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Special Education Teachers' Experiences in Using Artificial Intelligence Technologies in Education

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Abstract

Artificial intelligence (AI) technologies are gaining increasing prevalence across a wide range of domains. Beyond their various applications, research has also highlighted their potential benefits in educational contexts. This study employed a qualitative case study design to explore the experiences of special education teachers regarding the use of AI technologies in educational settings. The participants consisted of 19 special education teachers working in schools affiliated with the Ministry of National Education across different regions of Turkey. Data were collected through two separate focus group interviews and analyzed using a content analysis approach. The findings revealed that special education teachers made limited use of AI technologies in their instructional processes, primarily due to their insufficient knowledge and familiarity with these tools. Nevertheless, it was also found that AI technologies contributed to reducing teachers' workload by supporting the preparation of various activities tailored for students with special needs. However, regional disparities among schools in Turkey, as well as the financial requirements associated with AI technologies, were identified as key factors

limiting their broader implementation. The study recommends enhancing current teachers' knowledge through practical in-service training programs on AI technologies. Additionally, incorporating relevant courses into teacher education undergraduate programs is suggested to ensure that future teachers graduate with the necessary competencies to integrate AI technologies into educational practices effectively.

Keywords: Special Education, Artificial Intelligence Technologies, Special Education Teachers, Individuals with Special Needs

1. Introduction

Artificial intelligence (AI) refers to machine-based technologies that enable human-like thinking, decision-making, and problem-solving abilities (Hwang et al., 2020). When educational materials and software are equipped with AI, they gain features such as reasoning, abstraction, learning, adapting to new situations, and interacting effectively. In combination with active learning strategies and other instructional methods, AI-enhanced tools occupy a significant position in the field of education (Akdeniz & Özdinç, 2021; Uğur & Kınacı, 2014). AI applications developed for teachers are predominantly delivered through computer-based methods (Timms, 2016). Previous studies have suggested that the use of AI technologies in education can support the individualization of learning, providing a more supportive and adaptive learning environment for students (Sekeroglu et al., 2019). Moreover, integrating AI into educational settings has been shown to enhance students' academic achievement and motivation, promote independence, and foster the development of problem-solving skills (Woolf, 2020).

AI holds substantial potential in the field of special education, offering personalized learning experiences, adaptive interventions, and data-driven decision-making processes (Askarova et al., 2024; El Naggar, Gaad, & Inocencio, 2024; Singh & Jain, 2024; Kumar, Patil, Mahalle, & Meshram, 2023; Mitra, Lakshmi, & Govindaraj, 2023; Sharma, Tomar, Yadav, & Aggarwal, 2023). By improving learning outcomes and fostering inclusivity, AI has the potential to enhance the educational experiences and results of students with special needs (Singh & Jain, 2024). Through AI technologies, it is possible to provide real-time feedback and assessment, individualized education and rehabilitation services, and instruction tailored to the specific needs of each learner (Singh & Jain, 2024).

In special education contexts, AI technologies are used to address the diverse learning needs of students with disabilities through adaptive learning systems and personalized interventions (Askarova et al., 2024; Jadán-Guerrero et al., 2024; Kumar et al., 2023). Technologies such as speech recognition and text-to-speech offer promising solutions to overcome barriers in the education of students with special needs (Jadán-Guerrero et al., 2024; Zdravkova, Krasniqi, Dalipi, & Ferati, 2022). AI can enhance how students with special educational needs interact with their environment, thereby fostering learning and enriching their daily lives (Drigas & Ioannidou, 2012).

Despite these advantages, the use of AI technologies in special education also presents several challenges. These include the lack of sufficient infrastructure, specialized tools, inclusive methodologies, and software necessary to facilitate learning processes within educational institutions (Jadán-Guerrero et al., 2024). Furthermore, the use of AI in education raises important ethical and security concerns, such as data privacy and student confidentiality, which must be carefully addressed (Del Mundo et al., 2024; Delello et al., 2024; Köse et al., 2023). Therefore, establishing robust control and oversight mechanisms is crucial to prevent the misuse of AI technologies and ensure the development of sound and ethical applications in educational contexts (Coşkun & Güleroğlu, 2021).

