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Artificial Intelligence in Education: Advancing Teaching Methodologies and Student Learning Performance

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ABSTRACT

This paper examines how Artificial Intelligence (AI) can be used to improve the teaching practices and the learning performance of the students at the education industry of Islamabad. The study will focus on awareness, usage, perceived benefits, and challenges related to AI integration in the educational practices. Quantitative research design was embraced and a sample size of 470 respondents was taken; the respondents were students, teachers and administrators of different education institutions in Islamabad. The development of a structured close-ended questionnaire was used to collect the data which were then analyzed in terms of frequency distributions and percentages to assess the effects of AI on teaching and learning aspects. The findings suggest that there is a good level of awareness regarding AI application in education and most of the respondents have recognised the positive effect of AI in personalising instructions, streamlining classroom activities and also creating new teaching methods. Students indicated that AI tools led to great improvements in academic achievements, motivation, and the comprehension of intricate issues. Nonetheless, insufficiency of training, high expenditure involved in implementation, privacy, and concerns of diminishing the role of the teacher were found. Nonetheless, most respondents were hopeful that AI would make education positively impactful in future. The proposed study is added to the expanding literature on AI in education as it offers empirical data on the use of AI in one of the educational sectors in Islamabad where the use of AI has only begun. The results highlight the two-sidedness of AI integration including not only the potential to transform teaching and learning but also the need to deal with the challenges that appear with its implementation by establishing appropriate policies, training, and ethical considerations. The research paper provides real-life suggestions to policy

makers, educators and institutions interested in using AI as a means of sustainable education development.
Keywords: *Artificial Intelligence, Teaching Methodologies, Student Learning Performance, Education Sector, Islamabad*

INTRODUCTION

The process of education has been the driving force of social change that not only helps the intellectual potential of the individual but also the development of the communities and countries. The information technologies have changed the way knowledge is produced, disseminated, and purchased in the last decades. The introduction of digital tools in the classroom and university has been slow since the inception of the basic multimedia support to the elaborate learning management system (Chen et al., 2020). Artificial intelligence is one of the most significant technological advances of the present age that is rapidly becoming a disruptive element of the educational industry. Artificial intelligence, or AI, is a general area of computational methods that enable a computer to behave like a human mind in terms of intelligence, e.g., reasoning, learning, problem-solving and decision-making (Esakkiammal and Kasturi, 2024). Its application in the educational sphere has attracted much attention because it can potentially transform the way of teaching and enhance the academic performance of the students.

In the modern educational setting, all types of universities begin to experience the growing necessity to use modern approaches that promote active learning, creativity, and flexibility among students (Barik et al., 2020). Conventional models of teaching which have been characterized by unidirectional lecturing methods have been criticized on their inability to meet the diverse learning needs that students could possess. The trend of conventional teaching can be abandoned, and more personalised interactive and effective learning approaches may be offered with the introduction of AI-based tools. One such example is adaptive learning systems, intelligent tutoring systems and automated feedback systems, which enable the student to interact with the content in a more adaptive way that supports his or her learning style and pace (Ullah et al., 2024). In contrast, teachers can employ AI programs, which enable them to assess the performance of the students, recognize the areas of learning deficiencies, and make real-time alterations to the instructional strategies (Chen et al., 2020). The further developments mean that AI will be a driver of a more student-centric and dynamic learning environment.

Besides the efficiencies that can be created with the AI, the changes they are bringing to the teaching methods are much broader than what implies using more effective tools. It introduces a fresh opportunity of the redefinition of the role of educators and learners (Hooda et al., 2022). Teachers are increasingly being put not only as the dispensers of knowledge, but as facilitators who assist the students to find their way through the information-saturated and technology-enabled learning spaces. Using the opportunity of AI systems, educators will have the opportunity to spend more time on more valuable relationships with students by no longer spending time on boring administrative tasks (Kumar et al., 2023). The AI can be used to lessen the administrative burden on the instructors by automating part of the grading, plagiarism reports, time and schedule support, releasing instructor time to mentoring and critical discussion, and training of higher-order thinking skills. Instead of passively receiving the teaching of a teacher, students actively engage in the construction of knowledge on the basis of AI-mediated collaboration, exploration, and problem-solving tasks (Ullah et al., 2024). This change is informed by the international emphasis on graduate skills in critical thinking, digital literacy, and flexibility in the swiftly changing work environments in the twenty-first century.

