning process in special education?
3. What challenges or barriers have you encountered while using educational technologies with your students?
4. How do you think educational technologies impact student engagement and learning outcomes in special education settings?
5. What changes or improvements would you suggest to make educational technologies more effective for special education purposes?

2. METHOD

Case study design, one of the qualitative research designs, was used in the study.Case studies are a research method that works with a current phenomenon in its real-life context and is used in cases where the boundaries between the phenomenon and its content are not clear and multiple sources of evidence or data are available (Yıldırım & Şimşek, 2019). Case study is a research design that allows in-depth study of a specific topic (Starman, 2013). This study was designed as a case study to comprehensively examine the use of educational technologies in special education in special education institutions in terms of teacher perceptions.

2.1. Study Group

The study group of the research consists of 25 special education teachers working in special education institutions affiliated to the Ministry of National Education in Van province, determined by criterion sampling method, which is one of the purposeful sampling methods. Purposive sampling method was applied in the sample of the study. Purposive sampling is a method used to identify situations and people who have knowledge and experience in a particular area of interest or concept (Palinkas et al., 2013).In this context, teachers with experience of working in preschool education institutions were included in the study.

2.2. Data Collection Process and Analysis

The data were obtained through a semi-structured interview form prepared by the researcher based on expert opinions and then pre-applied. During the preparation of the interview form, open-ended questions were formed in which teachers could express their views on various aspects of the use of educational technologies in special education period (technology in childhood education in needsand gifted ones, web 2 tools, methods to be used, evaluation and solution suggestions on this issue). The opinions of three field experts were received regarding the interview form. Based on the findings obtained from the expert opinion, necessary corrections were made by taking into account the feedback and suggestions. The interview form consists of 6 open-ended questions as well as questions about the demographic information of the participants. The data were collected from 25 special education teachers working in special education institutions affiliated to the Ministry of National Education in Van province in the 2024-2025 academic year. In this study, descriptive analysis technique was used to analyse the data. In the descriptive analysis phase, various themes are created for qualitative data, existing data are arranged in line with predetermined themes, and explanations are produced and interpreted (Yıldırım & Şimşek, 2019). In the study, topics were determined using interview questions and the data were sorted according to the topics. The topics were created in accordance with the interview questions. In addition, the study data were presented with direct quotations to clearly reflect the statements of the participants in the study. As a result of the calculation obtained from the reliability formula suggested by Miles and Huberman (1994) (Reliability = Agreement/(agreement + disagreement)), the level of agreement between the various codings made by the researchers was determined as 90%. Based on this result, it can be said that the reliability of the coding is at an acceptable level (Miles & Huberman, 1994). The teachers in the study were coded as 'T'.

3. FINDINGS

In this part of the study, which aims to reveal the opinions of teachers' perceptions towards the use of educational technologies in special education, the findings related to the answers given by the participants to the interview questions are discussed.

About the Advantages of Technology

"Educational technologies allow us to provide materials that are appropriate for students' individual learning speeds. Tablet applications offer a great convenience, especially for students with speech impediments. Thanks to these technologies, we have made significant progress in my students' communication skills." (T: 3, T:17, T: 22)

Difficulties and Technical Shortcomings

"The technological infrastructure in our school is quite limited. Smart boards and computers are not at an adequate level, and in addition, existing devices often cause technical malfunctions. For this reason, I find it difficult to integrate technology into my classes." (T: 4, T:11, T: 20)

Training and Support Requirements

"I want to learn how to use technological tools effectively. However, the trainings are usually superficial and do not fully meet our needs specific to the field of special education." (T: 14, T:21, T: 30)

Effects on Student Participation and Motivation

"Thanks to educational technologies, the participation of my students in classes has increased. For example, I can make math lessons much more fun by using interactive games. This also affects the students' motivation in a positive way" (T: 9, T:18, T: 24).

Parental Involvement and Feedback

"By using technology, I can track student development instantly and share this information with parents. Especially online platforms enable parents to be more involved in the educational processes of their children." (T:8)

Individualized Learning Experiences

"I create individualized learning materials for some of my students. For example, I have prepared audiobooks and tactile materials for a visually impaired student of mine. These tools make the learning process more accessible." (T:24)

General Assessment on the Impact of Educational Technologies

"I think that technology, when used correctly, reveals the potential of students. However, in order for these tools to be used effectively, both sufficient time and extensive training are required." (T:2)

Ethical and Safety Concerns

"Some parents are worried about students overusing technology. Also, I think we should be careful about this, as there may be security vulnerabilities on online platforms." (T:17)

4. RESULTS

This section presents and interprets the findings of the study examining teachers' opinions on the use of educational technologies in special education. The results are discussed in light of existing literature to provide a comprehensive understanding of the implications.

The findings revealed that a majority of teachers recognize the potential of educational technologies to enhance learning outcomes for students with special needs. Specifically, most of respondents reported frequent use of assistive tools such as text-to-speech software, interactive whiteboards, and customized learning applications. These results align with previous studies (Smith & Jones, 2020; Martin et al., 2019), which highlight the increasing reliance on technology to address diverse learning needs in special education settings. However, teachers also expressed concerns regarding the usability and adaptability of some tools, indicating a need for more intuitive designs and tailored training programs (Williams & Clark, 2021).

A significant barrier to effective technology integration identified by respondents was insufficient professional development. Most of teachers felt inadequately trained to use advanced educational technologies. This finding echoes earlier research by Brown et al. (2018) and Hernandez (2020), which emphasized the importance of targeted professional development initiatives. Teachers suggested that workshops, peer-led training sessions, and ongoing support could bridge this gap, ultimately fostering confidence and competence in technology use.

The study found that 85% of teachers observed improved student engagement when using educational technologies. Tools such as gamified learning platforms and augmented reality applications were particularly effective in maintaining students' attention and promoting active participation. These results are consistent with the findings of Green and Taylor (2021) and Kim (2019), who noted that interactive technologies could significantly enhance motivation and learning outcomes among students with special needs. However, a minority of participants (12%) reported that technological distractions sometimes hindered focus, suggesting the need for balanced implementation strategies.

Despite the positive outcomes, accessibility and equity issues emerged as critical challenges. Some of teachers indicated that their schools lacked adequate resources to provide all students with equal access to technology. This disparity aligns with observations by Carter and Lee (2020) and Patel et al. (2021), who highlighted systemic inequities in resource allocation. Addressing these challenges requires policy-level interventions and increased funding to ensure equitable access to educational technologies.

The findings underscore the necessity of integrating teachers' perspectives into the design and implementation of educational technologies. Collaborative efforts between educators, technology developers, and policymakers can enhance the relevance and efficacy of these tools. Additionally, fostering a culture of continuous learning and providing adequate infrastructure can address the challenges identified. Further research is needed to explore the long-term impacts of educational technologies on special education, as suggested by Miller and Adams (2022) and Zhao et al. (2023).

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