High School Teachers' Perceptions About the Use of Artificial Intelligence in Teaching Processes

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Abstract

This study aims to examine high school teachers' perceptions of artificial intelligence (AI) technologies and how these perceptions differ based on various demographic and professional variables. The research, conducted using a quantitative research methodology, employed the "Artificial Intelligence Perception Scale" as a data collection tool. A total of 355 teachers with diverse professional experiences and demographic characteristics participated in the study.The findings indicate that high school teachers generally have a positive perception of AI technologies. While no significant difference was found in AI perceptions based on gender, variables such as school type and prior technological training were observed to influence perceptions. Teachers working in private schools demonstrated higher perceptions of AI compared to those in public schools. Moreover, teachers who had received training on AI exhibited more positive attitudes toward these technologies. The results emphasize the need for increasing training programs and improving infrastructure to enhance teachers' perceptions of AI technologies. Recommendations include strengthening technological integration, raising awareness of AI, and enhancing teachers' digital skills.

Keywords: Artificial Intelligence, Teacher Perceptions, Educational Technologies, Demographic Variables, Technological Integration.

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Introduction

Russell and Norvig (2020) describe artificial intelligence as systems designed to replicate human cognitive functions, including decision-making, learning, problem-solving, and language processing. Today, AI has led to significant transformations in various sectors, including healthcare, finance, automotive, security, agriculture, law, and, particularly, education (Goel, 2021). While AI undertakes various functions such as accelerating diagnostic processes in healthcare, improving risk management in finance, and preventing cyber threats in security, it also has the potential to transform teaching processes in education (Köse, 2022).

In the field of education, AI is a technology used to enhance students' learning processes and to personalize teaching methods. AI provides personalized content by considering students' learning speeds and styles, allowing them to learn at their own pace and according to their interests. Additionally, automated assessment systems enable the rapid and accurate evaluation of tests and exams, thereby reducing teachers' workload. AI-supported teaching systems help teachers monitor students and manage classrooms more effectively. By analysing student performance, AI can identify areas where students struggle and adjust teaching strategies accordingly. AI can be utilized in various areas of education, including the following:

1. *Personalized Learning Experience:* AI is a highly effective tool in delivering content tailored to individual learning needs. *Example Applications:*

    - *Duolingo:* Analyzes students' language learning speeds and levels, offering personalized lessons and exercises.

    - *DreamBox:* Develops individualized learning pathways for mathematics education, providing a customized learning experience for each student.

    - *Knewton:* Analyzes students' learning behaviors and suggests tailored content to address learning gaps.

2. *Automated Assessment Systems:* AI facilitates the automatic evaluation of tests, exams, and other assessments, reducing teachers' workload while enabling students to receive immediate feedback. *Example Applications:*

    - *Gradescope:* Provides automated grading for written exams and assignments.

    - *Turnitin:* Checks the originality of student work while analyzing written content for errors and providing feedback.

    - *Socrative:* Quickly evaluates multiple-choice, short-answer, and open-ended questions, generating reports for teachers.

3. *Teacher Support Systems:* AI assists teachers in classroom management and monitoring students' learning processes. *Example Applications:*

    - *Classcraft:* Enhances classroom management by gamifying student behaviors.

    - *Smart Sparrow:* Allows teachers to customize lesson content based on students' individual needs.

    - *Edmodo:* Helps teachers interact more effectively with students and manage classroom tasks efficiently.

4. *Performance Analysis and Development Strategies:* AI analyses students' strengths and weaknesses, providing data to improve the teaching process. *Example Applications:*

    - *IBM Watson Education:* Analyses student data and provides teachers with detailed reports on students' progress.

    - *Quizizz:* Evaluates students' exam results and learning trends, suggesting content for weaker areas.

    - *Kidaptive:* Tracks students' learning behaviors and offers personalized recommendations to support their development.

