THEORY, CONTEXT, AND PRACTICE IN EDUCATIONAL SCIENCES

EĞİTİM BİLİMLERİNDE, KURAM, BAĞLAM VE UYGULAMA

Editor: Assoc. Prof. Dr. Mustafa SIRAKAYA

DUVAR

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Editor

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Chapter 1

The Promise and Paradox of Authenticity in Intercultural Foreign Language Education with AI

Bora BAŞARAN [1]

Why Authenticity, Why Now?

In foreign language education, authenticity is generically categorized as "authentic text," "authentic task," or "authentic assessment." However, authenticity is not a label; authentication is a lived experience where learners feel that they are using language authentically in a meaningful way that has an audience, consequences, and identity (Álvarez Valencia & Michelson, 2022; McArthur, 2022). Intercultural education supports authenticity because of the nature of communicating across differences, which requires learners to make meaning amidst uncertainty and cultural norms. Authenticity arises less from the objects identified as "authentic" than from the learners' agentive participation in situated cultural contexts (Ou & Gu, 2020).

Positioning Linguistic competence with Intercultural competence is a shift that places the learner in the role of co-constructor of meaning (Pais Marden & Herrington, 2020; Némethová, 2020). Authentic resources, including video, literature, and interactive tasks, introduce students to cultural nuances and communicative practices (Kopaneva & Pervil, 2021; Ungboeva & Djumabaeva, 2023; Zhang, 2020). Socio-cultural texts provide students with available cultural performances and keep them engaged through navigating (and most likely not avoiding) the messiness of intercultural experience (Bérešová, 2015; Lushchyk et al., 2021). Authenticity also should be part of assessment. Traditional written testing does not engage the multilayered complexities of intercultural communication. Traditional assessments without context do not provide learners motivations and modify communicative flexibility through contextualized language learning (Adnan et al., 2019; Liu & Dong, 2024; Nad-Kolozhvari, 2022). Authentic assessment is a way to activate learner agency and identity formation while engaging with and negotiating cultural factors (Dai & Sun, 2021; Zotzmann, 2020; Sadam, 2022; Bigun & Yatskiv, 2022; Yuyun & Simamora, 2021). There are two distinctions that warrant attention. First, interculturality is not multiculturalism, with the former mediator being about dialogic encounter

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and meaning-making from the moment the latter keeps learners in a shallow assessment of coexistence (Abdzadeh & Baker, 2020; Cancino & Nuñez, 2023; Schwarzenthal et al., 2020; Boonen et al., 2021; Huang, 2020; Santana & Betancourt, 2021; Tanır, 2025). Teachers act as mediators who help develop intercultural sensibility through multimodal, ethically accountable participation (Munandar & Newton, 2021; Cubero, 2021; Xie, 2023).

Second, provenance does not equal authenticity. That is, learning materials from the target culture are not authentic by virtue of their origin. Authenticity arises when learners are active authors, who are engaged in meanings of their inquiry and making interpersonal risks (Pais Marden & Herrington, 2020; Gebre & Polman, 2020; Chen & Zhou, 2024; Ercanlar, 2025, Reeve & Shin, 2020). Co-design, collaborations and task-based approaches further support authenticity through providing ownership and learner agency (Hasrol et al., 2022; Kessler et al., 2021; Chen, 2022; Hidayati et al, 2023; Moral & Benito, 2021; Simanjuntak & Sukresna, 2023).

In summary, authenticity is relational, emergent and grounded in learner engaged participation. The disposition is not whether AI can be authentic but under what pedagogical conditions involves inquiry, co-creation, and intercultural encounters in a globalized and digital context.

Conceptual Foundations

Language education should nurture intercultural action competence (ICC) rather than "native-like" proficiency. ICC contains linguistic, sociopragmatic, affective, and metacognitive components, for example, tolerance for ambiguity and vagueness, the ability to take the perspective of the other, and strategic flexibility (Álvarez Valencia & Michelson, 2022; Fantini, 2020; Némethová, 2020). Because ICC is developmental and context-dependent, it depends on an educational environment that provides varied opportunities for participatory possibilities (Pryshliak et al., 2020; Qi, 2023; Zhong et al., 2024).

The literature indicates that ICC is a process rather than a destination. Introducing culturally-influenced instruction into language education enhances adaptability and cross-cultural capability (Braslauskas, 2021; Holubnycha et al., 2021). Guided exchanges and reflective practices help develop sensitivity and flexibility (Mu & Yu, 2023; Tecedor & Vasseur, 2020; Ghasemi et al., 2020). The learners' desire to act as "global citizens" are also significant in terms of their openness towards intercultural encounters.

Educators play an integral role in connecting language learning to cultural reflection and in enabling learning out of the classroom (Arif & Jusuf, 2022; Barili & Byram, 2021, Sarkiler, 2025). Professional learning opportunities for

educators are essential to help them include intercultural pedagogy in their teaching (Nugent, 2020), but also provide opportunities to document the development of ICC (Barnatt et al., 2020). Authenticity, which is related to learners' identities and authorship, can be nurtured when the pedagogy values their cultural histories and multimodal practices; which has been shown to occur in a number of cases (Liao et al., 2020; Jiang et al., 2020). The authentic digital learning environments are also reported to increase motivation, support critical thinking, and create connections to the outcome (Braslauskienė et al., 2021).

In higher education, authentic learning involves aligning classroom content with professional practice to facilitate transfer and motivation, but it entails thoughtful and mindful scaffolding (Hagvall Svensson et al., 2021; Nachtigall et al., 2022, 2024; Timperley & Schick, 2024). Educators can model authenticity through transparent communication and commitment (Plust et al., 2020). Moreover, authentic pedagogy can also be directed to online spaces and reflective practice (for example, autoethnography) (Lee, 2020; Radović et al., 2020).

Intercultural Encounters and Authentic Learning Cycles

Intercultural interactions often take place in “in-between” spaces characterized by uncertainty and misalignment (Jørgensen et al., 2020; Zettinig et al., 2021). A pedagogical stance towards structured risk encourages learners to productively engage with misunderstandings as learning resources (Dodman et al., 2021). These interactions create opportunities to foster empathy, reflection and collaboration (Kong et al., 2020; Tang & Calafato, 2024; Piipponen et al., 2021). Authentic learning is cyclical: experience, reflect, abstract, experiment (Valiente-Riedl et al., 2021; Yuan, 2023). Emotional connections, such as curiosity, anxiety, pride, and frustration, are also integral to achieving authentic learning. Cooperative structures validate emotions as shared resources for individuals to learn collectively (Liu & Dong, 2024). Teachers also participate in this process, bringing together authenticity and vulnerability, while modeling reflexivity and empathy (Noda & Hua, 2022; Gkonou & Miller, 2020, 2023). Authentic encounters cannot be ‘faked’, and are reliant on multimodal resources, reflective dialogue, and supportive pedagogy (Cubero, 2021; Tutunea, 2021; Echcharfy, 2020; Glimäng, 2022). In both face-to-face and virtual contexts, authenticity enables the transformations of intercultural misunderstandings into shared resources for tools, which can foster competence, identity, and accountability.

The Promise of AI for Authenticity

AI tools—chatbots, speech-to-text, multimodal environments, simulation—can promote authenticity in pedagogy if situated within pedagogy. They lower the

thresholds for participation by eliminating barriers to participation through translation and accessibility benefits (Akinsemolu & Onyeaka, 2025; Crompton et al., 2024; Efrizal, 2024; Wei, 2023), enhance personalization and individualization of learning through adaptive systems (Mohebbi, 2024; Yangs & Kyun, 2022; Zou, Dave & Symons, 2024), and create environments where rehearsal and interpersonal risk-taking can occur in safe spaces (Divekar et al., 2021; Konyrova, 2024; Pack, 2023). AI can support reflection through analysis of interactional patterns with reflexive feedback to support learners' intercultural competence (Alharbi, 2023; Shi, 2024). There are also issues of privacy, algorithmic bias, and the risk of removing teacher mediation in learning (Kohnke et al., 2023; Kanont et al., 2024) that serve as potential pitfalls. Authenticity, then, is a question less about the technology than pedagogical frameworks that privilege human interaction (Patnaik et al., 2025, Üstün et al. 2025).

The Paradox of AI for Authenticity

AI provides exciting new possibilities for language education, while simultaneously producing paradoxes that endanger the very conditions it needs to strengthen. Engaging in simulated encounters via chatbots, avatars, or generative agents may feel like authentic encounters, while not being reciprocal, and then replacing real human encounters. This means that learners may have safe interactions but not authentic interactions that include vulnerability, empathy, and dialogue that are more than surface-level (Kim et al., 2024; Zhou & Hou, 2024). Such “safe spaces” may limit exploration of interculturality and the discomfort that builds the potential for real growth.

Bias and homogeny are other issues. Large AI models are trained with large datasets that create dominant cultural norms without taking into account marginalized voices, flattening cultural plurality and erasing important nuances for intercultural learning (Shi, 2024; Zong & Yang, 2025). Bias diminishes meaningful engagement (Dai et al., 2024). Bias in AI is also exacerbated by its opacity: users rarely see the logic behind its outputs (Rabbianty et al., 2023; Rezai et al., 2024). This lack of knowledge undermines trust and accountability. Furthermore, it also eliminates the agency of learners as the line between authored voice and machine-generated voice becomes increasingly blurred.

Over-reliance on AI also has the potential to diminish the learner identity and agency. Rather than learners customizing themselves as meaning-makers or meaning-creators, they simply become facilitators of machine-generated content (Akintayo et al., 2024; Wu et al., 2024). Most importantly, authorship, a visceral interpersonal risk-taking opportunity integral to intercultural competence, is forsaken, perpetuating emotional disconnection and a potential narrative of

acculturation, while diverting students away from the critical discomfort and conflict pivotal to building resilience, empathy, and intercultural awareness (Alzahrani, 2024; Jenks, 2024).

Ethics and relationship dimensions are even more complicated. AI cannot rationalize ethically as humans are, straining intercultural ethics and equitable communicative design (O'Regan & Ferri, 2024). In higher education, trust, transparency, and rigour ought to remain principles of importance, even while AI confers new affordances for professional and intercultural communication (Francis, 2025; Dai et al., 2024). Unmonitored cultural representativeness in AI affordances, may only serve to reinforce ethnocentric biases.

In the end, the paradox of AI and authenticity is contextual. AI has the potential to connect language learners with accessibility, personalization, and reflective engagement while risking trivialization, bias, opacity, and engagement. Thus, building AI literacy and adaptive proficiencies among learners and educators is imperative (Yan et al., 2024). Moreover, ethical research must be ongoing, as the cultural and interpersonal ramifications of AI have the potential to have long-term effects on cognition, creativity, and intercultural communication for authentic learning situations.

Negotiating the Promise and the Paradox

Increasingly, the integration of AI into education leads to attempts to reconceptualize authenticity as multi-authored, relational, and ethically situated. Under this view, it is not the technology or AI being used that is authentic, but the pedagogical context in which the AI is being used to support authentic interaction rather than displace it. In this respect, authenticity can be developed through learner agency, reciprocity, and reflection - reaffirming learners as co-constructors of meaning (Akgün & Greenhow, 2021; Mohamed, 2024). It is now incumbent upon educators to orchestrate classrooms where AI is mediating and scaffolding their interaction while keeping standard human dialogue and intercultural space central.

Professional learning is vital in supporting the balance between AI and pedagogy. Teacher education needs to cultivate a technical knowledge of AI, ethical knowledge of AI, and pedagogical knowledge, so educators can contextualize authenticity using AI that connects to someone's experiences (Mouta et al., 2024; Pack & Maloney, 2024). Educators can model authenticity for their students by demonstrating humility, criticality and authenticity when using AI. Professional learning must also lay the foundations to make AI-literacy and fundamentals so educators can design their learning with integrated AI to support learners' critical engagement in intercultural contexts (Holmes et al., 2021; Walter, 2024).

Students also need AI literacy, such as the awareness of when AI may augment

dialogue or limit dialogue and a way to navigate through the paradoxes of human and AI mediated interaction (Kohnke & Zou, 2025; Ng et al., 2021). Therefore, educators should place priority on self- and co-regulated learning that allows the learners and the AI systems to construct knowledge together (Lodge et al., 2023). Against a critical lens of equity, poverty, bias and inclusivity, students will develop more than just linguistic competence; they will develop ethical citizenship-participation in digital intercultural spaces (Gkintoni et al., 2025; Mohamed, 2024).

We must remember the ethical imperatives to consider. Privacy, bias and commodification are structural issues of learning ingrained in learning (Holmes et al., 2021; Kővári et al., 2024; Lundervold, 2025). If institutions cannot identify solutions to deter bias and other inequalities that arise in learning, AI also has the potential to reinforce limited choice and marginalize the underrepresented (Igbokwe, 2024; Ray & Ray, 2024). Therefore, educational institution must to create and implement transparent policies and frameworks that are community driven, to allow for innovation and accountability in its implementation (Dakakni & Safa, 2023; Francis et al, 2025). In this way, assessments and learning designs that support critical engagement, creativity, ethics and language performance will be used responsibly, every time we design instruction.

In conclusion, while AI as a technology has the potential to impact intercultural foreign language education, it necessitates a relational space of co-construction with learners, teachers, technologies and communities using ethical literacy, critical reflection and human-centered engagement to reposition AI from being a threat to authenticity to a place for intercultural understanding and responsible digital citizenship.

Implications for Intercultural Foreign Language Education

The introduction of artificial intelligence (AI) in education invites a reconceptualization of authenticity as multi-authored, relational, and ethically situated. Authenticity does not come from the technology or AI's capabilities itself but rather from the environments in which pedagogies apply AI to support authentic interactions, rather than take them over. It is within the defined contexts that we cultivate movement along dimensions of learner agency, reciprocity, and reflection, affirming learners not simply as recipients of knowledge but as co-constructors of meaning (Akgün & Greenhow, 2021; Mohamed, 2024). In such contexts, the challenge for educators becomes to be intentional in their design of classrooms and learning contexts in ways that AI acts as our mediator, scaffolds interaction and reflection, and broadens participation, while still keeping as central the need for human conversations and intercultural space.

Professional learning is just as important in the example of balancing AI design

and pedagogy. Teacher educators should provide a professional learning practicum that develops deep technical knowledge, ethical and pedagogical framings that give teachers the tools to innovatively contextualize authenticity (Mouta et al., 2024; Pack & Maloney, 2024). With ethical pedagogy as a framework, by modelling ways of being vulnerable, critical, and authentic with AI, educators can serve as an example for learners to strive towards. Professional learning should also help educators develop their own AI literacy and AI prompted designs to not only situate AI pedagogically but to help students to interact with AI critically, especially in situating the role of AI in intercultural learning (Holmes et al., 2021; Walter, 2024).

Also important, is to develop students' AI literacy. Students must learn to cycle into and out of AI interactions responsibly, understanding when AI enhances dialogue or when it limits dialogue, as well as how to parse the paradoxes of AI-mediated dialogue (Kohnke & Zou, 2025; Ng et al., 2021). Additionally, educators should support self-regulated and co-regulated learning practices where humans and AI systems generate knowledge together (Lodge et al., 2023). Students should be equipped to self-reflect critically regarding fairness, bias, and inclusion within AI engagements, as these also strengthen their linguistic capacity as well as their ability to act as ethical participants in digital intercultural spaces (Gkintoni et al., 2025; Mohamed, 2024).

The ethical imperatives of AI must remain central in our intercultural pedagogy. Privacy, algorithmic bias, and commodification are not peripheral aspects, but environmentally structural realities that define the conditions of learning (Holmes et al., 2021; Kővári et al., 2024; Lundervold, 2025). AI is absent of deliberate safeguards and is at risk of reproducing inequities and perpetuating through silencing less represented voices, thus undermining plurality which intercultural education relies upon (Igbokwe, 2024; Ray & Ray, 2024). With this responsibility, institutions need to develop transparent policies and community-engaged frameworks that ensure a symbiosis of innovation and integrity (Dakakni & Safa, 2023; Francis et al., 2025). This becomes an opportunity to ensure that both assessments and learning designs reflect critical thinking, creativity, and ethical rationales balanced with language performance.

In summary, incorporations of AI in intercultural contexts of foreign language education requires fundamentally relational approach where authenticity is continuously co-constructed among learners, teachers, technologies, and community. By fostering ethical literacy, stimulating critical reflection regarding AI, and prioritizing human-centered engagement, it is possible to see AI goes from posing the threat of authenticity to being a springboard for deeper intercultural understanding and pedagogies of responsible digital citizenship.

Conclusion: Toward Sustainable Authenticity with AI

Authenticity in education is vulnerable based on reciprocity, vulnerability, and awareness. AI offers both promise and paradox: accessibility and reflection with the danger of bias, commodification, and loss of agency (Zhou & Hou, 2024). To achieve sustainable authenticity, balance is needed: AI are the mediators and mirrors, not a community in and of themselves, centered in human dialogue.

Well-designed, intentional AI could enable personalized learning, collaborative engagement, and authentic feedback (Francis et al., 2025; Yan et al., 2024; Ifelebuegu, 2023; Lang, 2024). However, an over-reliance on AI could lead to a commodification of the learning experience while creating ethical challenges (Thanh et al., 2023; Abubakar et al., 2024; Creely, 2024). Educators must develop AI literacy, teach professional competence, and cultivate shared ethical responsibilities with their students (Alm, 2024; Tutton & Cohen, 2025; Sharples, 2023). In the end, authenticity is not a functional attribute, it is a pedagogical goal, achievement, or accomplishment. By negotiating the promises and paradoxes of AI the creating community that emerges privilege, first, the co-construction of authenticity, then attend to interculturality, and remains attentive to the centrality of human interaction in foreign language teaching and learning.

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Chapter 2

Comprehensive Analysis of Eye-Tracking Research in Education

Ece AVINÇ[*], Ömer KIRBAŞ[†], Fatih DOĞAN[‡]

Abstract

The evolution of eye-tracking research, spanning from early 20th-century methodologies to contemporary video-based systems, has profoundly impacted neuroscience and education. This study examines 339 articles from the Web of Science database, focusing on the educational utility of eye-tracking technology. Through analysis with R Studio, key trends emerge: the "Computer & Education" journal dominates publications, while scholars like "Halszka, J." and institutions like the "Natl Taiwan Normal Univ" stand out for their influential contributions. Notably, countries such as China and the USA lead in impactful research output. The findings shed light on publication patterns, keyword distributions, and the ascendance of influential journals, offering valuable insights for stakeholders in vision screening, policy development, and systematic review studies. Understanding these trends fosters a deeper comprehension of the evolving landscape of eye-tracking research within educational contexts, enabling informed decision-making and strategic planning for future research endeavors.

Keywords: Eye-tracking, Bibliometric analysis**,** Education**,** Cognitive processes**,** Optimal learning

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Introduction

Eye-tracking research, which commenced its modern approach in the third quarter of the 20th century with the development of video-based eye trackers in subsequent years, was initially employed by affixing markers to specialized contact lenses in the early 20th century (Einhäuser et al., 1996; Duchowski et al., 2000; Winston, 2012; Forsyth, 2015). It has been posited that eye-tracking provides an optimal neuroscience model for exploring the intricate relationship between brain mechanisms and behavior (Luna, Velanova & Geier, 2008). Eye-tracking, boasting a long-standing history in medical and psychological research as a tool for recording and scrutinizing human visual behavior, is utilized to examine gaze patterns during visual perception and the underlying information processing activities (Erckstein et al., 2017; Rayner, 2019; Yang & Wang, 2023). It elucidates the fundamental mechanisms of these behaviors by translating ocular behaviors into measurable eye movements to discern the focal points of attention (Duchowski, 2017; Erckstein et al., 2017; Ashraf et al., 2018). Common measurement data from eye trackers include changes in initial focusing time, alterations in pupil size, the velocity of eye repositioning to new regions in images, the duration of eye movements, and the cumulative focusing time (Özdoğan, 2008; Dolgunsöz, 2015; Krueger, Koch & Ertl, 2016). Eye-tracking measurements furnish researchers with two fundamental components of eye movement behavior: “eye fixations,” delineating where a subject gazes and for how long, and “eye movements,” specifying the subsequent shifts in eye positioning (Robinson, 2012). These measurements offer crucial insights, enabling the identification of areas of attention, overlooked information, and disturbances, facilitating real-time assessment of task responses (Erckstein et al., 2017; Omur & Görgülü Aydoğdu, 2017).

Due to the significant correlation between eye movements and cognition in contemporary research, eye-tracking has garnered considerable interest across various experimental domains, emerging as a versatile technology for investigating human cognitive processes (Hoffman & Subramaniam, 1995; Patney et al., 2016; Virtual Reality Society, 2017; Clay, König & Koenig, 2019). Eye-tracking, constituting an online recording of eye movements, serves as a prevalent and valuable method for observing visual attention and distractions across various domains, encompassing phenomena such as eye blink, pupil dynamics, vision perception, visual search, and language processing (Robinson, 2012; Fischer & Hartmann, 2014; Carter & Luke, 2020; Yang & Wang, 2023). Extensively explored in realms such as marketing and advertising, eye-tracking employs video-based systems, leveraging computer vision techniques for data collection, facilitating the investigation of human

cognition through the provision of substantial datasets and enabling rapid, precise tracking of eye movements (Wedel & Pieters, 2017; Hoffman & Subramaniam, 1995; Hansen & Ji, 2010; Virtual Reality Society, 2017).

Problem Status

Eye-tracking measurements, encompassing cognitive skills, learning strategies, and the tracking and recording of eye movements across various fields, including complex cognitive processes in education, represent one of the effective methodologies utilized in educational research to comprehend the cognitive processes unfolding in the mind. This method furnishes researchers with insights into how individuals learn and how they can enhance their learning effectiveness and efficiency (Alemdag & Cagiltay, 2018; Kovari, Katona & Costescu, 2020). Eye-tracking measurement data and eye tracking technology are particularly well-suited for educational research as they offer information pertaining to cognitive skills, learning strategies, and complex cognitive processes in education. Individuals assimilate vast amounts of information into their cognitive processes through their eyes (Halszka, Holmqvist, & Gruber, 2017; Kovari, Katona & Costescu, 2020). Eye-tracking yields critical data concerning the aspects to which researchers and learners direct their attention during the learning process, delineating how students and teachers perceive the world, their actions, the duration and intensity of their attention, thus shedding light on the dynamics of learning (Beach & McConnell, 2019; Shvarts & Abrahamson, 2019). Consequently, there has been a surge in intensive research recently to scrutinize teaching and learning processes through the lens of eye-tracking (Lai et al., 2013; Yang et al., 2013; Alemdag & Cagiltay, 2018; Dostálová, Juhaňák & Plch, 2022; Ma et al., 2022; Tsai et al., 2022; Zhai et al., 2022).

Although bibliometric studies on the subject have been carried out abroad, no such publication has been found in our country and language. Studies in our country have generally been researched by focusing on a single subject, concept or discipline and in association with eye-tracking. The important points of the studies will be revealed. A general overview of the subject will be presented. It will be a resource for both industry professionals and researchers. In addition to contributing to literature, examining the evolution of influential publications, authors and sources, and the themes of the subject within the scope of the study will guide new publications. The fact that it will contribute to an issue that affects the whole society reveals the importance of study. With the aid of various analyses and statistical methods applied to academic publications, it is feasible to conduct bibliometric studies that examine sources of information

regarding eye-tracking. Utilizing statistical indices enables the evaluation of the effectiveness of scientific research across institutions, authors, countries, journals, and citations, thereby providing access to diverse sources of information pertaining to research trends in this field (Papadimitriou & Kidman, 2012).

Method

In the research, the aim is to conduct a bibliometric analysis of articles pertaining to the use of "eye-tracking" in "education" subjects. Bibliometric research enables the identification of trends in the field by measuring and evaluating various aspects of research within a specific domain (Ahmi, 2022). Bibliometrics, a quantitative and statistical technique, facilitates the generation and dissemination of scientific knowledge within a particular field. It serves as a valuable method for identifying influential and highly cited articles, emerging topics, prominent researchers or research groups, as well as potential collaborators or competitors within the subject area (Huang et al., 2019; Agarwal et al., 2016). Zupic and Carter (2015) highlighted that bibliometric analysis reveals co-authors, publications, and identifies leading authors, organizations, and countries involved in the subject under scrutiny. Furthermore, bibliometric analysis enables the dissemination of high-impact findings and offers visualization of authors, institutions, and trending keywords (Huang et al., 2019). Despite the recent application of bibliometric approaches in education, it has only recently emerged as a coherent and contemporary alternative for examining research (Hernandez-Torrano et al., 2020).

Data Collection Process

In this study, articles from the Web of Science (WoS) database were used for bibliometric analysis. WoS is widely recognized for its utility in academic and bibliometric research, as it consistently encompasses journal coverage of scientifically published articles (Li et al., 2018). The terms "eye-tracking (all fields)" or "eye tracking (all fields)" and "education (all fields)" were scrutinized from the search interface of the WoS database. Topics relevant to "Education" were included in the filter via the "Citation Topic Meso" section. In the 'Document Types' section, only 'Article' OR 'Review Article' documents were considered. English was selected as the preferred language to mitigate potential data loss during keyword analysis, primarily due to the limited number of publications in other languages. Subsequent to these constraints, 356 data sets obtained in the research as of January 16, 2023, were exported for analysis. The research utilized a flow chart, as illustrated in Figure

1. Today, different tools such as CiteSpace, WOSviewer, HirsCite and CitNetExplorer are available for performing bibliometric studies (Moral-Muñoz et al., 2020). In the study, the R software supported Biblioshiny program was adopted to obtain a general view of eye tracking studies written in the field of education. The Biblioshiny software was developed by Massimo Aria and Corrado Cuccurullo from the University of Naples and Luigi Vanvitelli from the University of Campania (Hao, 2018). Biblioshiny software supports to analyze WoS, Scopus and Dimensions data (Aria and Cuccurullo, 2017).

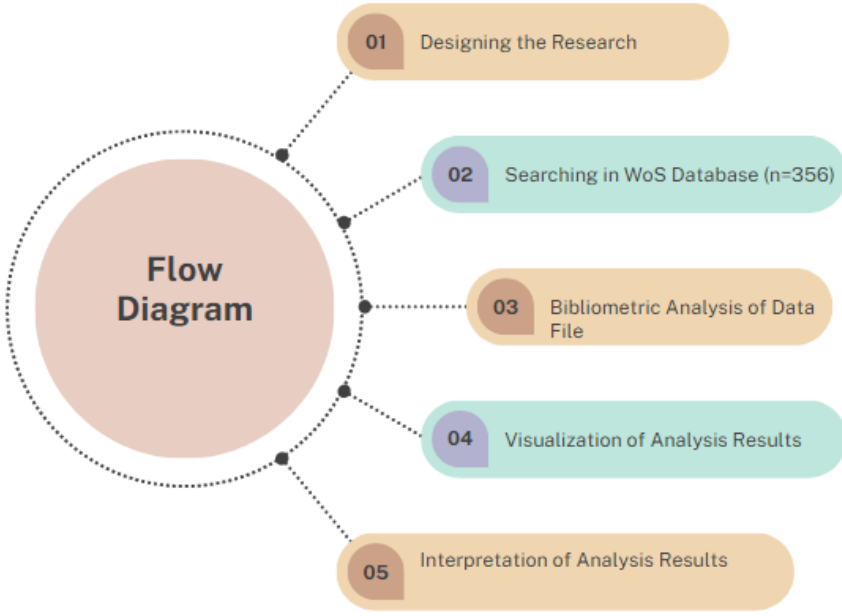

Figure 1. Flow Diagram of Research

Results

In this section, the findings of the research are given. The research findings were analyzed in sub-headings according to the problem statements. General information about the research is given in Table 1.

Table 1. Main Overview

Description	Results
Articles	339
Timespan	2005:2022
Sources (Journals, Books, etc)	120
Author's Keywords	925
Authors	794
Authors of single-authored articles	13
Authors of multiple-authored articles	781
Average citations per articles	19,37
References	11264
Article per authors	0,36

When Table 1 is examined, it is seen that 339 articles were written between the years 2005-2022. The articles were published by 120 different sources and written by 764 authors. A total of 925 keywords were included in these studies. While 13 different articles were determined to be written by a single author, 781 people wrote 326 different articles by multiple authors. It was found that 19.37 citations were received per article. The authors used 11264 references to their work. It has been determined that there are 0.36 articles per author. In Figure 2, the growth graph of the articles written about eye-tracking in the field of education by years is given.

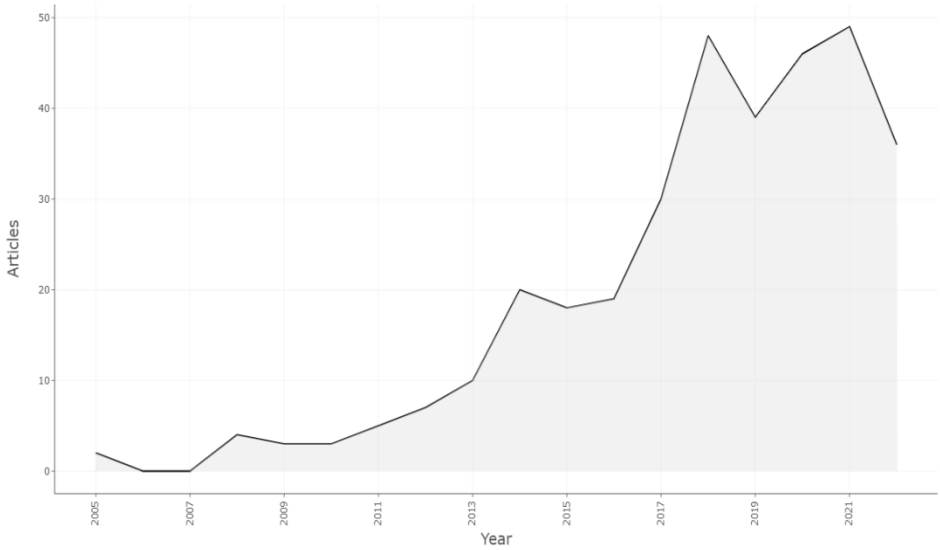

Figure 2. Annual Scientific Production

Findings for Journals

In the Web of Science database, 339 articles on the concept of eye-tracking in education were published in 120 different sources. These data are given in Table 2.

Table 2. Top 20 Journal with the Most Article

Journal	ArtN*	h_index	g_index	TC*	PY start*
Computers & Education	25	16	25	1081	2009
Computers In Human Behavior	23	16	23	714	2010
Physical Review Physics Education Research	15	7	11	137	2017
Learning And Instruction	14	11	14	436	2010
Journal Of Computer Assisted Learning	14	7	11	132	2015
Frontiers In Psychology	14	5	11	142	2014
Instructional Science	11	8	11	386	2012
Journal Of Chemical Education	11	7	11	183	2012
Educational Psychology Review	8	7	8	151	2018
International Journal of Science and Mathematics Education	8	7	8	207	2014

British Journal of Educational Technology	8	5	8	127	2014
Applied Cognitive Psychology	7	5	7	195	2005
Educational Technology & Society	6	5	6	108	2015
International Journal of Science Education	6	4	6	100	2008
Journal Of Science Education and Technology	6	4	6	64	2011
Interactive Learning Environments	5	5	5	69	2011
Teaching And Teacher Education	5	5	5	176	2014
Journal Of Educational Psychology	4	4	4	99	2018
Acta Chimica Slovenica	3	3	3	17	2016
Etr\&D-Educational Technology Research and Development	3	3	3	19	2012

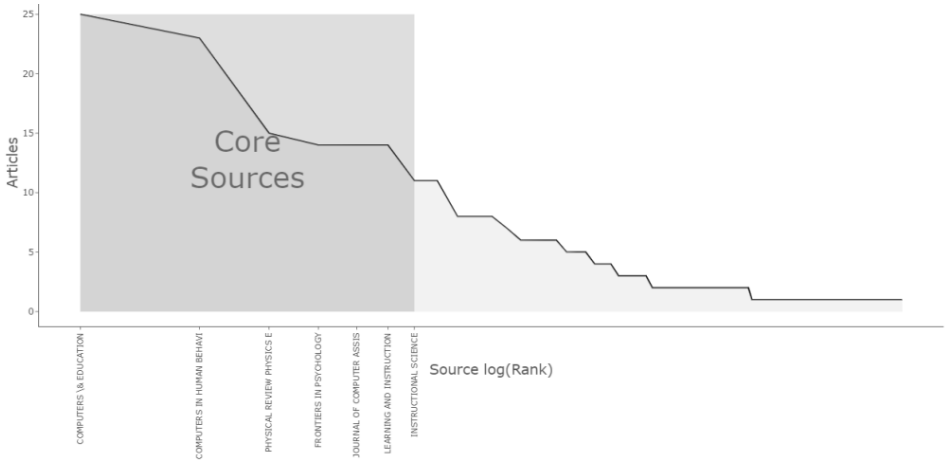

Figure 3. Bradford's Law

It was seen that "Coputers /& Education" Journal made the most publications among 20 journals (ArtN=25). The total number of citations of the same journal was also found to be the highest (TC=1081). The second most published journal on eye-tracking research in education was "Computers in Human Behavior" (ArtN=23). Among the 20 journals with the highest number of publications, "Applied Cognitive Psychology" was determined to be the journal that started the oldest publication (PY start=2005).