AI technologies offer equitable learning opportunities by considering each child's individual differences and developing customized solutions tailored to their specific needs. The fact that not every learner progresses at the same pace underscores the need to enrich the educational process with personalized support. In this regard, the opportunities offered by AI enable each student to receive optimal support within a learning environment that meets their unique needs (Sağdıç & Sani-Bozkurt, 2020). By offering personalized learning experiences, adaptive testing, and intelligent tutoring systems, AI has the potential to facilitate the learning processes of students with special needs (Rizvi, 2023; Sharma et al., 2023). This, in turn, encourages the development of more accessible and inclusive teaching practices for all learners.

Special education teachers can easily access AI platforms that offer functionalities such as personalized tools, speech recognition, and text-to-speech technologies (Jadán-Guerrero et al., 2024; Waterfield et al., 2024). Although interest in the use of AI technologies in education has grown significantly in recent years, the number and depth of studies in the literature remain limited, indicating a need for more comprehensive research on this topic (Akdeniz & Özdinç, 2021; Arık & Seferoğlu, 2020). Beyond supporting teachers, AI plays a complementary role in

educational processes by facilitating meaningful learning experiences for students (How & Hung, 2019).

The use of AI technologies in special education holds considerable potential for personalizing instructional processes, promoting student independence, and enhancing learning outcomes. Therefore, understanding how special education teachers utilize AI technologies, as well as their experiences and perceptions of these tools, can provide valuable insights for both practice and policy development. Although studies offer meaningful insights into the use of AI in special education (Rostami & Longo, 2024; Almarzouq, Almedlij, & Alshahrani, 2025), research directly examining special education teachers' experiences with AI technologies in educational settings remains limited. This highlights a significant gap in literature. Accordingly, the present study aims to examine the experiences of special education teachers in using AI technologies in education. To this end, the following research questions were addressed:

1. What are the levels of AI technology use among special education teachers?
2. What are special education teachers' views on the role of AI technologies in education?
3. What are special education teachers' perspectives regarding the dissemination of AI technologies in education?
4. What are special education teachers' views on the potential of AI technologies in the field of special education?

2. Method

2.1. Research Design

This study employed a case study design, a qualitative research method. A case study is a methodological approach that involves detailed planning of a specific topic, followed by systematic processes of data collection, analysis, and interpretation (Bogdan & Biklen, 2006; Yin, 2014). This design is particularly effective for in-depth investigations, where the researcher serves as the primary instrument for data collection and analysis (Merriam & Tisdell, 2016; Aytaçlı, 2012). In line with this approach, semi-structured interviews were employed as the primary data collection method to explore special education teachers' experiences with the use of AI technologies in education.

2.2. Participants

In qualitative research, participants can be selected through various sampling methods aligned with the research purpose. One such method is criterion sampling, in which participants who

meet predetermined criteria set by the researchers are included in the study (Yıldırım & Şimşek, 2013). In this study, criterion sampling was used to select participants who met the following criteria: Graduated from a university program in special education teaching, currently employed in schools affiliated with the Ministry of National Education in Turkey, and voluntarily agreed to participate in the study. A total of 19 special education teachers who met these criteria participated in the research. The demographic characteristics of the participants are presented in Table 1.

Table 1. *Demographic Characteristics of the Participants*

No	Code Name	Gender	Education	Age	Graduation Year	Professional Experience
1	Semih	Erkek	Bachelor's	29	2019	5
2	Akif	Erkek	Master's	29	2018	6
3	Ayşe	Kadın	Bachelor's	28	2020	4
4	Kadir	Erkek	Bachelor's	28	2018	6
5	Nisa	Kadın	Bachelor's	34	2012	11
6	Samet	Erkek	Bachelor's	28	2019	6
7	Ahmet	Erkek	Bachelor's	29	2018	5
8	Mustafa	Erkek	Bachelor's	33	2016	7
9	Ayşegül	Kadın	Bachelor's	26	2020	3
10	Tuncay	Erkek	Bachelor's	25	2019	4
11	Hamdi	Erkek	Master's	34	2011	13
12	Kübra	Kadın	Bachelor's	32	2014	9
13	Serdar	Erkek	Bachelor's	34	2011	13
14	Ceren	Kadın	Master's	28	2019	5
15	Yusuf	Erkek	Bachelor's	34	2011	12
16	Şeyma	Kadın	Bachelor's	37	2008	14
17	Halil	Erkek	Bachelor's	36	2009	14
18	Alparslan	Erkek	Bachelor's	37	2008	16
19	Nisa	Kadın	Bachelor's	35	2010	13