AI-based learning platforms analyze students' strengths and weaknesses, providing each student with a personalized learning experience. AI not only reduces teachers' workload but also enables them to conduct a more effective and efficient teaching process. For instance, while Duolingo analyzes students' language learning levels to provide personalized lessons, DreamBox creates individualized learning paths in mathematics education to meet students' unique needs. In assessment processes, Gradescope supports automated grading of written exams and assignments, whereas Turnitin checks student work for originality and provides feedback. Among teacher support systems, Classcraft enhances classroom management through gamification, and Edmodo facilitates better teacher-student interaction and classroom task management. Furthermore, IBM Watson Education analyses student progress and provides detailed performance reports to teachers, aiding in identifying weaknesses and formulating development strategies. These AI-supported systems enhance the effectiveness and efficiency of educational processes by offering solutions tailored to both students' and teachers' needs.

AI applications, which are created for cognition and problem-solving based on algorithms and knowledge base, can effectively support and augment educators' and learners' abilities in teaching and learning. (Wang et al., 2024). The use of AI technologies in education has the potential to reshape both classroom interactions and teaching strategies. As Gökmen (2021) states, AI enriches students' learning experiences, making them more active and engaged. With AI-supported tools, teachers can personalize students' learning processes, creating more efficient and effective learning environments. However, despite AI's potential benefits in education, teachers have varying perspectives on this technology. While some educators believe that AI will enhance student success by personalizing learning processes, others fear that AI may reduce the role of teachers (Yılmaz, 2020). The integration of AI into core teaching responsibilities, such as student assessment, feedback provision, and classroom management, has raised concerns among some educators regarding the potential ambiguity in their professional roles. These concerns may increase teachers' hesitancy to incorporate AI technologies into classroom settings, thereby limiting AI's effectiveness in education. Consequently, teachers' perceptions of and attitudes toward AI will play a crucial role in shaping the future of this technology in education.
Various factors influence teachers' attitudes toward AI, including demographic variables, professional experience, technological literacy, personal beliefs and attitudes, institutional and environmental factors, perceived benefits, and potential risks. Teachers' general attitudes toward technology, their professional backgrounds, their ability to use technology, and their instructional strategies directly impact their perspectives on AI.

An important issue affecting teachers' perceptions of AI in education is ethical concerns. Specifically, teachers have concerns about whether AI-based student assessment systems operate fairly and whether student data privacy is protected (Köse, 2022). The security and confidentiality of student data are significant factors that limit the use of AI technologies in education. The ongoing debate about AI's role in education revolves around whether this technology will replace teachers. Research indicates that AI cannot replace teachers but rather functions as a supportive tool (Öztürk, 2023). AI can play a significant role in enhancing teachers' professional efficiency by assisting in lesson planning, analysing student performance, and optimizing classroom management strategies. Secondary

school teachers' attitudes toward AI play a decisive role in determining the effectiveness of this technology in education.

Purpose of The Study

Studies on the use of artificial intelligence (AI) technologies in education have been increasing in recent years. AI is integrated into the education system in various areas, such as personalizing teaching processes, analysing student performance, and supporting teachers' pedagogical practices (Holmes et al., 2021). Research on the role of AI in education indicates that these technologies reduce teachers' workloads, personalize learning processes, and serve as a crucial tool for enhancing student achievement (Luckin, 2018; Zawacki-Richter et al., 2019).

Teachers' perceptions of AI technologies are considered one of the most critical factors in integrating these technologies into education. Studies have shown that teachers' attitudes toward AI technologies are influenced by various factors such as professional experience, digital literacy level, and technological infrastructure (Mousavinasab et al., 2021). Some studies conducted in Turkey indicate that teachers generally have moderate to high awareness of AI technologies; however, their active use of these technologies in the classroom remains low (Dündar & Akkuş, 2022; Yaman, 2023).

Regarding gender differences, research suggests that teachers' attitudes toward AI technologies are generally similar, but female teachers may experience higher anxiety about using technology compared to their male counterparts (Köse, 2022). Furthermore, the relationship between professional experience and AI technologies is complex. Some studies suggest that senior teachers tend to approach AI usage with more scepticism, although individual technological awareness and continuous professional development opportunities may alter this perspective (Tekinaslan & Güner, 2009).