The h-index and g-index values of the journals are also given in the table. The H-index is the value that emerges from the popularity and interest level of the journal in the scientific community (Glänzel, 2006). Considering these values, it is seen that the journals "Computers \& Education" and "Computer in Human Behavior" have the highest index with 16 (h-index=16). Again, the g-index values of the journals are a criterion that gives popularity credits according to the citations given to the journals (Tol, 2008). In the G-index values, it was seen that "Computers & Education" journal was ahead of the others with 25. In Figure 3, the distribution of journals according to Bradford's Law is given. It appears that the 7 journals are "first zone" journals according to Bradford's law.

Findings for Author

In studies on eye tracking in the field of education, 794 different authors were found to work in the WoS database (Table 1). The number of publications, indexes, total citations and the first years they worked on the 20 authors who have done the most work in this field are given. When the table is examined, Halszka, J. is the leader in eye-tracking studies in education with a total of 13

publications (h-index=11; g-index=13). The citation numbers of the articles of the authors in the data set are also given in the table. Accordingly, Tsai MJ is the most cited author with 560 citations (h-index=7; g-index=9). Among the top 20 authors in the table, Halszka, J. published his first article on the subject in 2008. Kuechemann S, on the other hand, is the newest author to make its first publication in 2019 and participate in the publications in the table. The article publication efficiency of the 10 authors with the highest number of publications by time is given in Figure 4.

Tablo 3. Top 20 Authors with the Most Article

Author	ArtN	h_index	g_index	TC	PY start
Halszka, J.	13	11	13	478	2008
Bruenken, R.	11	8	11	287	2015
Van Gog, T.	11	7	11	454	2005
Tsai, Mj.	9	7	9	560	2012
Jian, Yc.	9	6	9	89	2015
Klein, P.	9	6	9	93	2018
Azevedo, R.	8	5	8	182	2016
Kuhn, J.	8	5	8	82	2018
Cagıltay, K.	8	4	8	410	2009
Park, B.	7	7	7	259	2015
Pi, Z.	7	5	7	88	2016
Yang, FY.	7	5	7	356	2013
Bubic, A.	6	5	6	113	2014
Planinic, M.	6	5	6	113	2014
Susac, A.	6	5	6	113	2014
Van Wermeskerken, M.	6	5	6	146	2016
Kuechemann, S.	6	4	6	51	2019
Korbach, A.	5	5	5	159	2015
Mayer, Re.	5	5	5	120	2018
Chiou, GI.	4	4	4	328	2013

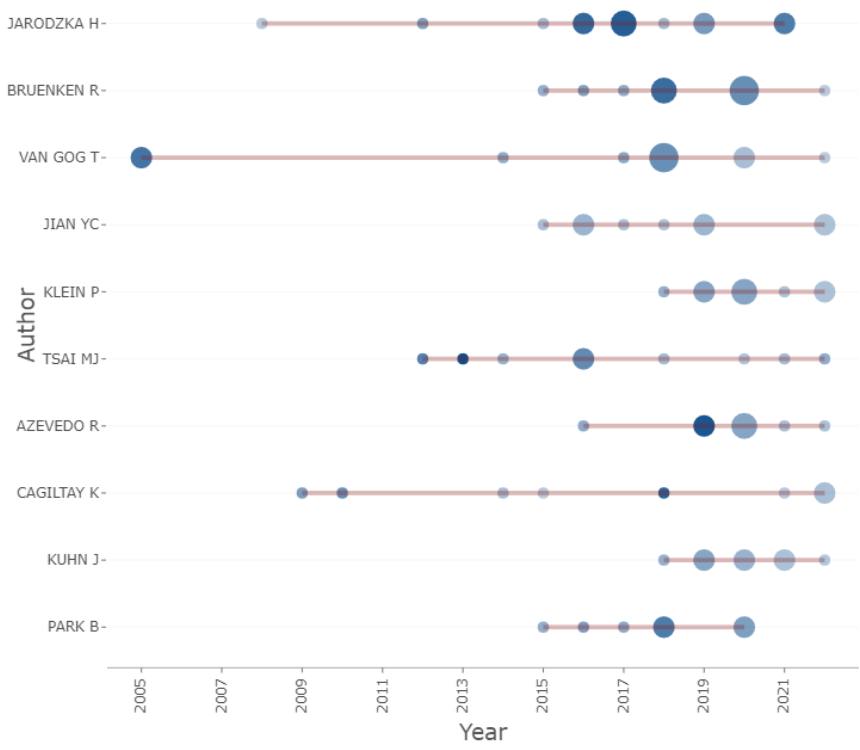

Figure 4. Authors' Production over Time

The citations made by the authors in the data set to each other in the articles they published were examined. Accordingly, the first 20 articles with the highest number of citations in the data set are presented in figure 5. When the table is examined, Cagiltay K is the most cited author with 78 citations. Mason L and Pluchino P are the authors ranked second with 77 citations.

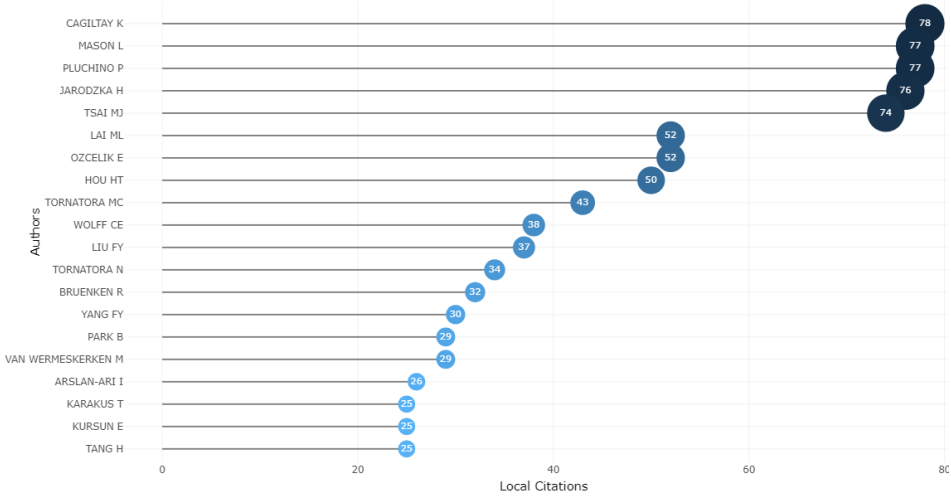

Figure 5. Most Local Cited Authors

Findings for Affiliations and Countries

In Table 4, 20 universities with the highest number of publications on eye tracking studies in education are given. Among the 20 institutions with the most publications, the university with the most publications was the "National Taiwan Normal University" (ArtN=59). At the same time, 3 different Taiwan universities were included in the top 20 universities with the highest number of publications.

Table 4. Top 20 Affiliations with the Most Articles

Affiliation	ArtN
Natl Taiwan Normal Unıv	59
Open Univ Netherlands	33
Univ Zagreb	25
Saarland Univ	23
Univ Utrecht	23
Cent China Normal Univ	22
Natl Taiwan Univ Sci and Technol	14
Erasmus Univ	13
Lund Univ	13
Natl Chiao Tung Univ	13
Open Univ	12
Tech Univ Kaiserslautern	12
Univ Cent Florida	12
Univ Georgia	12
Univ Tubıngen	12
Univ Padua	11
Univ Turku	11
Ludwig Maximilians Univ Munchen	10
Middle East Tech Unıv	10
Univ Burgos	10

In addition, the countries of the authors who sent the article, their cooperation with other countries and the total number of citations they received are given in Table 5. Accordingly, China is the country with the highest number of publications in this field (ArtN=69), Germany ranks second with 68 publications, and the USA ranks third with 61 publications. Germany (MCP=27) is the leader with 27 articles in the articles published in collaboration. The country with the highest number of citations was again China (TC=1287). The USA, which is the closest to China, received 1223 citations.

Table 5. Top 20 Countries with the Most Articles

Country	ArtN	SCP*	MCP*	TC
CHINA	69	63	6	1287
GERMANY	68	41	27	1047
USA	61	49	12	1223
NETHERLANDS	30	16	14	1021
TURKEY	11	11	0	427
UNITED KINGDOM	9	6	3	74
AUSTRALIA	8	2	6	263
CANADA	8	7	1	167
CZECH REPUBLIC	7	6	1	17
FINLAND	7	6	1	81
NORWAY	7	4	3	117
CROATIA	6	4	2	113
SWEDEN	6	3	3	47
SPAIN	5	3	2	40
ITALY	4	3	1	305
JAPAN	4	3	1	14
SWITZERLAND	4	1	3	23
BELGIUM	3	2	1	119
NEW ZEALAND	3	2	1	3
POLAND	3	3	0	23

In Figure 6, the cooperation map of the countries is given. According to the map given above, the countries with the highest cooperation were Germany and the Netherlands (MCP=17). For a more detailed representation, the collaboration network is given in figure 7.

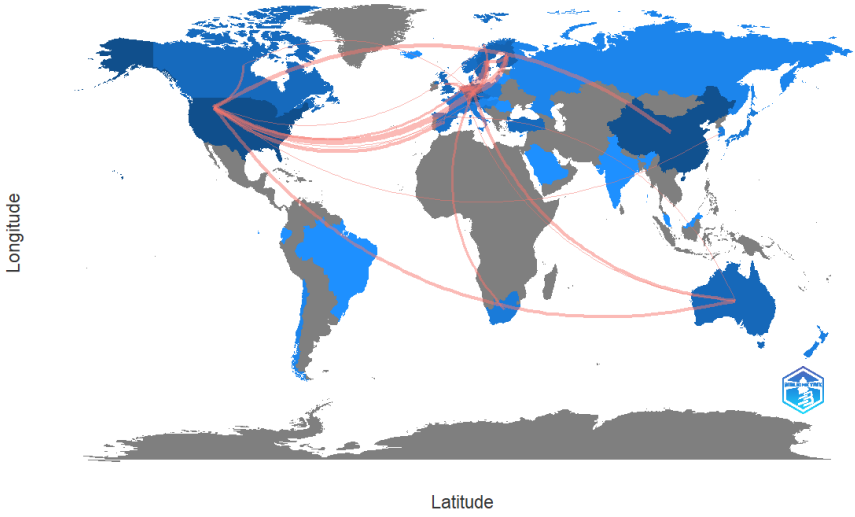

Figure 6. Collaboration WorldMap

When the cooperation network is examined, it is seen that the cooperation between countries is in the form of 3 different clusters. In the “red” colored cluster, Germany is in the center, the “blue” colored cluster is the central USA, and in the “green” colored cluster, 3 countries are a cluster together.

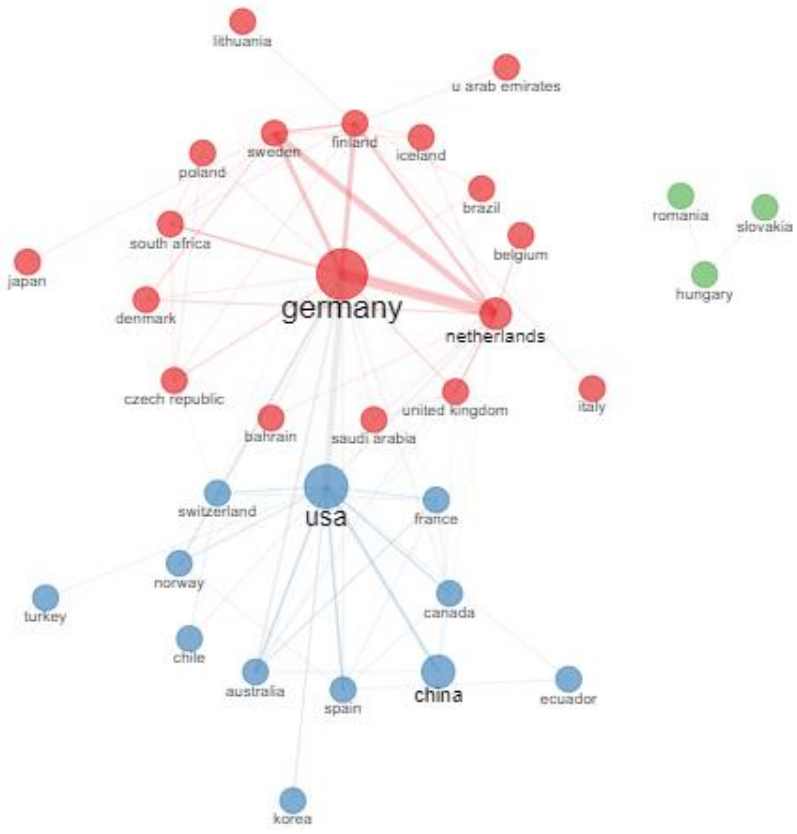

Figure 7. Collaboration Network

Findings for Citiation Status

In Table 6, the global and local citation status of the articles in the data set are given. The most cited article in terms of global citations was "A review of using eye-tracking technology in exploring learning from 2000 to 2012" (GC=240) written by Lai ML. However, it could not be cited as a local reference (LC=0) in the data set. Of the 20 articles with the highest number of global citations (GC), 5 did not receive any local citations (LC). The most cited article locally was "Do fourth graders integrate text and picture in processing and learning from an illustrated science text? Evidence from eye-movement patterns" (LC=43) published in Computer \& Education journal, written by Mason L.

Table 6. Top 20 Articles with the Most Global Citation

Document	DOI	Year	GC*	LC*
Laı, M.L., 2013, Educ Res Rev	10.1016/j.edurev.2013.10.001	2013	240	0
Van Gog, T., 2005, J Exp Psychol -Appl	10.1037/1076-898X.11.4.237	2005	185	0
D'mello S., 2012, Int J Hum - Comput Stud	10.1016/j.ijhcs.2012.01.004	2012	161	0
Tsaı, M.J., 2012, Comput Educ	10.1016/j.compedu.2011.07.012	2012	154	37
Ozcelık, E., 2010, Comput Hum Behav	10.1016/j.chb.2009.09.001	2010	149	26
Mason, L., 2013, Comput Educ	10.1016/j.compedu.2012.07.011	2013	145	43
Ozcelık, E., 2009, Comput Educ	10.1016/j.compedu.2009.03.002	2009	119	25
Alemdag, E., 2018, Comput Educ	10.1016/j.compedu.2018.06.023	2018	112	24
Van Gog, T., 2005, Appl Cogn Psychol	10.1002/acp.1112	2005	102	0
Mason, L., 2013, J Exp Educ	10.1080/00220973.2012.727885	2013	95	34
Wolff, Ce., 2016, Instr Scı	10.1007/s11251-016-9367-z	2016	91	23
Cook, M., 2008, Scı Educ	10.1002/sce.20262	2008	89	14
Halszka, J., 2012, Instr Scı	10.1007/s11251-012-9218-5	2012	86	14
Van Den Bogert, N., 2014, Teach Educ	10.1016/j.tate.2013.09.001	2014	84	24
Debue, N., 2014, Front Psychol	10.3389/fpsyg.2014.01099	2014	84	4
Lenzner, A., 2013, Instr Scı	10.1007/s11251-012-9256-z	2013	72	7
Azevedo, R., 2019, Comput Hum Behav	10.1016/j.chb.2019.03.025	2019	68	8
Koc-Januchta, M., 2017, Comput Hum Behav	10.1016/j.chb.2016.11.028	2017	66	5
Halszka, J., 2017, J Eye Mov Res	10.16910/jemr.10.1.3	2017	65	0
Tsaı, M.J., 2016, Comput Educ	10.1016/j.compedu.2016.03.011	2016	63	13

Keywords and Trend Topics

In the research, the keywords in the articles of the authors were analyzed, 25 keywords were defined on WordCloud as a result of the analysis. Analysis results are given in figure 7.

Figure 7. WordCloud of Research

There are 972 keywords in total for eye-tracking studies in education. The 25 most frequently repeated words from these keywords are shown on WordCloud. The most recurring keyword is big, and the next ones have sizes according to their frequency. The concept of “eye tracking” was used as a keyword 172 times. The concept of “eye tracking” is used together with synonymous words. The concepts of “eye-tracking”, “eye tracking”, “eye”, “tracking” was collected as a single keyword. After the concept of eye tracking, “multimedia learning” was the second most frequently repeated keyword (f=31), and “learning” was the third most frequently repeated keyword (f=27). The trending status of the keywords given above by years is presented in Figure 8.

The distribution of the keywords used by years is given in Figure 8. According to this figure, it has been determined that the keywords “comprehension”, “visual”, “eye movements” have been replaced by the keyword’s “simulation”, “science learning” and “Professional Vision” in recent years.

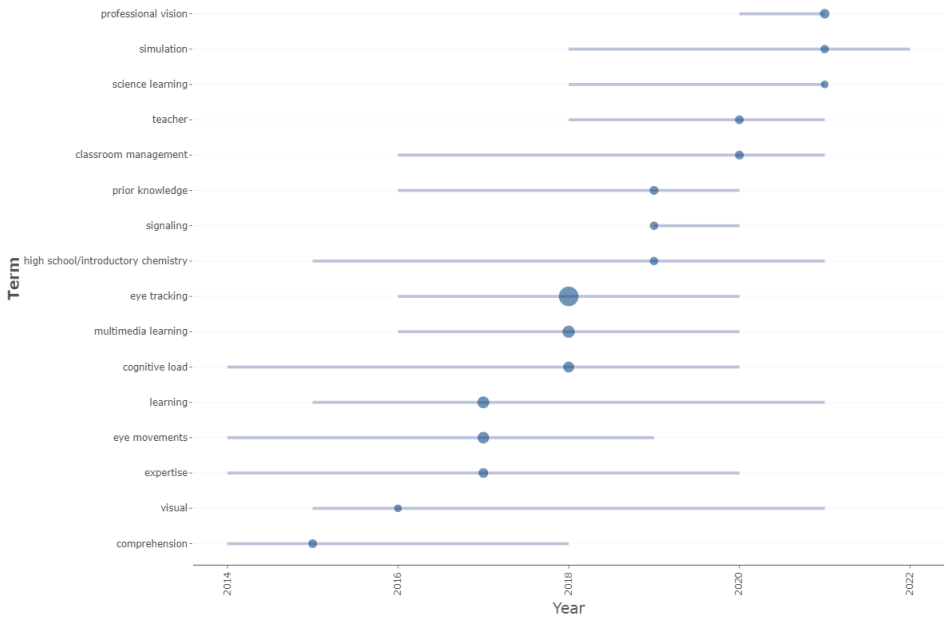

Figure 8. Trend Topics

Discussion and Conclusion

Pupil size variation, repositioning velocity of the eyes, eye movement lengths, and fixation time in aggregate are a few of the straightforward outputs obtained from eye trackers, and these outputs provide users with various kinds of information about focus of attention and cognition. Eye tracking is a very important and serious tool utilized in various domains (like psychology, marketing, human-computer interaction, and neuroscience) today. Eye tracking, providing data and yield especially on attention, perception, and cognition, aids in maximization of the interface design within human-computer interaction, besides helping in judging advertising effectiveness when it comes to marketing. Eye movements also have diagnostic value for cognitive impairment and are significant in the research of skill acquisition in fields like aviation and surgery. In general, eye tracking provides significant information on human behavior and cognition and is of critical significance in research as well as everyday application. Eye tracking is a potent tool in education for untangling cognitive ability, learning approaches, and complex cognitive processes. Eye tracking, by measuring people's gaze and behavior in relation to studying material, makes visible effective modes of learning and pedagogy. Current literature reports growing research on the use of eye-tracking technology to study learning and teaching dynamics because of its increased role in education

studies. Given the vast quantity of publications in the field, the bibliometric review provides a quantitative overview for distinguishing trends, leading researchers, and foundation journals in eye-tracking studies in education. Through tools such as Biblioshiny, researchers can discern patterns, collaboration networks, and shifts in keywords over time, fostering a comprehensive understanding of research trajectories and scholarly contributions. This synthesis underscores the interdisciplinary importance of eye-tracking research in elucidating human cognition and educational methodologies, signaling a fertile ground for exploration and innovation.

This study aims to examine studies on eye-tracking in education from a bibliometric perspective. For this purpose, the journals, authors, institutions and countries that published the most on the subject were determined. The citation status of the publications was examined in detail. The distribution of keywords and trending titles regarding the concept of eye-tracking in education by year was examined.

In the research, it was examined which journals published the most articles on eye-tracking. It was determined that Computer &/ Education (ArtN=25) and Computer in Human Behavior (ArtN=23) journals (Table-2) gave the most space to articles on eye-tracking. In the bibliometric analysis conducted by Chen and Ho (2020) on Technology-enhanced learning in higher education, Computer &/Education journal again made the most publications. In contrast, in a study conducted by Ali, Heldal and Helgelsen (2021), 499 references were examined between 2019 and 2021 (excluding 2021) with the help of Bibliometrics and WOSviewer. In these references, it was determined that the source journal in which such articles were published most was the Journal of Vision, with a total of 21 articles.

Halszka, J. was determined to be the author who did the most research on eye-tracking (Table-3). It was determined that most of the research conducted by Halszka, J. and other authors was conducted after 2015. It is also reflected in the results that the most cited authors locally (authors who wrote articles on the subject of eye-tracking in education) are Çağıltay K (TC=78), Mason L (TC=77) and Halszka, J. (TC=76). In the research conducted by Brasil, Andrade, and Komati, (2020) between 2004 and 2019, the author with the most publications in terms of the number of publications was determined to be Prof. Dr. Oleg Komogortsev. This can be considered as an indicator of how different results can be obtained when similar studies are carried out in different time periods.

It was determined that the university where eye-tracking studies were carried out the most in education was “Natl Taiwan Normal University” (ArtN = 59). It

was also concluded that the countries where eye-tracking research was most conducted in education were China (ArtN=69), Germany (ArtN=68) and the USA (ArtN=61). Karakus, Ersozlu and Clark (2019) found in their bibliometric analysis on augmented reality research in education that China (ArtN=87) and the USA (ArtN=67) made the most publications. Julia et al. (2020)'s bibliometric analysis on flipped classroom, the USA (ArtN = 155) and China (ArtN = 59) lead in the distribution of publications by country. It can be concluded that China and the USA are the leading countries in research on the use of technology in education. In a study on eye-tracking conducted in 2021, the dataset of 2456 articles taken from the Web of Science Core Collection (WoS) database was analyzed using WOSviewer and the Bibliometrix R package. According to research data, extensive collaboration networks were identified between the USA (35.3%), the UK (9.5%) and Germany (7.3%), the three countries with the highest scientific production (Zammarchi & Conversano, 2021). In addition, a study conducted by Ali, Heldal and Helgelsen (2021) aims to analyze and visualize articles published from Web of Science databases. Using Web of Science databases, 499 references were examined between 2019 and 2021 (excluding 2021) with the help of Bibliometrics and WOSviewer. It was found that literature from the USA received the most citations with n = 3939 from only 163 articles. On the other hand, in the study conducted by Atabay and Güzeller (2021) on the concept of eyetracking within the scope of tourism, the Czech Republic was determined to have the highest number in terms of broadcast frequency between countries.

Among the articles included in the research, it was determined that the article with the most global citations belonged to Lai (2013) (GC=240). In a study conducted by Salgado-Fernández et al. (2022) on the concepts of "eye-tracking" and "academic achiev", it was determined that there was a study published by Deubel et al. in 1999 with a citation index of 214.

In the final analysis, the keywords of the articles subject to the research were examined statistically. The concepts of "eye tracking", "eye-tracking", "eye" and "tracking" along with their synonyms were the most repeated keywords (f=172) and the word "learning (f=31)" was the most frequently repeated keyword. It was determined that the word.

As a result of the research, the general characteristics of the articles included in the WoS database in order to conduct bibliometric analysis of the documents obtained by using the concepts of "education" and "eye-tracking" (table-1), the increasing annual accumulation on the subject (table-2), The most influential authors, sources and keywords have been compiled. It was determined that the articles were mostly published in the "Computer &/Education" journal, the most

influential author was “Halszka, J.”, the most influential university was “Natl Taiwan Normal Univ” and the most influential countries were “China and the USA”. The research will help shed light and guide other research on eye-tracking in education.

One of the biggest elements that makes this study special when compared to studies carried out within the framework of the same theme and concept is that the concept of eye-tracking is examined meticulously in the focus of education. When we consider the current state of technology and education, it can be said that the fact that these two concepts have not been studied before is a major deficiency in literature. In parallel with this study, the concept of eye-tracking has been researched with various methods in many fields such as tourism, marketing, medicine, and economy (Ali, Heldal, & Helgesen, 2021; Atabay & Güzeller, 2021; Chen et al., 2021; Li & Wong, 2022; Liu, 2022; Pei et al., 2023; Salgado-Fernández et al., 2022; Xu et al., 2022; Zammarchi, & Conversano, 2021). Studies similar to the methods and techniques used in this study also focused on the same themes (tourism, marketing, medicine, etc.). However, in this study, the eye-tracking concept was implemented entirely in the focus of education. All studies conducted in previous years recommend that the eye-tracking concept be examined together with various disciplines (Brasil, Andrade, & Komati, 2020; Zammarchi, & Conversano, 2021).

Recommendations

When the findings and other studies are compared, obvious differences as well as similarities stand out. This situation reveals the importance of expanding, repeating, specificating and deepening the research, even in research conducted on a single concept according to years, fields or different variables. Additionally, a study conducted by Zhi-Tiao et al. (2022) showed that publications on eye movements scanned in the literature until March 2021 have increased rapidly in the last two decades. Repeating similar studies will bring a different perspective to the studies carried out in this field in the coming years. Future studies can produce studies that provide interesting and new perspectives by analyzing various academic databases or new databases and different types of publications more comprehensively (language, culture, academic unit, etc.). In addition, future studies can contribute to literature by using different bibliometric techniques, while enriching it with various keywords can emphasize the popularity and importance of the eye-tracking concept under various headings.

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Chapter 3

Item Analysis in Tests with Different Software: A Practical Comparison Using Manual Calculation, TAP, and SPSS

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Introduction

When creating a test, it is necessary to calculate statistics related to the items that will be included in the test. This allows for item analysis to be performed when deciding which items should not be included in the test or which items should be modified before being included in the test. The applications presented in this section are discussed from the perspective of Classical Test Theory (CTT). Additionally, the applications are intended for item analysis of items scored dichotomously (1–0), where correct responses receive 1 (full credit), and responses that are multiple-selected, left blank, or incorrect receive 0 points.

1. Statistics Used in Item Analysis

The most commonly used item statistics, calculated separately for each item in the test, can be summarized as item difficulty index, item discrimination index, item variance, and item reliability coefficient.

1.1. Item Difficulty Index (p)

The item difficulty index, calculated for each item in the test, provides information about the difficulty levels of the items. For dichotomously scored (1–0) items, it can be defined as the average score of each item (Crocker and Algina, 1986; Baykul, 2010). In other words, it is the rate at which items are answered correctly by students. The item difficulty index value can be calculated using the Henryson method and the upper-lower (%27) group method.

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1.1.1. Item Difficulty Index Using the Henryson Method

In this method, the item difficulty index is calculated by taking into account the responses of the entire group taking the test. The calculation according to the method is presented in Equation 1.

$$p_j = n_{(Ti)} / N \qquad \text{Equation (1)}$$

p_j: Difficulty index of the jth item
$n_{(Ti)}$: Number of respondents who answered the question correctly
N: Total number of examinees

For example, if 50 students participated in a test and 50 students answered a question correctly, the correct answer rate for that question would be 50/50=1. Therefore, all students answered correctly and the question is very easy. If 25 students answered the same question correctly, the correct answer rate would be 25/50=0.5.

In this case, the item would be considered of medium difficulty. If all students answered the same item incorrectly, the ratio would be 0/50 = 0, and the item would be considered very difficult. In this context, the item difficulty index takes values between 1 and 0. The distribution of item difficulty index values is presented in Figure 1.

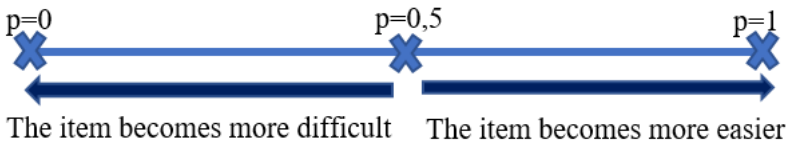

Figure 1. Distribution of test item difficulty indices

According to Figure 1, as the percentage of people who answer the item correctly increases (approaching 1), the item becomes easier, and as the percentage of people who answer the item correctly decreases (approaching 0), the item becomes more difficult. Criteria and explanations regarding item difficulty index values are presented in Table 1 (Başol, 2015).

Table 1. Criteria for item difficulty index values

Values	Comments
1 - 0,85	Very easy (Item should be removed from the test)
0,84 – 0,61	Easy (Item can be revised if it can be made more difficult. If not, and if it measures an important feature, it can be used at the beginning of the test.)
0,60 – 0,40	Moderate difficulty (ideal item)
0,39 – 0,16	Difficult (the item can be revised if it can be made easier. If not, and if it measures an important feature, it can be used to motivate successful students.)
0,15 - 0	Very difficult (the item should be removed from the test without hesitation.)

1.2. Item Discrimination Index

Items included in the test are expected to distinguish between students who possess the characteristics to be measured by the item and those who do not (Atılgan, 2015: 301). The item discrimination index is used as an indicator of this situation. The item discrimination index can be calculated using the point-biserial correlation coefficient or the upper-lower (%27) group method.

1.2.1. Calculation of the Item Discrimination Index Using the Point-Biserial Correlation Coefficient

For dichotomously scored (1–0) items, the point-biserial correlation coefficient is used to calculate the item discrimination index, as presented in Equation 2.

$$r_{\text{point biseral}} = r_{jx} = \frac{\overline{X_{jT}} - \overline{X_x}}{S_x} \cdot \sqrt{\frac{p_j}{q_j}} \qquad \text{Equation (2)}$$

r_{pb}: r_{jx}: Item discrimination index

$\overline{X_{jT}}$: Mean total score of examinees who answered item j correctly

$\overline{X_x}$: Mean test score

p_j: Item difficulty index q_j: $(1-p_j)$

S_x: The standard deviation of test scores

$S_x = \sqrt{p_j q_j}$

The item discrimination index ranges from -1 to +1. The criteria used to evaluate the item discrimination index are presented in Table 2 (Başol, 2015).

Table 2. Item discrimination index values

Values	Comments
0,40 and above	Very good discriminator
0,39 – 0,30	Good discriminator
0,29 – 0,20	Item should be revised
0,19 and below	Item should not be included in the test

Corcker and Algina (1986) state that when the item discrimination index value $r_{jx} \geq 0{,}30$, the item can be used directly in the test, $0{,}20 \geq r_{jx} \geq 0{,}29$, the item can be used in the test after being revised, and $r_{jx} \leq 0{,}19$, the item should either be completely revised or not used at all.

1.3. Item Variance and Item Standard Deviation

Item variance is equal to the product of the percentage of respondents who answered the item correctly (item difficulty index, p) and the percentage of respondents who answered the item incorrectly. The equation for item variance is given in Equation 3 (Lord and Novick, 1968; Crocker and Algina, 1986).

$$S_j^2 = p_j . q_j \qquad \text{Equation (3)}$$

S_j^2: Item variance

p_j: Item difficulty index of the jth item (percentage of respondents who answered the item correctly)

q_j: Percentage of respondents who answered the jth item incorrectly

$(q_j = 1 - p_j)$

1.4. Calculation of Item Difficulty and Item Discrimination Index Values According to the Upper-Lower Group Method

In the upper-lower group method, test scores are used as the "criterion," while the "criterion groups" are the upper-lower groups of 27%. In applying this method, the group size should be at least 100, preferably around 200.

When forming the upper-lower groups, first determine 27% of the number of people in the group. Then, rank the test scores from highest to lowest, and the first 27% with the highest scores form the upper group, while the last 27% with the lowest scores form the lower group (Baykul, 2010).

Then, the responses given by the upper and lower groups (for each item) to the options are collected and a table is prepared. The distribution of responses given by individuals in the upper and lower groups for each option is presented in Table 3.

Table 3. Distribution of responses according to the upper-lower group method

	A	B	C*	D	Total
Upper group	n_U(A)	n_U(B)	n_U(C)	n_U(D)	N_U
Lower group	n_L(A)	n_L(B)	n_L(C)	n_L(D)	N_L
Total	N(A)	N(B)	N(C)	N(D)	N

Note: * Correct answer

According to Table 3;
n_u(A): Number of people who selected option A in the upper group
n_L(A): Number of people who selected option A in the lower group
N(A): Number of people who selected option A in the upper and lower groups
Nu: Total number of people in the upper group
N_L: Total number of people in the lower group
N: Total number of people in the upper and lower groups

The item difficulty index is presented in Equation 4.

$$p_j=(n_U+n_L)/N \qquad \text{Equation (4)}$$

The item discrimination index is presented in Equation 5.

$$r_{jx}=(n_u-n_L)/N_U \qquad \text{Equation (5)}$$

2. Applications of Material Analysis According to Different Software Programs

Under this heading, examples of three different methods of applying material analysis are presented. These are, in order:

2.1. Manual calculation
2.2. Using the TAP program
2.3. Using the SPSS program

2.1. Manual Calculation Method

2.1.1. Creating a Matrix for Item Scores

Before conducting statistical analyses of the items and the test after the test administration, it is necessary to score the participants' responses to the items. Table 4 shows the item response patterns of 15 students on a 15-item test and the answer key for the test.

