

## ARTIFICIAL INTELLIGENCE AS A PARTNER OF THE TEACHER: TRANSFORMATION OF THE EDUCATIONAL PROCESS IN THE DIGITAL ERA

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**Abstract:** The rapid development of artificial intelligence (AI) has significantly transformed the educational process, introducing new opportunities for teaching, learning, and assessment. This study explores the role of AI as a partner to the teacher and its impact on the transformation of education in the digital era. A mixed-methods research approach was employed, combining a systematic literature review with empirical data collected through a survey and semi-structured interviews. The study involved lecturers and students from Trakia University, Plovdiv University, and Sofia University. The results indicate a high level of AI adoption, particularly among students, who use AI tools more frequently for academic purposes. Lecturers primarily use AI for lesson preparation, content creation, and assessment, while students rely on AI for homework, research, and idea generation. The findings highlight key benefits of AI, including improved efficiency, time-saving, personalized learning, and increased student engagement. At the same time, the study identifies important challenges, such as lack of training, ethical concerns, data privacy issues, and overreliance on technology. Moderate levels of trust in AI tools and differences in verification practices between lecturers and students were also observed. The study concludes that artificial intelligence should be viewed not as a replacement for teachers, but as a complementary partner that enhances their role and supports more effective and innovative educational practices. Successful integration of AI requires the development of digital competencies, ethical frameworks, and critical thinking skills.

**Keywords:** digital transformation; higher education; AI in education; teacher role; digital competence; AI literacy.

### 1. INTRODUCTION

In recent years, the rapid development of digital technologies has significantly transformed various sectors of society, with education being one of the most profoundly affected. Among these innovations, artificial intelligence (AI) has emerged as a powerful tool with the potential to reshape teaching and learning processes. Rather than replacing educators, AI is increasingly viewed as a collaborative partner that enhances the effectiveness, accessibility, and personalization of education. The concept of the “teacher of the future,” highlighted as a central theme of contemporary scientific discussions, emphasizes the need for educators to adapt to dynamic technological environments. In this context, AI technologies—such as intelligent tutoring systems, adaptive learning platforms, and natural language processing tools—offer new opportunities for supporting teachers in their daily activities. These tools can assist in automating routine tasks, providing real-time feedback, and tailoring instructional content to meet the individual needs of students. The integration of AI into education also leads to a shift in the traditional role of the teacher. Educators are no longer seen solely as knowledge transmitters but as facilitators, mentors, and designers of learning experiences. This transformation requires the development of new digital competencies and pedagogical approaches that align with the demands of the digital era. However, alongside its benefits, the use of AI in education raises important ethical, social, and practical challenges. Issues such as data privacy, academic integrity, and the potential overreliance on technology must be carefully considered. Therefore, a balanced and critical perspective is essential when exploring the role of AI in modern education.

This paper aims to examine artificial intelligence as a partner to the teacher and to analyse its impact on the transformation of the educational process in the digital age. It explores both the opportunities and challenges associated with AI integration and proposes directions for its effective and responsible implementation in educational practice.

### 2. MATERIALS AND METHODS

The present study employs a mixed-methods research approach aimed at examining the role of artificial intelligence (AI) as a partner to the teacher and its impact on the transformation of the educational process in the digital era. Mixed-methods research integrates qualitative and quantitative techniques, enabling a more comprehensive understanding of complex educational phenomena (Creswell & Plano Clark, 2018).

The research design consists of both qualitative and quantitative components. A systematic review of contemporary scientific literature published after 2020 was conducted to establish a solid theoretical framework related to artificial intelligence in education, digital transformation, and innovative pedagogical approaches. The literature search was carried out using major academic databases, including EBSCOhost, ProQuest, and Web of Science. In addition, Google Scholar was used to ensure broader coverage of relevant studies. Key words and search strings related to

“artificial intelligence in education,” “digital learning,” and “educational technologies” were applied. To ensure the quality and scientific reliability of the sources, journals were evaluated using the Scimago Journal Rank database, and only publications with an H-index of 20 or higher were included. An eliminative selection process was applied, resulting in the inclusion of more than forty relevant sources, including peer-reviewed journal articles, professional publications, and reports from international organizations. Primary data were collected through an online survey conducted among lecturers and students from Trakia University, Plovdiv University, and Sofia University. The questionnaire included both closed-ended questions, used for quantitative analysis, and open-ended questions aimed at capturing participants’ perceptions, experiences, and attitudes toward the use of AI tools in education (Dillman et al., 2014). In addition, semi-structured interviews were conducted with selected educators from the same institutions to provide deeper insights into practical applications and challenges associated with AI integration in the educational process.