The other significant thing with AI in education is the fact that it can optimise the learning performance. There are several factors that often influence student achievement and these include; previous knowledge, motivation to learn, socio-economic status and quality of instruction. AI offers the tools which can be

utilized to minimize the gaps by offering the learners with different abilities and backgrounds with the personalized instruction (Liu et al., 2022). The intelligent tutoring systems are capable of offering personalized exercises, immediate feedback and step wise guidance, which will scale according to the present performance of the learner. In like manner, software used in the field of natural language processing (NLP), including AI-based writing assistants, may be used to assist students in improving their academic writing skills by providing suggestions on grammar, coherence, and argument development. Such interventions do not only assist in enhancing academic performance, but also in developing confidence, autonomy, and interest among the student body (Afshar and Shah, 2025). With the help of personalized feedback and customized resources, learners have a higher chance to be responsible about their learning and be motivated during the entire process of studying.

Greater changes in the interaction between humans and technology in the society have also led to growth of AI in higher education. Today students are born digital, who are used to smart gadgets, web-based resources and interactive centers. They desire their learning experiences to be technologically rich, nimble, and in touch with the realities of the modern work place (Alim et al., 2025). With the rising use of AI in industries as a way of aiding decision making and automation, as well as innovation, the universities are left with the responsibility of equipping the students with both technical and critical thinking concerning the use of AI systems (Afzal et al., 2025). The integration of AI into the process of teaching/learning thus has a second reason: to add value to the quality of education, and to prepare students to the increasingly technology-driven economy. When learners actively engage in AI-based platforms in their studies, they not only enjoy improved academic outcomes but also have useful skills to navigate professional environments that are gradually becoming automated (Deo et al., 2020).

Even though AI is a prospective instrument, it can also raise significant questions when applied to the classroom. The discussion on AI integration is among the aspects of academic integrity and ethics. The possible issues that can be encountered by teachers and students are: Overreliance on automated tools, reduced interaction with a human, and AI-generated content can even cause academic dishonesty (Afshar and Shah, 2025). Secondly, not all people have access to technology and the internet, which may also widen the gap between students who will receive further education with AI-enhanced learning and those who will be left out due to infrastructural issues (Islam et al., 2025). The use of AI in education must be thoroughly considered, and the institutional policy should be clear, as well as the relevant training of both teachers and learners (Iqbal, 2023). Universities must create mechanisms that allow responsible, equitable, and sustainable implementation of AI technologies that will create maximum benefits to all parties involved, and reduce the risks that may arise (Imtiaz et al., 2025).

In the framework of higher education, which is one of the developing countries, in particular Pakistan, the topic of AI use in the process of teaching and learning is significant. In this case, the general issues related to universities are overpopulated classes, lack of resources on the part of the faculty, and unavailability of consistent preparedness among the students (Alam, 2022). Ai can be a viable solution to some of these problems since it provides scalable, adaptive solutions at low costs that can supplement learners and instructors. Nevertheless, AI in education within these contexts should be contextualized and adjusted to local contexts and critically evaluated in terms of effectiveness (Wang et al., 2023). Research on students at university level is required to identify the effects of AI on teaching activities, enhanced student learning, and perception of digital learning tools in university settings (Ahmad et al., 2023).

The need to research AI in the educational sphere goes beyond the short-term use of the classroom. It has a role to play in the national and international education priorities of improving quality, equity and innovation in education. The problem that the countries education systems are currently experiencing is the dual problem of increasing access, and enhancing outcomes (Munir et al., 2022). The gaps, resources optimization, and more inclusive and resilient learning environments can be solved with the help of AI.

At the same time, universities have become overwhelmed with the roles of technological literacy incubators and innovation (Tedre et al., 2021). By conducting a systematic research on the implication of AI on teaching and learning, the researchers can present evidence-based recommendations that can inform institutional policy, policy development, and development of a literature on the application of technology to support education in the world. Such research is sought in order to be perceived not only what opportunities AI can introduce, but what real aspects and even the ethical component associate the application of AI in education (Yufeia et al., 2020).