Table 4. Item response patterns for the test

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
271001	B	A	C	D	D	D	B	B	D	E	A	A	B	E	A
271002	A	A	E	A	C	D	B	B	B	E	A	E	B	B	A
271003	E	E	E	E	D	C	D	E	C	D	C	D	D	B	D
271004	C	A	E	A	E	D	B	A	E	C	D	C	B	B	A
271005	E	A	E	C	B	D	B	D	E	D	D	E	C	B	A
271006	A	A	D	D	E	D	E	B	E	E	D	C	E	B	A
271007	E	A	D	E	D	C	E	B	E	E	E	E	E	D	A
271008	A	E	D	B	D	D	B	C	A	C	A	E	E	B	A
271009	C	A	A	E	D	D	B	B	C	E	A	D	B	A	D
271010	A	D	E	A	C	D	B	B	E	E	A	A	B	B	A
271011	A	A	D	E	C	D	B	E	D	E	A	E	B	B	A
271012	A	A	B	A	C	D	B	D	B	D	D	D	D	B	E
271013	B	A	D	E	C	D	B	D	D	D	A	B	B	D	E
271014	D	A	B	C	E	D	E	C	D	C	C	D	B	B	E
271015	E	E	D	D	D	D	D	A	B	C	B	C	C	D	D
Answer key	A	A	E	A	C	D	B	B	B	E	A	A	B	B	A

First, the item response patterns in Table 4 are converted into a dichotomous (1-0) scoring matrix by assigning a score of “1” to correct responses and a score of “0” to incorrect and blank responses. This matrix is then used to calculate item and test statistics. The dichotomous (1-0) scoring format of the item response pattern is presented in Table 5.

Table 5. Dichotomous (1-0) scoring matrix of item response pattern

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	X_i
271001	0	1	0	0	0	1	1	1	0	1	1	1	1	0	1	9
271002	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	14
271003	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2
271004	0	1	1	1	0	1	1	0	0	0	0	0	1	1	1	8
271005	0	1	1	0	0	1	1	0	0	0	0	0	0	1	1	6
271006	1	1	0	0	0	1	0	1	0	1	0	0	0	1	1	7
271007	0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	4
271008	1	0	0	0	0	1	1	0	0	0	1	0	0	1	1	6
271009	0	1	0	0	0	1	1	1	0	1	1	0	1	0	0	7
271010	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	13
271011	1	1	0	0	1	1	1	0	0	1	1	0	1	1	1	10
271012	1	1	0	1	1	1	1	0	1	0	0	0	0	1	0	8
271013	0	1	0	0	1	1	1	0	0	0	1	0	1	0	0	6
271014	0	1	0	0	0	1	0	0	0	0	0	0	1	1	0	4
271015	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
I_J	6	11	5	4	5	13	10	6	3	7	7	2	8	10	9	106
p	0.4	0.7	0.3	0.3	0.3	0.9	0.7	0.4	0.2	0.5	0.5	0.1	0.5	0.7	0.6	
q	0.6	0.3	0.7	0.7	0.7	0.1	0.3	0.6	0.8	0.5	0.5	0.9	0.5	0.3	0.4	

Table 5 shows the ID (student number) of 15 students, the total score for each item (I_j), and the raw score for each student (X_i). For example, the raw scores obtained by students with ID numbers 271001 and 271002 are X_1=9 and X_2=14, respectively. The total item scores indicate how many students answered each item correctly. For example, the first item was answered correctly by a total of 6 students (I_1 =6). Additionally, the sum of the item scores ($\sum_{j=1}^{n} I_j = \sum_{j=1}^{15} I_j = 106$) is equal to the sum of the students' raw scores ($\sum_{i=1}^{n} X_i = \sum_{i=1}^{15} X_i = 106$).

2.1.2.Calculation of Item Difficulty Index

The item difficulty indices of items 1 and 2 are calculated as follows.

$$p_j = {}^{n_T}/_{N}$$

$$p_1 = {}^{n_T}/_{N} = {}^{6}/_{15} = 0{,}4$$

Interpretation of the item difficulty index for Item 1: Item 1 was answered correctly by 40% of the students who took the test and is a difficult item.

$$p_2 = {}^{n_T}/_{N} = {}^{11}/_{15} = 0{,}7$$

Interpretation of the item difficulty index for Item 2: Item 2 was answered correctly by 70% of the students who took the test and is an easy item.

2.1.3.Calculation of Item Variance and Item Standard Deviation

The item variance (S_j^2) and item standard deviation (S_j) of items 1 and 2 in Table 5 are calculated as follows.

$$S_1^2 = p_1.q_1 = 0{,}4 * 0{,}6 = 0{,}24$$
$$S_1 = \sqrt{p_1.q_1} = \sqrt{0{,}4 * 0{,}6} = 0{,}49$$
$$S_2^2 = p_2.q_2 = 0{,}7 * 0{,}3 = 0{,}22$$
$$S_2 = \sqrt{p_2.q_2} = \sqrt{0{,}7 * 0{,}3} = 0{,}47$$

2.1.4.Calculation of the Item Discrimination Index

$$r_{\text{point biseral}} = r_{jx} = \frac{\overline{X_{jD}} - \overline{X_x}}{S_x} \cdot \sqrt{\frac{p_j}{q_j}}$$

The discrimination index for Items 1 and 2 is calculated as follows. Six students answered Item 1 correctly, and their raw scores are as follows:

X_1 = 14, 7, 6, 13, 10, and 8. The average score of these students is:

$\overline{X_{jD}}$ = (14 + 7 + 6 + 13 + 10 + 8) / 6 = 9.67.

The average of the raw scores of all students who took the test is:

$\overline{X_X}$= (9+14+2+…+6+4+2)/15=7.07

The standard deviation of the test scores is:

$$S = \sqrt{\frac{\sum_{i=1}^{15}(X-\bar{X})^2}{n-1}} = \sqrt{\frac{(9-7{,}07)^2+(14-7{,}07)^2+\cdots+(4-7{,}07)^2+(2-7{,}07)^2}{15-1}} = \sqrt{\frac{170{,}93}{14}} = 3{,}49$$

The discrimination index of item 1 is;

$$r_{1x} = \frac{\overline{X_{1D}}-\overline{X_x}}{S_x} \cdot \sqrt{\frac{p_1}{q_1}} = \frac{9{,}67-7{,}07}{3{,}49} \cdot \sqrt{\frac{0{,}4}{0{,}6}} = 0{,}608$$

2.1.5. Calculation of Item Difficulty and Item Discrimination Index According to Lower-Upper Groups

A class of 156 people was divided into lower and upper groups, each comprising 27% of the total, according to lower and upper group analysis. The distribution of responses to item 20 according to the lower-upper group method is presented in Table 6.

Table 6. Distribution of responses according to the lower/upper group method

Item 20	A*	B	C*	D	E	Total
Upper group	30	10	2	0	0	42
Lower group	11	7	8	8	8	42
Total	41	17	10	8	8	84

According to Table 6 Item difficulty index;

$pj=(n_U+n_L)/N=(30+11)/84 = 0.49$, which is a medium difficulty item.

Item discrimination index;

$r_{jx}=(n_U-n_L)/N_U=(30-11)/42=0.45$, which is a very good discriminating item.

2.2. Item analysis in the Test Analysis Program (TAP)

In this section, the substance analysis process in the Test Analysis Program (TAP) is presented step by step.

Step 1: Before performing the analysis in the TAP program, the ".txt" data file prepared is loaded into the program as shown in Figure 2.

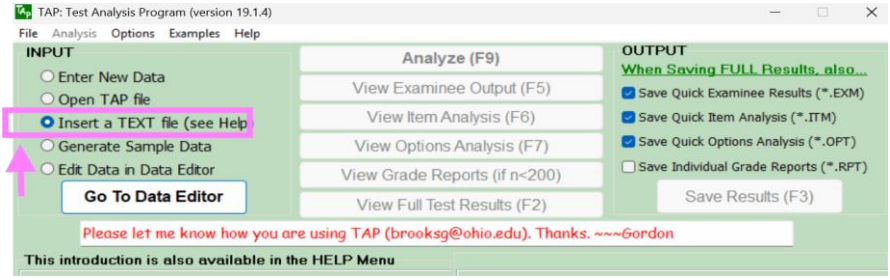

Figure 2. Loading the TAP data file

Step 2: Information about the data file is introduced to the program as shown in Figure 3.

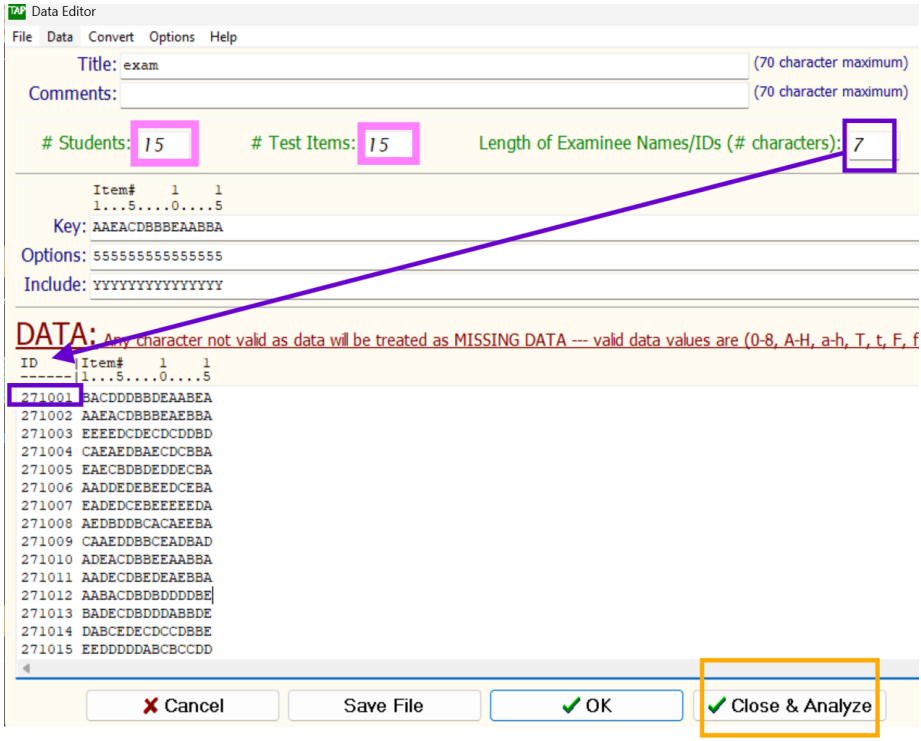

Figure 3. Entering data in TAP

In Figure 3, the number of students taking the test (Students) and the number of items in the test (test items) must be entered. In addition, the number of characters used for the ID information at the beginning of each row must be entered in the "Length of examinee names" field. For example, in the data entry "27101 BDACEBDACE," the ID length refers to the number of characters preceding the response data, so 7 should be entered. Then, if the items are not scored on a 1-0 scale, the answer key (key field) is entered. The number of options (e.g., A_B_C_D_E: 5 options) is specified. For items to be included in the analysis, "y" is entered in the include box. If all items are to be included in the analysis, 'y' is entered for each item. If items 5 and 8 were not to be included in the analysis, "yyyynyynyy" would be entered in the include box.

Step 3: After the data file is introduced to the program, click the "OK" and "Close and Analyze" buttons. The analysis results are presented in Figures 4, 5, and 6.

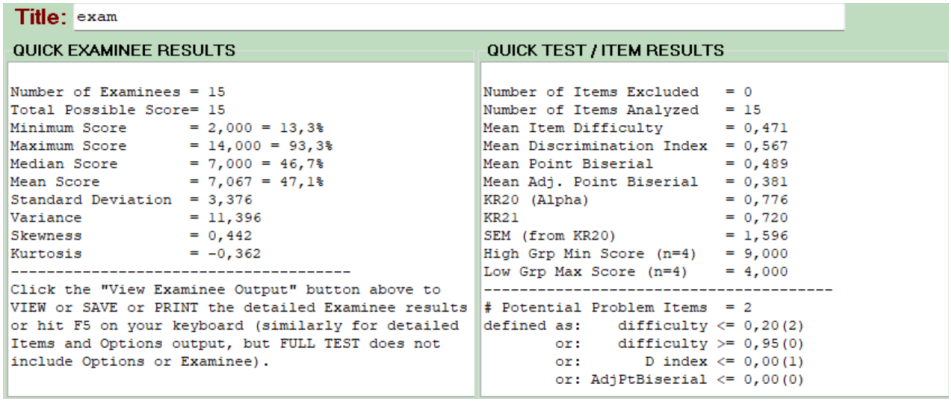

Figure 4. View test analysis results

Figure 4 shows statistics on the test scores of the group that took the exam. For example, the total number of people in the group that took the exam (N=15), the highest and lowest scores obtained in the exam, and the measures of central tendency and central dispersion of the scores are shown. Additionally, the average difficulty of the test, average discriminative power, KR-20 reliability coefficient, and standard error of measurement are also provided in the view test analysis results screen. The analysis results related to item analysis are presented in Figure 5.

TITLE: exam
COMMENT:

Quick Item Analysis

Item	Key	Number Correct	Item Diff	Disc. Index	# Correct in High Grp	# Correct in Low Grp	Point Biser	Adj PtBis
Item 01	(1)	6	0,40	0,75	3 (0,75)	0 (0,00)	0,63	0,53
Item 02	(1)	11	0,73	0,25	3 (0,75)	2 (0,50)	0,24	0,11
Item 03	(5)	5	0,33	0,25	2 (0,50)	1 (0,25)	0,32	0,19
Item 04	(1)	4	0,27	0,50	2 (0,50)	0 (0,00)	0,66	0,57
Item 05	(3)	5	0,33	0,75	3 (0,75)	0 (0,00)	0,66	0,57
Item 06	(4)	13	0,87	0,50	4 (1,00)	2 (0,50)	0,47	0,39
Item 07	(2)	10	0,67	1,00	4 (1,00)	0 (0,00)	0,68	0,60
Item 08	(2)	6	0,40	0,50	3 (0,75)	1 (0,25)	0,47	0,34
Item 09	(2)#	3	0,20	0,00	1 (0,25)	1 (0,25)	0,14	0,02
Item 10	(5)	7	0,47	0,75	4 (1,00)	1 (0,25)	0,58	0,46
Item 11	(1)	7	0,47	1,00	4 (1,00)	0 (0,00)	0,61	0,51
Item 12	(1)#	2	0,13	0,50	2 (0,50)	0 (0,00)	0,46	0,37
Item 13	(2)	8	0,53	0,75	4 (1,00)	1 (0,25)	0,57	0,46
Item 14	(2)	10	0,67	0,25	3 (0,75)	2 (0,50)	0,31	0,17
Item 15	(1)	9	0,60	0,75	4 (1,00)	1 (0,25)	0,54	0,42

Figure 5. Quick item analysis results

Figure 5 shows the item difficulty index, item discrimination index, and the number of students who answered the item correctly in the upper and lower groups for each item in the test. For example, item 1 was answered correctly by 6 students. The number of students who answered correctly in the upper group was 3, while the number of students who answered correctly in the lower group was 2. The item difficulty index is p=0.40, indicating moderate difficulty. The item discrimination index is 0.75, and the point-biserial correlation coefficient is 0.63. Therefore, it can be said that Item 1 effectively distinguishes students based on the desired trait. The results of the option analysis are presented in Figure 6.

TITLE: exam
COMMENT:

Quick Options Analysis

* is keyed answer, # is option that discriminates better than keyed answer

Item	Group	Option 1	Option 2	Option 3	Option 4	Option 5
1	TOTAL	6*(0,400)	2 (0,133)	2 (0,133)	1 (0,067)	4 (0,267)
	High	3 (0,750)	1 (0,250)	0 (0,000)	0 (0,000)	0 (0,000)
	Low	0 (0,000)	0 (0,000)	0 (0,000)	1 (0,250)	3 (0,750)
	Diff	3 (0,750)	1 (0,250)	0 (0,000)	-1(-0,250)	-3(-0,750)
2	TOTAL	11*(0,733)	0 (0,000)	0 (0,000)	1 (0,067)	3 (0,200)
	High	3 (0,750)	0 (0,000)	0 (0,000)	1 (0,250)	0 (0,000)
	Low	2 (0,500)	0 (0,000)	0 (0,000)	0 (0,000)	2 (0,500)
	Diff	1 (0,250)	0 (0,000)	0 (0,000)	1 (0,250)	-2(-0,500)

Figure 6. Options analysis results

Figure 6 shows the distribution of responses to each item's options according to the upper and lower groups. For example, the correct answer for item 1 is option A, and the number of respondents who marked the correct answer in the upper group is 3, while in the lower group it is 0. Those in the lower group were most likely to choose distractors E and D.

2.3. Applying Item Analysis in SPSS

When performing item analysis in the SPSS program, the first step is to convert student responses into a scoreable format. To do this, correct answers must be recoded as "1" and incorrect or blank answers as "0." Figure 7 shows the stages of scoring item responses as 1-0.

Step 1. Converting item responses to 1-0 scoring in SPSS

From the menu: Select Transform → Recode into Different Variables.

For example, for item 1, the correct option (e.g., "A") → '1'

Other options (e.g., B, C, D, E) → "0"

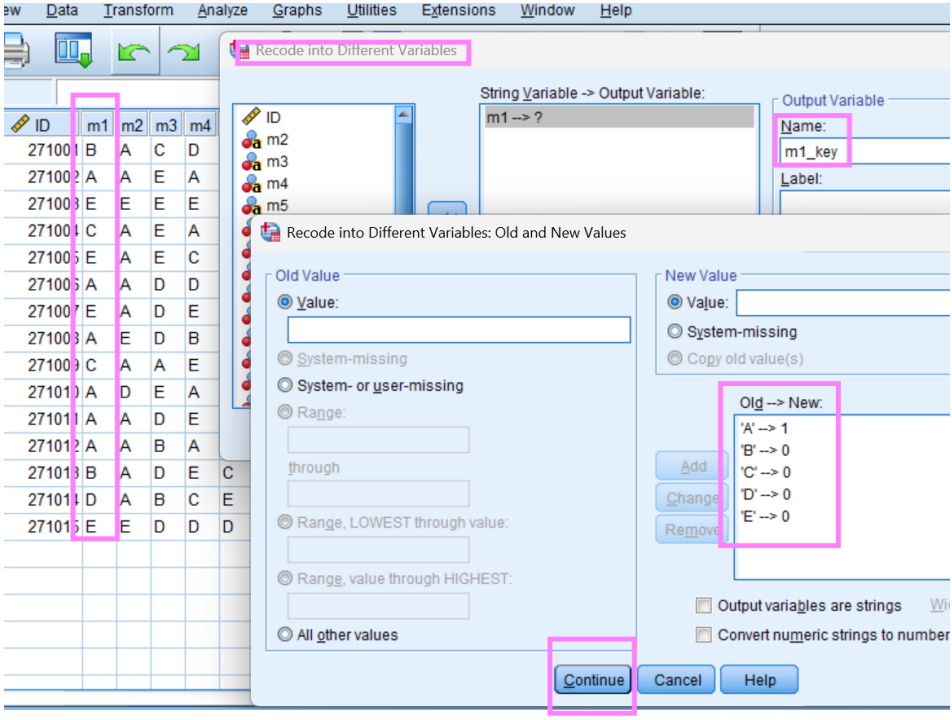

Figure 7. Stages of scoring item responses on a 1-0 scale

2.3.1. Calculating the Item Difficulty Index

After the data has been coded on a 1-0 scale, follow the steps below to calculate the item difficulty index:

- Select Analyze → Descriptive Statistics → Descriptives.
- The items for which the item difficulty index will be calculated (e.g., M1_key …) are transferred to the "Variables" box.
- Select only "Mean" from the Options menu. (The mean here directly gives the item difficulty index (p-value) because it shows the percentage of students who scored 1.
- When you press OK, the mean values for each item are obtained.

Figure 8 shows the steps for calculating the item difficulty index.

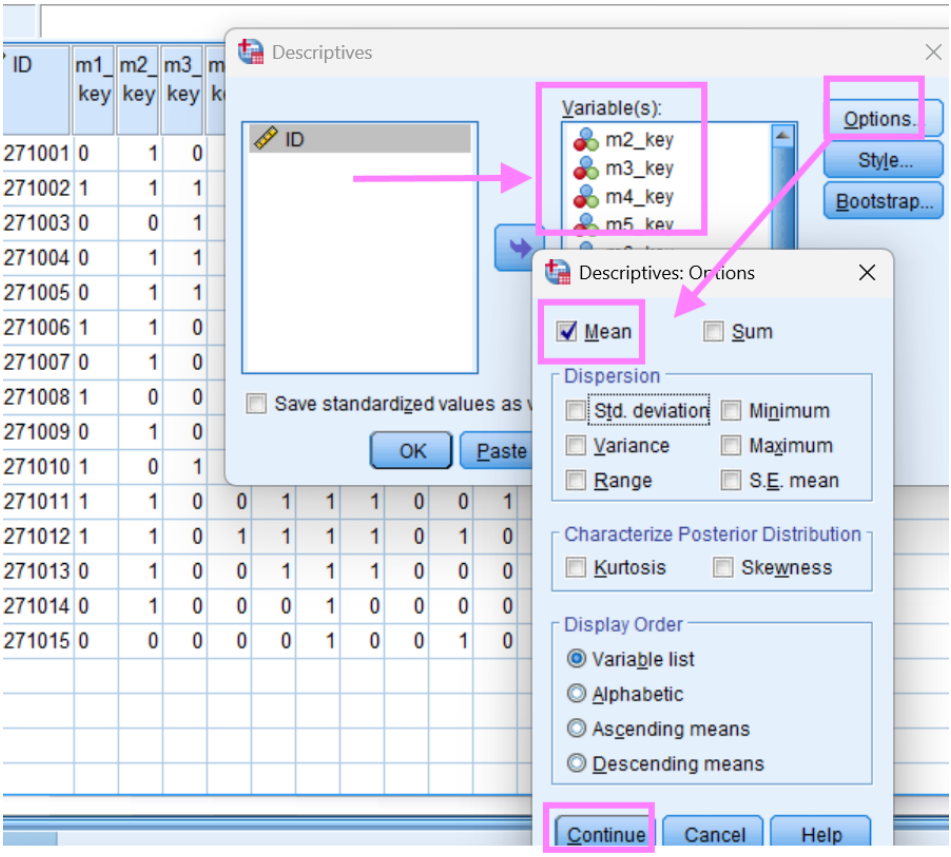

Figure 8. Stages of calculating the item difficulty index

Step 3: Evaluation of the analysis results of the item difficulty index

The item difficulty index results are presented in Figure 9.

Descriptive Statistics

	N	Mean
m1_key	15	,40
m2_key	15	,73
m3_key	15	,33
m4_key	15	,27

Figure 9. Item difficulty index results

Figure 9 shows the item difficulty index values for each item. For example, the item difficulty index for item 1 is 0.40 (difficult item) and for item 2 it is 0.73 (easy item).

2.3.2. Calculation of Item Discrimination Index

Step 4. Calculation of Total Score

To calculate the item discrimination index, the total score must first be calculated. To calculate the total score in SPSS, follow these steps:

- Transform → Compute Variable
- Target Variable: X (TotalScore)
- Numeric Expression: Sum (m1_key+m2_key3+…+m15_key)

After calculating the total score, follow the steps below to calculate the point-biserial correlation coefficient. Figure 10 shows the steps for calculating the item discrimination index.

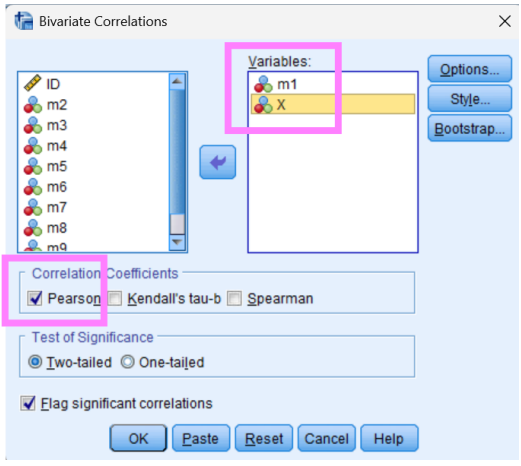

Figure 10. Calculation of the item discrimination index (point-biserial correlation coefficient)

Figure 11 presents the analysis results of the point-biserial correlation coefficient

Correlations

		X	m1
X	Pearson Correlation	1	,629*
	Sig. (2-tailed)		,012
	N	15	15
m1	Pearson Correlation	,629*	1
	Sig. (2-tailed)	,012	
	N	15	15

Figure 11. Item difficulty index (point-biserial correlation coefficient) analysis results

According to Figure 11, the item discrimination index value of item 1 was obtained as approximately 0.63. Therefore, item 1 can be said to be a good discriminating item.

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Chapter 4

Examining Undergraduate Students' Attitudes Towards Environmental Problems in Terms of Various Variables

Gökhan DEMİRCİOĞLU[1]

1. Introduction

Humanity's struggle with nature has been increasingly ongoing since the dawn of humanity. At the core of this struggle lies the idea of dominating and controlling nature. This struggle accelerated, particularly with the industrial revolution. While other living things struggled to live in harmony with nature, humanity attempted to control nature to the extent of its power (Yıldız, Sipahioğlu & Yılmaz, 2000). Conversely, the belief that nature's resources were infinite or constantly renewing led humanity to consume them unconsciously and rapidly. The unconscious and rapid consumption of resources that emerged with the industrial revolution, combined with humanity's struggle to control nature, has led to the emergence of significant environmental problems over time.

Yeşilyurt, Gül, and Demir (2013) define the environment as “the setting in which living and non-living things coexist and interact”. Similarly, Keleş and Hamamcı (2005) define the environment as “all of the natural and artificial elements that condition human life.” Gökmen (2007) defines the concept of environment as “the totality of biological, chemical, physical, climatic, and geographic factors that can be effective in a particular living setting”. Similarly, Sungurtekin (2001) defines the environment as “the totality of physical, chemical, biological, and social factors that may have a direct or indirect effect on human activities and living things at a specific time”. Yücel and Morgil (1998) define the concept of environment as "all biotic and abiotic (social, cultural, historical, climatic, physical) factors that affect a living organism or a community throughout its lifespan." In addition to this last definition, they emphasize that social and cultural activities should also be considered within the concept of environment. It is incorrect to view the environment solely as elements within which living and nonliving entities interact or operate. Rather, it should be

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understood that settings that are invisible to us and not within our range of action, as well as living and nonliving entities that previously lived or existed in those settings, should also be included within the definition of environment.

Environmental pollution is defined as the intense mixing of foreign substances into the air, water, and soil, which negatively affects the health of living things, harms inanimate objects, and degrades their quality (Çepel, 2008). According to 2021 United Nations Environment Programme (UNEP) report, approximately 11 million tons of plastic waste enters the oceans worldwide annually (UNEP, 2021). Furthermore, the Intergovernmental Climate Change Analysis (IPCC) 2023 report emphasizes that if global temperature increases exceed 1.5°C compared to pre-industrial levels, we will face irreversible environmental impacts (IPCC, 2023). Environmental problems can be classified by source as natural (volcanic eruptions, earthquakes, natural forest fires, tsunamis) and human-induced (industry, fossil fuels, chemical use in agriculture, urbanization, waste production). Another classification can be made based on their impact magnitude: local (noise pollution, solid waste management), regional (pollution of river basins, forest destruction), and global (global warming, ozone depletion, sea level rise). Environmental problems can be classified based on their impact: air pollution (greenhouse gas (CO_2, CH_4) emissions, acid rain, particulate matter pollution), water pollution (industrial waste, household waste, agricultural chemicals (nitrate, phosphate, etc.)), and soil pollution (heavy metals, solid waste, pesticide residues). As can be seen, multiple classifications can be made for environmental problems. This demonstrates the importance and interdisciplinary nature of this issue.

Today, environmental problems, such as global warming, air and water pollution, and biodiversity loss, have become increasingly threatening. The rise in greenhouse gases like CO_2 and methane in the atmosphere is driving global average temperatures higher. Industrial facilities and transportation vehicles release harmful waste directly into the air and water. Forests are being destroyed for reasons such as agricultural land clearing, mining, and construction. The destruction of natural habitats threatens the extinction of many species. These problems directly impact not only ecosystems but also human health and quality of life. Therefore, the awareness and attitudes of individuals and societies towards environmental problems play a critical role in solving these problems. Because the human factor constitutes the core of environmental problems, the adoption of an educational approach that will change people's perspective on the environment (Gökçe, Kaya, Aktay, & Özden, 2007) and its urgent implementation are considered crucial. Environmental education at the primary and secondary school levels contributes to children's more respectful behavior toward nature. It has

been argued that university students taking courses in environmental education, environmental engineering, ecology, or sustainability contribute to more positive attitudes toward the environment (Erökten & Durkan, 2010). However, understanding environmental problems, generating solutions, and inducing positive changes in people's environmental behavior are not possible solely through environmental education (Özbuğutu, 2014). A true solution to environmental problems is possible when people living in a shared environment become more aware of the environment, consider it in all their activities, prioritize it, and encourage each other to protect it (Wang et al., 2004). In other words, it can only be achieved by everyone taking responsibility. UNESCO's five fundamental concepts for environmental education -knowledge, awareness, attitude, skills, and participation (Ünal & Dımışkı, 1998)- require a holistic approach to the environment. Raising environmental awareness in educational institutions is seen as the key to creating lasting and positive behavioral changes in individuals. Studies conducted in line with this purpose reveal that environmental education is not just about conveying information; it also aims to develop individuals' sensitivity to environmental problems and to review their attitudes and behaviors (Demir & Yalçın, 2014; Kızıl, 2012).

The sociocultural environment, demographic characteristics, and life experiences of an individual play a significant role in the development of environmental awareness, as do their educational level. Özgen's (2012) study found that female teacher candidates have higher environmental sensitivity than male teachers, and that significant differences exist between departments, while no significant differences exist based on grade level or location. Similarly, Erol (2005) found that female students develop more positive attitudes toward the environment than male students, and that age, number of siblings, and mothers' occupations are also determinants of environmental attitudes. On the other hand, the participants' place of residence, geographical region, father's profession, mother and father's education level, the house they live in, family income level and having taken environmental courses before were not seen as important factors in their attitudes towards the environment (Erol, 2005). Another study found that the attitude scores of female middle school students were statistically significantly different from those of male students, but no significant differences were found between the attitude scores in terms of age, grade level, school type, parental education, or income levels (Ağtaş, Bektaş, & Güneri, 2019). Karaismailoğlu (2018) found in his study that female teachers had significantly higher attitude and knowledge levels than male teachers, but there was no significant difference between them in terms of environmental behavior. In a study conducted with middle school students, Mutlu Yüceer (2025) determined that female students' perceptions of environmental issues were higher than male students. This

suggests that gender is a common variable in shaping environmental attitudes. In their study with prospective teachers, Yılmaz and Zorlutuna (2024) determined that environmental awareness and sensitivity were strong determinants of behavior toward environmental issues.

Today's increasing environmental problems necessitate a reevaluation of individuals' attitudes and behaviors toward the environment. The studies examined reveal that environmental awareness is influenced by many factors. When the results of these studies are evaluated, it is observed that they are highly supportive of each other. A high level of awareness and awareness of environmental issues, particularly among university students, who constitute the young population and will shape the future, and among teacher candidates who will serve as role models for and train future generations, is considered crucial for a healthier environment. In other words, the environmental awareness and attitudes of university students are crucial for ensuring environmental sustainability within the ever-changing social structure. Therefore, university students were selected as the sample for this study.

1.1. The Purpose of Research

The primary purpose of this study was to examine the environmental attitudes of students studying in various departments at Trabzon University (Public Relations and Advertising, Journalism, and Primary Science Education) in terms of various demographic variables. Within this primary objective, the following sub-objectives were addressed:

1. Do students' attitudes towards environmental problems differ in terms of gender?
2. Do students' attitudes towards environmental problems differ in terms of department variable?
3. Do students' attitudes towards environmental problems differ in terms of family income status?
4. Do students' attitudes towards environmental problems differ in terms of the overall academic average (OAA) variable?
5. Do students' attitudes towards environmental problems differ in terms of age?
6. Do students' attitudes towards environmental problems differ in terms of place of residence?
7. Do students' attitudes towards environmental problems differ in terms of the mother's education level variable?
8. Do students' attitudes towards environmental problems differ in terms of the father's education level variable?

2. The Method of Research

This study, which aims to assess university students' attitudes toward environmental issues across various variables, was conducted using descriptive survey methods, a quantitative research method. According to Karasar (2006), survey models are studies that aim to describe/portray a past or present situation as it is, without intervening in the environment. This study employed a descriptive survey method because it aimed to describe the current perceptions of participating university students toward environmental issues.

2.1. The Sample of Research

The sample for this study consisted of 293 students (175 female and 118 male) studying in the Public Relations and Advertising, Journalism, and Primary Science Education programs at Trabzon University. The distribution of the study sample by variables is presented in Table 1.