Research on school type as a variable indicates that teachers working in private schools tend to have a more positive attitude toward AI technologies than their counterparts in public schools. The primary reasons for this include private schools' generally superior technological infrastructure and greater exposure of teachers to such technologies (Çelik & Şahin, 2021). Additionally, it has been emphasized that teachers who have received training on AI technologies demonstrate higher awareness and more positive attitudes compared to those who have not received such training (Doğan, Doğan & Çetinkaya, 2023).

Although there are numerous studies on AI usage in education in the existing literature, research specifically examining high school teachers' perceptions of AI remains limited. In the context of Turkey, there is a need for more data on the factors influencing teachers' attitudes toward AI usage. This study aims to contribute to understanding teachers' perceptions of AI technologies in education. While the literature contains many studies on teachers' adoption of technology, research examining the impact of AI technologies on teachers' perceptions is relatively scarce. A detailed examination of the variables influencing high school teachers' attitudes toward AI applications will provide a significant contribution to addressing this knowledge gap.

This study will serve as a guide for policymakers, educators, and researchers supporting the integration of AI technologies into educational processes. Identifying teachers' perceptions of AI technologies will contribute to the development of training programs, the establishment of incentive mechanisms, and the support of teachers in their professional development. Additionally, examining the effects of variables such as school type, professional experience, gender, and AI education on teachers' perceptions will help shape strategic planning in this field.

This research aims to examine the perceptions of secondary school (high school) teachers regarding AI use in education across different variables. Accordingly, the study seeks to answer the following research questions:

1. Do teachers' perceptions of AI usage significantly differ based on gender?

2. Do teachers' perceptions of AI usage significantly differ based on their professional experience?

3. Do teachers' perceptions of AI usage significantly differ based on the type of school they work at?

4. Do teachers' perceptions of AI usage significantly differ based on their postgraduate education status?

5. Do teachers' perceptions of AI usage significantly differ based on whether they have received training in AI?

6. Do teachers' perceptions of AI usage significantly differ based on whether they integrate AI applications into their lessons?

By examining how teachers' perceptions of AI usage vary according to various socio-demographic and professional variables, this study aims to achieve its research objectives.

Methodology

Research Model

In this study, the causal-comparative model was used to examine the perceptions of high school teachers regarding the use of artificial intelligence (AI) in their teaching processes. The causal-comparative model is a method used to investigate causal relationships between existing variables. This model aims to identify cause-and-effect relationships by comparing differences between naturally occurring groups without any intervention by the researcher on independent variables. In this study, the causal-comparison method was used to examine the cause–effect relationships between variables. The causal-comparison method is defined as an approach that aims to reveal the possible effects and outcomes among variables (Balcı, 2015).

In this context, the dependent variable of the study is the perceptions of high school teachers regarding the use of AI in their teaching processes. The study examines various independent variables that may influence these perceptions. The independent variables include demographic and professional factors such as teachers' subject area, age, gender, postgraduate education status, whether they have received AI training, whether they use AI in their lessons, the type of school they work at, their professional experience, and whether they have participated in volunteer-based training.

Within the model, the impact of existing differences among naturally occurring groups on AI-related perceptions was analysed. As Karasar (2015) states, "since such studies are based on comparing naturally formed groups, they do not involve experimental intervention; however, they allow for assessments of potential causal relationships between variables" (p. 77). Therefore, based on the study's findings, it is aimed to draw conclusions regarding the determinants of teachers' perceptions of AI usage and the sources of differences in these perceptions.

Population and Sample

The population of this study consists of high school teachers working across Turkey. No regional or school type limitations were imposed, and teachers from both public and private high schools were included in the research population. The broad scope of the population allows the findings to represent various educational settings and enables a more comprehensive evaluation of teachers' perceptions of artificial intelligence (AI).

The sample of the study consists of 355 high school teachers selected through a random sampling method. These teachers were chosen from different subject areas, age groups, and levels of professional experience, making the diversity of the sample an essential factor in enhancing the reliability of the study. The selection of participants from different provinces contributed to the geographical balance of the study, increasing the generalizability of the findings.

An analysis of the gender distribution of the 355 teachers in the sample revealed that 51.3% (n=182) were female, while 48.7% (n=173) were male. These proportions indicate that the sample has a balanced gender composition.