The current study is therefore aimed at investigating the concept of the use of artificial intelligence in learning in university, particularly the way it can be used in instructional practice and to improve the outcomes of student learning. The insights will be developed to reach the student perspective, that is, how, to what degree, AI can assist in supporting active learning, enhancing academic performance, and contributing to the overall satisfaction with the process. The results will not only contribute to the theoretical discussion but also to the practical efforts of achieving the potential of the AI in higher learning. As the educational industry continues to grapple with the multifaceted aspect of the technology pedagogy relationship and the demands of the student, such research is invaluable in the evolution of the future of learning in both significant and sustainable ways.

Problem Statement

The accelerated rate of Artificial Intelligence has led to fresh prospects in the revolution of education in the world. Nevertheless, the use and implementation of AI are low in Pakistan and even more in Islamabad education sector. There is deficiency of empirical data on the current perception of AI and the scope of its adoption, and issues related to implementation. These aspects require learning so that the potential of AI can be realized with limited obstacles to successful implementation as possible.

LITERATURE REVIEW

Evolution of Technology in Education

The education sector has been transformed by technology where the conventional teaching devices have been replaced by the advanced digital learning environment. The initial examples of use of educational technology were projectors, computer-assisted and audiovisual instruction. Learning management systems and other online resources have since increased the realm of teaching and learning through the online based platforms (Fang and Lee, 2022). In the current times, the key to this change is artificial intelligence, which features classes like content delivery, personalized learning, predictive analytics and interaction. There are also major shifts of the teacher-centered to the learner-centered approach towards learning since we increasingly have to use AI (Cain et al., 2023).

Artificial Intelligence in Teaching Methodologies

AI has brought about major changes in the way teachers organize and provide learning. Intelligent tutoring systems (ITS) mimic one-to-one human tutoring by adjusting instructional material based on the learner's progress and needs (Gong, 2021). By removing repetitive grading tasks from the equation, automated grading systems free up instructors' time to do what is important - mentor and discuss. A classroom analytics engine gives you real-time data on attendance, participation, and performance trends, and allows you to make decisions based on data. AI-powered tools also enable teachers to incorporate gamification, virtual simulations, and interactive content into their courses, making learning experiences more engaging and effective (Ullah et al., 2024). The innovations above are just an example of how AI changes the role of the teacher from being the source of information to become a facilitator and mentor.

Personalization and Adaptive Learning

One of the most recognized benefits of AI in education is its ability to personalize learning. Adaptive learning systems track student performance data and can deliver content that's in line with individual learning styles, paces, and preferences. For struggling learners, AI systems can supply more elaborations, practice questions, and remedial type exercises, while advanced learners could be given higher order tasks that push critical-thinking skills (Taylor et al., 2021). Personalisation not only makes comprehension easier, but also helps learners become more motivated and engaged by feeling as though their individual needs are being acknowledged. By eliminating the "one size fits all" approach, adaptive systems provide inclusive environments that have a positive effect on a broad array of learners (Costa et al., 2021).

AI and Student Learning Performance

Artificial intelligence has a direct impact on the enhanced learning outcomes of students through constant feedback and guidance. AI-based applications help students practice in problem-solving in mathematics, improve writing by suggesting grammar and structures and learn programming skills by debugging codes (Wu & Yu, 2024). Students also benefit from having access to virtual assistants that are available to answer queries instantaneously outside the classroom hours, pushing the learning boundaries beyond traditional limits. Performance analytics highlight strengths and weaknesses, enabling students to target their efforts where they're needed most. Studies have shown that learners who regularly engage with AI tools tend to achieve better academic results, retain more knowledge, and have enhanced critical thinking skills (Alam, 2022).

Faculty Perspectives and Professional Development

While the potential for AI is profound, the efforts to implement this technology are difficult and are largely contingent on faculty buy-in and readiness. Instructors need proper training to implement AI in their teaching practices with the right skills. Very often, instructors are worried about their personal ability to work with new technologies and the threat of being overdependent on automated systems (Vela et al., 2023). Professional development programmes play a critical role in equipping the teachers with technical and pedagogical skills needed to utilize AI effectively. In addition to that, teachers have to be enabled to redesign the curriculums, design AI-adaptive evaluation systems, and strike the balance between automation and the human touch. Teachers are thus transforming and there is need to institute professional development measures that would bridge the preparedness gaps (Evans et al., 2020).