Table 1. Distribution of the study sample according to variables

Variable	Category	f	%
Gender	Female	175	60.0
	Male	118	40.0
Department	Public Relations	101	34.4
	Journalism	79	27.0
	Primary Science Edu.	113	38.6
Family income	Low	68	23.2
	Medium	201	68.6
	High	24	8.2
Overall Academic Average	Low	29	9.9
	Medium	187	63.8
	High	77	26.3
Age	18-20	91	31
	21-23	168	57
	24+	34	12
Settlement	Village	58	19.8
	City	212	72.3
	Metropolis	23	7.8
Mother's education level	Primary School	112	38.2
	Middle School	73	25
	High School	88	30
	University	20	6.8
Father's education level	Primary School	67	22.9
	Middle School	65	22.2
	High School	115	39.2
	University	46	15.7

As can be seen from Table 1, the proportions of the participants according to the type of variable: for the gender variable, 60% are female and 40% are male; for the department variable, 34.4% are Public Relations and Advertising, 27% are Journalism and 38.6% are Primary Science Education; for the income variable, 23.2% are low, 68.6% are medium and 8.2% are high; for the overall academic average variable, 9.9% are low, 63.8% are medium and 26.3% are high; for the age variable, 31% are 18-20, 57% are 21-23 and 12% are 24+; for the settlement variable, 19.8% are village, 72.3% are city and 7.8% are metropolis; for the mather's education level variable, 38.2% are primary school, 25% are middle school, 30% are high school and 6.8% are university; For the father's education level variable, 22.9% were primary school, 22.2% were middle school, 39.2% were high school and 15.7% were university.

2.2. Data Collection Tool

In the present study, Attitude Scale towards Environmental Problems, developed by Güven (2013), was used to determine university students' attitudes towards environmental problems. She prepared the scale by taking into account affective domain stages in Bloom's Taxonomy. The scale consists of 45 items on a 3-point Likert type (I agree, I am undecided, I disagree). Five of the items are intended to measure the sub-factors of receiving (2, 3, 6, 7, 8, 12, 18, 36), 17 of them are intended to measure the sub-factors of responding (1, 4, 10, 11, 17, 22, 23, 24, 25, 30, 32, 35, 37, 38, 40, 43, 45), 4 of them are intended to measure the sub-factors of valuing (9, 14, 29, 39), 11 of them are intended to measure the sub-factors of organizing (13, 15, 16, 20, 26, 27, 31, 33, 34, 41, 44) and the remaining 5 are intended to measure the sub-factors of characterizing (5, 19, 21, 28, 42). The items were scored by giving 1 point for disagreeing, 2 points for being undecided, and 3 points for agreeing. 13 of the questions in the scale (5, 6, 7, 13, 15, 16, 17, 27, 31, 34, 41, 43, 44) are negative. These questions are scored in reverse. The Cronbach alpha internal consistency coefficient of the scale was calculated as 0.88 by Güven (2013). The Cronbach alpha value for the first factor was also found as 0.93, for the second factor as 0.90, for the third factor as 0.68, for the fourth factor as 0.75, and for the last factor as 0.59.

2.3. Data Analysis

The lowest possible score on the scale used in the study was determined as 1, and the highest as 3. First, the mean scores obtained by each participant from the total scale and each subfactor were calculated. The dataset thus obtained was subjected to appropriate data analyses, taking into account the study variables. Independent samples t-tests and Welch t-tests were used for pairwise

comparisons, while Welch ANOVA was used for comparisons of three or more groups because the number of individuals in the groups was not equal. Because the variances were not homogeneously distributed, the Games-Howell test was used for multiple comparisons (Field, 2009).

3. Results

The normality of the data across the total scale and its sub-factors was examined through histogram analysis, skewness and kurtosis coefficients, and normality tests, and it was determined that they exhibited a normal distribution. Therefore, parametric statistics (independent samples t-test, Welch's t-test, and Welch ANOVA) were used when comparing the relevant means. Descriptive statistics and t-test results for the data obtained from the scale for the gender variable are presented in Table 2.

Table 2. Descriptive statistics and t-test results of the data obtained from the scale for the gender variable

	Gender	N	M	SD	t	Df	p
Receiving	Female	175	2.57	0.18	2.639*	206.35	0.009
	Male	118	2.50	0.24			
Responding	Female	175	2.60	0.18	5.835*	160.87	0.000
	Male	118	2.40	0.34			
Valuing	Female	175	2.44	0.34	3.050*	203.14	0.003
	Male	118	2.29	0.46			
Organizing	Female	175	1.99	0.23	-1.134	291	0.258
	Male	118	2.01	0.23			
Characterizing	Female	175	2.51	0.27	2.116*	214.24	0.035
	Male	118	2.43	0.34			
Scale Total	Female	175	2.42	0.12	4.931*	175.01	0.000
	Male	118	2.32	0.20			

* Shows significant differences (p<0,05); M= Mean; SD: Standard Deviation

The Levene test results showed significant differences in the sub-factors of the scale; *receiving*, *responding*, *valuing* and *characterizing* and in the total scale. Therefore, the data in the organizing factor were analyzed with the independent samples t-test, and the data in the other dimensions were analyzed with the Welch's t-test.

In the total scale, the mean for women was 2.42 (SD=0.12) and the mean for men was 2.32 (SD=0.20). When the means were compared with the t-test, the difference was determined to be significant in favor of women (t=4.931; p=0.000<0.05). In the receiving factor of the scale, the mean for women was 2.57 (SD=0.18) and the mean for men was 2.50 (SD=0.24). When the means were

compared with the t-test, a significant difference was found in favor of women (t=2.639; p=0.009<0.05). In the reacting factor of the scale, the mean for women was 2.60 (SD=0.18) and the mean for men was 2.40 (SD=0.34). When the means were compared with the t-test, the difference was determined to be significant in favor of women (t=5.835; p=0.000<0.05). In the valuing factor of the scale, the mean for females was found to be 2.44 (SD=0.34) and the mean for males was found to be 2.29 (SD=0.46). When the means were compared with the t-test, it was determined that the difference was not significant in favor of females (t=3.050; p=0.003<0.05). In the organizing factor of the scale, the mean for females was found to be 1.99 (SD=0.23) and the mean for males was found to be 2.01 (SD=0.23). When the means were compared with the t-test, it was determined that the difference was not significant (t=-1.134; p=0.258>0.05). In the personification factor of the scale, the mean for females was found to be 2.51 (SD=0.27) and the mean for males was found to be 2.43 (SD=0.34). When the means were compared with the t-test, it was determined that the difference was significant in favor of females (t=2.116; p=0.035<0.05).

Descriptive statistics, Welch ANOVA and Games-Howell test results of the data obtained from the scale for the section variable are given in Table 3.

Table 3. Descriptive statistics, Welch ANOVA and Games-Howell test results for the department variable

		N	M	SD	F	p	Games-Howell
Receiving	Public relations (1)	101	2.56	0.23	0.827	0.438	
	Journalism (2)	79	2.52	0.24			
	Science Edu. (3)	113	2.54	0.17			
Responding	Public relations (1)	101	2.50	0.28	11.513	0.000	3-2; 3-1
	Journalism (2)	79	2.40	0.31			
	Science Edu. (3)	113	2.60	0.20			
Valuing	Public relations (1)	101	2.21	0.41	20.756	0.000	3-2; 3-1
	Journalism (2)	79	2.34	0.42			
	Science Edu. (3)	113	2.54	0.29			
Organizing	Public relations (1)	101	1.99	0.26	0.352	0.704	
	Journalism (2)	79	1.98	0.20			
	Science Edu. (3)	113	2.01	0.22			
Characterizing	Public relations (1)	101	2.39	0.32	9.580	0.000	3-1
	Journalism (2)	79	2.49	0.32			
	Science Edu. (3)	113	2.56	0.25			
Scale Total	Public relations (1)	101	2.35	0.17	12.727	0.000	3-2; 3-1;
	Journalism (2)	79	2.33	0.18			
	Science Edu. (3)	113	2.44	0.12			

Because the number of participants in the groups was unequal for the department variable, means were compared using Welch ANOVA. Because the variances of the groups were not homogeneously distributed, the Games-Howell test was used for multiple comparisons (Field, 2009).

The total mean for the public relations group was 2.35 (SD=0.17), the mean for the journalism group was 2.33 (SD=0.18), and the mean for the science group was 2.44 (SD=0.12). When the means were compared using Welch ANOVA, the differences between the group means were found to be significant (F=12.727; p=0.000<0.05). The Games-Howell test revealed that the differences favored science in the science group, journalism, and public relations.

In the *receiving* factor of the scale, the mean for the public relations group was found to be 2.56 (SD=0.23), the mean for the journalism group was found to be 2.52 (SD=0.24) and the mean for the science group was found to be 2.54 (SD=0.17). When the means were compared with Welch ANOVA, it was determined that there was no significant difference between the means of the groups (F=0.827; p=0.438>0.05). In the *responding* factor of the scale, the mean for the public relations group was found to be 2.50 (SD=0.28), the mean for the journalism group was found to be 2.40 (SD=0.31) and the mean for the science group was found to be 2.60 (SD=0.20). When the means were compared with Welch ANOVA, it was determined that the differences between the means of the groups were significant (F=11.513; p=0.000<0.05). As a result of the Games-Howell test, it was determined that the differences were in favor of science between the science group and the journalism group, and between the science group and public relations group (p<0.05). In the *valuing* factor of the scale, the mean for the public relations group was 2.21 (SD=0.41), the mean for the journalism group was 2.34 (SD=0.42), and the mean for the science group was 2.54 (SD=0.29). When the means were compared with Welch ANOVA, the differences between the means of the groups were determined to be significant (F=20.756; p=0.000<0.05). The Games-Howell test revealed that the differences were in favor of science between the science group and the journalism group, and between the science group and public relations group (p<0.05). In the *organizing* factor of the scale, the mean for the public relations group was 1.99 (SD=0.26), the mean for the journalism group was 1.98 (SD=0.20), and the mean for the science group was 2.01 (SD=0.22). When the means were compared with Welch ANOVA, it was determined that there was no significant difference between the means of the groups (F=0.352; p=0.704>0.05). In the scale's *characterizing* factor, the mean for the public relations group was 2.39 (SD=0.32), the mean for the journalism group was 2.49 (SD=0.32), and the mean for the science group was 2.56 (SD=0.25). When the means were compared using Welch ANOVA, the

differences between the groups were found to be significant (F=9.580; p=0.000<0.05). The Games-Howell test revealed that the difference between the science group and the public relations group was in favor of the science group (p<0.05).

Descriptive statistics and ANOVA results for the data obtained from the scale for the family income variable are presented in Table 4. Because the number of participants in the groups was unequal for the income variable, means were compared using Welch ANOVA.

Table 4. Descriptive statistics and Welch ANOVA results for the family income level

	Level	**N**	**M**	**SD**	**F**	**p**
Receiving	Low	68	2.54	0.21	0.130	0.878
	Medium	201	2.54	0.21		
	High	24	2.52	0.18		
	Total	293	2.54	0.21		
Responding	Low	68	2.52	0.29	0.395	0.674
	Medium	201	2.52	0.27		
	High	24	2.47	0.21		
	Total	293	2.52	0.27		
Valuing	Low	68	2.34	0.38	0.422	0.656
	Medium	201	2.38	0.40		
	High	24	2.42	0.40		
	Total	293	2.38	0.39		
Organizing	Low	68	2.02	0.26	0.488	0.615
	Medium	201	1.99	0.22		
	High	24	1.97	0.23		
	Total	293	2.00	0.23		
Characterizing	Low	68	2.51	0.30	0.474	0.623
	Medium	201	2.47	0.31		
	High	24	2.46	0.26		
	Total	293	2.48	0.30		
Scale Total	Low	68	2.39	0.17	0.390	0.677
	Medium	201	2.38	0.17		
	High	24	2.35	0.12		
	Total	293	2.38	0.16		

When the total scale for the income variable was evaluated, Table 4 shows that the mean for the low group was 2.39 (SD=0.17), the middle group was 2.38 (SD=0.17), and the high group was 2.35 (SD=0.12). The Welch ANOVA analysis determined that the mean differences between the groups were not significant (F=0.390; p=0.667>0.05). When the data obtained from the receiving subfactor of the scale for this variable were evaluated, it was understood that the mean for

the low group was 2.54 (SD=0.21), the middle group was 2.54 (SD=0.21), and the high group was 2.52 (SD=0.18). The differences between the means for this factor were also found to be insignificant (F=0.130; p=0.878>0.05). Similarly, the differences between the means in the factors of *responding* (F=0.395; p=0.674>0.05), *valuing* (F=0.422; p=0.656>0.05), *organizing* (F=0.488; p=0.615>0.05) and characterizing (F=0.474; p=0.623>0.05) were not found to be significant.

Descriptive statistics, Welch ANOVA, and Games-Howell test results for the overall variable obtained from the scale are presented in Table 5.

Table 5. Descriptive statistics, Welch ANOVA, and Games-Howell test results for the overall academic average variable

	Level	**N**	**M**	**SD**	**F**	**p**	**Games-Howell**
Receiving	Low	29	2.52	0.29	0.140	0.869	
	Medium	187	2.54	0.20			
	High	77	2.54	0.21			
	Total	293	2.54	0.21			
Responding	Low	29	2.27	0.44	15.311	0.000	High-Low; Midium-Low
	Medium	187	2.54	0.23			
	High	77	2.57	0.23			
	Total	293	2.52	0.27			
Valuing	Low	29	2.11	0.52	7.493	0.001	High-Low; Midium-Low
	Medium	187	2.41	0.38			
	High	77	2.41	0.35			
	Total	293	2.38	0.39			
Organizing	Low	29	2.01	0.22	0.265	0.768	
	Medium	187	1.99	0.23			
	High	77	2.01	0.23			
	Total	293	2.00	0.23			
Characterizing	Low	29	2.34	0.33	3.452	0.033	Midium-Low
	Medium	187	2.50	0.30			
	High	77	2.48	0.28			
	Total	293	2.48	0.30			
Scale Total	Low	29	2.24	0.26	11.638	0.000	High-Low; Midium-Low
	Medium	187	2.39	0.15			
	High	77	2.40	0.14			
	Total	293	2.38	0.16			

M: Mean; SD: Standard Deviation

Because the number of individuals in the groups was unequal in the overall academic average variable, the means were compared using Welch ANOVA. Because the variances of the groups were not homogeneously distributed, the Games-Howell test was used for multiple comparisons (Field, 2009).

When the results obtained from the overall scale were evaluated in terms of the general academic average variable, Table 5 shows that the scale mean for individuals with a high general academic average was 2.40 (SD=0.26), for those with a moderate level was 2.39 (SD=0.14), and for individuals with a low average was 2.24 (SD=0.26). As a result of the Welch ANOVA analysis, it was seen that the differences between the means were significant ($F=11.638$; $p=0.000<0.05$). The Games-Howell test result determined that the significant differences were in favor of high group between high and low and in favor of medium group between medium and low ($p<0.05$). When the results obtained from the *receiving* sub-factor of the scale were examined, it was determined that the mean differences between the groups were not significant ($F=0.140$; $p=0.869>0.05$). When the results obtained from the *responding* sub-factor of the scale were examined, it was determined that the mean differences between the groups were significant ($F=15.311$; $p=0.000<0.05$) and the differences were in favor of high group between high and low and in favor of medium group between medium and low ($p<0.05$). When the results obtained from the *valuing* sub-factor of the scale were examined, it was determined that the mean differences between the groups were significant ($F=7.493$; $p=0.001<0.05$), and the differences were in favor of high group between high and low, and in favor of medium group between medium and low ($p<0.05$). When the results obtained from the organizing sub-factor of the scale were examined, it was determined that the mean differences between the groups were not significant ($F=0.265$; $p=0.768>0.05$). When the results obtained from the characterizing sub-factor of the scale were examined, it was determined that the mean differences between the groups were significant ($F=3.452$; $p=0.033<0.05$), and the difference was in favor of medium between medium and low ($p<0.05$).

Descriptive statistics and Welch ANOVA results for the data obtained from the scale for the age variable are presented in Table 6.

Table 6. Descriptive statistics and Welch ANOVA results for the age

	Age	N	M	SD	F	p
	18-20	91	2.57	0.21		
Receiving	21-23	168	2.52	0.21	1.874	0.155
	24+	34	2.57	0.21		
	18-20	91	2.54	0.27		
Responding	21-23	168	2.52	0.26	0.691	0.502
	24+	34	2.47	0.32		
	18-20	91	2.38	0.41		
Valuing	21-23	168	2.37	0.40	0.151	0.860
	24+	34	2.41	0.37		
	18-20	91	2.00	0.21		
Organizing	21-23	168	1.98	0.23	1.981	0.140
	24+	34	2.07	0.26		
	18-20	91	2.53	0.28		
Characterizing	21-23	168	2.46	0.30	1.820	0.164
	24+	34	2.43	0.33		
	18-20	91	2.39	0.16		
Scale Total	21-23	168	2.37	0.16	0.844	0.431
	24+	34	2.38	0.19		

When the data obtained for the age from the total scale were evaluated, it was seen in Table 6 that the mean for the 18-20 age group was 2.39 (SD=0.16), the 21-23 age group was 2.37 (SD=0.16), and the 24+ age group was 2.38 (SD=0.19). As a result of the ANOVA analysis, it was determined that the mean differences between the groups were not significant (F=0.884; p=0.431>0.05). When the data obtained from the receiving sub-factor of the scale for this variable were evaluated, it was understood that the mean for the 18-20 age group was 2.57 (SD=0.21), the 21-23 age group was 2.52 (SD=0.21), and the 24+ age group was 2.57 (SD=0.21). The differences between the means in this factor were also found to be insignificant (F=1.874; p=0.155>0.05). Similarly, the differences between the means in the factors of *responding* (F=0.691; p=0.502>0.05), *valuing* (F=0.151; p=0.860>0.05), organizing (F=1.981; p=0.140>0.05) and characterizing (F=1.820; p=0.164>0.05) were not found to be significant.

Descriptive statistics and Welch ANOVA results of the data obtained from the scale for the location variable are given in Table 7.

Table 7. Descriptive statistics and Welch ANOVA results for the settlement

	Settlement	N	M	SD	F	p
Receiving	Village	58	2.52	0.22	0.527	0.591
	City	212	2.55	0.21		
	Metropolis	23	2.51	0.24		
	Total	293	2.54	0.21		
Responding	Village	58	2.52	0.28	0.013	0.987
	City	212	2.52	0.27		
	Metropolis	23	2.53	0.31		
	Total	293	2.52	0.27		
Valuing	Village	58	2.37	0.40	0.743	0.477
	City	212	2.37	0.39		
	Metropolis	23	2.28	0.46		
	Total	293	2.38	0.40		
Organizing	Village	58	1.94	0.24	2.218	0.111
	City	212	2.01	0.23		
	Metropolis	23	2.02	0.19		
	Total	293	2.00	0.23		
Characterizing	Village	58	2.44	0.33	1.089	0.338
	City	212	2.50	0.28		
	Metropolis	23	2.43	0.41		
	Total	293	2.48	0.30		
Scale Total	Village	58	2.36	0.18	0.819	0.442
	City	212	2.39	0.15		
	Metropolis	23	2.37	0.21		
	Total	293	2.38	0.16		

When the data obtained for the settlement variable from the total scale were evaluated, it is seen in Table 7 that the mean for the village group was 2.36 (SD=0.18), the city group was 2.39 (SD=0.15), and the metropolis group was 2.37 (SD=0.21). As a result of the Welch ANOVA analysis, it was determined that the mean differences between the groups were not significant (F=0.819; p=0.442>0.05). When the data obtained from the *receiving* sub-factor of the scale for this variable were evaluated, it was understood that the mean for the village group was 2.52 (SD=0.22), the city group was 2.55 (SD=0.21), and the metropolis group was 2.51 (SD=0.24). The differences between the means in this factor were also found to be insignificant (F=0.527; p=0.591>0.05). Similarly, the differences between the means in the factors of *responding* (F=0.013; p=0.987>0.05), *valuing* (F=0.743; p=0.477>0.05), *organizing* (F=2.218; p=0.111>0.05) and *characterizing* (F=1.089; p=0.338>0.05) were not found to be significant.

Descriptive statistics, Welch ANOVA, and Games-Howell results for the data obtained from the scale for the maternal education level variable are presented in Table 8.

Table 8. Descriptive statistics, Welch ANOVA, and Games-Howell results for the mother' education level variable

		N	M	SD	F	p	Games-Howell
Receiving	Primary	112	2.52	0.20	1.076	.360	
	Middle	73	2.54	0.24			
	High School	88	2.57	0.20			
	University	20	2.52	0.17			
	Total	293	2.54	0.21			
Responding	Primary	112	2.48	0.28	2.531	0.057	
	Middle	73	2.49	0.30			
	High School	88	2.58	0.23			
	University	20	2.54	0.26			
	Total	293	2.52	0.27			
Valuing	Primary	112	2.35	0.41	2.291	0.078	
	Middle	73	2.33	0.41			
	High School	88	2.41	0.37			
	University	20	2.56	0.39			
	Total	293	2.38	0.39			
Organizing	Primary	112	1.99	0.25	1.220	0.303	
	Middle	73	2.00	0.23			
	High School	88	2.04	0.19			
	University	20	1.96	0.20			
	Total	293	2.00	0.23			
Characterizing	Primary	112	2.49	0.31	1.665	0.175	
	Middle	73	2.42	0.32			
	High School	88	2.52	0.28			
	University	20	2.48	0.26			
	Total	293	2.48	0.30			
Scale Total	Primary	112	2.35	0.16	3.611	0.014	Secondary-Primary
	Middle	73	2.35	0.19			
	High School	88	2.43	0.13			
	University	20	2.39	0.14			
	Total	293	2.38	0.16			

When the results obtained from the overall scale were evaluated in terms of the mather' education level variable, Table 8 shows that the mean for the primary school group was 2.35 (SD=0.16), the middle school group was 2.35 (SD=0.19), the high school group was 2.43 (SD=0.13), and the university group was 2.39 (SD=0.14). Welch ANOVA analysis revealed that the differences between the means were

significant (F=3.611; p=0.014<0.05). The Games-Howell test revealed that the significant difference between the high school and primary school groups was in favor of the high school group (p<0.05). When the sub-dimensions of the scale were evaluated, the differences between the means were not significant in the *receiving* (F=1.076; p=0.360>0.05), *responding* (F=2.531; p=0.057>0.05), *valuing* (F=2.291; p=0.078>0.05), *organizing* (F=1.220; p=0.303>0.05), and characterizing (F=1.665; p=0.175>0.05) factors.

Descriptive statistics, Welch ANOVA and Games-Howell results of the data from the scale for the father's education level are given in Table 9.

Table 9. Descriptive statistics, Welch ANOVA and Games-Howell results for the father's education level variable

		N	M	SD	F	p	Games-Howell
Receiving	Primary	67	2.54	0.19	0.571	0.635	
	Middle	65	2.57	0.24			
	Secondary	115	2.53	0.22			
	University	46	2.52	0.18			
	Total	293	2.54	0.21			
Responding	Primary	67	2.50	0.25	1.050	0.371	
	Middle	65	2.53	0.24			
	Secondary	115	2.50	0.32			
	University	46	2.58	0.23			
	Total	293	2.52	0.27			
Valuing	Primary	67	2.37	0.40	4.882	0.003	University-Middle; University-Primary
	Middle	65	2.29	0.40			
	Secondary	115	2.35	0.41			
	University	46	2.57	0.31			
	Total	293	2.38	0.39			
Organizing	Primary	67	2.01	0.26	0.135	0.939	
	Middle	65	2.00	0.25			
	Secondary	115	1.99	0.21			
	University	46	1.99	0.19			
	Total	293	2.00	0.23			
Characterizing	Primary	67	2.50	0.29	1.679	0.172	
	Middle	65	2.45	0.33			
	Secondary	115	2.45	0.32			
	University	46	2.56	0.23			
	Total	293	2.48	0.30			
Scale Total	Primary	67	2.37	0.14	1.370	0.252	
	Middle	65	2.38	0.17			
	Secondary	115	2.36	0.19			
	University	46	2.42	0.12			
	Total	293	2.38	0.16			

M: Mean; SD: Standard Deviation

When the results obtained from the overall scale were evaluated in terms of the father's education level variable, Table 9 shows that the mean for the primary school group was 2.37 (SD=0.14), the middle school group was 2.38 (SD=0.17), the high school group was 2.36 (SD=0.19), and the university group was 2.42 (SD=0.12). The Welch ANOVA analysis determined that the differences between the means were not significant ($F=1.370$; $p=0.252>0.05$). When the *valuing* sub-factor of the scale is examined, it is seen that the mean for the primary school group is 2.37 (SD=0.40), the middle school group is 2.29 (SD=0.40), the high school group is 2.35 (SD=0.41), and the university group is 2.57 (SD=0.31). Welch ANOVA analysis determined that the differences between the means were significant ($F=4.882$; $p=0.003<0.05$). Games-Howell test result determined that the significant differences in this factor between the university group and the primary school group and between the university group and the middle school group were in favor of the university group ($p<0.05$). When the other sub-dimensions of the scale were evaluated, the differences between the means in the factors of *receiving* ($F=0.571$; $p=0.635>0.05$), *responding* ($F=1.050$; $p=0.371>0.05$), *organizing* ($F=0.135$; $p=0.939>0.05$) and *characterizing* ($F=1.679$; $p=0.172>0.05$) were not found to be significant.

4. Discussion and Conclusions

It was found that men had higher means than women only on the organization factor of the scale, but the difference was not significant. Women had higher means on the other factors and the total scale, and the differences were significant in favor of females (see Table 2). This suggests that gender is a significant variable in demonstrating sensitive behavior toward environmental issues. In other words, considering that the study was limited to three departments and 293 participants, it can be said that females are more sensitive to environmental issues than men. It should be noted that this result may differ with the results of studies conducted with larger samples and in different universities and departments. When the findings regarding the gender variable in the literature are examined, it is understood that Özgen (2012) and Aydede Yalçın and Çaycı (2018) found that female teacher candidates have higher sensitivity towards the environment than male teachers; Erol (2005) found that female students developed more positive attitudes towards the environment than male students; Ağtaş, Bektaş, and Güneri (2019), Gök and Afyon (2015), and Mutlu Yüceer (2025) found that the attitude scores of female middle school students showed a statistically significant difference from the attitude scores of male students; Karaismailoğlu (2018) found that the attitude and knowledge levels of female teachers in Ankara province were significantly higher than male teachers; Peker and Ceylan (2020) claimed that the

attitudes of fourth-grade primary school students towards the environment were in favor of females; and Bolat (2024) claimed that gender is an important variable in shaping environmental attitudes. As can be understood from this, the results of the studies in the literature are consistent with the results of this study. On the other hand, it is claimed that gender has no effect on the environmental awareness of prospective teachers (Demircioğlu, Demircioğlu, & Yadigaroğlu, 2015) and the attitudes of primary school prospective teachers (Kahyaoğlu, Daban, & Yangın, 2008) and secondary school students (Soğukpınar & Karışan, 2019) towards the environment. Similarly, in a study conducted by Yıldız et al. (2021) on students studying in different departments of the faculty of sports sciences, they determined that attitudes towards environmental problems did not differ statistically in terms of gender, but the average was higher for females. As a result of the evaluations made regarding the gender variable and taking into account the limitations of the study, it was concluded that female's attitudes towards environmental problems were higher than male.

When the data were examined in terms of the department variable, it was understood that the students in the science education program differed significantly from the students in the other two programs (see Table 3). A more detailed examination of Table 3 reveals that the science group exhibited significant differences in the total scale and three sub-factors, while no significant differences occurred in the receiving and organizing factors. On the other hand, the public relations group had a higher mean in the *receiving* sub-factor of the scale. This suggests that the department variable has a decisive effect on attitudes toward environmental problems. This is an expected result, as the science group is exposed to more environmental concepts, either directly or indirectly, due to the structure of the program. There is evidence in the literature that environmental education courses positively affect the environmental attitudes of university students (Ünal & Dımışkı, 1999; Zelezny et al., 2000). A study comparing the environmental awareness levels of physics, chemistry, and biology preservice teachers claimed that no significant differences were found between programs (Demircioğlu et al., 2015). Given that all three programs are science-based, the lack of a difference between them was considered natural. Yıldız et al. (2021) examined the attitudes of students studying in different departments of the Faculty of Sports Sciences toward environmental issues and determined that there were no significant differences between departments. Similarly, Kahyaoğlu, Daban, and Yangın (2008) reported that the department variable had no effect on the environmental attitudes of primary school teacher candidates. On the other hand, Özgen (2012) found statistically significant differences in environmental awareness between social studies teacher candidates and classroom and

mathematics teacher candidates, with the former favoring the latter. Similarly, Aksoy and Karatekin (2011) found that science teacher candidates had higher affective tendencies toward the environment than social studies and classroom teacher candidates.

When the data obtained from the study were examined in terms of the family income status variable, it was determined that there were no significant differences between student groups with different income status in the total scale and its sub-factors (see Table 4). When the studies in the literature were examined, it was determined that there were claims that the attitude levels of middle school students towards the environment (Ağtaş, Bektaş, & Güneri, 2019), the attitude levels of fourth-grade primary school students towards the environment (Peker & Ceylan, 2020), the attitude and perception scores of 4th and 5th-grade primary school students towards the environment (Demirci Güler & Sağlam, 2013), the attitudes of middle school students towards the environment (Sönmez & Yerlikaya, 2017), the attitudes of second-year primary school teaching students towards the environment and environmental problems (Erol, 2005), the environmental awareness levels of high school students (Dalkılıç et al., 2024), the environmental awareness of prospective teachers (Aydede Yalçın & Çaycı, 2018), and the attitudes of primary school students towards the environment (Gökçe et al., 2007) did not differ according to family income status. The study's findings regarding income level support the relevant literature. However, studies suggesting the opposite are also found. Nalçacı and Beldağ (2012) argue that the environmental attitudes of 7th and 8th grade primary school students are significantly more favorable to those with higher incomes, and Şama (2003) argues that the attitudes of prospective teachers toward environmental issues are significantly more favorable to those with higher incomes. As can be seen here, the majority of studies indicate that income does not significantly affect environmental attitudes and awareness. A limited number of studies indicate that environmental attitudes increase as income levels increase. Considering the data from this study, it is concluded that attitudes toward environmental issues do not vary according to family income levels.

When the data obtained from the study were examined in terms of the overall academic average variable variable, the attitudes toward environmental issues of individuals with high and moderate overall academic averages differed significantly from those with low overall academic averages in the overall scale and the sub-factors of *responding* and *valuing*. This suggests that students' attitudes toward environmental issues generally increase as their overall academic averages increase (see Table 5). This finding supports the results of the study by Gökçe et al. (2007). Gökçe et al. (2007) argue that primary school

students with high overall academic averages have higher environmental attitudes than those with low and moderate overall academic averages. On the other hand, Aydede Yalçın and Çaycı (2018) argue that preservice teachers' environmental awareness does not differ based on their overall academic averages. Rather than other variables, overall academic averages has not been included as a variable in many studies in the literature. In this study, it was included because the prevailing belief was that successful students would have different perspectives on events than unsuccessful students. The data suggest that overall academic average is a significant predictor of students' attitudes toward environmental issues.

When the data obtained from the study were examined in terms of the age variable, it was understood from the data obtained from both the total scale and its sub-factors that the age variable was not a determinant of participants' attitudes towards environmental issues (see Table 6). There are different results in the literature regarding this finding. Studies in the literature claim that the environmental awareness levels of high school students do not differ by age (Dalkılıç et al., 2024), that the environmental attitudes of fourth-grade primary school students decrease with age (ages 9, 10, and 11) (Peker & Ceylan, 2020), and that the environmental attitudes of pre-service classroom teachers increase with age (Erol, 2005). When the data obtained from the study are examined in terms of the residence variable, it is understood from the data obtained both in the total scale and in its sub-factors that the residence variable is not a determinant of the participants' attitudes towards environmental problems (see Table 7). While Erol (2005) claims that the environmental attitudes of classroom teacher candidates do not change according to their place of residence, Şama (2003) claims that the attitudes of teacher candidates towards environmental problems differ according to their place of residence, with the difference being in favor of those living in densely populated areas.