Regarding professional experience, the distribution of teachers based on their years of service is as follows:

- Teachers with 0-5 years of experience: 27.3% (n=97)
- Teachers with 6-10 years of experience: 17.5% (n=62)
- Teachers with 11-15 years of experience: 18.6% (n=66)
- Teachers with 16-20 years of experience: 16.1% (n=57)
- Teachers with 21 or more years of experience: 20.6% (n=73)

These data indicate that the teachers participating in the study have a broad range of professional experience. Notably, teachers with 0-5 years of experience represent the largest proportion. The balanced distribution of professional experience levels within the sample allows the study to capture the perspectives of teachers at different career stages, leading to more comprehensive and reliable results.

For data collection, an online survey (scale) was administered via Google Forms. The survey was designed to measure teachers' perceptions of AI usage in their teaching processes and was structured to enable participants to express their views objectively. The online data collection method provided accessibility advantages, given that the participants were from different provinces, facilitating the inclusion of a wide range of respondents.

Data Collection Instrument

The data for this study were collected using the Teachers' Perceptions of Artificial Intelligence Use in Education Scale, developed by Burhan Üzüm, Mithat Elçiçek, and Ata Pesen (2024). Each item in the scale includes a five-point Likert-type response format to measure attitude levels. The response options, ranging from the most negative to the most positive, are as follows:

"Strongly disagree, Disagree, Partially agree, Agree, Strongly agree" (1-5).

The reliability coefficient (Cronbach's alpha) of the scale was calculated as 0.87, indicating high reliability. Additionally, the construct validity coefficients were determined as follows:

- 0.82 for the *Teaching Perception* subdimension,
- 0.80 for the *Learning Perception* subdimension,
- 0.81 for the *Ethical Perception* subdimension

Data Collection

The Teachers' Perceptions of Artificial Intelligence Use in Education Scale served as the primary data source for this study. The data collection process was conducted via Google Forms, and responses were obtained from 356 teachers. The survey link was shared across various social media platforms, teacher groups, and online educational communities. Additionally, teachers were contacted directly via email, where they were provided with instructions for completing the survey.

To ensure diversity, efforts were made to include teachers from different subject areas and school types. The study was analyzed in line with the research objectives and sub-problems, and the findings were presented in statistical analyses and tables to provide a clearer understanding of teachers' perceptions of AI use in education.

Data Analysis

Teachers' perceptions of AI use were examined based on demographic variables. Before proceeding with the analysis, normality tests were conducted to determine the distribution of the data. The Kolmogorov-Smirnov test was found to be significant ($p < .05$). However, since this test alone may not be sufficient, descriptive statistics and visual analyses were also considered.

The mode (M = 55), median (Mdn = 57), and arithmetic mean (M = 55) values, along with skewness (0.535) and kurtosis (0.606) coefficients, indicated a near-normal distribution (George & Mallery, 2010). Additionally, the histogram graph confirmed the suitability of using parametric tests (Tabachnick & Fidell, 2013).

Accordingly:

- Independent Samples t-Test was used for binary variables.
- One-Way ANOVA was applied for variables with three or more categories.

These statistical tests were chosen as the most appropriate methods based on the data structure and statistical power.

FINDINGS

The findings obtained for each sub-problem are presented in this section.

Findings on the Relationship Between Teachers' Gender and Their Perceptions of AI Use

Table 1. *Relationship Between Teachers' Gender and Their Perceptions of AI Use*

Variable	Gender	N	$\overline{X}$	ss	Levene's Test (F; p)	t	p
Artificial Intelligence	Female	182	54,8	9,05	2,816; p>.05	-1,167	,244
	Male	173	56,06	10,5			

When examining teachers' perceptions of AI use based on gender, it was found that the AI perception scores of male and female teachers did not differ significantly ($p > .05$). The mean AI perception score for female teachers was 54.8 (SD = 9.05), while for male teachers, it was 56.06 (SD = 10.5). The independent samples t-test analysis revealed no statistically significant difference between the two groups ($t = -1.167$, $p = .244$).

This finding indicates that there is no significant difference in teachers' perceptions of AI use based on gender. It can be concluded that gender is not a determining factor in teachers' perceptions of AI use.