As shown in Table 1, the study included 19 participants, comprising 12 males and seven females. The participants' ages ranged from 25 to 37 years, and their teaching experience varied between 3 and 16 years. All participants were currently employed as special education teachers in various provinces across Turkey.

2.3. Setting

Interviews, a commonly preferred data collection tool in qualitative research, can be conducted face-to-face or remotely via various online platforms (Seggie & Bayyurt, 2017). Previous research has shown that interviews conducted through online platforms can yield high-quality qualitative data (Sturges & Hanrahan, 2004). In this study, data were collected through the Zoom platform. Online interviews were preferred because the participants resided in different

cities, making it logistically impossible to gather all participants in a single physical location for focus group discussions.

2.4. Data Collection Instruments

The data were collected using focus group interviews, one of the qualitative data collection techniques. Focus groups are frequently used in qualitative research to explore participants' perceptions and experiences regarding the research topic (Teddlie & Tashakkori, 2015). Conducted under the guidance of the researchers, focus group interviews provide rich and interactive data by facilitating participant interaction and discussion (Bowling, 2014). This makes them particularly suitable for exploring shared and divergent perspectives on complex educational issues.

2.5. Data Collection Procedure

To develop the semi-structured interview questions, the researchers conducted a comprehensive literature review aligned with the study's purpose and drafted an initial set of questions. Feedback was then obtained from three experts in special education who had previously conducted qualitative research, and the necessary revisions were made accordingly. At this stage, the interview protocol consisted of 11 main questions and six sub-questions, focusing on general AI use and teachers' experiences with AI technologies. A pilot interview was then conducted face-to-face with one special education teacher, lasting 38 minutes. Afterward, three final revisions were made to refine the questions.

Although 8–12 participants per focus group are typically recommended to ensure effective group interaction (Byers & Wilcox, 1988), this study involved 19 participants to increase the richness and diversity of the data. Therefore, two separate focus group sessions were organized. The first session was conducted with the first ten participants listed in Table 1, and the second session was conducted with the remaining nine participants. Both sessions were scheduled at mutually convenient times for participants and had a total duration of 183 minutes.

2.6. Data Analysis

The analytical approach employed in this study aims to provide in-depth insights into the phenomenon under investigation, thereby requiring a thorough and systematic analysis of the data (Maxwell, 2008). In line with the research objectives, content analysis was selected as the primary method for analyzing the qualitative data. Content analysis typically involves a four-

stage process: (1) coding the data, (2) identifying themes and subthemes, (3) organizing codes and themes, and (4) reporting the findings (Miles, Huberman, & Saldana, 2014).

Accordingly, the data analysis process began with transcribing both focus group interviews into a digital text format. The transcribed data were then imported into NVivo software, where the coding process was carried out. To ensure inter-coder reliability, three researchers independently and simultaneously conducted the coding process. Subsequently, they met to compare the codes, identify overlapping and divergent codes, make necessary revisions, and reach consensus. Based on the agreed-upon codes, the researchers then identified themes and subthemes emerging from the data. As in the coding stage, three researchers independently conducted the theme identification process, after which they convened to reconcile differences, revise the themes as necessary, and finalize the thematic structure. To assess the reliability of the coding, the formula proposed by Miles, Huberman, and Saldana (2014) *Agreement / (Agreement + Disagreement) × 100* was applied. The inter-coder reliability rate for the coding process was calculated as 92%, indicating a high level of consistency among the researchers.