When the data obtained from the study were examined in terms of the parental education level variable, it was understood that while the mother's education level made a significant difference in the total scale, the father's education level did not (see Tables 8 and 9). The father's education level only made a significant difference in the valuation sub-factor. This difference was found between the children of fathers with university education and those with fathers who graduated from middle or primary school, favoring the university graduates. The mother's education level, however, favored the high school graduates when it came to the children of fathers with high school and primary school. This suggests that the mother's education level, compared to the father's education level, has a significant impact on individuals' attitudes toward environmental issues. Değirmenci (2012) found that primary school students' attitudes towards the

environment increase as their mothers' level of education increases; Köse (2010) found that high school students' attitudes towards the environment increase as their parents' level of education increases; Özpınar (2009) found that 4th and 5th grade primary school students' views on environmental problems become more positive as their parents' level of education increases; Aydın and Çepni (2012) found that secondary school students' attitudes towards the environment increase in favor of fathers who are university graduates; Şama (2003) found that prospective teachers' attitudes towards environmental problems increase with their fathers' level of education; and Demirci Güler and Sağlam (2013) found that 4th and 5th grade primary school students' attitude and perception scores towards the environment increase as their fathers' level of education increases. This suggests that environmental awareness increases with higher education levels. The results of the current study partially support these findings. It can be argued that parents with high environmental awareness pass this same awareness on to their children. In conclusion, environmental education is a process that begins in the family and continues to develop in official institutions. However, a study has also been found claiming that children with lower maternal education levels have significantly higher attitudes towards the environment than those with higher education levels (Soğukpınar & Karışan, 2019). This may be due to conscious mothers devoting more time to their children's education rather than education itself. On the other hand, studies have also been found indicating that the environmental attitudes of primary school students (Aydın & Çepni, 2012; Gök & Afyon, 2015; Gökçe et al., 2007; Sağır et al., 2008; Şahin & Erkal, 2010), fourth-grade primary school students (Peker & Ceylan, 2020), and prospective classroom teachers (Erol, 2005), as well as the environmental awareness of prospective teachers (Aydede Yalçın & Çaycı, 2018) and high school students (Dalkılıç et al., 2024), do not differ according to maternal education level.Similarly, there are also results indicating that the environmental attitudes of primary school students (Gök and Afyon, 2015; Gökçe et al., 2007; Sağır et al., 2008; Şahin and Erkal, 2010), 4th and 5th grade primary school students (Demirci Güler and Sağlam, 2013), and prospective classroom teachers (Erol, 2005) do not differ based on the educational background of their fathers, as do the environmental awareness levels of high school students (Dalkılıç et al., 2024), 4th grade primary school students (Peker and Ceylan, 2020), and prospective teachers (Aydede Yalçın and Çaycı, 2018). Consequently, it is not possible to explain environmental attitudes based on a single variable. The current study and previous studies have attempted to explain environmental attitudes through many different variables. Therefore, the results obtained from these studies should not be evaluated from a single perspective.

5. Recommendations

Because environmental problems are multidimensional and complex, solutions must also be multifaceted. In this regard, the synchronized action of individuals, institutions, local governments, and the government is crucial. For a sustainable future, we must act with an awareness that sees "the world as a trust given to us, not an inheritance," and we must cultivate individuals with this awareness. The importance of education in fostering this awareness should not be overlooked. Environmental education should be prioritized at all levels of education.

Students should be encouraged to become members of environmental Non-Governmental Organizations and volunteer to contribute to raise their awareness within the scope of community service practices courses. They should also be encouraged to support environmental awareness campaigns on social media.

In Türkiye, waste separation should be expanded in public institutions and schools through the "Zero Waste Project," and university students should be actively involved in this process. Efforts should be undertaken to expand the use of separate recycling bins for glass, plastic, metal, and paper within universities. Promising research projects should be developed with students on topics such as recycling, waste management, and energy efficiency within the university.

Environmental engineering, ecology, or sustainability-focused environmental courses should be available at every level of education, from preschool to university, and if possible, they should be made mandatory. Environmental topics should even be integrated into some disciplines.

To encourage parents to be environmentally conscious and raise environmentally responsible children, universities, municipalities, and civil society organizations should organize public environmental seminars focused on sustainability to increase environmental literacy and attitudes not only among students but also among all citizens.

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Chapter 5

Examination Of Master Theses on the Topic "Gender And Language" in Universities in Turkey According to Different Variables

Kadriye ÖZTÜRK[1], Gülcan ÇAKIR[2]

1. Introduction

It is a known fact that Turkey, as a dynamic, modern and productive country, Establishment of the Republic of Turkey strives to develop in every field. This productivity can also be seen in the theses prepared by universities in the fields of science. Although Gender and Language is a young field, it has started to find its place in the written master's theses. What is important here is the number of theses that deal with the issue of gender and language, the gender of the thesis writers, the language, methods and topics they use in the thesis. This research was conducted based on document analysis and an attempt was made to structure the master theses written on this subject based on who wrote them, their subjects and methods by typing the terms "Gender and Language" in the search button from Yöktez (data bank of thesis von YÖK-higher education institution), where scientific theses written in Turkey are published online. An attempt was made to provide information by obtaining both qualitative and numerical data through graphs and tables. While the number of universities in Turkey is over 200, the number of universities where master's theses about gender and language are produced has been determined to be 34. Although this may be due to the fact that only the term gender and language is searched in the search button in the thesis, it is because when only language or only gender is typed, more theses will appear and will not be limited to just language. As of December 2004, the number of theses entered into the thesis under the title of gender and language was over 900, and since we encountered unexpected thesis topics under this title due to words, it was deemed necessary to make an elimination, and only those covering the subject of gender and language were examined. This means that the number of theses discussed could be determined as 58. The German word for this field is

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"Geschlecht und Sprache", and when you click on the button, no theses are found on this subject, but when you type in the term "geschlechtsspezifisch", you can find very few theses, one of the aims and expectations of this research was the possibility of encountering more German theses in accordance with the researcher's field, but it was seen that more theses were written within the framework and language of the Anglo-Saxon school.

The study sought answers to the following questions:

1. In how many universities in Turkey has the subject of Gender and language been addressed in master's theses?
2. How many of the people doing the research are women and how many are men?
3. What is the language used by researchers in their theses?
4. What methods did the researchers use in their theses?
5. In which years and how often were theses made?
6. In which scientific disciplines was gender and language discussion carried out?
7. What are the topics covered?

2. Methodology

Document analysis was preferred in this research as the method required to find answers to the above questions. In this research, the document analysis method was preferred because in the theses open to open access in the YÖK conducted in Turkey, the subjects of "Gender and language" in English and "Geschlecht und Sprache" in German were entered as titles and those that did not fully cover the subject of "gender and language" were eliminated from over 900 theses and only 58 theses that included these two terms, namely "gender and language", were reached. These theses were quantified in terms of the language used in the theses, the fields of the theses, the methods used in the theses, the distribution of the theses according to the universities in Turkey, and the gender of the researchers and were tried to be explained with tables and figures. n line with the questions asked at the beginning of the research, some results were tried to be reached through document analysis.

Document analysis is a frequently used method in research and makes it easier to obtain some data from archived electronic or written documents about the subject under research. Bowen and Glenn are among those who provide the most information about this method.

Document analysis is a systematic procedure for reviewing or evaluating documents—both printed and electronic (computer-based and Internet-transmitted) material. Like other analytical methods in qualitative research,

document analysis requires that data be examined and interpreted in order to elicit meaning, gain understanding, and develop empirical knowledge.(Bowen, Glenn 2009, 27)

As explained in this excerpt, conducting research on the subject of "gender and language" and showing the importance and value that universities in Turkey give to this subject is a very valuable method in terms of seeing in which language fields or in which other fields theses are written, and it is also frequently used in research as a method that reduces the time loss and financial burden in research. Documents that may be used for systematic evaluation as part of a study take a variety of forms (Bowen, Glenn 2009, 28)

This study can also be called a mixed method because both data collection was done and some numerical data were used in the research. Just as Bowen and Glenn wrote. “Mixed-methods studies (which combine quantitative and qualitative research techniques) sometimes include document analysis.” (Bowen, Glenn 2009, 31).

3. Language-Gender-Relations

Although the field of gender studies seems to be separated from language, language studies and linguistic-grammatical fields, it is in direct connection with language. Gender-related indicators include physical appearance, body structure, clothing preference, as well as adjustment of voice tone, emphasis, word choice, high or low voice, affectionate or harsh speech, and reveal the direct connection of gender with language. In many societies, those who are classified as men are called "feminine" due to their choice of words, and men who dress in skirts, high-heeled shoes, bustier and pink colors are described as homosexual, and women who have short hair and dress like men (such as suits and ties) are also affected by different definitions. Under all these definitions, coding and labeling, it is possible to avoid some deviations.

While the use of language enables communication between genders, it also causes miscommunication and can sometimes have bad consequences. The language use of men and women varies according to both gender and the meanings and roles that society assigns to those genders. In general, women stand out in societies as the gender that does not shout, scold, or use fighting language, while men stand out as the gender that stands out everywhere with the loudness and loudness of their voice. While women do not even speak out about violence, men can be portrayed as the ones causing violence. From arguments about giving way in traffic to arguments about rights at home, raising one's voice or remaining silent is among the characteristics that distinguish men and women from each other in male-dominated societies. The behavior attributed to women in the form

of chatter can be said that women talk a lot among themselves, not in front of men, and remain silent in front of men, and only talk a lot and loudly for defense purposes when they are in an unfair situation. When a woman speaks loudly, she is said to be like a man, while a man who speaks slowly and politely is labeled as a woman. Women's language and men's language, which is also the subject of scientific studies, investigates the language used by women in both literature and linguistics and includes the language use of men in the subject. Recently, the language of transgender individuals has entered the literature both phonetically and on the basis of words and sentences, and new research areas have emerged. Have men and women been given certain linguistic criteria since the beginning of humanity, or were these biological in origin? Or, as societies grew and developed, were the languages used by men and women molded into social, religious, economic and psychological bases?

The incidents of violence that women face every day, women killed by their divorced husbands, young women stabbed in several places by their ex-boyfriends, have caused attention to be drawn to the phenomenon of women today. Women's studies, feminist theories and practices remained in writing and could not prevent or provide a solution to women's humiliation, contempt or exposure to violence, because in male-dominated societies, when the foundations of Turkish culture are researched, matriarchy is the origin, Turkey can be included among these, men have the say and divorce or separation, which means opposing men, is not welcomed in patriarchal societies and often results in a family massacre. While well-educated and higher-educated women were also victims of these massacres, the murderers. In this context, it can be seen in the writings of some academics that a new world order is desired through language. In terms of language, the model of men shouting in old Turkish movies has been replaced by the model of men who try to talk very politely, but still murder their ex-wife after the divorce. All these stories have influenced research in many scientific and social fields. Sometimes it has caused political governments to design measures and become elements that will attract votes. Sometimes it was said that homosexuality should be banned, and sometimes there were efforts to normalize this situation. The question of where gender and language fit into all of this forms the basis of this research. For example, it is seen that the phrase "my love", which has just begun to become established in Turkish society and which lovers say to each other, is said by a woman to a woman, a man to a man, and a woman to her child. Girls actually use the term "abi" (my older brother) among themselves, which is used for older men in Turkish society, which actually means accepting that the male language is more dominant and imitating it. Gender, which is sometimes described as a gender trouble by some feminist researchers, is

actually within the research area of many disciplines(Butler 1990, 2007). Butler focused on gender differences based on Lacan, and this is evident from a feminist perspective.

The views of some philosophers and scientists also give us information about how women are seen, and according to Butler, who conveys these, women are not seen in a very high position. J.J Rousseau about the women's place: a woman's honor is to be careful about her husband, and that the basis of her happiness lies in her family. Women's syntax is primitive (Klann-Delius 2005, 4-5).

The views of some philosophers and scientists also give us information about how women are viewed, and according to Butler, who quotes these, women are not seen in a very high positionAnd the tongue can push against the back or front of the alveolar ridge (the ridge directly behind the teeth), or the teeth a white woman, and in the other the picture was of an Asian woman (Eckert, Mcconnell 62).

This excerpt also demonstrates how important phonetic differences and gender are. Sometimes we cannot tell whether a singer is male or female from the tone of her voice, or sometimes multilingual people use different phonetics in their native language and in a foreign language (Eckert, Mcconnell- Ginets. 79-80).

4. Language and gender -a problem?

Language and gender are actually the focus of research in both society and science. The reason for this is who wrote down the language used and who used it in its application areas. This means, is there male supremacy in the language used in daily life and is there a language imposed on female individuals? Is there a male-dominated language that prevails in the language of science? Do female scientists publish their scientific publications differently than male scientists? In this context, the existence of a male-dominated language is not questioned in women and language studies in Turkey, and it is argued that perhaps a new language form may have a different usage form than this male-dominated language form. Those in this position may also be highly educated. As for gender research, the first step towards women's rights in Turkey gained an official dimension with the granting of women the right to vote and be elected in Ataturk's Turkey. Universities in Turkey started to open women's studies programs and institutes and tried to raise awareness by highlighting the social place of women. In fact, language and gender are in direct relationship with each other. "Is it possible to create a new language and completely cleanse the uses that cause the reproduction of the ingrained patriarchal structure or to transform it into other uses? (Belek Erşen 2018, 2).

The researcher predicts that this will be achieved through the efforts of women. Interestingly, it is emphasized that women need to develop their own

development. Women should come together and talk. They must construct their own sentences and appropriate their words. A new women's language must be established, boundaries must be redrawn and definitions must be re-created. In this way, we can begin to discuss new fictions and definitions of gender (Belek Erşen 2018, 36).

Although this may seem correct and possible at first glance, it is not possible to eradicate the written language that has existed so far. About biological sex, it is generally expressed in all languages. As a language without grammatical gender, biological gender is observed in Turkish, like all other languages. Biological sex comes to the fore especially in person terms, as the person's gender is reflected in the word. For example, in Turkish, male-female, mother-father, son-daughter, male-female; Expressions that overlap with social and biological gender content in German, such as Mann-Frau, Mutter-Vater, Sohn-Tochter, Herr-Frau, are words that emphasize the word in a semantic dimension. At the same time, there are also word pairs in languages that refer to animal genders, such as chicken- cockerel, ox-cow, sheep-ram, goat-billy goat (Öztürk Dağabakan 2011, 283).

The linguistic differences between men and women are seen in every field. There are different theories about the language using differences of men and women. According to some of these, military, cultural, etc. Meetings cause people to get closer to different languages. Sometimes men and sometimes women are affected by the convergence of these languages, and different linguistic behaviors emerge.(Mohammed , C. H. & Casim, A. M. 2023, 6346). So many sub-topics can also be included in this topic in the context of language and gender, such as linguistic socialization, communication or disagreements between two gender "men and women", dependency, commanding, asking questions, giving advice, keeping silent, making insinuations" (Köhler 2008, 1). Food preferences, humor and conflict, actions, beliefs, the people are surrounded. The Word swarms with ideas about gender-and these ideas are so commonplace that we take it for granted that they are true, accepting common adage as scientific fact (Eckert&McConnell Ginet 2003, 9). The names of toys are some examples for gender differences. Many of male terms were used when the children anthropomorphized object. The train was Mister train, while the different-shaped terin tracks were Mister Turny and Mister Downhill. A toy dog was assigned a masculine gender and called Joey, and masculine-specific terms were used for job titles (…)(Weatheral 2002, 15). Language is a pervasive part of human experience, and by implication is likely to contribute to the maintenance of existing beliefs about the characteristics and differences between certain groups Patterns of language use have also been hypothesized to perpetuate stereotypes,

protecting them against counterexamples. For example, if there is a stereotype of an outgroup being stingy, then positive outgroup behavior can be explained within a concrete context without altering or inducing more abstract categorization. Gender stereotypes manifest in language. For example, the magnitude of gendered pronoun usage in books at different points in history has been linked to women's societal status in the United States (Goodhew&Reynolds&Edwards&Kidd 2022, 220).

Generative semantics, also linguistics and movement of women are a part of the researches about the differences between women and men. Generative semantics and the women's movement had similarly revolutionary origins and subvert established beliefs. The interest of Tolmach in the intersection of language and gender arose on two fronts: her political involvement in the women's movement and my academic engagement in the transformational dispute. If generative semantics could demonstrate that it could distinguish those concepts that required underlying structure representation from those that did not, we could demonstrate that our grammar was finite. But what kinds of concepts required inclusion? One potential answer: gender."(Tolmach Lakoff 2004, 18).. Both tend, as we shall see, to relegate women to certain subservient functions: that of sex-object, or servant; and that therefore certain lexical items mean one thing applied to man, another to women, a difference that cannot be predicted except with reference to the different roles the sexes play in society (Lakoff 1973, 46). Often a word that may be used of both men and women (and perhaps of things as well), when applied to women, assumes a special meaning that, by implication rather than outright assertion, is derogatory to women as a group. When a word acquires a bad connotation by association with something unpleasant or embarrassing, people may search for substitutes that do not have the uncomfortable effect - that is, euphemisms. Since attitudes toward the original referent are not altered by a change of name, the new name itself takes on the adverse connotations, and a new euphemism must be found. An obvious example concerns the various words for that household convenience into which human wastes are eliminated: toilet, bathroom, rest room, comfort station, lavatory, water-closet, loo, and all the others(Lakoff, 1973, 57).

5. Gender problem

Is gender really a problem? Or is it being problematized? There are many views on this subject, but it is possible to see gender as a nuisance or as a natural occurrence. Why are there problems when we can continue our existence in the world as biologically different, and these are reflected in the language? Has

gender always been viewed as a problem since the beginning of the world? It is also possible to see those who explain it this way:

The earliest work on men, women and language attended no "sex differentiation". Studies of such differences were carried out by Europeans (and other "Westerners") with an interest in anthropology. They have tended to concentrate on phonological and lexicogrammatical "exotica" (sound patterns, Word and structures). A great deal of this kind of study has focused on the existence of different pronouns or affixes specific to men and women, whether as speakers, spoken to or spoken about. Sex differentiation of this kind is uncommon in languages of European origin. The pronoun systems of Germanic Languages - such as English and Danish-only distinguish sex in third person singular reference (He/him, she/her or it). That is when one individual is speaking to a second one about a third, the sex of the third person is specified. (Talbot 2010, 4)

There are some differences in linguistic usage or usage due to word choice. If this were not the case, women and men would use the same symbolic language, the same semantic expressions, and the same phonetic sounds. We can see this as follows with examples.

In some traditional, tribal societies, men and women have a whole range of different vocabularies that they use (while presumably understanding "male" and female" forms but not using both). An extreme example of this phenomenon was in the language used by the Carib Indians (who inhabited what is now Dominica, in the Lesser Antilles): When explorers from Europe first encountered these people, they thought the women and the men were speaking distinct languages. (Talbot 2010, 5)

The following quote explains which language women prefer within the framework of bilingualism or why they prefer one language rather than another. The following quote explains which language women prefer within the framework of bilingualism or why they prefer this language rather than another. It is based on a number of research results.

-in the landmark study by Gal (1978), she noted that Hungarian-German bilingual women avoided using Hungarian – and relationships with men who preferred Hungarian – because of its association with peasant life and the undesirable roles for wives within that community (Fuller 2009, 183).

Another issue that ties men and women together is that both of them work as sex workers. Of course, there are economic difficulties for both men and women. Although economic difficulties cause this situation, sometimes it can also be a matter of choice for a woman or a man to become a sex worker. Even the existence of such words is actually based on language and is made permanent by being transferred into language and writing. If the word Sex worker is not known,

it cannot be known whether this job can be done or not. Male sex workers do not just face the stigma of prostitution as immoral, regardless of their clients' gender, but also face the additional shame of homosexuality if their clients are male (Makoni 2023, 351).

6. Analysis and visualization of findings according to different variables

6.1. Language using variable by the researcher

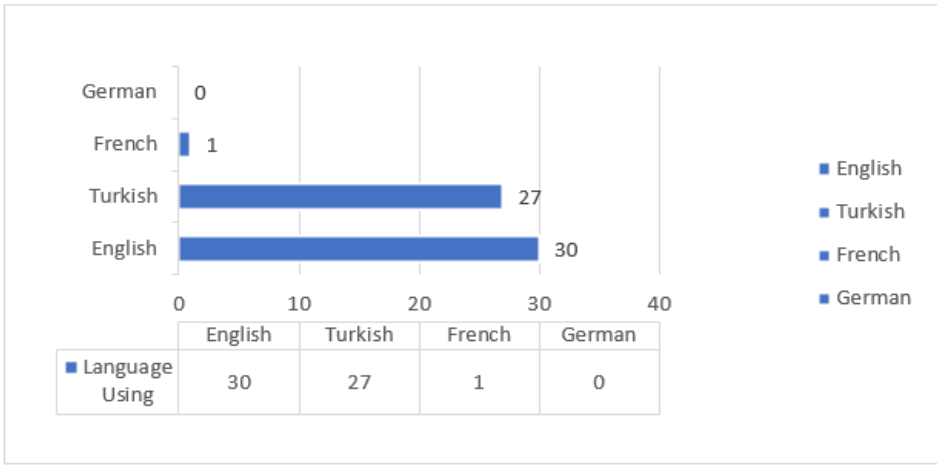

Figure 1: Language Using by the researcher in the master theses

When started this research, the actual question sentence, that is, the problem statement, was "Are there any gender and language theses written in German?" However, it is also seen that German is almost never used as a language. It is noticeable that the language usage is mostly English and Turkish. While there is one in French, there is no German.

The language used in the master's theses examined provides us with information on issues such as which language sources are used more in theses, in which fields theses are written, and the importance given to language in the universities where theses are written. In this graph, it is seen that the language of most master's theses examined is English, the number of theses written in English is 30, while the number of theses written in Turkish is 27, the number of theses written in French is 1. There is a thesis in the field of German Language Education and it seems to be written in Turkish.

6.2. Universities and number of master thesis in Turkey

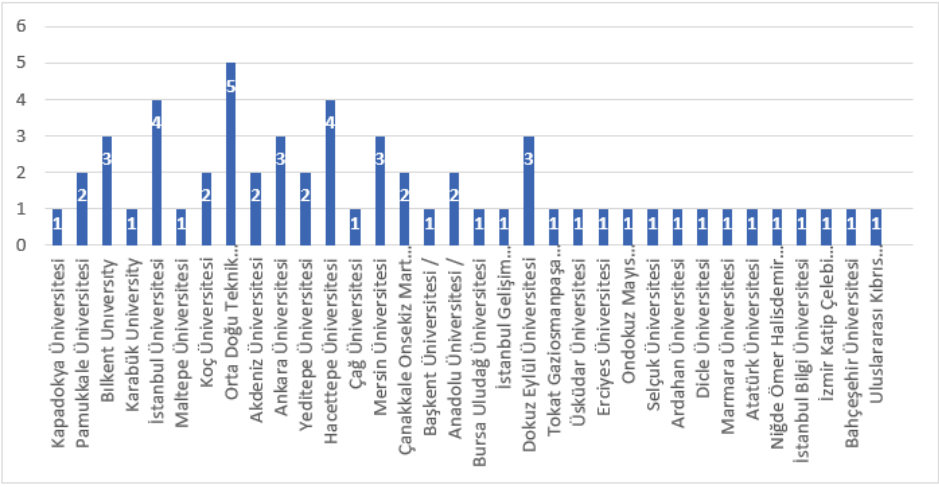

Figure 2: Distribution of university master's theses

In this section, an attempt has been made to distribute gender and language theses written at universities in Turkey. It is seen that 5 theses were written at the Middle East Technical University and 4 theses were written at Istanbul University. In other universities, the distribution is between 2 and 1.

6.3. Gender distribution of researchers

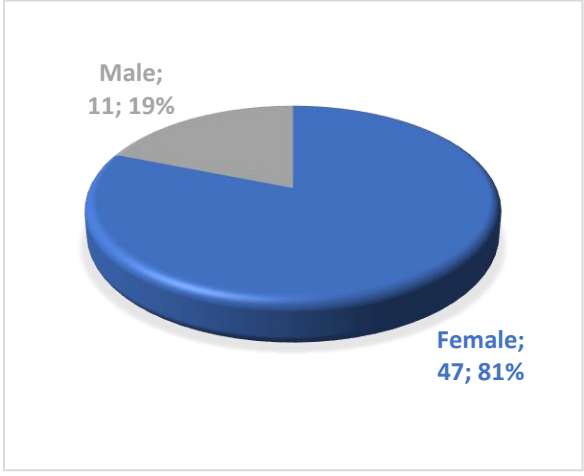

Figure 3: Distribution of theses according to gender of researchers

In this section, it was attempted to determine whether the master's theses were written by female or male researchers, and it was determined that female researchers were ahead with around 47 female researchers, this means % 81, as shown in the figure.

6.4. Number of theses by year

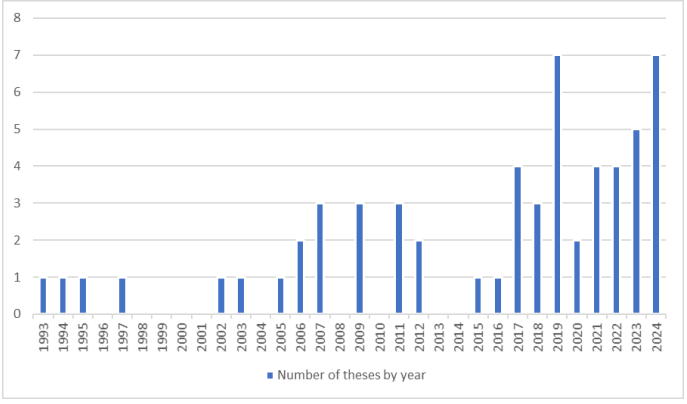

Figure 4: Distribution of master theses by year

In this section, the distribution of theses on gender and language by year has been tried to be shown. As can be seen, in some years no studies have been done on this subject, while in some years the number of studies seems to have increased. No thesis has been written in these years: 1996, 1998,1999,2000,2001,2004,2008,2010,2013,2014. After 2014, the number of theses written on the subject of gender and language began to increase. The number of theses written on the mentioned subject reached its peak in 2019 and 2024.

6.5. Research fields

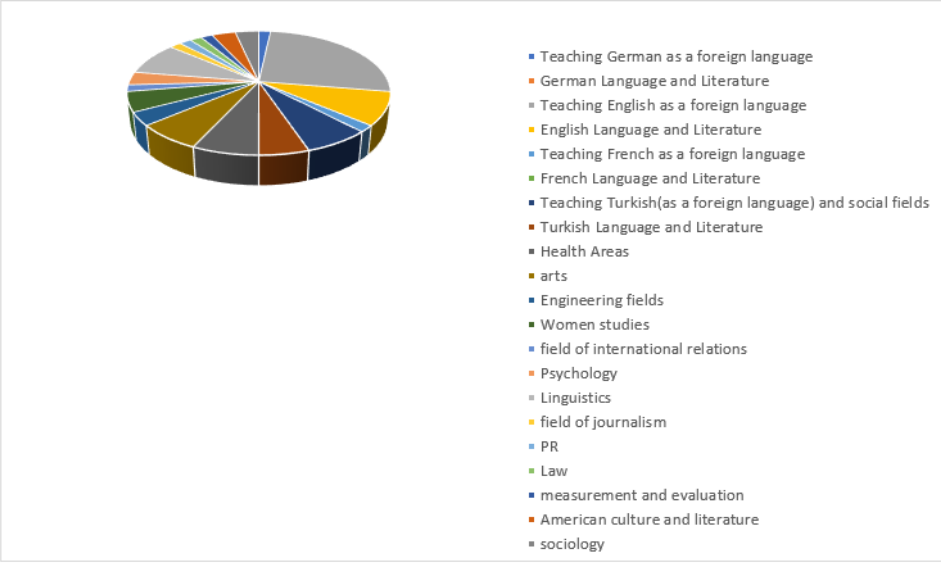

Figure 5: Research Fields of the Researchers

It is seen that master's theses written on gender and language are not only written in the fields of philology and language education, but also in the field of natural sciences. The fields that embrace this subject are very diverse. It is noteworthy that the fields of sociology, medicine or engineering have also addressed this subject.

6.6. Using methods by the researchers

Table 1: Methods

fields	methods	
Teaching German as a foreign language	not accessible	
German Language and Literature	not accessible	
Teaching English as a foreign language	descriptive analytical method, qualitative research, analysis of gender representations and ethnic diversity in ELT textbooks, (SPSS Statistics, Version 22.0) by using the "Wilcoxon-Mann Whitney, written questionnaire, audio-recordings of group discussions, and semi structured interviews, qualitative procedures. Mixed methods, quantitative correlational design, data Collection, data Analysis, the data collection instrument and data collection procedure, research questions, MANOVA (Multivariate Analysis of Variance). ANOVA (Analysis of Variance) method, quantitative approach	
English Language and Literature	SPSS, Cronbach's Alpha test, Kolmogorov-Smirnov Test, 4-Variance Inflation Factor and Tolerance test, Multiple regression coefficients, the Pearson correlation coefficient (Pcc), Speech act theory and gender performativity, feminist stylistics has emerged as a sub-branch of discourse stylistics, data collection techniques and methodology, interpretation process	
Teaching French as a foreign language	document analysis	
French Language and Literature	not accessible	
Teaching Turkish (as a foreign language) and social fields	microsoft SPSS 21.0, One-Way ANOVA with t-test, content analysis and semi-structured interview methods, case study from qualitative research methods, scanning model	
Turkish Language and Literature	scanning model, discourses, Word Count Program (Linguistic Inquiry and Word Count/ LIWC), analysis method	
Health	TEDIL test and Mann Whitney U Test, data analysis, using SPSS 25.0 program, Gender-Inclusive Parental Verbal Expressions Scale, Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Turkish Early Language Development Test (TEDİL), data Collection, survey technique	
Arts	feminist theatre analysis, content analysis method, questioning perspective, content analysis technique, quantitative analysis methods	

Engineering	Word2Vec and GloVe, European Court of Human Rights (ECtHR) corpus, BERT-based models, LexGLUE benchmark, scope of NLP, GPT-3.5, GPT-4, Gemini, and Claude.	
Women studies	a consciousness beyond political views in the use of sexist language, collected data, the interview protocol, feminist linguistics	
International relations	anti-gender activists frame contentious	
Psychology	Gender Theory Questionnaire (GTQ), Demographic Information Form, Gender-Specific System Justification Scale (GSSJ), Ambivalent Sexism Inventory (ASI), Family Change Model	
Linguistics	Questionnaire, sociolinguistics, the individual difference measure, descriptive research, concerned with the description of data	
Journalism	content analysis technique, quantitative analysis methods	
PR	literature review , content analysis methods	
Law	interview	
Measurement and evaluation	Mantel-Haenszel (MH), Simultaneous, Item Bias Test (SIBTEST), logistic regression (LR)	
American culture and literature	critique of society, literary analysis	
Sociology	content analysis, interviews, the data collection techniques, literature scanning methods	

As a method, researchers have used different methods in technical fields and in different interpretative fields, that is, in social fields. Content analysis, literary analysis, feminist linguistics, quantitative analysis methods, scanning model, discourses, descriptive analytical method, qualitative research, semi-structured interview methods, case study are the methods in social fields. Corpus, BERT-based models, Exploratory Factor Analysis (EFA) are the methods of the technical fields.