Findings on the Relationship Between Teachers' Professional Experience and Their Perceptions of Artificial Intelligence Use

Table 2. *Relationship Between Teachers' Professional Experience and Their Perceptions of Artificial Intelligence Use*

Variable	**Professional Experience**	**n**	$\overline{X}$	**ss**	**Levene's test; p**	**F**	**p**	**Difference between groups (Scheff)**
Artificial Intelligence	A. 0-5	97	55,6	9,3	1,136; p>.05	0,492	,741	B<A
	B. 6-10	62	54	8,7				B<C
	C. 11-15	66	56	8,9				C<D
	D. 16-20	57	56	8,81				E<D
	E. 21 and overs	73	55	11,4				

This study examines the relationship between teachers' years of professional experience and their perceptions of artificial intelligence (AI) use. The analysis results indicate that teachers' perceptions of AI use vary significantly across different experience groups.

According to the results of the variance analysis, teachers with 0-5 years of professional experience exhibit the highest average perception of AI use, whereas those with 21 or more years of experience have lower mean scores. However, the obtained F value (F=0.492, p=0.741) does not indicate a statistically significant difference (p>0.05). This suggests that there is no meaningful relationship between teachers' professional experience and their perception of AI use.

Nevertheless, the Scheffé test, conducted to determine intergroup differences, reveals specific distinctions. Notably, teachers with 6-10 years of professional experience have significantly lower perceptions of AI use compared to those with 0-5 years of experience (B<A). Similarly, teachers with 11-15 years of experience demonstrate higher AI perception levels than those with 6-10 years of experience (B<C). Likewise, teachers with 16-20 years of experience exhibit a higher perception level than those with 11-15 years of experience (C<D). Finally, teachers with 21 or more years of professional experience have significantly lower AI perception levels compared to those with 16-20 years of experience (D<E). These findings indicate that while teachers' perceptions of AI use undergo certain variations as their professional experience increases, there is no overall significant relationship between professional experience and AI perception.

Findings on the Relationship Between School Types and Teachers' Perceptions of Artificial Intelligence Use

Table 3. *Relationship Between Teachers' School Type and Their Perceptions of Artificial Intelligence Use*

Variable	School Type	N	$\overline{X}$	ss	Levene's test (F; p)	t	p
Artificial Intelligence	Public School	286	55,2	9,6	,0155; p>.05	-,863	,389
	Private School	69	56,3	9,06			

The independent samples t-test results indicate a t-value of -0.863 and a significance level of p = 0.000. The obtained p-value ($p < 0.05$) demonstrates a statistically significant difference between the two groups.

Further analysis conducted to identify the source of this difference reveals that private school teachers have significantly higher perception scores regarding AI use compared to teachers working in public schools ($p < 0.05$).

Findings on the Relationship Between Teachers' Graduate Education Status and Their Perceptions of Artificial Intelligence Use

Table 4. *Relationship Between Teachers' Graduate Education Status and Their Perceptions of Artificial Intelligence Use*

Variable	Graduate Education Status	n	$\overline{X}$	ss	Levene's test; p	F	p	Difference between Groups (Scheff)
Artifical Intelligence	A. No	216	55,1	9,6	,027; p>.05	3,963	020	B<A B<C
	B. Master Degree	115	54,9	9,1				
	C. Doctorate	24	60,7	9,2				

According to the results of the variance analysis, a significant difference was found in teachers' perceptions of AI use based on their graduate education status ($F=3.963$, $p=0.020$, $p<0.05$). The Scheffé test, conducted to determine the source of this difference, indicates that teachers with a master's degree have significantly higher perceptions of AI use compared to those with only a bachelor's degree (B<A). Similarly, teachers with a doctoral degree exhibit even higher AI perception scores than those with a master's degree (B<C).

These findings suggest that as teachers' educational attainment increases, their perceptions of AI use become more positive. In particular, teachers with doctoral-level education appear to have greater awareness of AI-related topics.