2.7. Research Ethics

Qualitative research inherently involves a set of ethical responsibilities and precautions that researchers must observe throughout the study (Hammersley & Traianou, 2012). In this study, the first ethical measure taken was ensuring participant confidentiality. No personal information that could potentially reveal participants' identities was collected; instead, pseudonyms were used in place of real names. The purpose of the study, the role of the researchers, and the research procedures were explained in detail to all participants. Informed consent was obtained through a voluntary participation form distributed via Google Forms. Participants were informed that their participation was voluntary and that they had the right to withdraw from the study at any stage without any consequences. This process ensured compliance with ethical principles of informed consent and autonomy.

3. Findings

Through the content analysis process, the data collected in this study were categorized under six main themes and sixteen codes. The themes and codes reflecting special education teachers' experiences with the use of AI technologies in education are presented in Table 2.

Table 2. *Themes and Codes*

Knowledge Levels Regarding AI Technologies	Adequate
	Limited
Areas of AI Technology Use	Activity Preparation
	Visual Material Design
	Motivating Students
Impact of AI Technologies on Teachers' Workload	Time Efficiency
	Overreliance on Ready-Made Resources
Impact of AI Technologies on Students' Academic Achievement	Providing Experiential Learning
	Addressing Individual Differences
	Contributing to Academic Success
	Limited Contribution
Readiness for AI Technologies	Physical Infrastructure
	Budget Constraints
	Inequality of Opportunities
Dissemination of AI Technologies in Education	In-Service Training Programs
	Undergraduate Curriculum

3.1. Knowledge Levels Regarding AI Technologies

The first theme of the study focuses on the knowledge levels of special education teachers regarding AI technologies. Within this theme, the codes reveal that while some teachers perceived their knowledge as limited, others considered themselves adequately informed. For example, Semih stated: "There are many people around me who use it frequently, but unfortunately, I tend to follow things late. So honestly, I do not see myself as competent in this area." Similarly, Kadir highlighted his limited knowledge by saying: "I would like to use artificial intelligence, but to be frank, I do not have much knowledge or experience. I usually prefer traditional methods. Of course, if something related to AI comes my way, I would be happy to use it." Hamdi also emphasized this limitation: "Honestly, what we know is mostly what we hear online. Since we have not received any formal training, our knowledge is second-hand. So we do not really know what we can do with it or how effectively we can use it."

On the other hand, Tuncay evaluated his proficiency at a higher level: "I am quite interested in technology. When something new comes out, I always check whether it might be useful for my work. Of course, it is impossible to master every application, but I think I have learned the parts that are useful in my field of study. I would say I am competent enough to make my job easier." These statements collectively illustrate that teachers' knowledge levels vary significantly, ranging from minimal familiarity to moderate or practical competence.

3.2. Areas of AI Technology Use

Special education teachers reported using AI technologies primarily for preparing educational activities for students with special needs. Additionally, they utilized AI to create visuals

relevant to their teaching topics and to enhance student motivation. Şeyma described this process as follows: “Of course, AI can be used for many purposes, but I find it most useful when preparing activities. Sometimes I struggle to prepare appropriate materials for a topic. By giving proper instructions, I can generate many activities to use with my students.” Similarly, Serdar explained: “In terms of materials—especially worksheets—it is beneficial. Sometimes the output is not exactly at the student’s level, but if I regenerate it, I get workable materials.”

Regarding the preparation of visuals, Ayşegül noted: “My students are quite young, so naturally, I need a lot of images and visuals. I use the materials in the textbooks, of course, but I often need additional resources to support and reinforce learning. I use AI quite often for this purpose.” Kübra supported this point: “It is the same for me because of the age group. I use a few applications to generate images. The ones we find on the internet are not always appropriate—sometimes the setting or the content of the image is not suitable. AI really helps in those cases.” Alpaslan emphasized the motivational aspect of AI use: “For example, I open an app and we generate the image or the animal that the children want. They are very accustomed to tablets and phones, so it naturally captures their attention. I use it a bit like a transition activity to focus their attention.” These findings suggest that AI tools serve multiple pedagogical functions, supporting instructional design, enriching materials, and enhancing engagement, particularly within special education contexts.