6.7. Topics of theses

Table 2: Topics

No	Researcher/gender	The title of Mastern thesis
1	S. Şanlı(F)	Studying the receptive and expressive language skills of children between the ages of 2-7, who do or do not show language development appropriate to their age, in the context of gender and age
2	V. Balat(M)	Exploring frequency of speaking strategies usage by learners of Turkish as a foreign language in terms of gender age and language level
3	N. Sevim(M)	Analysis of gender bias in legal texts using natural language processing methods
4	R.R. Ali Ali(M)	Gender differences in learning languages by means of technology
5	M. P. Güden(F)	Sexism in language: studying on Turkish language from the perspective of feminine and masculine expressions
6	M. Kocaman Okucu(F)	Gender representations in two different levels of English language teaching course books: English File elementary and English File intermediate
7	D. Ağalday(F)	On the framing strategies of the transnational anti-gender movement: lifting the lid off the 'new' language of mobilization
8	M.Timuroğulları(F)	The effect of essentialist gender views and gender-specific system justification on attitudes toward using sexist language
9	E. Çelen(F)	Construction of femininity and masculinity through language in Charlotte Perkins Gilman's Herland and Doris Lessing's The Cleft
10	D. Kaya Bakay(F)	Language and gender ideologies: A feminist stylistic analysis of Monica Ali's Brick Lane and In the Kitchen
11	R. Bayram(F)	Gender bias and ethnic diversity in English language textbooks
12	E. Yığman (F)	Gender effect on multilingual students' beliefs about learning English as a foreign language
13	M. A. Türkmenoğlu(F)	Attitudes of prospective English language teachers towards learning materials focusing on gender sensitivity
14	N. Pekmezci(F)	Language learners' attitudes towards native speakers and their countries regarding achievement and gender
15	A. Aksoy(F)	Relationship between ambiguity tolerance and learners' gender, anxiety levels and language learning strategies choice
16	Z. Durna(F)	Invitational leadership practices at a school of foreign languages from a gendered perspective: A case study
17	A. Engin (F)	Variation of scores in language achievement tests according to gender, item format and skill areas
18	D. Erşen(F)	Gender ideologies in Turkish language of advertising since 1980s to present
19	M. Baş(F)	Gender-preferential language use in the writing style of teenagers
20	O. Aslan(M)	The role of gender and language learning strategies in learning English

21	G. Kurtsoy(F)	The relationship between language and gender in david Mamet's plays
22	E. Dursun(M)	An investigation into reasons of gender differences in foreign language learning success at university level prep classes
23	B. H. Ünal Acunsal(F)	A study on language learning strategies of 8th grade students according to their nationality, academic achievement and gender
24	V. Yılmaz(M)	Language learning strategies of Turkish EFL students and the effects of proficiency level and gender on strategy use
25	Y. Yasak(F)	Role of language in relation to gender role stereotypes
26	Ş. Behçetoğulları(F)	A Comparative study of gender differnces in English foreign language praficiency among Turkish University preparatory school learners
27	E. B. Kolkılıç(F)	Investigating difficulties experienced by French languageteaching prospective teachers in learning gender distinctionof words
28	A. C. Akkaya(M)	The relationship between the gender role attitudes of parents with children in the 0-6 age group and the language they use with their children
29	E. N. Dede(F)	Examination of the relationship between gender and language development in children with hearing loss
30	A. Gökmen(F)	A qualitative exploration of Turkish as a foreign language learners' awareness regarding gender discourse in Turkish literature classics
31	B. N. Karataş(F)	Awareness of secondary school 6th, 7th and 8th grade students about gender inequality and its use in language
32	A. Özbek(F)	The effect of gender and language on the references to the days of the week in Turkish
33	Y. D. Şahbaz(F)	Investigation into press language regarding news of violent against women in Turkey of: An analysis on Hürriyet, Sabah, Sözcü
34	G. Doğan(F)	The role of the language in the gender inequality as an agent of construction of thought
35	Ç. Canbaz(F)	Examining the relationship between language and gender in theater plays
36	D. Y. Çetin(F)	The reflection of gender roles in 100 Basic Works to the language
37	A. R. Güngör(M)	The analysis of language used in advertising messages in terms of gender: A research on women's and men's magazines
38	Ş. Arslan Coşar(F)	An analysis of the primary school dictionary published by the Turkish Language Association in terms of gender
39	Y. Polat(F)	Language use of 8th grade students in primary school in terms of gender variation
40	M. Kolikpınar(F)	Language in the context of gender in the narratives of Dede Korkut
41	S. Sevim(F)	Investigation of women language in Turkish Novel with (Linguistic Inquiry and Word Count/LIWC) in sociolinguistic
42	M. Altıok(M)	Masculine language in football and reflection to the turkish television football discussion programs: Samples of the Yenilsen de Yensen de and Beyaz Futbol
43	E. Uzun(F)	The representation of the 'Other' in new Turkish cinema: masculine language of Nationalism

44	D. Sarıçiçek Bidav(F)	The survey of the german coursebooks as a foreign language in the context of gender roles
45	H. E. Suna(M)	Differential item functioning (DIF) investigation of TIMSS 2007 Science Items in terms of language and gender
46	G. S. Ercan(F)	Language use in op-ed articles: Hedges and gender
47	S. Uylaş(M)	The Feminine in Arabic language
48	G. Anşin(F)	The sociological language of tattooing in women: Mardin example
49	A. B. Tuna(F)	Sexist language and harassment in social media in the narrative of female journalists
50	A. Dost(F)	The Relationship between self construals and language for emotions in personal narratives of Turkish males and females
51	Ş. İnceoğlu(F)	An analysis of heroines in the language use of Pamela and Moll Flanders
52	S. Şendur(F)	Reflections of bias: Large language models analysis on professions and gender perception
53	H. İğsen(F)	The effectiveness of Social and Emotional Learning (SEL)-embedded Sustainable Development Goal 5 (SDG-5 Gender Equality) oriented teaching program on high school EFL students' SDG-5 awareness, SEL competencies and language development
54	D. Erşen(F)	Gender ideologies in Turkish language of advertising since 1980s to present
55	M. Baş(F)	Gender-preferential language use in the writing style of teenagers Ergenlerin yazı üsluplarındaki toplumsal cinsiyet tercihli dil kullanımı
56	G. Kurtsoy(F)	The relationship between language and gender in david Mamet's plays
57	B. Tunçsiper(F)	Investigating impact of English language teachers' gender and experiences on students' online learning engagement
58	S. Tanrıverdi(F)	The effect of teacher immediacy behaviors on students' motivation and attitude towards language learning according to the gender, level, educational background and region of the students

Topics include looking at language development in students generally defined as boys and girls according to gender, examining the frequency of using speaking strategies in terms of gender, age and language level, sexist prejudices in legal texts, gender differences in technology and language learning, gender discrimination in language, gender representations in textbooks, the transnational anti-gender movement, The effect of essentialist gender views, the construction of femininity and masculinity through language in two literary works, examining language and gender ideologies in literary works, gender and ethnic diversity, gender and language, gender-sensitive teaching. materials; Native language users, achievement and gender affiliation; gender, anxiety levels and language learning strategies; gender ideologies in advertising language; use of gender-preferential language; The relationship between language and gender in literary

works; the linguistic problems they encountered regarding gender discrimination in words; Examining news of violence against women; Language and gender relationship in theater play texts; lexical analysis in terms of gender; female language; masculine discourse; the sociological language of tattoo.

7. Conclusion

In this study based on document analysis, gender and language were discussed and some data were used to analyze master's theses written at universities in Turkey. The connection between language and gender covers many areas such as biology, phonetics, opera, health sciences, language teaching, literary linguistics, sociology, and in fact, life itself. The expectation in the research was the possibility of encountering many studies in the German language, because the German language also has a gendered language structure and most opera singers sing German texts. In addition, German literature also includes many female writers. As expressed in the graphs and tables, female researchers have focused more on this issue, but the issue of gender and language, how female and male voices sound, how women and other genders use their language in medicine or other fields, the issue of lisping in homosexual language use, etc., has been seen as a deficiency in not addressing issues such as pronunciation.

As a result, language and gender are interconnected, the language used by women and men sometimes differ. When looking at master's theses, it is seen that women researchers are more in number in researching the subject of gender and language. As a subject, contemporary researchers have mostly researched language and gender in the fields of language teaching. As a result, language and gender are interconnected, the language used by women and the language used by men sometimes differ. When looking at master's theses, it is seen that female researchers are more in number in researching gender and language. As a subject, contemporary researchers have researched language and gender in the fields of language teaching. With document analysis, language and gender issues have been tried to be analyzed in master's theses according to year, gender of researchers, methods, topics and distribution in universities. It was expected that different topics could have been investigated, but no thesis topic was found on gender and language where women's voices and men's voices were measured with instruments. The voices of male students, female students, or male teachers' voices and female teachers' voices were also not included in the topics. However, it can be seen that this issue of sound is mentioned in the articles.

Voice Types: In men; tenor, baritone, bass. In women; soprano, mezzo-soprano and alto. Opera literature requires more voice type distinctions. For example, bass, bass buffo, bass baritone, dramatic baritone, lyric baritone, lyric

tenor dramatic tenor, tenor buffo, etc. In women's voices, dramatic soprano, spinto soprano, lyric soprano, leger soprano, subret, coloratura soprano, dramatic coloratura, mezzo-soprano, lyric mezzo, alto, lyric alto, etc. The lowest tone that can be reached is contra fa1 = 43 Hz, the highest tone is mi4 = 2610 Hz. The lowest tone in bass literature is re = 72.6 Hz. However, in female voices, the laryngeal whistling sound can reach up to 4000 Hz. (Aladağ, 2017,32).

The reason why I ended this text with this quote is to ensure that the subject is approached from different perspectives such as linguistic, sociological, cultural and psychological under the term gender and language.

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Chapter 6

What Drives Student Adoption of AI in Education? Unpacking the Key Factors and Practical Strategies

Mehmet Fatih YİĞİT[1]

Abstract

This chapter explores the critical factors influencing students' adoption of artificial intelligence (AI) tools in educational settings, drawing on established technology acceptance models. It highlights key determinants including performance expectancy, effort expectancy, perceived trust, hedonic motivation, AI literacy, and social influence, emphasizing their distinct roles in shaping students' attitudes and behaviors toward AI integration. The chapter also addresses the transformative impact of AI on education and underscores the importance of fostering students' acceptance to realize AI's full potential in personalized and adaptive learning. Finally, practical strategies are proposed to enhance adoption by improving perceived benefits, ease of use, trustworthiness, enjoyment, competence, and leveraging social norms, providing actionable guidance for educators, developers, and policymakers to support meaningful and sustained AI use in learning environments.

Keywords: Artificial intelligence, AI, education, adoption, students, factors, strategies

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1. Introduction

An analysis of the emergence and evolution of technological innovations reveals a recurring pattern: technologies that were once considered mere fantasies often evolve into integral components of everyday life. This trajectory is evident in the case of artificial intelligence (AI) as well. Once confined to the realms of science fiction literature and film, AI has now become a routine and widely accepted aspect of contemporary society. By definition, AI refers to computer systems capable of performing tasks that typically require human intelligence, such as learning from data, recognizing patterns, making decisions, and engaging in natural language communication (Kutlucan & Seferoğlu, 2024). The ability and effectiveness of AI in performing the aforementioned tasks continue to grow steadily, in parallel with rapid advancements in the fields of machine learning and natural language processing.

One of the most significant characteristics of AI is its transformative nature. Across various sectors—from industry and healthcare to the economy and social behaviors—AI applications have markedly altered and evolved these fields compared to the past (Saihi *et al.*, 2024). The education sector is certainly no exception to this transformative impact; in fact, AI has influenced education as much as, if not more than, many other domains (Altun, 2024). Within this context, AI has triggered a paradigm shift in how knowledge is created, communicated, accessed, and assessed in educational settings (Aydemir & Seferoğlu, 2024). Furthermore, AI-driven tools such as adaptive learning platforms, intelligent tutoring systems, automated grading software, and virtual learning assistants have introduced important innovations and opportunities for students. These advancements challenge the outdated one-size-fits-all approach by enabling personalized learning pathways tailored to individual progress and preferences. They also provide adaptive feedback and guidance through intelligent tutoring systems, deliver automatically generated content aligned with students' evolving competencies, enhance accessibility via real-time translation and speech-to-text tools, and empower students to monitor and regulate their own performance more effectively through data-driven analytics.

However, the opportunities that AI offers to students do not arise automatically. The realization of these benefits and their positive impact on learning outcomes largely depends on students' adoption and subsequent use of AI tools. Therefore, it is critical to focus on the issue of students' acceptance and adoption of AI applications. Equally important in this context is understanding the factors that drive students to embrace AI technologies. Based on this premise, this book chapter aims to explore the determinants influencing students' AI adoption by drawing insights from existing acceptance and adoption models in

the literature. Identifying these factors is crucial not only for comprehending why students choose to adopt AI tools but also for determining how such adoption can be effectively supported and encouraged. Indeed, the effective and sustainable integration of AI technologies in education hinges on a deep understanding of the attitudes, perceptions, and usage tendencies of students toward these innovations. Knowing which factors significantly affect student adoption enables educators, institutions, and policymakers to design informed and targeted interventions. Consequently, this can foster a more willing, meaningful, and efficient use of AI tools by students.

2. Key Factors Influencing Students' Adoption of AI in Education

With the introduction of every new technology into the educational field, academic research has increasingly focused on understanding the extent and conditions under which these technologies are adopted. In educational technology studies, the concept of adoption refers to the process whereby individuals develop a positive attitude toward a technological innovation, form an intention to use it, and subsequently integrate it into their daily practices. Recently, AI has emerged as a leading technological advancement in education, prompting researchers to investigate the factors influencing its adoption in this context. The adoption and acceptance of AI applications in education is not solely dependent on access to these tools; rather, it encompasses a complex interplay of cognitive, affective, and social factors. To identify these factors, well-established models and theories explaining the adoption of technological tools in the literature are frequently utilized. In particular, foundational frameworks such as the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Theory of Planned Behavior (TPB) (Ajzen, 1991), the Technology Acceptance Model (TAM) (Davis, 1989), and the Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2) (Venkatesh *et al.*, 2003; Venkatesh, Thong, & Xu, 2012) have been employed by scholars to determine the key driving factors behind students' adoption of AI tools. Building on this, the following subsections present the core factors (see Figure 1) derived from these theories and models, explaining the specific roles each plays in shaping students' adoption of AI tools within learning environments.

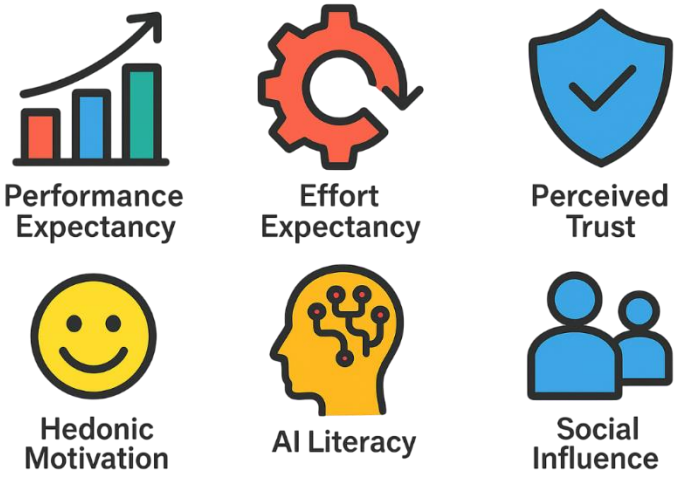

Figure 1. *Key factors influencing students' adoption of AI in education*

2.1. Performance Expectancy

One of the most influential factors affecting students' adoption of AI tools is performance expectancy (PE). PE is generally defined as an individual's belief that using a particular technology will enhance their job performance (Venkatesh *et al.*, 2003). When applied to the context of students adopting AI, PE refers to their perception that utilizing AI technologies will improve their academic achievement, deepen their understanding, and contribute positively to the overall effectiveness and efficiency of their learning process. Many recent studies in the literature indicate that PE, a key factor within the UTAUT framework, stands out as one of the most significant determinants influencing the adoption of AI (Foroughi *et al.*, 2024; Helmiatin, Hidayat, & Kahar, 2024; Mohd Rahim *et al.*, 2022; Nagy *et al.*, 2024). Some research has also examined the related concept of perceived usefulness (PU) from the TAM, which inspired the development of PE, and has consistently demonstrated its significant impact on AI adoption (Ma & Lei, 2024; Ursavaş *et al.*, 2025). Consequently, when students hold a strong belief that AI tools will enhance their learning performance, they tend to be more motivated and willing to integrate these tools into their educational activities. This belief not only influences the initial adoption of AI but also supports the sustained use of these technologies over time.

2.2. Effort Expectancy

Effort expectancy (EE) is another significant factor that shapes students' decisions to adopt AI tools in educational settings. Within the UTAUT framework, EE builds upon the earlier concept of perceived ease of use (PEU) introduced in the TAM, encompassing users' perceptions regarding the ease of

using a particular system (Venkatesh *et al.*, 2003). In the context of AI adoption, EE refers to how simple, user-friendly, and accessible students perceive AI tools to be. A growing body of research emphasizes the critical role of EE—and its conceptual equivalent, PEU—in determining whether students are willing to adopt AI technologies (Al-Momani & Ramayah, 2024; Chatterjee & Bhattacharjee, 2020; Foroughi *et al.*, 2024; Maheshwari, 2024; Pillai *et al.*, 2024; Tiwari *et al.*, 2024). At its core, EE reflects an individual's belief about the amount of physical and cognitive effort required to effectively use a technology in everyday tasks. When people perceive that AI applications can be used with minimal effort, their likelihood of adopting such tools increases. Conversely, if they perceive a tool as complicated or burdensome, they may be discouraged from using it. In this regard, students are generally more open and motivated to adopt AI tools that feature intuitive interfaces, align with usability principles, and offer clear, straightforward functionality—as opposed to tools with complex navigation or ambiguous usage instructions.

2.3. Perceived Trust

The literature has highlighted perceived trust as another key factor influencing students' acceptance and adoption of AI tools. Perceived trust is defined as individuals' belief that the technology itself—and the organizations that develop it—operate in a secure, honest, and integrity-driven manner (Bilquise, Ibrahim, & Salhieh, 2024). While this construct is not included in the original formulations of TAM or UTAUT, it is frequently incorporated into their extended versions, where it is recognized as a significant determinant in understanding user acceptance of emerging technologies.

Perceived trust, a critical component of human-computer interaction, plays a particularly important role in students' adoption of AI tools (Polyportis, 2024). In the context of AI adoption, perceived trust can be understood as students' belief that AI systems operate in a reliable, honest, and ethical manner. However, many AI-based applications lack transparency regarding the rationale behind their decisions and recommendations, leading users to perceive them as "black box" systems. This lack of clarity can foster hesitation regarding the accuracy and trustworthiness of the information provided by such systems. A related concern that further amplifies the importance of perceived trust is the issue of AI hallucination—the generation of information that appears credible but is, in fact, incorrect or fabricated (Kumar *et al.*, 2023). This phenomenon raises further doubts about the reliability of AI outputs in educational contexts. Therefore, when AI systems are designed and communicated in ways that foster trust—through transparency, accountability, and ethical operation—students are more

likely to accept and integrate these tools into their learning processes. Supporting this, numerous recent studies have highlighted the significant impact of perceived trust on AI adoption among students (Mohd Rahim *et al.*, 2022; Pillai *et al.*, 2024; Polyportis, 2024).

2.4. Hedonic Motivation

Students' integration of AI tools and applications into their learning processes is also influenced by another important factor: hedonic motivation. Simply put, hedonic motivation refers to the pleasure, enjoyment, and satisfaction individuals experience while using a technology (Venkatesh, Thong, & Xu, 2012). This construct, which was later incorporated into the extended version of UTAUT, shifts the focus from purely functional or performance-based evaluations of technology toward the affective, emotional experiences associated with its use.

From the perspective of AI adoption, hedonic motivation refers to the degree to which students find the use of AI tools enjoyable, stimulating, and engaging. Studies in the literature have shown that, as with other technologies, hedonic motivation is a significant determinant in students' acceptance and adoption of AI applications (Foroughi *et al.*, 2024; Sergeeva *et al.*, 2025). This is particularly relevant given the digital-native profiles of today's learners, who tend to engage with technology not only for functional or task-oriented purposes but also for entertainment and enjoyment. Therefore, if students perceive AI tools as fun to use, visually appealing, and intellectually stimulating, they are more likely to integrate these tools willingly into their learning processes. Conversely, even if AI tools are effective in helping students complete academic tasks, a lack of engaging or enjoyable features may eventually lead students to abandon them or shift toward alternatives that offer both educational and entertaining value.

2.5. AI Literacy

The adoption of an innovation also depends on the ability to use it competently from a technical standpoint. In this regard, AI literacy plays a significant role in whether students embrace and effectively utilize AI tools (Ma & Lei, 2024). AI literacy encompasses the knowledge and skills necessary to understand AI systems, interact with them effectively, and critically evaluate their outputs (Ng *et al.*, 2021). Students with higher levels of AI literacy are more aware of the potential of AI applications to enhance their learning experiences. They also possess a clearer understanding that AI systems can generate inaccurate information, which necessitates caution when interpreting and applying their outputs. As a result, adequate AI literacy enables students to better recognize both the strengths and limitations of AI tools and to adopt a mindset focused on

managing and compensating for potential drawbacks rather than abandoning the technology altogether. This, in turn, facilitates greater acceptance and integration of AI tools and applications into educational settings.

2.6. Social Influence

While the factors discussed above primarily relate to an individual's own perceptions, beliefs, evaluations, and abilities, the adoption of an innovation is not solely dependent on such internal elements. A person's social environment—and the opinions, beliefs, and attitudes of others within that environment—can significantly shape their decision to adopt a new technology. In this regard, the literature identifies social influence as a critical factor affecting students' adoption of AI tools and their integration into learning experiences (Bilquise, Ibrahim, & Salhieh, 2024). Within the UTAUT framework, social influence corresponds to the concept of subjective norm found in earlier models such as the TRA (Fishbein & Ajzen, 1975) and the TPB (Ajzen, 1991).

Social influence refers to the degree to which an individual perceives that "other people" believe they should use a particular technology (Venkatesh *et al.*, 2003). In other words, a person's decision to adopt or reject an innovation can be significantly shaped by the opinions of those they consider important in their social environment. This influence can manifest directly through explicit recommendations, encouragement, or expectations, as well as indirectly by observing the behaviors of others and the prevailing trends within the learning environment. Accordingly, when students see respected peers or instructors actively using AI systems, or when institutional policies and classroom practices encourage their use, their willingness to adopt AI tools in education can be accelerated. Conversely, if people in their environment do not use AI tools or approach them with skepticism, students may refrain from adoption. Empirical studies support this view, showing that both social influence (Bilquise, Ibrahim, & Salhieh, 2024; Foroughi *et al.*, 2024; Sergeeva *et al.*, 2025) and its earlier conceptualization as subjective norm (Ivanov *et al.*, 2024; Ma & Lei, 2024; Rahman *et al.*, 2025) are significant predictors of students' adoption of AI tools.

3. Practical Strategies

Identifying the factors that influence students' adoption of AI tools in education is important; however, perhaps even more crucial is translating these insights into actionable strategies. Building on this perspective, the following paragraphs present practical recommendations derived from each factor, thereby offering educators, developers, and policymakers clear guidance on how to enhance students' acceptance and effective use of AI tools. This approach not

only bridges the gap between theory and practice but also ensures that the findings can lead to tangible improvements in educational settings.

Starting with performance expectancy, one of the most effective ways to foster students' adoption of AI technologies is for educational institutions to clearly demonstrate the tangible benefits these tools bring to the learning process (Foroughi *et al.*, 2024). This can include showcasing how AI-driven features such as personalized feedback, adaptive learning systems, and real-time performance analytics enhance learning outcomes. Moreover, presenting real-world success stories of students who have achieved notable academic improvements through the use of AI can be highly persuasive (Sergeeva *et al.*, 2025). At its core, the strategy should focus on highlighting the concrete, positive impacts of AI tools on learning performance, as this emphasis plays a central role in convincing students to integrate such technologies into their educational practices (Ma & Lei, 2024).

Designing AI tools to be user-friendly and ensuring their constant accessibility is also critical for promoting adoption. In this regard, educational AI applications should feature intuitive interfaces, clear usage instructions, and minimal technical complexity to reduce perceived effort (Helmiatin, Hidayat, & Kahar, 2024; Nagy *et al.*, 2024). The availability of ongoing technical support is equally important to address potential issues and challenges that may arise during use. In short, students' first impressions of AI tools should be free from intimidation and instead convey the sense that "I can use this easily", thereby fostering confidence and willingness to engage with the technology.

An individual's decision to use a new technology is closely linked to the trust they have in it. Accordingly, it is crucial for developers to provide users with clear transparency about how AI tools function and the basis on which their outputs are generated. Moreover, incorporating features that enable students to verify AI-generated results or compare them against authentic sources can enhance their critical thinking skills while simultaneously boosting their confidence and trust in the system.

When a technological innovation offers an enjoyable experience, the likelihood of its adoption increases significantly. Therefore, AI tools that feature interactive and visually appealing interfaces provide students with an enjoyable, engaging, and stimulating experience (Foroughi *et al.*, 2024), transforming learning from a tedious task into an enjoyable activity. Furthermore, equipping AI tools with the ability to produce multimedia outputs such as audio, images, and videos alongside text gives students an added reason to use these tools with greater enthusiasm and enjoyment.

When individuals feel confident and competent in using a system, their likelihood of adopting it becomes stronger. Therefore, supporting students in developing AI literacy, which is a foundational requirement for effectively benefiting from AI tools, is critically important. In this regard, educational institutions should integrate programs aimed at enhancing AI literacy into their curricula. These programs should not only cover technical knowledge—such as understanding how AI systems work and their limitations—but also address ethical considerations, data privacy, and the critical evaluation of AI-generated outputs (Ursavaş *et al.*, 2025). Additionally, workshops, tutorials, and hands-on activities can be utilized to further strengthen students' skills and confidence in using AI technologies.

Since schools are inherently social environments, it is important to leverage the power of social influence in promoting the adoption of innovations such as AI tools. Therefore, learning environments should be designed to clearly communicate and continuously reinforce positive social expectations regarding AI usage to encourage its acceptance among students. In this context, instructors, peers, and academic leaders should be actively encouraged to use AI tools in teaching and learning processes (Sergeeva *et al.*, 2025). This approach helps normalize AI use within the environment, creating normative pressure that motivates others to follow suit (Bilquise et al, 2024). As a result, AI adoption becomes significantly easier and more widespread among students in that setting.

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Bölüm 7

Eğitimi İyileştirmede Alan Dışı Eğitim ve Mikro Öğretim Politikaları

Fethi KAYALAR[1]

1. Giriş

Eğitim, toplumların mevcut refah düzeyi ile nesiller arasındaki sosyal ve ekonomik hareketliliğinin en önemli belirleyicilerinden biridir. Ülkelerin kalkınması için eğitim kalitesinin, eğitimde kalma süresinden daha etkili olduğu bilinmekte olup küresel gelişmeler eğitimden beklentileri hızlıca değiştirmektedir (Kalkınma Bakanlığı, 2014).

Değişim ve dönüşüm odağı, eğitimin iyileştirilmesi için temeldir. Burada, dört geniş odak alanı, alan dışı öğretim olgusunun bir sonucu olarak ortaya çıkan bir dizi sorunu belirlemektedir: (1) öğretim ve öğretmen kalitesi, (2) öğrenci başarısı, (3) eğitim ve okul liderliği ve (4) okullardaki işgücü istikrarı.

Alan dışı öğretimin en temel sorunlarından biri, öğretmenlerin bilgilerinin çeşitli operasyonel yönlerine getirdiği kısıtlama ve yüktür; bu bilgiler, alan dışı görevlerinin yeni ve alışılmadık ortamına uyum sağlamak için dönüştürülmelidir. İçerik bilgisi, pedagojik bilgi ve pedagojik içerik bilgisi gibi sınırlı öğretmen bilgileri, öğrencilerin eğitiminin kalitesi, sınıf ortamı ve okulların etkili öğrenme ortamları olarak iç ve dış algıları üzerinde önemli bir etkiye sahiptir. Pedagojik diyalog, öğretmenlerin öğrencileri nasıl gördükleri ve öğrenme ortamındaki bireysel varlıklarını nasıl kabul ettikleri ile ilgilidir. Bernstein (2000) müfredatın etkili bir şekilde yapılandırılması için pedagojik diyaloğun etkisini vurgulamıştır; van Manen (2016a) da bilginin inşa edildiği ve içselleştirildiği alanda öğretmenlerin pedagojik düşünceliliğinin değerini vurgulamıştır. Öğretmenlerin bir müfredatı yapılandırma ve yürürlüğe koyma konusundaki pedagojik becerileri, bilgiyi çeşitli öğrenme ve sosyal gruplar için uyarlama etkinliklerini etkiler (Scott, 2008). Alan dışı öğretmenlerin yaşanmış deneyimleri, yerinde bilgi dönüşümünün getirdiği gerginlik nedeniyle pedagojik yeteneklerinin yerinden oynadığını; pedagojik düşünceliliklerinin zayıfladığını ancak bu önemli konunun politika tarafından göz ardı edildiğini göstermektedir. Hedefli iyileştirme politikaları, alan dışı öğretmenleri müfredatı amaçlandığı gibi uygulayabilmeleri

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için donatma, yönlendirme ve destekleme sürecinden izole edilemez; Öğretmenler, belirli görevleri için sağlam pedagojik eylemlerle ne kadar donanımlı olursa, okulların ve öğrencilerin hedeflere ve gelecekteki hedeflere ulaşma şansı o kadar artar (Bondesio ve De Witt, 2004). Alan dışı öğretmenlerin deneyimlediği pedagojik kopukluk, hem etkili bir şekilde öğretme hem de okullarının başarılı kurumlar olarak itibarını inşa etme konusunda yaşadıkları ve mücadele ettikleri karmaşık zorlukların temelini oluşturur. Dahası, bu başarı olmadan öğretmenlerin öz yeterlilikleri ve özgüvenleri sarsılır. Öğretmenlerin mesleki varlıkları ve yaşam dünyaları, kaliteli eğitimi inşa eden, teşvik eden ve destekleyen politikalar için her türlü stratejik planı etkilemeli ve motive etmelidir. Öğretim kalitesinin nasıl sağlanacağı, öğretmen kalitesinin nasıl iyileştirileceği veya zorlu sınıf ortamlarına rağmen öğrenci başarısının nasıl teşvik edileceği ve destekleneceği gibi temel odak noktaları etrafında oluşturulan mikro eğitim politikalarının, öğretim ve öğrenme bağlamının bir parçası haline gelebileceğini ve alan dışı öğretim olgusu için uygulamaya konulmuş kaynaklar sağlama potansiyeline sahip olduğu savunulmaktadır.

2. Mikro Eğitim Politikaları

21 yy ilk yıllarında dünyanın birçok ülkesi, eğitim sistemlerinin niteliğini artırmak için çeşitli alanlarda kapsamlı reformlar uygulamışlardır. Bu reformların, eğitimin yönetiminden finansmanına, eğitim programlarından öğretmen yetiştirme modellerine kadar çok geniş bir alanı kapsadığı görülmektedir. Bu reformların temel çıkış noktası, küreselleşmeyle birlikte öne çıkan bilgi ekonomisini ve ekonomik rekabetçiliği artırmaktır. Küreselleşme ve bilgi ekonomisine geçişin gerektirdiği yeni ekonomik ortamda, hem öğrenmeyi öğrenme hem de çalışanların becerilerini sürekli güncel tutma gibi kavramlar ön plana çıkmıştır. Bunun sonucunda, eğitim sistemleri, iletişim becerileri yüksek, takım çalışmasına uyumlu, eleştirel ve analitik düşünceye sahip kişiler yetiştirmeye daha çok önem vermişlerdir. Bu çerçevede, yaşam boyu öğrenme bir eğitim politikası olarak ön plana çıkmaktadır. Avrupa Birliği gibi kimi ulus-ötesi kuruluşlar bu konuda çeşitli çalışmaları desteklemektedirler. Daha genel olarak ifade etmek gerekirse, geleneksel olarak ulus-devletin tekelinde olan eğitim politikalarını belirlemede birçok ulus-ötesi aktör ve kuruluş gittikçe daha belirgin bir rol almıştır (Kalkınma Bakanlığı, 2014).

Eğitim reformu, okul veya okul sisteminin çalışma şeklini değiştirerek eğitimi iyileştirmeyi amaçlayan devam eden bir süreçtir. Genellikle çeşitli paydaşların iş birliğiyle gerçekleşen bu değişiklikler, öğretim metodolojilerini veya idari uygulamaları içerebilir. Eğitim reformunun amacı, tüm öğrencilerin ihtiyaçlarını karşılayan ve sürekli değişen bir toplumun taleplerini karşılayan kaliteli bir

eğitim sistemi oluşturmaktır. Son zamanlarda eğitim reformcuları, daha fazla fon, daha iyi öğretmen eğitimi, ayrımcılığın ortadan kaldırılması ve daha küçük sınıflar gibi belirli iyileştirmeler talep etmektedirler.

Eğitim reformları, değişim sürecinin öğretmenlerin yaşam dünyaları üzerindeki zorlu ve bazen olumsuz etkisi nedeniyle genellikle öğretmen kayıp oranlarını artırır (Lindqvist, Nordänger ve Carlsson, 2014). Reform stratejileri, politika reformu yaklaşımlarının okul iklimleri ve öğretmenlerin eğilimleri üzerindeki etkilerinin farkında olarak yönetilmelidir. Eğitim reformu, küresel alan dışı öğretim sorunu gibi olguların ortaya koyduğu karmaşık zorlukları ve eğitim sorunlarını dikkate almalıdır. Mikro eğitim politikası geliştirme ve uygulama, alan dışı öğretim uygulamalarının bağlam bilincinde kavramsallaştırılması yoluyla etkili bir eğitim reformunu etkileyebilir.

Alan dışı öğretim olgusunun kavramsallaştırılması, Gadamer'in (1975) anlam oluşturma felsefesinde, varoluşumuz ve yaşam dünyamız üzerinde geniş bir etkiye sahip deneyim birimlerinden oluştuğu şeklinde yer almaktadır. Alan dışı öğretim olgusu ile iyi tasarlanmış politika çerçeveleri arasındaki ilişki, her ikisinin de öğrenme faktörlerini nasıl etkileyebileceğiyle iç içe geçmiştir; bu öğrenme faktörlerinin, ev ve okul ortamlarındaki belirli öğrenme ihtiyaçlarının yanı sıra bunların iç içe geçmiş bağlamsal ve fiziksel faktörleriyle de ilişkili olduğu unutulmamalıdır (Pirrie, 2017). Lave ve Wenger (1991), pedagoji, bilgi ve öğrenme gibi faktörleri, öğretim ve öğrenme alanında kimliklerin geliştirilmesi için belirli bir ortamda temel unsurlar olarak ele almışlardır.

Sınıfı ve onun nihai amacını korumayı hedefleyen politikalara, bir öğretmenin uygun şekilde nitelikli olmadığı bir görevi yönetmek için gereken beceri ve yeteneklere sahip olup olmadığına dair güven eksikliği ve kendinden şüphe duymasının öğrenme alanının etkinliğini kısıtlayabileceği alan dışı öğretim bağlamı gibi karmaşık öğretim bağlamlarında ihtiyaç duyulmaktadır. Sınırlı güven ve belirsizlik, aktif öğretmen katılımının olmaması nedeniyle sınıflardaki sosyokültürel öğrenme üzerinde olumsuz etkilere sahiptir. Mikro eğitim politikalarının, kaliteli öğretim ve öğrenmede iyileştirmeler sağlama stratejileri olduğunu ve kullanıldıkları bağlamla yapısal ve işlevsel olarak bağlantılı olmaları nedeniyle öğretim ve öğrenme alanının yanlış yorumlanmasını ortadan kaldırma veya sınırlama potansiyeline sahiptir. Ayrıca, mikro eğitim politikaları değerler, normlar ve etkiledikleri toplumla ilgili endişeleri de karşılayabilir ve iyi geliştirildiklerinde, bu tür politikalar sınıfla bağlantıları ve öğretim ve öğrenme alanını iyileştirmek için uygulamaya konmuş kaynaklar olarak potansiyelleri nedeniyle güveni teşvik eder.