Ethical, Social, and Equity Considerations

Ethical and social issues are also associated with AI in education. The concerns of other issues, including privacy of data, surveillance, and bias in algorithms, must be addressed in such a way that AI usage does not violate the rights of the students. The issue of academic integrity in case the students use AI devices to perform or pass tests is becoming increasingly widespread (Suri, 2020). Also, equity issues regarding the access to technology include the fact that students with a disadvantaged background might not be able to access AI-enhanced education equally. Moreover, the multilingual issue of AI tools is also a problem, and students who require assistance in more than one language also find it challenging (Islam et al., 2025). These issues need to be addressed responsible through clear AI systems, institutional guidelines and ethical use policies.

Challenges in Adoption and Implementation

Despite these tremendous possibilities of AI, it has certain challenges that prevent its integration into higher education institutions. Software and infrastructure are expensive, there is a lack of technical expertise, resistance to change has been reported, and no institutional policies. The introduction of new

technologies with the support of AI may also become a demanding process to learn among faculty and students (Chen et al., 2020). It turned out that the ignorance concerning the potential of the AI leads to poor usage, and fear of the plagiarism and the deprivation of the ability to think critically lead to the avoidance of its open usage (Hooda et al., 2022). These issues underscore the need to focus on strategic planning, policy formulation, and awareness with the aim of ensuring that the integration of AI in the learning process is easy.

Global Trends and Local Context

The use of AI in education is increasing exponentially across the globe as nations invest in intelligent tutoring systems, AI-driven assessment systems, and smart classrooms. The developed nations have already led the path to AI integration, which is commonly included with the national policies of innovations and human development (Afshar and Shah, 2025). In the developing countries, the adoption has been slower due to infrastructural, financial and policy barriers. In Pakistan and other similar regions, universities are slowly experimenting with AI tools in their teaching and learning but struggle with the lack of resources, digital divide and unequal faculty preparedness (Alim et al., 2025). Studies in these environments are necessary to identify contextual barriers and strategies to meaningful adoption (Hasan et al., 2025).

Literature sum up insights

Although literature points out the disruptive nature of AI in education, it still requires further empirical research on the effects of the AI at the university level, particularly in developing economies. The majority of the current research focuses on the potential of a technology instead of quantitatively assessing the learning performance of a student. The perception of the students towards the integration of AI, their effect on engagement, and the obstacles to their use is also poorly studied. Knowledge of the views of university students can be a source of important information on designing effective AI-based educational strategies. This gap is essential to make sure that AI is not merely a technological innovation but also a pedagogical improvement that meets the needs of students and cultural contexts as well as institutional realities.

Objectives of the Study

1. To assess the level of awareness of AI applications in education among students, teachers, and administrators in Islamabad.
2. To examine the frequency and extent of AI usage in teaching and learning practices.
3. To analyze the perceived impact of AI on teaching methodologies.
4. To evaluate the perceived impact of AI on student learning performance.
5. To identify the key challenges associated with AI integration in education.

METHODO0LOGY

The research design applied in this study was quantitative research where the researcher aimed to study the application of Artificial Intelligence (AI) in teaching and learning as well as student performance. The questionnaire was designed as a close ended, structured questionnaire keeping in mind that it needed to be similar in the response and allow statistical analysis. The tool consisted of five sections, each of which dealt with demographic data, awareness of AI application, frequency of use, how AI transformed teaching procedures, how AI transformed student learning behaviors and what issues have come about in the utilization of AI in education.

Population and Sampling

The population of interest consisted of persons in the education sector in Islamabad, both students and teachers and administrators of different institutions. The size of the sample was 470 respondents, which can be said to be adequate to give valuable information on the research objectives. The researcher used a convenience sampling method where easily available participants were put in the survey. This was the method used because of time and limited resources that were available, although it still allowed obtaining as many views as possible concerning various stakeholder groups within the education sector.