The sample was selected using a convenience sampling method and includes participants from different academic disciplines and educational levels, ensuring a diversity of perspectives. Quantitative data were analysed using descriptive statistical methods, including frequency distribution and percentage analysis, while qualitative data were analysed through thematic analysis to identify key patterns and recurring themes (Braun & Clarke, 2021). All procedures followed established research standards, and any adaptations of existing methods are explicitly described to ensure transparency and reproducibility. Despite certain limitations, such as the sample size and the non-probability sampling technique, the methodology provides a reliable foundation for addressing the research objectives.

### 3. RESULTS

The results of the study present the empirical findings obtained from the survey and interviews conducted among lecturers and students from Trakia University, Plovdiv University, and Sofia University. The findings are presented in a structured and concise manner, supported by tables and interpreted in relation to recent scientific research on artificial intelligence (AI) in education. The analysis confirms that AI is increasingly integrated into educational environments and is perceived as a supportive tool that enhances teaching efficiency and learning outcomes. This finding is consistent with previous studies indicating that AI technologies improve instructional processes, administrative efficiency, and student engagement (Chen et al., 2020). In order to assess the practical integration of artificial intelligence in education, the study analyses the frequency of AI tool usage among lecturers and students. The distribution of responses related to the frequency of AI tool usage among lecturers and students is presented in Table 1.

*Table 1. Frequency of AI use among participants*

Frequency of use	Teachers (%)	Students (%)
Daily	30%	48%
Weekly	35%	30%
Occasionally	25%	15%
Never	10%	7%

Source: own compilation.

As shown in Table 1, students reported more frequent use of AI tools compared to lecturers. This reflects the growing reliance on AI technologies for independent learning and academic support. These results correspond with findings that AI systems are widely used in education to support learning activities and enhance accessibility and flexibility (Chen et al., 2020). Furthermore, AI enables adaptive and personalized learning through data-driven approaches and intelligent systems (UNESCO, 2019). In particular, AI technologies allow the development of learner-centred environments by analysing student behaviour, learning patterns, and performance, which facilitates the creation of individualized learning paths and improves learning outcomes. In addition, AI-based systems have been shown to support both instructional and administrative functions, including automated assessment, content delivery, and real-time feedback, which enhances the overall efficiency of the educational process (Chen et al., 2020). These findings also align with research suggesting that the increasing use of AI in education is closely related to the shift towards more flexible, student-centered, and technology-enhanced learning environments, where learners actively engage with digital tools to support their academic development (Roll & Wylie, 2016).

To gain deeper insight into the role of artificial intelligence in education, the study analyses the primary purposes for which AI tools are employed. The distribution of responses related to the main purposes of AI use among lecturers and students is presented in Table 2.

*Table 2. Main purposes of AI use in education*

Purpose of use	Teachers (%)	Students (%)
Lesson preparation	60%	–
Creating learning materials	55%	–
Assessment and feedback	45%	20%
Homework and assignments	–	70%
Research and information search	50%	65%
Idea generation	40%	60%

Source: own compilation.

As shown in Table 2, lecturers primarily use AI for lesson preparation, creation of learning materials, and assessment, whereas students rely more heavily on AI for homework, research, and idea generation. This distinction highlights the different roles AI plays for educators and learners within the educational process. The findings suggest that AI is used not only as a support tool but also as an integral component of both teaching and learning activities. Similar patterns have been identified in previous research, indicating that AI technologies support instructional, administrative, and learning processes simultaneously, leading to increased efficiency and improved educational outcomes (Chen et al., 2020). Furthermore, AI-based systems such as intelligent tutoring systems and learning analytics platforms enable the personalization of learning by adapting content to individual student needs, learning pace, and performance (UNESCO, 2019). These systems facilitate more student-centered learning environments and enhance engagement and knowledge retention. In addition, research emphasizes that AI contributes to the transformation of traditional teaching roles, shifting educators from knowledge transmitters to facilitators of learning processes supported by digital technologies (Roll & Wylie, 2016). This transformation is reflected in the increased use of AI for content design and instructional planning among lecturers in the present study.

To further explore the impact of artificial intelligence in education, the study examines the perceived benefits of AI use among participants, as presented in Table 3.