Öğretmen yeterliliğini artırmak ve daha fazla aday öğretmen ve yeni öğretmen istihdam etmek, okullardaki alan dışı öğretim sorununu tek başına çözemez.

Ancak, alan dışı öğretim olgusunu özel olarak hazırlanmış mikro eğitim politikalarıyla etkili bir şekilde yönetmeye odaklanmanın, olgunun öğretmenlerin performansı ve dolayısıyla öğrenci başarıları üzerindeki etkisini sınırlayabilir. Okullarda alan dışı ödevlerin yönetimi, kendilerine özgü zorluklarını kabul eden yapılandırılmış stratejiler veya politika çerçeveleri olmadan gerçekleşir, ancak sınıf ortamında iyi tanımlanmış prosedürlerin olmaması öğrenmeyi yine de etkiler (Marzano, 2007). Dahası, Barlow (2002), öğretmenlerin alan dışı öğretimin sebebi olmadığının daha fazla kabul edilmesinin önemini vurgulamış ve okullarda alan dışı durumların baskın olmasının, konuyla ilgili siyasi motivasyon eksikliğine işaret ettiğini ve bunun da daha sonra ortaya çıkan karmaşık alan dışı sorunlardan sorumlu olan daha az etkili idari uygulamalara yol açtığını ileri sürmüştür. Alan dışı öğretmenler, liderlik ön yargıları tarafından uygunsuz görevlendirmeleri için zaten yeterli olarak algılanır (Barlow, 2002) ve bu önyargı, okul liderlerinin bu öğretmenleri nasıl yönetecekleri ve yönlendirecekleri konusundaki kararlarını etkiler. Ancak mikro eğitim politikaları, alan dışı öğretim ve öğrenme ortamlarındaki kabul edilmemiş kesintilere bağlam bilincine sahip bir yapı sağlayabilir. Mikro eğitim politikaları, öncelikle okul liderlerini alan dışı çalışanlarının yaşanmış deneyimlerinin yönlerini fark etmeye teşvik eden ve ikinci olarak da onları amaca uygun şekilde desteklemek için yerinde mikro politika kaynakları oluşturmalarını sağlayan daha geniş ve sistemik çerçevelere duyulan ihtiyacı ele alır.

Öğretme ve öğrenmenin temelleri, Vygotsky'nin (1978) sosyokültürel öğrenme felsefesinde, Van Manen'in (2016a) öğretmenlerin loco parentis statüsünü kabul etmesinde ve Lave'nin (2009) öğrenme sürecinin öğrenme etkinliğinin gerçekleştiği sosyal dünyadan izole olmadığı görüşünde açıklama bulmaktadır. Öğretmenler, tüm öğrencilerinin ihtiyaçlarıyla ilgilenmekten sorumludur; bu da hem kendi hem de öğrencilerinin zaferler, aksilikler ve aidiyet duyguları gibi gerçek yaşam deneyimlerinin çeşitliliğini fark etmeyi ve aktif bir katılım sağlamayı gerektirir. Günlük deneyimler öğretme ve öğrenme bağlamını etkiler ve politika tarafından göz ardı edilmeye veya etkisiz bir şekilde yönetilmeye devam etmek zorunda değildir. Alan dışı olgudan etkilenen kaliteli öğrenme sürecinin ve mekanizmalarının karmaşıklığı, yaşanan deneyimler, sosyal dünya ve bunun sonucunda gelişen bilişsel yük hakkında düşünceli davranabilen mikro eğitim politikaları gerektirir. Lave (2009), öğrencilerin bir sınıfın sosyal dünyasına katılımının, özünde nasıl ve ne öğrendiklerine dair yaklaşım ve uygulamaları kavramsallaştırdığını ve konumlandırdığını vurgulamıştır. Dolayısıyla öğrenme süreci, çeşitli öğrenme yaklaşımlarını teşvik eden ve öğrencilerin sosyal ve duygusal öğrenme deneyimlerini, öğrenmenin nasıl yapılması gerektiğini katı bir şekilde belirlemeden kabul eden bir kültüre

sahip bir ortamda en iyi şekilde gerçekleştirilir (Durlak, Weissberg, Dymnicki, Taylor ve Schellinger, 2011). Örneğin, bireyselliğe değer verme, onu kabul etme ve saygı duyma, kişinin kendisi olmasının ve hata yapmasının kabul edilebilir olduğu söylemini destekler (Arnold, 2005).

3. Alan Dışı Öğretim Ortamlarında Mikro Eğitim Politikasının Önemi

Mikro eğitim yöntemi, kuruluşlarda ve şirketlerde gayri resmi öğrenme süreçlerini desteklemeyi amaçlayan bir yaklaşımdır. Bu anlamda öğrenme, aktif bir bilgi yaratma sürecinin sosyal etkileşimler içinde, ancak resmî öğrenme ortamları veya eğitim tesislerinin dışında gerçekleşmesi anlamına gelir. Bu süreç, Mikro eğitim yönteminde olduğu gibi, iyi tasarlanmış ve yapılandırılmış sistemler ve destekleyici iletişim ve iş birliği yöntemleriyle kolaylaştırılabilir. Bir Mikro eğitim düzenlemesi, her öğrenme oturumu için 15-20 dakikalık bir zaman dilimini kapsar ve seriler halinde bir araya getirildiğinde öğrenme süreçlerini daha uzun süre etkinleştirebilir ve sürdürebilir. Bir Mikro eğitim oturumu yüz yüze, çevrimiçi veya bir e-öğrenme senaryosuna entegre edilebilir (Kris, 2025).

Mikro eğitim politikası, aşağıdan yukarıya politika geliştirme anlamına gelir. Sınıflardaki sorunlar, öğrenci merkezli ortamlara ilişkin güncel bilgiyi yansıtmayan öğretmen uygulamaları ve pedagojiyle daha da karmaşıklaşır (Allen, 2010). Yukarıdan aşağıya politika kararları etrafındaki söylem, alanda genellikle göz ardı edilir; görüşler, politikanın gerçekten önemli olmadığı, yalnızca bölümler, işverenler ve düzenleyici kurumlar gibi sistemik varlıkları korumak için tasarlanmış bir dizi strateji olduğu yönündedir. Ancak aşağıdan yukarıya politika geliştirme, odak noktasının sınıf bağlamı olduğu anlamına gelir; bu durumda, alan dışı sınıf bağlamları, ele alınması gereken gerçekleri ortaya çıkarır. Hedef odaklı mikro eğitim politikalarının, esneklikleri ve bağlamsal uyarlanabilirlikleri sayesinde sınıfların yoğun ve iç içe geçmiş meselelerine ulaşabileceğini ve böylece politikayı, öğretim ve öğrenmenin alan dışı öğretim uygulamalarıyla zorlandığı sınıflarda erişilebilir ve faydalı hale getirebilir.

Mikro öğretim, aday öğretmenlere sürekli eğitim ve sınıf öğretmenlerine simüle edilmiş bir ortamda yeniden eğitim olanağı sağlar. Bu uygulama oturumları, aday öğretmenlerin sınıfta uygulamadan önce öğretim tekniklerini mükemmelleştirmelerini sağlar. Mikro öğretim oturumları ayrıca, aday öğretmenlerin farklı beceri seviyelerine ve geçmişlere sahip öğrencilerle çalışmak da dahil olmak üzere çeşitli sınıf senaryolarına hazırlanmalarına olanak tanır. Son olarak, mikro öğretim öz değerlendirme ve akran geri bildirimi için değerli fırsatlar sunar.

Özellikle politikalar, öğrencilerin ve öğretmenlerin öğretme ve öğrenme yaklaşımlarını keşfedebilecekleri "basit, spesifik, açık ve ölçülebilir" (Barbetta,

Norona ve Bicard, 2005) yapı ve çerçevelerle olumlu bir sınıf ikliminin inşasını destekleyebilir. Öğretme ve öğrenme ortamları, öğretmenlerin sınıflarındaki sözlü ve sözsüz iletişimlerinin bir ürünü olan ve öğrencilerine söylediklerinin ötesinde belirli bir mesaj ileten güçlü bir öğretmen söylemiyle desteklenir. Öğretmen söylemi, pedagojilerinin, inançlarının ve öğrenme felsefelerinin bir yansımasıdır ve öğrencilerinin gelişimini, başarılarını (Marzano, 2007) ve öğrenmenin gerçekleştiği ortamın atmosferini büyük ölçüde etkiler. Bu anlamda, etkili bir sınıf ortamı, etkili öğretmen söyleminin güçlü ve olumlu sınıf yapıları tarafından şekillendirilir. Bourdieu (1977), öğretmenlerin, sınıf ortamlarını öğretmenler ve öğrencileri için buluşma alanları olarak geliştirdiklerini vurgulamıştır. Bu alanlar, öğrencilerin anlamlı öğrenme yoluyla başarıya ve görünür performans sonuçlarına ulaşma yolculuklarını olumlu yönde desteklemelidir. Öğretmen tarafından oluşturulan yapı, yapıcı öğretmen-öğrenci ilişkileri, moral verici ve destekleyici meslektaş ilişkileri, ev ve okul arasında sağlıklı iş birliği, bağımsız ve destekli öz-belirleme, akademik yeterlilik ve sınıftaki tüm paydaşların bilinçli farkındalığı gibi unsurların gelişimini destekleyen stratejilerle desteklenebilir (Doll, Zucker ve Brehm, 2004).

Mikro eğitim politikaları, "öğretim ve öğrenme alanı zorlayıcı veya işlevsiz hale geldiğinde öğretmenlerin belirsizliği ve öğrencilerin kaygısı gibi söylemler" gibi öğretim ve öğrenme alanında mevcut tüm söylemlerle uyumlu olarak geliştirilebilir. Bu zorlu pozisyonlardaki öğretmenlerin, desteklendiklerini ve yönlendirildiklerini hissedebilecekleri bir güvenlik ağı sunmak için yürürlüğe konmuş politika kaynakları olarak mikro okul politikalarına ihtiyaçları vardır. Alan dışı öğretmenler, aşina olmadıkları derslerde veya yıl seviyelerinde kendilerini "evdeymiş gibi" hissetmezler; bunun yerine kendilerini "derinliklerinin dışında" ve "yersiz" olarak algılarlar ve belirli öğretmenlik pozisyonlarına ait olmayan "yetersiz öğretmen" olarak görürler (Du Plessis, 2014). İşlevsiz sınıf ortamları açıkça algı açısından bir sorun teşkil eder; ancak aynı zamanda öğretme ve öğrenme alanı hakkındaki eğilimler yani öğretmenlerin, velilerin ve öğrencilerin üzerinde güçlü etkileri vardır. Okul toplulukları içinde okulların elverişli öğrenme ortamları ve olumlu okul kültürleri sağlaması gerektiği yönündeki genel beklenti, topluluğun daha sonra kaliteli öğretim ve eğitim olarak algıladığı şeyi etkiler; ancak kritik olarak bu aynı zamanda öğretmenlerin öz yeterlilik duyguları üzerinde de etkiler yaratır. Dahası, olumsuz öğrenme deneyimleri, bu deneyimlere katılanlar üzerinde sürekli bir sorun yaratabilir. Gadamer (1975), önceki deneyimlerin mevcut yaşanmış deneyimlerin anlaşılması üzerindeki etkisini vurgulamıştır. Öğretmenlerin ve öğrencilerin sınıf içi bağlamlardaki tarihsel çıktıları ve önceki öğrenme deneyimleri, olumlu veya olumsuz, bu ortamlara ilişkin anlayışlarını etkiler. Bu

anlayış, yaşam deneyimlerini etkiler ve bu bağlamın, ortamın "bir parçası" olmanın doğru olduğu duygusunu oluşturur. Olumlu yaşam deneyimleri ise yerini, bu ortamda kendilerini evlerinde hissetme veya "o dünyaya ait olma" gibi belirli duygulara bırakır (Gadamer, 1975, s. 258). Özgüven eksikliği yaşayan ve belirli bir konu alanı veya sınıf düzeyi hakkında sınırlı bilgiye sahip olan alan dışı öğretmenlerin, sınıf yönetiminde belirli bir etkinlik düzeyini sürdürme çabalarını bağlamsal olarak destekleyebilecek, iyi tasarlanmış ve özenle uygulanmış politikalara güvenebilmeleri gerekir.

Araştırmalar, alan dışı öğretim olgusunun, öğretim ve öğrenme alanındaki mesleki ilişkileri ve iletişimi bozabileceğini ve sıklıkla bozduğunu, zaten zorlu olan alan dışı sınıfların zorluklarını daha da artırdığını göstermiştir (Du Plessis, 2017). Bu ortamlar, iletişim belirsizlikleri, yetersiz etkileşimler, karşılanmayan beklentiler, kötüleşen tutumlar ve paydaşlar arasındaki yanlış anlamalar nedeniyle yoğun ve duygusal açıdan kırılgan ortamlara dönüşebilir (Du Plessis, 2014). Öğrencilerini yeni bilgiyi oluşturmaları ve içselleştirmeleri için dikkatlice yönlendirme yetenekleri ve kapasiteleri konusunda kendilerine güvenen öğretmenler, sınıf içi duyguların öğrenme deneyimi ve performansına bağlı olduğunu anlarlar. Bu öğretmenler, konu odaklı pedagojileri benimseyerek öğrenme devam ederken duyguların, gerilimlerin, kişisel karşılaşmaların ve deneyimlerin korunduğu etkili bir sınıf yönetimi stratejisi geliştirme becerilerine sahip olduklarından emindirler (Redmond, 2010). Sınıf ortamının etkili yönetimi, iki yönlü ilişkilere dayanır (Joyce, Weil ve Calhoun, 2000). Öğrenciler, anlamlı etkileşim ve bütünleşmenin gerçekleştiği öğrenme alanlarında kendilerini güvende hissederler çünkü anlamlı etkileşim performansı teşvik eder ve motive eder. Bruner (1996), öğrenci-öğretmen değişiminin öğretim ve öğrenme ortamlarında en sık kullanılan araç olduğunu vurgulamıştır.

Alan dışı öğretim deneyimi, öğretmenlerin sınıflarıyla güvenli etkileşimlerini ve iletişimlerini, etkili rehberlik, iyi ifade edilmiş hedefler, iyi bilgilendirilmiş kararlar ve sınıf kontrolü sunumunu kısıtlar ve bu da sınıf ortamında sosyal baskıya neden olur (van Niekerk, 2003). Öğretme ve öğrenmenin sosyokültürel tonu her zaman duruma özgü insan deneyimlerini benimsediğinde, sınıf etkileşimini etkileyen öğretim ve öğrenme ortamındaki altta yatan ve devam eden sosyal baskı hislerinin, bu faktörü bilgi inşasının temeli olarak kabul eden okul politikaları tarafından bilinçli bir şekilde ele alınması gerekir. Öğretmenler ve öğrencilerde kaygı duyguları, politika gereklilikleri öğretmenlerin sunabileceklerinden fazlasını talep ettiğinde yoğunlaşır. Okul geliştirme politikaları, bu tür bağlamsal sonuçları kavrayabilmeli ve mevcut koruyucu çerçeveler ve yaklaşımlar aracılığıyla bu kırılgan sınıf ortamlarının dikkatli bir şekilde yönetilmesini teşvik edebilmelidir.

4. Sınıf Kültürü ile Mikro Eğitim Politikası Arasındaki İlişki

Sınıf kültürü, sınıfın ortamının, ilişkilerin ve davranışların bir araya gelerek oluşturduğu bir kültürdür. Sınıf kültürü, öğrencilerin öğrenme süreçlerine, sınıf arkadaşlarıyla olan etkileşimlerine ve öğretmenleriyle olan ilişkilerine doğrudan etki eder. Olumlu bir sınıf kültürü yaratmak, her öğrenciye değer vermeyi, öğrenmeye odaklı bir ortam oluşturmayı ve öğrencilerin yaratıcılığını, merakını ve öğrenme arzusunu sınırlamadan iyi davranışları teşvik etmeyi içerir. Tanımlanması ve geliştirilmesi hem eşit derecede önemli hem de zordur.

Amaçlı bir sınıf kültürü, çocuklara okulda ve okul dışında başarılı olmak için ihtiyaç duydukları sosyal-duygusal becerileri öğretir. Bu beceriler arasında duyguları anlama ve yönetme, hedef belirleme ve bunlara ulaşma, başkalarına karşı empati duyma ve gösterme, olumlu ilişkiler sürdürme ve sorumlu kararlar alma yer alır.

Sınıf kültürleri, sosyal etkileşim ve bireysel ihtiyaçlara ve çeşitliliğe saygı etrafında gelişir. Alanı dışından gelen öğretmenlerin öğrencileriyle güven ilişkileri kurmakta zorlanmalarından endişe duyulabilir (Du Plessis, 2018b); bu yüzden öğrencilerin öğretmenleriyle duygusal olarak bağ kurmaları gerekir (Groundwater-Smith, Ewing ve Le Cornu, 2011). Ancak, öğrencilerin kendilerini bilgili veya bilgili bir başkası olarak gösterme bilgisinden yoksun ve öğrencilerin özel ihtiyaçlarına göre öğrenmeyi yönlendirmek ve desteklemek için arabulucu ve kolaylaştırıcı bir rol üstlenemeyen bir öğretmenden duygusal olarak kopuk olduğu sınıflarda güven ilişkileri kültürü gelişemez. Ancak, hedefli mikro eğitim politikaları, zorlu öğretmenlik pozisyonlarındaki öğretmenlere saygıyı sürdürmek ve olumlu bir öğretim ve öğrenme ortamı geliştirirken onları desteklemek için sınıf içi kaynak yapıları oluşturabilir. Sınıf içi ekip çalışması kültürü, öğrenmeyi, öğretmenleri, öğrencileri ve bazen de velilerini de içeren iş birlikçi bir anlam yaratma eylemi olarak destekler. Bilgi inşasında yer alan bu sosyal özellikler, öğretmenler ve öğrencilerden tam katılım ve bağlılık kültürünün yanı sıra velilerden, öğretim üyelerinden ve öğrenci akranlarından destek gerektirir.

Sınıf bağlamının gerçekliği, her zaman duruma özgü yaşanmış deneyimleri içerir (Van Manen, 2016a), bu da mikro eğitim politikalarının, alan dışı zorlukların çok katmanlı yönlerini destekleme stratejileri olarak uygunluğunu doğrular. Örneğin, okul liderlerinin, alan dışı öğretmenlerin sınıflarında yaşadıkları karmaşıklıkları desteklemeye odaklanan politikalar geliştirdiği okullarda, araştırmalar, bu okulların bu öğretmenleri, alan dışı görevleriyle ilgili olumlu eğilimler gösterecek şekilde desteklemeyi başardığını göstermiştir (Du Plessis, 2017).

Bu eylem, okul yönetiminin sınıftaki gerçeklerle etkileşim kurması ve olgunun okula ve paydaşların bu ortamlardaki deneyimlerine getirdiği değişim ve dönüşüm konusunda açıklık kültürünü teşvik etmesiyle doğal olarak desteklenmektedir. Olgunun öğretmenlerin kalıcılığı, öğretim kalitesi ve öğrencilerin öğrenmesi üzerindeki etkilerini yönetebileceğimizi ve başlangıç noktasının mikro eğitim stratejileri ve çerçeveleri olduğu söylenebilir. Politikalar, kaliteli öğretimi ve öğrenci öğrenimini geliştirmek ve desteklemek için kaynak görevi görebilir ve böylece öğretim ve öğrenme alanını inşa edebilir. Bu alanın nasıl görünmesi gerektiğine dair beklentiler, öğretmenlerin, liderlerin ve veliler, öğrenciler ve politikacılar gibi diğer paydaşların algı ve deneyimlerinden etkilenir. Ancak kritik bir şekilde, gerçek yaşam deneyimlerinin açık ve dürüst bir şekilde paylaşılması, alan dışı öğretmenlerin yaşam deneyimleri yönetim ve politika geliştirme süreçlerinde göz ardı edildiğinde veya bir kenara bırakıldığında kısıtlanmaktadır. Liderlerin okulların sağladığı veya öğretmenlerden beklenen destek türü hakkında geri bildirim almaya açık olmaması ve alan dışı sınıf bağlamlarında kültürel değişimler yaratmak için çerçeve ve yolların bulunmaması, alan dışı öğretmenlerin, tüm öğretmenlerin çalışmalarını destekleyen ilişkisel bağlantıların güvencesine sahip olmadan, sınıftaki günlük yaşamlarının ek zorluklarıyla mücadele etmeleri anlamına gelir. Bu öğretmenler, liderlerinden kopuk ve baskı altında ders vermeye devam eder ve kopukluk ve izolasyon deneyimleri, sınıf içinde ve dışında öğretmenlerin kaliteli öğretim ve öğrenme ortamları geliştirme güvenini, kapasitesini ve yeteneğini daha da aşındıran kültürler geliştirebilirler.

Sınıf iklimlerinin ve bağlamlarının sağlıklı ve olumlu öğretim ve öğrenme ortamları sağlaması ve sınıf lideri olarak öğretmenin, öğrencilerin öğrenmesini dikkatlice yönlendiren bilgili bir diğer kişi rolünü üstlenmesi beklenir; ve bu gerçekçi olmayan bir beklenti değildir. Ancak, bu beklentinin, kalıcı alan dışı olgusu ve bunu iyi geliştirilmiş politikalar ve destek programlarının yardımı olmadan deneyimleyen öğretmenler ve öğrenciler için ne kadar gerçekçi olduğu sorgulanabilir. Alan dışı öğretmenin sınıfı, kolayca istikrarsız bir duruma dönüşebilen kırılgan bir bağlamdır.

5. Sonuç

Eğiticiler için mesleki öğrenimi dönüştürmenin bir aracı olan mikro eğitim politikaları, uygun bir zamanda ortaya çıkmaktadır Araştırmacılar, öğretmenler arasında gerçek ve yapılandırılmış bir iş birliğiyle tanımlanan doğru mesleki gelişimin öğrenci başarısını artırdığını belirtmektedir. Eğitim reformcuları ve politika liderleri, okulların her öğrenci için yetkinlik temelli ve kişiselleştirilmiş öğrenme deneyimleri oluşturması ve öğrencilerin nasıl iş birliği yapıp iletişim

kuracaklarını bilmelerini sağlaması için, onlara eğitim verenlerin de kendi öğrenme süreçlerini yönetmeleri gerektiğini fark etmeye başlamışlardır.

Son derece çeşitli ve zorlu öğrenci gruplarından sorumlu, alan dışı öğretmenlerin, yerleşik ve zamanında uygulama yönergeleriyle desteklenen çerçevelerin, stratejilerin ve politikaların desteğine ihtiyaçları vardır. Belirli bağlamlar ve koşullar, alan dışı öğretmenlerin ve öğrencilerinin yaşam deneyimlerini, sınıflarda alışılmışın ötesinde yoğunlaştırır. Özenle tasarlanmış çerçeveler, yalnızca sınıflarında ortaya çıkan iç içe geçmiş duygusal ve eğitimsel çıktıların takdirini artırmakla kalmamalı, aynı zamanda okulun kaliteli eğitim sunan bir ortam ve öğretmenlik mesleği imajının da net bir şekilde ele alınmasını sağlamalıdır. Ayrıntılar önemsiz gözükse de bir bütünün parçasıdır ve o bütünü oluşturur. Ayrıca, öğretmenlerin ve öğrencilerinin refahını korumaya odaklanan politikaların, alan dışı öğretmenlerin mesleki kimliklerini stres, tükenmişlik, devamsızlık veya kayıpla kendi kendine çözülmesine izin vermek yerine, geliştirmek için okullara kaynak sağlaması gerekir. Politika geliştiriciler, hem risk altındaki öğretmenlerin hem de risk altındaki öğrencilerin ana akım okul ve eğitimde kalmasını sağlamak için politikalara ihtiyaç duyulduğunu akılda tutmalıdır. Öğretmen ve öğrenci refahının, alan dışı öğretim olgusunun çok katmanlı karmaşıklıklarıyla nasıl iç içe geçtiğine dair farkındalık ve anlayış, politikanın geliştirilmesine ve karmaşık öğretim durumlarındaki rolüne yeni bir bakış açısı sağlayacaktır. Alan dışı öğretim olgusunu deneyimleyen öğretmen ve öğrencilerin potansiyel olarak kırılgan refahı, politikanın yaşanmış deneyimlerin ihtiyaçlarını yansıtması gerektiği tartışmasına önem ve aciliyet kazandırmaktadır.

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Bölüm 8

Okul Müdürlerinin Karşılaştığı Etik İkilemler

Münir ŞAHİN[1]

Giriş

Etik, bireylerin veya kurumların neyin "doğru" ya da "yanlış" olduğuna ilişkin değer, norm ve ilkeler bütünüdür (örneğin özen etiği, adalet etiği, meslek etiği). Eğitim literatüründe etik; karar süreçlerinde bireylerin vicdani yönelimleri, mesleki değerleri ve toplumun beklentileri bağlamında incelenir (Tekel ve Karadağ, 2017; Karayaman, 2021).

Okul yöneticiliği bağlamında etik; adaletli davranma, toplumsal sorumluluk, kaynakların doğru kullanımı, ve yasalara uygunluk gibi başlıkların kesişiminde şekillenir (Balıkçı, 2022). Ayrıca örgütsel etik, hem bireysel etik bilincini hem de kurumsal kültürü kapsar (Demirkol, 2023).

Etik İkilem

Etik ikilem, karar verme sürecinde, birden fazla etik ilke veya değer çatıştığında, hangi yönde davranılacağına dair doğru çözümün açık olmadığı durumları ifade eder. Bu tür ikilemler, çift yönlü normlar arasında uyuşmazlığa veya çatışmaya yol açar; örneğin adalet ile merhamet arasında seçim yapma durumu. Eğitim yöneticileri açısından; yasal düzenlemeler, okulun çıkarları, öğrenci, veliler, öğretmenlerle ilişkiler gibi farklı sorumluluklar arasında çatışmalar doğurabilir (Tekel ve Karadağ, 2017; Karayaman, 2021).

Okul yöneticilerinin ve öğretmenlerin yaşadığı bazı etik ikilemler bulunmaktadır. Uzaktan eğitimde not verirken ölçütlere uyum sağlama çabası ile bireysel adalet arzusu arasında kalmak, program değişikliği yapma zorunluluğu ile plan bütünlüğü arasında tercih yapmak gibi ikilemler etik ikilem içinde verilebilir. Bu çerçevede öğretmenlerin etik ikilem yaşadığı pek çok durum farklı çalışma grupları tarafından belgelenmiştir (Yücel, 2022)

Okul Müdürlerinin Yaşayabilecekleri Etik İkilem Örnekleri

Türkiye'de ve uluslararası karşılaştırmalı çalışmalarda okul müdürlerinin çeşitli etik ikilem yaşadıkları ortaya konmuştur:

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Davranışsal, yapısal, politik ve sistemsel boyutlar açısından değerlendirmeler yapılmış, okul müdürlerinin genel olarak orta düzeyde etik ikilem yaşadığı bulunmuştur. Özellikle yapısal boyutta (kural vs. esneklik) yüksek ikilem riski vurgulanmıştır (Erdoğan, 2019).

- Yurtdışı çalışma (Türkiye-Kanada karşılaştırması) okul müdürlerinin çoğu zaman kişisel çıkarlar ve eleştirel etik, yargı etiği arasında çıkmazlar yaşadığını göstermiştir (Budak ve Camadan, 2020).

Tekel ve Karadağ (2017) örnek vakalar üzerinden; üstünün baskısı vs. vicdan, öğretmenler arasında adalet sağlama, öğrenci ve veli ilişkilerinde etik krizler gibi temalar dile getirilmiştir. Müdürler bu durumda eleştiri etiği, adalet etiği ve meslek etiği perspektifleri kullanarak kararlar almaya çalışır.

Karayaman (2019) çalışmasında okul yöneticilerini etik ikileme iten baskı kaynakları, baskı grupları ve güç kaynakları (örneğin üst yönetimin beklentileri, velilerin talebi, ilçe milli eğitim müdürlüğü baskısı gibi) analiz edilmiştir.

Demirkol (2023) okul müdürlerinin örgüt yararına etik dışı davranış sergileme ikilemi (örneğin Tübitak proje ödeneklerini amacının dışında kullanma, destekleme kurslarında yönerge dışı uygulamalar vs.) yaşadıklarını ve bunun yasal, mesleki sonuçlar doğurabileceğini raporlamıştır.

Tablo 1. Okul Müdürlerinin Karşılaştıkları Etik İkilem Türleri ve Örnekleri

Etik İkilem Türü	Örnek Durum	Açıklama
Örgüt Yararına Etik Dışı Davranış	DYK (Destekleme ve Yetiştirme Kursları) kapsamında yönerge dışı öğretmen görevlendirme	Müdür, öğrencilerin faydası için yönetmeliğe aykırı ama niyet bakımından olumlu bir karar verir. Bu durum yasa ile meslek etiği arasında çatışma yaratır (Demirkol, 2023)
Kaynak Kullanımı ve Mali Etik	TÜBİTAK projesi bütçesinin farklı harcamalarda kullanılması	Kamu kaynağının farklı bir eğitimsel amaca aktarımı; iyi niyetli olsa da etik dışı olarak değerlendirilebilir (Demirkol, 2023).
Baskı Grupları ve Yönetim Arası Sıkışma	İlçe MEM'in "torpilli" öğretmeni görevlendirme isteği	Müdürün etik olmayan bir talebe karşı direnmesi; meslek etiği ile üst otorite beklentisi çatışır (Karayaman, 2019).
Personel Adaleti ile Kişisel Bağlılık	Yakın arkadaş olan öğretmenin performans düşüklüğüne rağmen idare kararı alınmaması	Adalet ilkesine göre uyarılması gerekirken, kişisel ilişkiler müdürün karar sürecini etik ikileme sokar (Tekel ve Karadağ, 2017).

Kuralcı Uygulama – Esneklik İkilemi	Disiplin cezası alması gereken başarılı bir öğrencinin affedilmesi	Merhamet – adalet çatışması yaşanır; müdür, okulun genel imajı ile öğrencinin bireysel hakkı arasında seçim (Tekel ve Karadağ, 2017)yapmak zorunda kalır.
Veli Memnuniyeti vs. Öğrenci Güvenliği	Veli baskısıyla okul kurallarının esnetilmesi	Müdür, öğrenci güvenliği ya da etik ilkeler yerine toplumsal baskıyı (veli talebini) ön plana almak zorunda bırakılabilir (Erdoğan, 2019).

Tablo 1'de, okul müdürlerinin mesleki pratiklerinde sıklıkla karşılaştıkları etik ikilem türleri, örnek durumlar ve bu durumların açıklamaları, güncel akademik çalışmalar temel alınarak özetlenmiştir. Bu etik ikilemler, müdürlerin karar alma süreçlerinde karşılaştıkları çoklu sorumluluk alanları ve çatışan değer sistemlerinden kaynaklanmaktadır. Özellikle eğitim yönetiminde etik kararlar, yalnızca yasal düzenlemelere uygunlukla sınırlı değildir; aynı zamanda adalet, mesleki dürüstlük, toplumsal sorumluluk ve öğrenci yararı gibi birden çok ilkenin dengelenmesini gerektirir.

Örneğin, müdürün Destekleme ve Yetiştirme Kursları'nda (DYK) yönerge dışı görevlendirme yapması, yasa ile öğrenci yararı arasında bir etik ikilem doğurur. Benzer şekilde, TÜBİTAK projeleri gibi özel kaynakların amacına uygun kullanılıp kullanılmaması da, müdürün hem kamu sorumluluğu hem de okulun ihtiyaçları doğrultusunda karar vermesini zorlaştırır. Diğer yandan, veli baskısıyla okul politikalarının esnetilmesi, müdürü hem kurumsal adalet hem de paydaş memnuniyeti arasında sıkışmaya iter. Bu tür durumlar, okul müdürlerinin sadece yönetsel değil, aynı zamanda etik liderlik rollerini de etkin biçimde üstlenmelerini zorunlu kılar.

Ayrıca, kişisel ilişkilerle (örneğin öğretmenle yakınlık) kurumsal adalet arasında yaşanan çelişkiler veya başarılı ancak disiplin sorunları olan öğrencilerle ilgili kararlar, müdürlerin vicdani ve mesleki etikleri arasında seçim yapmalarına neden olur. Literatür, bu tür etik ikilemlerin sadece bireysel değerlerle değil; aynı zamanda kurumsal yapı, mevzuat ve toplumsal beklentilerle şekillendiğini ortaya koymaktadır (Demirkol, 2023; Tekel ve Karadağ, 2017; Karayaman, 2019). Dolayısıyla, okul müdürlerinin karşılaştığı etik ikilemler çok katmanlı, dinamik ve bağlamsal özellikler taşımaktadır.