Data Collection Procedure

A structured questionnaire was used to gather data that were collected both online and offline. The online questionnaire was carried out using Google Forms, but also print versions were distributed among selected educational institutions in order to obtain a larger participation. Anonymity and the assurance of the confidentiality of the responses were given to the respondents, to provide honest and unbiased feedback.

Data Analysis

Data collected were systematically coded and analyzed by feeding them into a statistical software. Since the responses in the questionnaire had to be summarized, frequencies and percentages were used. The findings were in a tabular, bar chart, pie chart and donut chart format which gave them a clear and visualized view of results. This method of analysis made it possible to determine trends, patterns and changes in views on AI adoption in education.

Ethical Considerations

The process of research was ethical. All respondents took part in the study on a voluntary basis and gave informed consent before data collection. The respondents were advised of the objective of the study, their anonymity, and their entitlement to abandon the study at any point without imposition of any penalty. There was no gathering of personal identifiers that guaranteed anonymity and data privacy. The research followed the academic research ethics and adhered to the institutional guidelines of conducting research in social sciences.

Data Analysis

Data Analysis refers to the systematic way in which data collected is organized, interpreted and presented as patterns, trends and significant insights. It is the use of statistics (frequency and percentages) and visual methods (tables and charts) in order to make raw data readable and useful in terms of making decisions and coming up with research conclusions.

RESULTS

Demographic Information

The age distribution analysis shows that the majority of the respondents were of the age-group 18-25 years (38.3%), and then the next one was the 26-35 years (34.0%). A lesser proportion of respondents belonged to the age group 36-45 (19.1%), and a smaller percentage (8.5%), were aged 46 years and above. As shown in ***Figure No. 1***, these findings imply that mostly the sample comprised of young individuals who are employed in the education sector.