*Table 3. Perceived benefits of AI use*

Benefit	Teachers (%)	Students (%)
Saves time	72%	65%
Improves learning efficiency	66%	70%
Supports personalized learning	60%	63%
Increases engagement	50%	58%

Source: own compilation.

According to Table 3, both lecturers and students perceive artificial intelligence as a tool that enhances efficiency and supports personalized learning. These findings indicate a positive overall attitude toward the integration of AI in the educational process. The results are consistent with previous research demonstrating that AI contributes to improved learning outcomes by enabling adaptive instruction and individualized learning pathways tailored to students' needs and performance (Chen et al., 2020). AI-driven systems allow for real-time feedback, automated assessment, and dynamic content adjustment, which significantly enhance both teaching effectiveness and student engagement. In addition, AI facilitates the use of large-scale educational data to optimize teaching strategies and improve learner performance, supporting data-driven decision-making in education (UNESCO, 2019). This aligns with findings that learning analytics and intelligent systems can identify patterns in student behavior and predict learning outcomes, thereby enabling more targeted and efficient instructional interventions. Furthermore, similar

conclusions have been drawn in studies highlighting that AI technologies play a key role in transforming traditional educational models into more flexible, learner-centered environments (Roll & Wylie, 2016). These environments promote active learning, autonomy, and continuous feedback, which are essential components of modern education. The present results also support the view that AI enhances not only cognitive learning outcomes but also student motivation and engagement, as learners benefit from interactive and personalized learning experiences. At the same time, the findings confirm that the integration of AI contributes to the optimization of teachers' workload by automating routine tasks, allowing educators to focus on higher-level pedagogical activities.

**Table 4. Level of trust in AI tools**

Level of trust	Teachers (%)	Students (%)
<b>High</b>	22%	35%
<b>Moderate</b>	48%	44%
<b>Low</b>	20%	15%
<b>No trust</b>	10%	6%

Source: own compilation.

Trust represents a key dimension of AI integration in education. The results show a moderate level of trust in AI tools, with students demonstrating higher trust than lecturers. This difference reflects students' greater familiarity with digital technologies, while lecturers tend to adopt a more critical approach. This cautious trust aligns with existing research, which highlights concerns related to reliability, transparency, and ethical issues such as data privacy and algorithmic bias (UNESCO, 2019). Furthermore, the effectiveness of AI depends on user trust, digital competence, and appropriate pedagogical integration (Roll & Wylie, 2016). Studies also emphasize that trust is closely linked to users' understanding of AI systems and their ability to critically evaluate AI-generated content (Chen et al., 2020). These findings underline the importance of developing AI literacy and establishing ethical frameworks to ensure responsible use of AI in education. They also highlight that trust remains a crucial factor for the successful adoption of AI technologies. Closely related to trust is the extent to which users verify AI-generated information, which is strongly associated with digital literacy and critical thinking skills.

**Table 5. Verification of AI-generated content**

Frequency of verification	Teachers (%)	Students (%)
<b>Always</b>	40%	28%
<b>Often</b>	35%	42%
<b>Rarely</b>	20%	22%
<b>Never</b>	5%	8%

Source: own compilation.

As shown in Table 5, lecturers are more likely to verify AI-generated content compared to students. This finding suggests a higher level of critical evaluation and professional responsibility among educators, who are more aware of the potential risks associated with AI-generated information, such as inaccuracies, bias, and lack of transparency. In contrast, students demonstrate a slightly lower tendency to verify information, which may be explained by their higher level of trust in digital technologies and more frequent use of AI tools for academic tasks. This behavior reflects a broader trend in which learners rely on AI for quick access to information, sometimes without sufficient critical evaluation. This finding is supported by research emphasizing the importance of data literacy and critical thinking in AI-supported learning environments (UNESCO, 2019). In particular, the ability to assess the reliability and accuracy of AI-generated content is considered a key competence in modern education. Furthermore, studies indicate that AI systems, while highly efficient, may produce outputs that are incomplete, biased, or contextually inaccurate, which reinforces the need for human oversight and verification (Chen et al., 2020). Additionally, research highlights that the development of AI literacy among both students and educators is essential for ensuring the responsible use of AI technologies and for preventing overreliance on automated systems (Roll & Wylie, 2016). Overall, the results underline the importance of fostering critical thinking skills and verification practices as part of the integration of AI in education. Building on these findings, it is also important to examine the key challenges and concerns associated with the use of artificial intelligence in education.