1. Örgüt Yararına Etik Dışı Davranış (Unethical Pro-Organizational Behavior - UPB)

Örgüt yararına etik dışı davranış (Unethical Pro-Organizational Behavior – UPB), etik ve yasal normlara aykırı olmasına rağmen, örgütün menfaatine hizmet ettiği gerekçesiyle rasyonelleştirilen ve çoğu zaman bireyler tarafından "iyi

niyetli" olarak değerlendirilen eylemleri ifade eder. Bu tür davranışlar, bireylerin kendi kişisel çıkarlarından çok kurumun başarısı, itibarı ya da lider figürlerinin beklentileri doğrultusunda gerçekleştirilir (Umphress ve Bingham, 2011). Etik dışı olmasına rağmen içselleştirilen bu davranış biçimi, özellikle örgüt kültüründe sadakat ve aidiyetin aşırı vurgulandığı yapılarda daha yaygındır (Kish-Gephart vd., 2010). Eğitim kurumları gibi çok aktörlü ve kamu yararı güden sistemlerde, bu tür davranışlar sadece etik bozulmaya değil, aynı zamanda kamu hizmetinin niteliğinin düşmesine de neden olabilir.

Eğitim ortamlarında UPB örnekleri, genellikle yöneticilerin ya da öğretmenlerin okulun genel başarısını artırma amacıyla gerçekleştirdiği, ancak uzun vadede öğrencilerin haklarına zarar veren ya da toplumsal adalet anlayışını zedeleyen eylemler biçiminde karşımıza çıkar. Örneğin, bir okul müdürünün, ulusal sınavlardaki başarı oranını artırmak amacıyla not ortalaması düşük ya da disiplin sorunları yaşayan öğrencilerin başka okullara yönlendirilmesini teşvik etmesi bu tür bir davranıştır. Müdür bu tutumunu, okulun itibarını ve kamuoyu nezdindeki görünürlüğünü koruma amacıyla gerekçelendirebilir; ancak bu eylem, öğrencilerin eğitim hakkının ihlali anlamına gelir. Ayrıca bu tür yönlendirmeler, okuldan çok bireysel yönetici performansına dayalı değerlendirme sistemlerinde daha sık gözlemlenir (Demirkasımoğlu, 2010).

Benzer biçimde, bazı okul yöneticileri sınav başarısını artırmak amacıyla özel öğretim kurumlarıyla işbirliği yaparak okul derslerini bu kurumların sınav odaklı müfredatına göre şekillendirebilir. Bu uygulama, kısa vadede başarı istatistiklerini yükseltebilir; ancak uzun vadede öğrenci gelişiminin bütüncül yapısını bozar ve pedagojik çeşitliliği sınırlar. Öğrencilerin bireysel farklılıklarını dikkate almayan, yalnızca performansa dayalı başarıyı yücelten bu tür etik dışı yönelimler, eğitim sisteminde adalet ve kapsayıcılık ilkelerine zarar verir (Arar ve Öztekin-Bayır, 2021).

Araştırmalar, UPB davranışlarının örgütsel düzeyde sistemik hale gelmesinin, sadece yöneticinin kişisel etik anlayışıyla değil, aynı zamanda örgüt içinde hâkim olan normatif beklentilerle doğrudan ilişkili olduğunu göstermektedir. Özellikle liderin ya da üst düzey yöneticilerin performans temelli baskı yarattığı ortamlarda, etik dışı ama örgütsel hedeflere hizmet eden davranışların meşrulaştırılması kolaylaşmaktadır (Pitesa ve Thau, 2013). Eğitim yöneticilerinin "başarıya her ne pahasına olursa olsun ulaşılması gerektiği" yönündeki örtük mesajları, öğretmenleri de UPB davranışlarına yönlendirebilir. Örneğin, bazı öğretmenlerin sınavlarda öğrencilerine gizlice yardım etmeleri ya da notları yapay biçimde şişirmeleri, öğrencilerin başarısını değil, doğrudan okulun istatistiksel performansını yükseltmeye dönük bir etik dışı örgütsel davranış biçimidir.

Bunun yanında, UPB'nin kurumsal kültür üzerindeki yıkıcı etkisi de literatürde sıkça vurgulanmaktadır. Bu tür davranışlar, başlangıçta "feda edilen etik değerler" olarak görülse de, zamanla örgüt içinde norm haline gelerek daha büyük etik sapmalara zemin hazırlar. Kurum içindeki güven ilişkileri, eşitlik ve şeffaflık ilkeleri zedelenir. Çalışanlar arasında "örgüte faydalı olmak için etik dışı yollar mübahtır" anlayışı yaygınlaştığında, eğitim kurumlarının asli amaçları – yani bireyin gelişimi, hakkaniyet ve kamusal yarar – ikinci plana atılır (Tenbrunsel ve Smith-Crowe, 2008). Dolayısıyla UPB yalnızca bir yöneticinin niyetinden ibaret değil; aynı zamanda örgütsel yapının, kültürün ve liderliğin bütünsel bir sonucudur.

Eğitim yöneticilerinin UPB riskini azaltmak için etik liderlik özelliklerini geliştirmesi ve karar alma süreçlerinde açık iletişim, hesap verebilirlik ve yasal çerçeveye uygunluk gibi değerlere öncelik vermesi gerekir. Aynı zamanda örgüt içinde etik eğitimin yaygınlaştırılması, etik kodların geliştirilmesi ve etik ikilemlerle başa çıkma becerilerinin artırılması da önemlidir. Özellikle okul müdürlerinin "başarı" kavramını sadece sayısal göstergelerle değil, öğrenci refahı, öğrenme sürecinin niteliği ve toplumsal sorumluluk gibi boyutlarla birlikte değerlendirmesi etik dışı davranışları önlemede temel rol oynar (Çelik, 2017).

2. Kaynak Kullanımı ve Mali Etik

Eğitim kurumlarının idari yapılarında yöneticilere emanet edilen kamu kaynakları, doğası gereği toplumsal bir sorumluluk yükü taşır. Bu sorumluluğun temelinde mali etik kavramı yer alır. Mali etik, bireylerin ve kurumların parasal kaynakları yönetirken adalet, dürüstlük, açıklık, yasal uygunluk ve kamusal yarar ilkeleri doğrultusunda hareket etmesi gerektiğini ifade eder (Bowman ve West, 2015). Özellikle kamuya ait kurumlarda görev yapan okul yöneticileri için mali etik, sadece mesleki bir gereklilik değil, aynı zamanda toplumsal güvenin sürdürülebilirliği açısından da hayati öneme sahiptir.

Okul yöneticileri, kendilerine tahsis edilen bütçeleri yalnızca mevzuata uygun biçimde kullanmakla kalmamalı; aynı zamanda tüm harcama süreçlerini belgelenebilir, denetlenebilir ve rasyonel gerekçelere dayalı biçimde gerçekleştirmelidir. Örneğin, okulun kırtasiye, temizlik ya da bakım-onarım kalemlerinden yapılan her türlü harcama, okulun ihtiyaç analizlerine dayanmalı ve okul gelişim planıyla uyumlu olmalıdır. Bu bağlamda, okul müdürünün okul bütçesinden ayrılan bir kalemden, örneğin kırtasiye harcamalarından, kişisel masa takvimi ya da hediyelik eşya gibi bireysel faydaya yönelik ürünler satın alması açık bir mali etik ihlali oluşturur. Benzer şekilde, velilerden ya da özel kuruluşlardan temin edilen bağışların okul dışı alanlarda (örneğin müdür odasının

dekorasyonu, özel davetler vb.) kullanılması hem etik dışı hem de yasal sorumluluk doğurabilecek bir durumdur (Ural, 2019).

Türkiye'deki eğitim sisteminde okul yöneticilerinin büyük çoğunluğu, bütçe yönetiminde hem kamu kaynaklarını hem de gönüllü bağışları idare etmekle yükümlüdür. Bu da mali etikle ilgili karar alma süreçlerinin daha karmaşık ve hassas olmasına neden olur. Örneğin, okul aile birlikleri üzerinden gelen bağışların kullanımında okul müdürünün tek yetkili olması, kontrol mekanizmalarının zayıfladığı durumlarda etik dışı uygulamaları artırabilir. Bu nedenle, bütçe yönetiminde "paydaş katılımı" ilkesinin etkin biçimde uygulanması ve şeffaf raporlama sistemlerinin oluşturulması gerekir (Yıldız, 2014).

Mali etik, sadece bireysel dürüstlükle değil, aynı zamanda örgütsel sistemlerin yapısıyla da yakından ilişkilidir. Araştırmalar, etik kodlara sahip olan, düzenli denetim süreçlerine tabi tutulan ve karar alma süreçlerinde kolektif yönetimi benimseyen okullarda mali etik ihlallerinin çok daha düşük düzeyde gerçekleştiğini göstermektedir (Özdemir ve Sezgin, 2021). Örneğin, okulun ihtiyaçlarını belirlemek amacıyla öğretmenler kurulundan alınan görüşlerin harcama planına dahil edilmesi, hem yöneticinin tek başına karar vermesini engeller hem de kaynakların eğitimsel faydaya dönüştürülmesini garanti altına alır.

Mali etik ihlallerinin en yaygın nedenlerinden biri, yöneticilerin “yararcı” etik anlayışı çerçevesinde hareket etmeleridir. Bu durumda yöneticiler, “önce okulun yararı” gerekçesiyle prosedür dışı harcamalar yapabilirler. Örneğin, ihtiyaç duyulan bir bilgisayarın kamu ihale süreçleri dışında, tanıdık bir satıcıdan daha uygun fiyata alınması, kısa vadede avantajlı gibi görünse de şeffaflık ve eşitlik ilkelerine aykırı olduğu için mali etik ihlalidir. Bu tür uygulamalar, zamanla örgütsel kültürde yozlaşmaya neden olur ve kamu kurumlarının hesap verebilirlik yapısını zedeler (Ferreira ve Otley, 2009).

Eğitim yöneticilerinin mali etik ilkelerini içselleştirmeleri, sadece bireysel niyetle değil, aynı zamanda kurumsal düzenlemelerle de desteklenmelidir. Bu noktada etik rehberler, mali yönetim el kitapları, harcama protokolleri ve iç denetim sistemleri hayati rol oynar. Ayrıca, okul yöneticilerinin mali etik alanında düzenli olarak hizmet içi eğitime tabi tutulmaları, etik farkındalık düzeylerini artırır ve karar alma süreçlerinde etik dışı uygulamalara karşı direnç geliştirmelerini sağlar (Arslantaş ve Özdemir, 2023).

Kamu okullarında etik dışı mali davranışların görünürlüğü çoğu zaman düşüktür. Çünkü bu tür davranışlar genellikle küçük çaplı ve gündelik uygulamalarla gizlenebilir. Örneğin, okul gezileri sırasında alınan sponsorlukların detaylarının açıklanmaması ya da bazı harcamaların makbuzsuz

yapılması gibi durumlar, yasal denetimlerden kaçınmayı kolaylaştırır. Bu nedenle mali etik yalnızca bireyin içsel ahlak anlayışıyla değil, aynı zamanda etik iklim, örgütsel kültür ve dış denetim sistemleriyle bütüncül biçimde inşa edilmelidir (Huberts, 2018).

Sonuç olarak, okul yöneticilerinin mali etik ilkelerine uygun davranmaları, yalnızca bireysel bir görev değil, aynı zamanda kamusal hizmetlerin kalitesi ve sürdürülebilirliği açısından da belirleyicidir. Bu davranış biçimi, eğitim sistemine duyulan toplumsal güvenin devamını sağlayacağı gibi, kurum içi moral düzeyinin yükselmesine ve daha demokratik bir yönetim anlayışının yerleşmesine katkı sunar. Özellikle şeffaflık, hesap verebilirlik ve yasa uygunluğu ilkeleri okul yöneticilerinin karar alma süreçlerinin temelini oluşturmalıdır. Eğitim kurumlarının, kamu vicdanında "temiz ve dürüst yönetilen" yapılar olarak algılanması için bu ilkelerden taviz verilmemelidir.

3. Baskı Grupları ve Yönetim Arası Sıkışma

Modern eğitim sistemlerinde okul yöneticilerinin karşılaştığı en karmaşık etik ikilemlerden biri, dışsal baskı gruplarının talepleri ile üst yönetim politikaları arasında kalmaktır. Bu durum, literatürde "etik karar sıkışması" veya "politik etkileşim ikilemi" olarak kavramsallaştırılmakta olup, okul müdürlerinin hem yasal sorumlulukları hem de yerel topluma karşı taşıdıkları sosyal sorumluluklar arasında denge kurmakta zorlandıklarını göstermektedir (Ball, 2008). Baskı grupları genellikle siyasetçiler, yerel yöneticiler, okul aile birlikleri, sendikalar, çeşitli sivil toplum kuruluşları ya da yerel medya gibi farklı aktörlerden oluşabilir. Bu grupların talepleri, çoğu zaman eğitim politikalarıyla doğrudan çelişebilecek nitelikte olup, okul yöneticisini hukuki ve ahlaki anlamda zor durumda bırakabilir.

Örneğin, yerel bir belediye başkanının, seçim bölgesinde yaşayan bir yakınının öğretmen olarak görevlendirilmesi için okul müdürüne dolaylı veya doğrudan baskı uygulaması, etik ve yasal açıdan ciddi bir sorun yaratır. Bu tür bir talebe olumlu yanıt verilmesi durumunda, liyakat ilkesi açıkça ihlal edilmiş olur. Dahası, bu tür atamalar kurum içinde güven bunalımına, eşitlik ilkesinin zedelenmesine ve çalışanlar arasında etik dışı rekabet ortamının doğmasına neden olur (Denhardt vd., 2013). Eğitim gibi kamuya açık ve tarafsızlık ilkesinin esas olduğu bir alanda, bu tür müdahaleler sadece bireysel bir etik problem değil, aynı zamanda kamu hizmetinin kalitesini düşüren yapısal bir sorundur.

Bu sıkışmanın bir diğer boyutu ise okul yöneticilerinin kendi hiyerarşik üstlerine – yani ilçe/il milli eğitim müdürlüklerine veya Bakanlık yetkililerine – karşı duydukları sorumluluktur. Bu üst yapılar çoğu zaman merkeziyetçi bir yönetim anlayışıyla hareket ederken, yerel baskı gruplarının talepleri daha

pragmatik ve hızlı çözüm odaklı olabilir. Bu iki uç arasında kalan okul yöneticisi, hangi kararın daha "doğru", "ahlaki" veya "yasal" olduğu konusunda ciddi bir çelişki yaşar. Nitekim bu durum, eğitim yöneticiliğini yalnızca bir teknik yöneticilik değil, aynı zamanda yüksek etik muhakeme gücü gerektiren bir liderlik pozisyonu haline getirir (Campbell, 2003).

Araştırmalar, okul yöneticilerinin bu tür baskılar karşısında geliştirdikleri etik direniş stratejilerinin, yöneticinin bireysel etik değerlerine, liderlik tarzına, örgütsel destek sistemine ve yasal okuryazarlık düzeyine bağlı olduğunu göstermektedir (Starratt, 2012). Örneğin, etik liderlik anlayışına sahip bir okul müdürü, baskı gruplarının taleplerini doğrudan reddetmek yerine, süreci daha şeffaf, belgeye dayalı ve mevzuata uygun biçimde yöneterek dolaylı bir direniş geliştirebilir. Bu tür stratejiler, "yasal çerçevede kalırken ahlaki tutarlılığı koruma" ilkesine dayanır.

Okul müdürlerinin baskı gruplarıyla ilişkilerinde karşılaştığı bir diğer ikilem ise toplumsal meşruiyet arayışı ile profesyonel özerklik arasındaki gerilimdir. Yerel yöneticilerin veya etkili velilerin taleplerine direnmek, kısa vadede yöneticinin toplumsal baskıya maruz kalmasına, dışlanmasına ya da görev süresinin sona erdirilmesine neden olabilir. Ancak bu taleplere boyun eğmek de okulun etik duruşunu zedeler. Türkiye'de bazı araştırmalar, okul müdürlerinin idari görev sürelerinin kısa tutulması ve atama süreçlerinin belirsizliği nedeniyle, dışsal baskı gruplarına karşı dirençlerinin düşük olduğunu ortaya koymaktadır (Özdemir ve Eraslan, 2016). Bu durum, yöneticileri "sistemin kurallarına uymak yerine aktörlerle uyum içinde olmak" gibi pragmatik ama etik dışı bir çizgiye çekebilmektedir.

Bu noktada sistem düzeyinde yapısal reformlara ihtiyaç duyulmaktadır. Etik dışı müdahalelere karşı okul yöneticilerini koruyacak bir yasal çerçevenin oluşturulması, müdür atama ve değerlendirme süreçlerinde şeffaflık ve objektif kriterlerin esas alınması, etik denetim mekanizmalarının yaygınlaştırılması gibi önlemler baskı gruplarının etkisini azaltmada etkili olabilir (Karaman-Kepenekci, 2010). Ayrıca okul yöneticilerine yönelik etik ikilemlerle başa çıkma becerilerini geliştiren hizmet içi eğitim programlarının oluşturulması da bu bağlamda önemlidir.

Sonuç olarak, okul yöneticileri çağdaş eğitim liderliğinde sadece idari sorumluluklar değil, aynı zamanda etik duruş ve sosyal dengeyi sağlama görevini de taşımaktadır. Baskı gruplarının talepleri ile yönetim politikaları arasında sıkışan okul müdürü, yalnızca kişisel etik ilkelerine değil, aynı zamanda sistemik etik farkındalığa da sahip olmalıdır. Bu bağlamda, yöneticinin stratejik iletişim becerileri, yasal bilinci ve etik liderlik kapasitesi belirleyici rol oynar. Eğitim

kurumlarının kurumsal özerkliğini ve yöneticilerinin etik direncini artırmak, nitelikli ve adil bir eğitim sisteminin inşası için gereklidir.

4. Personel Adaleti ile Kişisel Bağlılık

Okul yöneticilerinin en temel görevlerinden biri, eğitim kurumunun insan kaynakları yönetimini adalet, liyakat ve objektif performans kriterlerine göre yürütmektir. Bu bağlamda yöneticilerin, öğretmenlerle olan bireysel ilişkilerini kurumsal rollerinden bağımsız bir şekilde düzenlemeleri büyük önem taşımaktadır. Ancak pratikte, birçok okul yöneticisi zamanla öğretmenlerle duygusal bağlar kurmakta, bu da özellikle değerlendirme, görevlendirme ve ödüllendirme gibi konularda etik açıdan hassas bir ikilem yaratmaktadır. Bu durum, yöneticilerin hem adalet ilkelerini hem de profesyonellik sınırlarını zorlayabilecek bir zemin yaratmaktadır (Ehrhart, 2004).

Personel adaleti kavramı, yalnızca eşit muamele değil, aynı zamanda sürecin şeffaf, nesnel ve tutarlı biçimde işletilmesini de kapsar. Adaletin üç temel bileşeni olan dağıtımsal adalet (kişilerin elde ettikleri sonuçların hakkaniyeti), işlemsel adalet (karar süreçlerinin şeffaflığı ve tutarlılığı) ve kişiler arası adalet (iletişim ve saygı boyutu), okul ortamında yönetici-öğretmen ilişkilerinde sıklıkla sınanmaktadır (Colquitt, 2001; Greenberg, 1990). Örneğin, düşük performans gösteren ancak yöneticisiyle özel ilişkileri olan bir öğretmenin görevine devam etmesi ya da terfi ettirilmesi, hem dağıtımsal hem işlemsel adaleti zedelemektedir. Bu tür durumlar, diğer öğretmenlerin demoralize olmasına, görev motivasyonlarının düşmesine ve genel örgütsel iklimin olumsuz etkilenmesine yol açmaktadır (Cropanzano ve Mitchell, 2005).

Araştırmalar, yöneticilerin bireyler arası ilişkilerde profesyonel mesafeyi koruyamamaları durumunda, "ilişki temelli adaletsizlik" (relational injustice) kavramının ortaya çıktığını göstermektedir. Bu bağlamda, yöneticinin kişisel yakınlık temelinde kararlar alması, örgüt içindeki adalet algısını olumsuz etkilemekte ve uzun vadede yöneticinin liderlik otoritesini sarsmaktadır (Zhao vd., 2007). Ayrıca, böyle bir yaklaşım örgütte hizipçiliğe, kutuplaşmaya ve güven erozyonuna neden olabilmektedir.

Öte yandan, yöneticilerin öğretmenlerle sağlıklı iletişim kurmaları, destekleyici bir liderlik göstermeleri ve duygusal zekâ kullanarak ilişkileri yönetmeleri elbette önemlidir. Ancak bu ilişkiler kurumsal sınırlar çerçevesinde ve etik ilkelere bağlı kalarak yürütülmelidir. Liderin empati yeteneği, adalet duygusuyla dengelenmediğinde, duygusal bağlar kararları şekillendiren birer tehdit unsuru haline gelebilir (Goleman, 2000). Bu noktada etik liderlik ve profesyonel yönetsel duruş, etik dışı eğilimlere karşı bir koruma kalkanı işlevi görebilir.

Bu çerçevede okul yöneticilerinin, kişisel bağların personel kararlarını etkilemesini önleyecek etik kodlara bağlı kalmaları ve kararlarda nesnel performans kriterlerini temel alarak şeffaflık sağlamaları gerekmektedir. Liyakat temelli ödüllendirme sistemleri, düzenli performans değerlendirmeleri, geribildirim odaklı toplantılar ve iç denetim mekanizmaları, yöneticilerin bu tür etik ikilemlerle başa çıkmalarında etkili araçlar olabilir (Northouse, 2021). Aksi takdirde, bireysel sadakatlerin kurumsal rasyonaliteyi gölgede bırakması, sadece bireysel değil kurumsal etik kültürün de aşınmasına neden olacaktır.

Sonuç olarak, okul yöneticilerinin etik liderlik anlayışıyla, kişisel bağlılık ile personel adaleti arasında net bir ayrım yapmaları gerekmektedir. Bu hem kurumsal güvenin tesisi hem de eğitim ortamının sürdürülebilirliğini sağlamak açısından kritik bir gerekliliktir. Etik karar verme süreçlerini içselleştiren yöneticiler, sadece adaletli yönetim anlayışını kurumsallaştırmakla kalmaz; aynı zamanda örgütsel bağlılığı, motivasyonu ve verimliliği de artırırlar.

5. Kuralcı Uygulama – Esneklik İkilemi

Eğitim yöneticilerinin karşılaştığı en temel etik ikilemlerden biri, yönetmelik ve mevzuatlara harfiyen bağlı kalarak uygulama yapmak ile insani ve bağlamsal durumları gözeterek esneklik göstermek arasındaki dengeyi kurma zorunluluğudur. Özellikle okul yöneticileri açısından bu ikilem, öğrenciler, öğretmenler ve velilerle olan ilişkilerde sıkça kendini göstermektedir. Okul yönetimi, hem kamu yararını hem de bireysel adaleti gözetmekle yükümlüdür. Ancak bu iki sorumluluk arasında kalındığında ortaya çıkan çelişki, etik karar verme süreçlerinde zorluklara yol açmaktadır (Stefkovich ve O'Brien, 2004).

Örneğin, bir okul müdürünün, devamsızlık sınırını aşan bir öğrencinin durumunu, ailenin içinde bulunduğu ekonomik zorlukları dikkate alarak görmezden gelmesi, ilk bakışta "vicdani" bir tutum gibi görünebilir. Ancak benzer durumda olan başka bir öğrenciye aynı yaklaşımı göstermemesi, uygulamada keyfiliğe ve adaletsizliğe neden olur. Bu durum, "seçici esneklik" olarak tanımlanmakta ve etik ilkelere aykırılık teşkil etmektedir. Esnekliğin etik açıdan savunulabilir olması için, tüm benzer durumlara eşit biçimde uygulanabilir olması, şeffaf biçimde gerekçelendirilmesi ve kurumsal ilkelerle uyumlu olması gerekir (Duignan, 2006).

Eğitim yöneticilerinin karşılaştığı ikilemler, sıklıkla "kuralcı etik" (deontolojik yaklaşım) ile "duruma göre değerlendirme" (teleolojik yaklaşım) arasında salınmaktadır. Kuralcı etik, mevzuata, yönetmeliklere ve standartlara bağlı kalarak davranmayı önceler. Buna karşılık esnek uygulamalar, bağlamsal ve empati temelli bir etik anlayışı yansıtır. Strike, Haller ve Soltis (2005), eğitim liderliğinde etik kararların sadece kurallara dayanarak değil, aynı zamanda

öğrencinin ve toplumun uzun vadeli iyiliği göz önünde bulundurularak verilmesi gerektiğini savunurlar. Bu noktada etik karar vermede kullanılan yaklaşım, sonuçların değerlendirilme biçimini de belirler.

Ancak, esneklik her zaman etik dışı anlamına gelmemektedir. Eğitim yöneticileri bazı durumlarda kuralların öğrenciler üzerinde yıkıcı sonuçlara yol açabileceğini gözlemleyebilir. Bu nedenle, etik liderlik yaklaşımı, hem kuralları uygulamayı hem de gerektiğinde bağlamsal yorum yapabilmeyi gerektirir (Fullan, 2003). Esnekliğin etik bir biçimde uygulanabilmesi için yöneticilerin içsel etik ilkelerle donanmış olması, karar süreçlerinde tutarlılık sağlaması ve gerekirse bu kararları üst kurumlara gerekçeleriyle açıklayabilecek sorumluluk bilincine sahip olması gerekir.

Araştırmalar, özellikle sosyoekonomik açıdan dezavantajlı bölgelerde görev yapan okul yöneticilerinin, yönetmeliklerin katı biçimde uygulanmasının öğrencilerin okulla ilişkisini koparabileceğini fark ettiklerini, bu nedenle esneklik uygulamalarına başvurduklarını ortaya koymaktadır (Kutsyuruba vd., 2015). Ancak bu esneklik pratikleri kurumsallaşmadığında, keyfilik, adam kayırmacılık ve ayrımcılık gibi etik dışı sonuçlar doğurabilmektedir.

Bu ikilemin yönetilmesinde okul müdürlerinin sahip olması gereken en önemli yetkinliklerden biri de "etik muhakeme becerisi"dir. Etik muhakeme, benzer durumları karşılaştırmalı biçimde analiz etme, geçmiş uygulamalardan ders çıkarma, paydaşların ihtiyaç ve beklentilerini dengeleme ve kararlarının etik dayanaklarını açık biçimde ifade edebilme kapasitesidir (Shapiro ve Gross, 2013). Ayrıca okul yöneticilerinin etik liderlik sergilemeleri, öğretmenlerin, velilerin ve öğrencilerin adalet duygusunu pekiştirmekte ve kurumsal güveni artırmaktadır.

Sonuç olarak, eğitim yöneticilerinin karşılaştığı "kuralcı uygulama – esneklik" ikilemi, sadece idari bir sorun değil; aynı zamanda bir etik sorunsaldır. Esneklik, iyi niyetli olsa dahi tutarsız biçimde uygulandığında adalet ilkesini zedeler. Öte yandan, kuralların katı ve bağlamdan kopuk biçimde uygulanması da eğitimde insani değerlerin göz ardı edilmesine yol açar. Bu nedenle yöneticiler, her iki yaklaşımın da sınırlarını ve sonuçlarını etik perspektiften değerlendirmeli, kararlarını gerekçelendirebilir ve sürdürülebilir kılabilir bir şekilde yapılandırmalıdır.

6. Veli Memnuniyeti vs. Öğrenci Güvenliği

Eğitim kurumlarında okul yöneticilerinin karşılaştığı en kritik ikilemlerden biri, veli memnuniyetini sağlama çabası ile öğrencilerin güvenliğini temin etme zorunluluğu arasındaki dengenin kurulmasıdır. Veli memnuniyeti, okulun toplumsal itibarı, destek kaynaklarına erişimi ve genel işleyişi açısından son

derece önemli bir unsurdur (Epstein, 2011). Velilerin beklentilerine duyarlı olmak, eğitim kurumlarının ailelerle iş birliği yapmasını kolaylaştırır ve eğitim kalitesine olumlu katkılar sağlar. Ancak bazı durumlarda, özellikle öğrencilerin fiziksel ve psikolojik güvenliği söz konusu olduğunda, veli taleplerinin önceliklendirilmesi ciddi etik sorunlar yaratabilir.

Örneğin, bir veli, çocuğunun okul içinde cep telefonu kullanmasına izin verilmesini talep ettiğinde, okul yönetmeliği ve güvenlik politikaları buna karşı durabilir. Okullarda cep telefonu kullanımı genellikle ders disiplini, dikkat dağınıklığını önleme ve öğrenci gizliliğini koruma gerekçeleriyle sınırlandırılmıştır (Lepp vd., 2015). Müdürün, velinin taleplerini reddetmesi, öğrencilerin güvenliği ve eğitim ortamının korunması açısından gerekli bir karardır. Ancak bu karar, veli memnuniyetsizliği ve olası şikâyetlere yol açabilir. Yöneticinin bu tür durumlarda şeffaf iletişim stratejileri geliştirmesi, velilere nedenlerin açık ve anlaşılır şekilde anlatılması, kriz iletişimi ve çatışma yönetimi becerilerinin önemini artırır (Christensen ve Kearney, 2013).

Öğrenci güvenliği, okulun öncelikli sorumluluk alanlarından biridir ve bu bağlamda yöneticiler, bazen toplumun genel beklentileri ve baskılarına karşı direnç göstermek zorunda kalabilirler. Özellikle kriz anlarında — pandemi süreci, doğal afet tatbikatları, okul içi acil durumlar gibi — yönetimin "toplumun isteklerine uyum" yerine "önce öğrenci güvenliği" ilkesini benimsemesi hayati önem taşır (Beauchamp ve Childress, 2019). Bu bağlamda, etik karar verme süreçlerinde yöneticilerin "önce zarar verme" (nonmaleficence) ilkesine sıkı sıkıya bağlı kalmaları gerekmektedir. Bu ilke, öğrencilerin fiziksel ve psikososyal zarar görmemesi için alınacak önlemlerin vazgeçilmez olduğunu vurgular.

Öğrenci güvenliği ile veli memnuniyeti arasındaki gerilim, aynı zamanda eğitimde adalet ve eşitlik kavramlarıyla da yakından ilişkilidir. Bazı velilerin bireysel taleplerini karşılamak adına alınan kararlar, öğrenciler arasında ayrıcalık ve haksızlık algısı yaratabilir. Bu durum, hem öğrencilerin okul iklimine ilişkin güvenini azaltır hem de eğitimde fırsat eşitliği ilkesini zedeler (Thapa vd., 2013). Bu nedenle, okul yöneticilerinin hem bireysel hem de toplu düzeyde etik ve profesyonel sorumluluklarını dengelemeleri gerekir.

Literatürde etkili okul yöneticilerinin, ailelerle güçlü ilişkiler kurarken aynı zamanda net ve tutarlı sınırlar koyabildikleri vurgulanmaktadır (Epstein, 2011). Etkili iletişim ve liderlik, veli memnuniyeti ile öğrenci güvenliği arasındaki bu hassas dengeyi yönetmede anahtar rol oynar. Ayrıca, okulların kriz yönetimi ve etik karar verme politikalarının önceden belirlenmiş, çalışanlar ve veliler tarafından bilinen ve kabul edilen protokoller olması, kriz anlarında yaşanabilecek çatışmaları azaltır (Mitroff ve Anagnos, 2001).

Sonuç olarak, okul yöneticileri, veli memnuniyetini sağlama arzusuyla öğrencilerin güvenliği arasında bir tercih yapmak zorunda kaldıklarında, her zaman öğrencilerin güvenliğini önceliklendirmelidir. Bu yaklaşım, hem etik sorumluluğun hem de eğitim liderliğinin temel gerekliliklerinden biridir. Ayrıca, yöneticilerin bu tür durumlarda etik karar alma süreçlerini şeffaf, açık ve paydaşlarla iletişim halinde sürdürmeleri, okul toplumunun güvenini artıracaktır.

Sonuç ve Değerlendirme

Etik kelimesi; bireysel değerler, kurumsal normlar ve toplumsal beklentilerin birleşimini ifade eder. Eğitim yönetiminde özellikle adalet, meslek etiği ve kamu sorumluluğu ön plandadır.

Etik ikilem, birden fazla etik ilkenin çatıştığı, net bir kararın belirgin olmadığı durumlardır. Okul müdürleri için kimi zaman yasalarla, kimi zaman mesleki etikle çatışmalar oluşabilir. Türkiye'deki çalışmalarda okul müdürlerinin orta düzeyde etik ikilem yaşadıkları; yapısal ve davranışsal boyutlarda farklılaşmalar gösterdikleri bulunmuştur (Erdoğan, 2019; Karayaman, 2019; Tekel ve Karadağ, 2017).

Güncel nitel çalışmalar, okul müdürlerinin örgüt yararına etik dışı davranış sergilemek zorunda kaldıkları; bunun yasal, mesleki ve etik sonuçlarını düşündüklerini göstermektedir (Demirkol, 2023). Kütüphane, Google Scholar, DergiPark, ULAKBİM üzerinden erişilebilecek bu çalışmalar, etik ikilemler konusunda hem nicel hem de nitel perspektifi bir arada sunmaktadır.

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