3.3. Impact of AI Technologies on Teachers’ Workload

All participants shared the standard view that the use of AI technologies in education reduces teachers’ workload and saves time. Ahmet explained this benefit in detail: “Of course, it inevitably reduces our workload. If we mastered all these tools, we could use them even more efficiently. Preparing for a lesson and creating activities takes time. These applications significantly reduce that. For example, I have students at different levels in my class, so I need multiple versions of the same activity at different difficulty levels to address everyone. That is where AI is beneficial—it saves time.” Nisa added: “I think the most important advantage is saving time for teachers—if we can use it effectively. Honestly, it is tough to keep up with everything if you want to do your job properly.” However, Samet provided a critical perspective, warning that overreliance on AI might lead teachers to become passive: “We like taking the easy route. Once these tools start doing the work for us, we will keep delegating everything to them. Instead of creating materials ourselves, we will use ChatGPT or Canva. That is how it starts, and then we continue by just copy-pasting without adding anything new.” Overall, the findings suggest that while AI tools offer significant time-saving advantages, there

is also a concern about potential overdependence, which could reduce teachers' active engagement in material development.

3.4. Impact of AI Technologies on Students' Academic Achievement

Within this theme, the findings indicate that AI technologies were perceived to enhance the academic performance of students with special needs to varying degrees — in some cases contributing significantly, while in others, the impact was described as limited. Additionally, teachers emphasized that AI tools enrich students' learning experiences, though current systems were seen as insufficiently responsive to individual differences. Tuncay explained: "I believe AI contributes to students' learning, though indirectly. We should not think of it as 'AI did this.' Whether it is an activity sheet, an image, or a song—whatever we use as educational material—it contributes to teaching the targeted skill. So, even indirectly, I think it positively affects academic achievement." Serdar supported this perspective: "You are right, teacher. Progress is a holistic process. Whether it is the teacher, the materials, or any other factor involved, each contributes to success. AI is one of those elements, so it supports learning in that sense."

Ahmet highlighted AI's role in providing varied stimuli, thereby enriching students' experiences: "In a lesson, whatever the learning objective is, giving different stimuli related to it is important. There is an AI tool for music—I cannot remember its name—but once we asked it to make a song about animals, and the students loved it. Just like how we benefit from multiple stimuli when learning, it really helps them, too." However, participants also noted that AI technologies are not yet fully capable of addressing individual differences, which are especially pronounced in special education contexts. Halil articulated this concern: "Our field is special education, probably the area with the greatest individual differences. Every child learns differently. AI is not yet at a level where it can fully account for these differences. It is progressing fast, and maybe it will get there in the future, but for now, it is limited."

3.5. Readiness for AI Technologies

Participants' views regarding readiness to use AI technologies centered around three key codes: physical infrastructure, budgetary constraints, and regional inequalities. Many participants emphasized that schools in Turkey face challenges in meeting basic technological requirements, such as reliable internet, smartboards, and computers. Nisa described infrastructural limitations: "In my city, we barely have internet. When it does work, it is slow and constantly freezes. I understand the push for research and innovation, but without internet or smart boards, how am I supposed to benefit from AI?" Similarly, Akif noted: "Projects like the Fatih Project were

implemented, but not every school has smart boards. If I didn't have my own laptop, I would not have anything to use during class. These are the basic requirements for using these tools."

Samet drew attention to the financial burden on teachers: "ChatGPT, for example, has a monthly fee — I think around $10, maybe more. Other applications are similar. There is always a free version, but it is limited—typically featuring just a few images or minimal usage. If you want to use it effectively, there is a cost, and teachers have to pay it themselves. Personally, I cannot afford that." Nisa also emphasized regional disparities in access to technology: "The conditions in schools in the eastern part of the country are not the same as those in the West. I think schools in the West will benefit first. Unfortunately, these inequalities need to be addressed before anything else." These perspectives collectively reveal that structural inequalities and resource gaps significantly shape teachers' ability to integrate AI technologies into their practice.