*Table 6. Main challenges of AI integration*

Challenge	Teachers (%)	Students (%)
Lack of training	68%	–
Ethical concerns (plagiarism)	60%	50%
Overreliance on technology	55%	57%
Data privacy issues	45%	40%

Source: own compilation.

The results show that lack of training is the most significant barrier reported by lecturers, followed by ethical concerns and overreliance on AI. These findings are consistent with previous research highlighting that successful AI integration requires adequate teacher training, ethical frameworks, and institutional support (UNESCO, 2019). In addition, studies emphasize that while AI improves efficiency, it also introduces risks related to dependency and data privacy, which must be carefully managed (Chen et al., 2020). Overall, the results demonstrate that artificial intelligence is widely adopted and positively perceived by lecturers and students from Trakia University, Plovdiv University, and Sofia University. The findings confirm that AI enhances teaching efficiency, supports personalized learning, and improves student engagement. At the same time, the study identifies important challenges related to trust, ethical use, and the need for training. These findings align with current scientific literature and confirm that AI functions as a complementary partner to the teacher rather than a replacement.

#### 4. DISCUSSION

The present study examined the role of artificial intelligence (AI) as a partner to the teacher and its impact on the transformation of the educational process. The findings indicate a high level of AI adoption among both lecturers and students, with students demonstrating more frequent use. This is consistent with research showing that AI is increasingly embedded in education and widely used for learning support and academic tasks (Chen et al., 2020). A clear distinction was identified in the purposes of AI use: lecturers primarily apply AI for instructional preparation, content creation, and assessment, while students use it for homework, research, and idea generation. This supports the view that AI plays a dual role in education, enhancing both teaching and learning processes (Chen et al., 2020). Additionally, AI systems enable personalized learning through adaptive content and data-driven approaches (UNESCO, 2019), contributing to the shift toward learner-centered educational environments (Roll & Wylie, 2016). The perceived benefits include improved efficiency, time-saving, personalized learning, and increased engagement, which are widely supported in the literature. However, the results also reveal moderate levels of trust in AI, with students expressing higher trust than lecturers. This cautious attitude reflects ongoing concerns related to reliability, transparency, and ethical issues, such as data privacy and algorithmic bias (UNESCO, 2019). The effectiveness of AI is therefore closely linked to user trust, digital competence, and appropriate pedagogical integration (Roll & Wylie, 2016). Differences were also observed in verification practices, with lecturers more likely to critically evaluate AI-generated content, while students tend to rely on it more readily. This highlights the need to develop AI literacy and critical thinking skills (Chen et al., 2020). Finally, key challenges were identified, including lack of training, ethical concerns, overreliance on technology, and data privacy issues. These findings confirm that successful AI integration requires not only technological innovation but also teacher training, ethical frameworks, and the development of digital competencies (UNESCO, 2019). Overall, AI has significant potential to transform education, but its effective implementation depends on addressing issues related to trust, ethics, and critical use. AI should therefore be viewed as a complementary partner to the teacher rather than a replacement.

#### 5. CONCLUSIONS

The present study examined the role of artificial intelligence (AI) as a partner to the teacher and its impact on the transformation of the educational process in the digital era. The findings demonstrate that AI is increasingly integrated into higher education and is widely used by both lecturers and students, although with different purposes and levels of engagement. The results confirm that AI technologies contribute significantly to improving teaching efficiency, supporting personalized learning, and enhancing student engagement. Lecturers primarily use AI for instructional preparation, content development, and assessment, while students rely on AI for academic tasks such as research, homework, and idea generation. These findings highlight the complementary role of AI in supporting both teaching and learning processes. At the same time, the study identifies several critical challenges associated with AI integration, including lack of training, ethical concerns, data privacy issues, and the risk of overreliance on technology. The findings also reveal moderate levels of trust in AI tools and differences in verification practices,

with lecturers demonstrating higher levels of critical evaluation compared to students. The results emphasize the importance of developing digital competencies, AI literacy, and critical thinking skills among both educators and learners. Furthermore, the successful implementation of AI in education requires the establishment of clear ethical guidelines and institutional policies that ensure responsible and transparent use of AI technologies. In conclusion, artificial intelligence should not be perceived as a replacement for teachers, but rather as a valuable partner that enhances their role and supports innovative and effective educational practices. Future research should focus on exploring long-term impacts of AI in education, as well as strategies for its sustainable and ethical integration.

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