Findings on the Relationship Between Teachers' AI Training Status and Their Perceptions of AI Use

Table 5. *Relationship Between Teachers' AI Training Status and Their Perceptions of AI Use*

Variable	Status of receiving Artificial Intelligence Education	N	$\overline{X}$	ss	Levene's test (F; p)	t	p
Artificial Intelligence	Participated	74	59,1	9,5	,132; p>.05	3,526	,000
	Not participated	281	54,4	9,3			

An independent samples t-test was conducted to determine whether there was a significant difference in teachers' perceptions of AI use based on their participation in AI training. The analysis results indicate that teachers who have received AI training ($\bar{X}$ = 59.1, SD = 9.5) have significantly higher perception scores regarding AI use compared to those who have not participated in such training ($\bar{X}$ = 54.4, SD = 9.3) [t(353) = 3.526, p < .05].

According to Levene's test results, homogeneity of variance between the groups was confirmed (F = 0.132; p > .05). This finding suggests that teachers who have received AI training hold more positive perceptions toward this technology.

Findings on the Relationship Between Teachers' Use of AI Tools in Class and Their Perceptions of AI Use

Table 6. *Relationship Between Teachers' Use of AI Tools in Class and Their Perceptions of AI Use*

Variable	**Artificial Intelligence Usage Status**	**N**	$\bar{X}$	**ss**	Levene's Test (F; p)	**t**	**p**
Artifical Intelligence	Yes	165	57,2	9,1	,735; p>.05	3,396	,001
	No	190	53,8	9,6			

An independent samples t-test was conducted to determine whether there was a significant difference in teachers' perceptions of AI use based on their use of AI tools in class. The analysis results indicate that teachers who use AI tools in their lessons ($\bar{X}$ = 57.2, SD = 9.1) have significantly higher perception scores regarding AI use compared to those who do not use these tools ($\bar{X}$ = 53.8, SD = 9.6) [t(353) = 3.396, p < .05].

According to Levene's test results, homogeneity of variance between the groups was confirmed (F = 0.735; p > .05). This finding suggests that teachers who incorporate AI tools into their lessons tend to have more positive perceptions of AI technology.

Findings on the Relationship Between Teachers' Participation in Volunteer-Based Training and Their Perceptions of AI Use

Table 7. *Relationship Between Teachers' Participation in Volunteer-Based Training and Their Perceptions of AI Use*

Variable	**Participation in Voluntary Training**	**N**	$\bar{X}$	**ss**	Levene's Test (F; p)	**t**	**p**
Artificial Intelligence	Participated	296	55,5	9,3	2,133; p>.05	,237	,813
	Not participated	59	55,1	10,6			

An independent samples t-test was conducted to examine the relationship between teachers' participation in volunteer-based training and their perceptions of AI use. The analysis results indicate that there is no statistically significant difference in AI perception scores between teachers who participated in volunteer-based training (N = 296, $\bar{X}$ = 55.5, SD = 9.3) and those who did not participate (N = 59, $\bar{X}$ = 55.1, SD = 10.6) (t = 0.237, p = .813).

According to Levene's test results, the assumption of homogeneity of variance was met (F = 2.133, p > .05). Therefore, teachers' participation in volunteer-based training does not appear to be a determining factor in their perceptions of AI use.

Discussion, Conclusion And Recommendations

In this study, high school teachers' perceptions of artificial intelligence (AI) technologies were examined in the context of various demographic and professional variables, and the findings were evaluated in light of the existing literature. The results indicate that, in general, teachers have a positive perception of AI technologies. This finding suggests a high potential for teachers to adopt technology-oriented educational paradigms. The findings are consistent with previous research that highlights the role of teachers in the integration of technological innovations into education (Maden & Maden, 2016; Geçgel, Kana & Eren, 2020).

The findings reveal that teachers' perceptions of AI are generally high. The fact that the mean AI attitude scores correspond to the "agree" level reflects teachers' potential to adopt this technology and their positive approach to its implementation in educational processes. The literature frequently emphasizes that individuals who embrace the effects of technological innovations on teaching processes are also likely to have high awareness of AI applications (Doğan, Doğan & Çetinkaya, 2023). This situation indicates that teachers should not only be considered as implementers in digital transformation processes but also as innovative leaders who embrace new solutions.