3.6. Dissemination of AI Technologies in Education

The final theme focuses on strategies for promoting the adoption of AI technologies in education. Participants consistently emphasized two key points: In-service training for current teachers working in schools affiliated with the Ministry of National Education, and Inclusion of AI-related courses in undergraduate teacher education programs. Serdar stressed the need for targeted training, especially for mid-career and older teachers: "Younger teachers somehow keep up, but for middle-aged and older teachers, there should be training. I am hearing most of what my colleagues mentioned for the first time. If this is something that makes our jobs easier, it needs to be explained to us." Kübra similarly emphasized the importance of professional development: "These are all new developments. Most of them did not exist when we were studying, but now AI is everywhere. If training sessions were organized for teachers, we could really benefit. It is very different to learn from an expert compared to figuring it out ourselves." Ceren highlighted the value of practical training within teacher education programs: "At university, there should at least be a course on this. We were taught about Web 2.0 tools, which proved very useful. However, now, if they also teach how to use AI in schools, I think it would be even better." These findings underscore that systematic and structured training, both pre-service and in-service, is viewed as crucial for the effective and equitable dissemination of AI technologies in the education system.

4. Conclusion, Discussion and Recommendations

This study aimed to examine special education teachers' experiences with the use of artificial intelligence (AI) technologies in education. This section discusses the findings within the framework of the existing literature, providing interpretations and recommendations based on the results.

The first key finding revealed that special education teachers generally lack sufficient knowledge and skills related to AI technologies. Similar results were reported by Çolak-Yazıcı and Erkoç (2024), who examined the attitudes and views of chemistry, physics, biology, and science teachers toward the use of AI in their lessons and found that most teachers had limited knowledge and competencies regarding AI. Likewise, Çolak-Yazıcı and Erkoç (2023) and Yue et al. (2024) identified a lack of teacher knowledge in this area. Considering the rapid pace at which new AI-based tools and applications emerge, this knowledge gap is likely to constrain special education teachers' ability to utilize AI technologies effectively in their classrooms. The Ministry of National Education's Directorate General for Innovation and Educational Technologies (YEĞİTEK) has published the guidebook "AI Tools Used in Education: Teacher's Handbook" to support teachers in this context (MEB, 2024). However, the fact that participating teachers were unaware of this publication suggests that there may be communication gaps in disseminating such resources to educators. As Sağdıç and Sani-Bozkurt (2020) highlight, it is neither desirable nor realistic to conduct educational processes for both typically developing students and students with special needs independently of technological developments. Therefore, not only preparing high-quality content but also effectively communicating it to teachers is crucial for improving teacher competencies.

The second significant finding concerned the areas in which teachers use AI technologies. Special education teachers primarily reported using AI to develop instructional activities tailored to students' levels, to diversify visuals related to instructional topics, and to increase student motivation through technology-based tools. These findings align with previous studies. Önderöz and Karabay (2024) found that classroom teachers mainly used AI for visual generation. Similarly, Çolak-Yazıcı and Erkoç (2024), Vinichenko (2021), and Nabiyev and Erümit (2020) emphasized the role of AI in presenting engaging content that increases learning motivation. In fields such as special education, where individual differences are highly pronounced, teachers need multiple activities and visuals at varying levels for each learning outcome (Nabiyev & Erümit, 2020). AI tools play a significant role in meeting these needs and thereby contributing to instructional processes. As previous studies have shown, technology-

based applications attract students' attention and can serve as practical tools for enhancing motivation (Eguchi, 2010; Hagen, 2002; Nouwen et al., 2016). This is particularly relevant for Generation Z students, including those with special needs, for whom AI can provide interactive and enjoyable learning experiences (Vinichenko, 2021).

A third finding relates to teachers' workload. Previous studies have reported that teachers frequently describe their workload as heavy (Dülger & Gümüşeli, 2023; Öztürk & Erdem, 2020). Similarly, this study found that special education teachers viewed AI technologies as an important tool for reducing their workload, particularly in lesson preparation and activity design. According to the Special Education Services Regulation (ÖEHY, 2018), special education teachers are expected to fulfill a wide range of responsibilities, which often leads to time and resource constraints (İnce & Karabulut, 2023). AI technologies have the potential to help teachers manage their workload more effectively, enabling a more efficient and balanced professional life. Prior studies have also demonstrated that technology-based tools can reduce teachers' workload (Çam et al., 2021; Dülger & Gümüşeli, 2023). At the same time, concerns were raised that excessive reliance on AI may lead teachers to become passive, relying on pre-made materials rather than developing their own instructional materials. This risk, however, may be considered a tolerable trade-off given the significant potential benefits of AI.

One of the study's significant themes concerned the impact of AI technologies on the academic achievement of students with special needs. The findings revealed that AI technologies can enhance academic achievement, which aligns with previous research (Özer et al., 2023; Park et al., 2023; Hooda et al., 2022; Zhang et al., 2019). However, teachers reported that AI is not yet sufficiently sensitive to individual differences, which are particularly critical in special education. Maghsudi et al. (2021) found, however, that AI-supported tools can address diverse learning needs more effectively by supporting personalized education. Çam et al. (2021) also concluded that AI technologies facilitate individualized learning. Although current AI tools can generate multi-level instructional content (Aliu, 2024; Chauke et al., 2024), their practical use depends on teachers' knowledge and competence, which remains limited. Existing research suggests that teachers require adequate training and support to effectively enhance their knowledge and use of AI tools (Çolak-Yazıcı & Erkoç, 2024; Köse et al., 2020; Yue et al., 2024; Iqbal, 2022; Kim & Kim, 2022).

Like other technology-based applications, the use of AI in education requires preparatory conditions, including hardware (e.g., smart boards, computers), internet access, and program fees. The findings show that many schools lack these basic requirements, which either forces

teachers to cover the costs personally or leads to limited integration of AI technologies. This finding is consistent with previous studies, which report that teachers face financial and accessibility barriers when using AI technologies (Köse et al., 2024; Özer et al., 2019). Regional disparities in educational infrastructure, as seen in Turkey and elsewhere, can exacerbate inequities in access to educational technologies. As identified in this study, the lack of technological infrastructure in certain regions restricts teachers' access to and use of AI tools, resulting in educational inequalities. Addressing this issue will require the Ministry of National Education to assess the physical conditions of schools and provide a minimum set of technological resources to ensure equitable access.

The final finding indicates that teachers believe the widespread adoption of AI in education depends on two key measures: providing in-service training for current teachers and incorporating AI-focused courses into undergraduate teacher education programs. This aligns with Haleem et al. (2022), who noted that new technologies often face integration challenges that require targeted solutions. Çolak-Yazıcı and Erkoç (2024) similarly suggested that teacher training is essential for realizing the educational potential of AI and changing teachers' attitudes toward its use. Given that many teachers have limited knowledge and that AI in education is still a relatively recent development (Coşkun & Gülleroğlu, 2021), structured and systematic training is especially critical. Previous studies have consistently shown that AI technologies can contribute positively to both student learning and teaching practices (Özer et al., 2023; Park et al., 2023; Hooda et al., 2022; Çam et al., 2021; Zhang et al., 2019; Nouwen et al., 2016; Eguchi, 2010; Hagen, 2002). Therefore, introducing AI technologies to both current teachers and pre-service teachers is essential for fostering effective adoption.

In conclusion, this study found that special education teachers generally lack sufficient knowledge and experience with AI technologies. Those who use them tend to do so primarily to reduce their workload and to create instructional activities for students with special needs. Even at current levels of limited use, AI technologies were found to contribute to improving students' academic performance. However, their broader adoption is hindered by budgetary constraints, limited physical infrastructure, and insufficient dissemination efforts.

Future research could examine the attitudes and experiences of subject-matter teachers with AI technologies in inclusive classrooms, extending beyond special education teachers. Based on the findings, it is recommended that training and awareness programs be developed to enhance the knowledge, skills, and awareness of special education teachers regarding AI technologies.

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