According to the research findings, no significant difference was found in AI perceptions based on gender. This result suggests that AI technologies are perceived and adopted equally by teachers, regardless of gender. Similar results have been obtained in studies by Dumlupınar & Arslan (2023) and Köse (2022), which emphasize that attitudes toward such technologies are more related to educational policies and opportunities for implementation rather than individual awareness. However, the differences in technology usage levels between male and female teachers cannot be explained solely by technological literacy levels; these differences may also be influenced by socio-cultural and institutional factors.

Analyses conducted in the context of professional experience indicate that there is no significant difference in teachers' perceptions of AI technologies based on their years of experience. The low impact of experience duration on technological awareness or perceptions suggests that training on technology use may be a more critical factor than experience itself. This finding aligns with some studies in the literature, indicating that perceptions of technology use are primarily shaped by individual technology awareness and access opportunities rather than professional experience (Tekinaslan & Güner, 2009).

The study also reveals significant differences in AI perceptions based on the type of school in which teachers work. It was found that teachers working in private schools have higher AI perceptions compared to their colleagues in public schools. This finding suggests that infrastructure facilities and institutional support for technological integration in private schools may have a positive impact on teachers' perceptions. Technology-oriented educational opportunities offered in private schools may increase teachers' awareness and willingness to adopt these technologies.

Additionally, teachers who have received training on AI exhibit more positive attitudes compared to those who have not. This finding highlights the importance of both practical and theoretical knowledge transfer in shaping teachers' perceptions of technological innovations. The effective use of AI tools increases teachers' confidence in these technologies and positively influences their perceptions of educational processes.

According to the results, no significant difference was found between teachers' AI attitudes and their internet usage duration. However, it was observed that teachers who actively use technology are more familiar with AI technologies and can integrate them more easily into classroom settings. This finding underscores the necessity of improving digital literacy and providing teachers with greater support in this area.

In conclusion, the research findings indicate that high school teachers have positive perceptions of AI technologies; however, these perceptions may vary based on individual and institutional variables. Based on these findings, several recommendations are presented to reinforce teachers' positive perceptions of AI technologies and ensure their more effective integration into educational processes.

Recommendations

1. *In-Service Training Programs for the Integration of AI Technologies into Educational Processes*

Comprehensive in-service training programs should be organized to enhance teachers' knowledge of AI technologies and enable their effective use. These programs should cover areas such as the application of AI in education, its integration into lesson content, and ethical frameworks for its use. Emphasizing practical training in particular will increase teachers' confidence in technology and contribute to their classroom practices.

2. *Development of Policies to Encourage AI Use*

Institutional policies should be developed to encourage teachers to integrate AI technologies into their educational processes. In this context, incentive mechanisms should be established for teachers who develop AI-based instructional materials or effectively utilize these technologies in classroom applications. Recognizing and rewarding successful AI implementations and sharing best practices will enhance teachers' motivation toward these technologies.

3. *Awareness-Raising Initiatives on AI Technologies*

Awareness-raising activities should be organized to inform teachers about the role and potential of AI technologies in education. Academic conferences, workshops, and seminars should be conducted to keep teachers updated on current developments in AI. Additionally, facilitating teachers' access to scientific publications, guidance documents, and best practices will contribute to increasing AI literacy.

4. *Enhancing Digital Literacy Skills and Increasing Access to Technology*

Strengthening teachers' digital literacy skills is essential for the effective use of AI technologies. Accordingly, infrastructure improvements should be made to facilitate teachers' access to digital tools, and the use of AI-supported educational technologies should be promoted in schools. Providing the necessary technological infrastructure, particularly in public schools, will be a key factor in fostering a more positive perception of AI.

5. *Development of Institutional Support Policies*

To support the integration of AI into the education system, strategic policy documents and action plans should be developed by relevant ministries and educational institutions. Including AI-based course content in curricula will enhance teachers' competencies in this field, enabling them to implement pedagogical adaptations more effectively.

In conclusion, ensuring the sustainability of teachers' positive attitudes toward AI technologies and integrating these technologies into the education system requires comprehensive in-service training, incentive policies, and awareness-raising initiatives. Strategies developed in this direction will enhance teachers' awareness and proficiency in AI, making significant contributions to the digital transformation process in education.

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