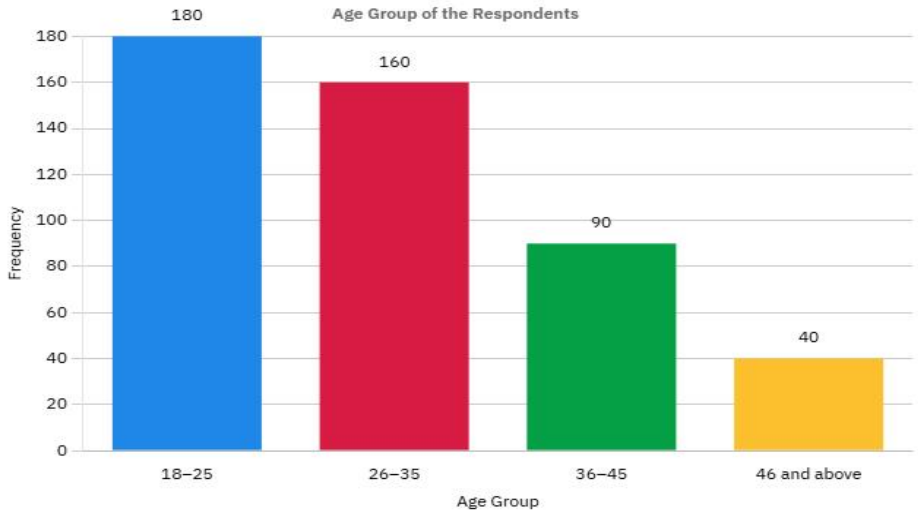

Figure No. 1 Age Group of the Respondents

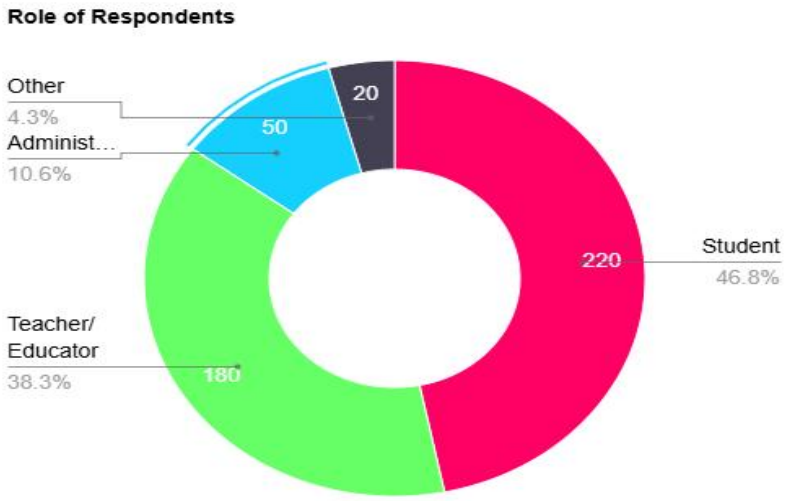

Figure No. 2 Role of the Respondents

As can be seen in ***Figure No. 2***, most of the answers are the first hand experiences of learners and teachers and therefore the findings are quite pertinent to the aims of the study. As it can be seen in the analysis, the students were the biggest group (46.8%), then teachers/educators (38.3%). Administrators were 10.6 with other roles constituting 4.3.

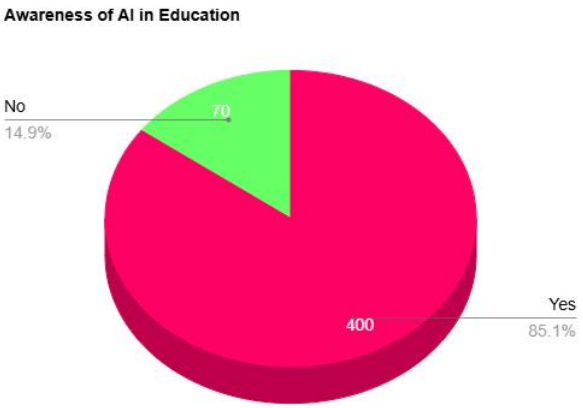

Figure No.3 Awareness of AI in Education

The findings indicate that the significant majority of the respondents (85.1) were well aware of the use of Artificial Intelligence in the field of education with only 14.9% of the respondents being unaware. This means that there is a high level of familiarity with AI in the education sector in Islamabad, as depicted in ***Figure No. 3.***

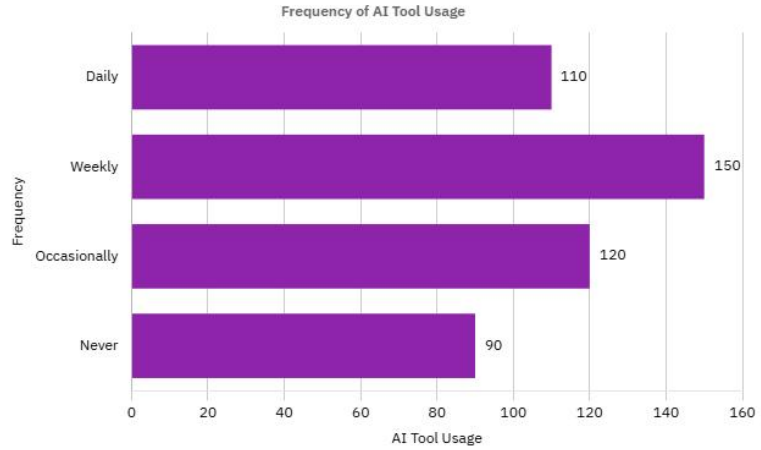

Figure No. 4 AI Tool Usage of the Respondents

Regarding usage, 31.9% of the participants stated that they utilized AI tools on a weekly basis and 23.4% stated that they utilized it every day. A significant percentage (25.5) had been using such tools occasionally and 19.1% said that they never used them. These results, as ***Figure No. 4*** displays, reveal a steady but not uniform use of AI technologies in the sphere of education.

Table 1: AI Impact on Teaching Methodologies

Statement (Teaching)	**Agree/Strongly Agree**	**Neutral**	**Disagree/Strongly Disagree**
Personalizes instruction	340 (72.3%)	70 (14.9%)	60 (12.8%)
Improves classroom efficiency	310 (66.0%)	90 (19.1%)	70 (14.9%)
Creates innovative materials	330 (70.2%)	80 (17.0%)	60 (12.8%)
Reduces teacher workload	290 (61.7%)	100 (21.3%)	80 (17.0%)

Encourages student-centered approaches	320 (68.1%)	90 (19.1%)	60 (12.8%)

The results of the Table 1 shed light on the anticipations of the respondents with regards to the impacts of the Artificial Intelligence on the teaching practices. It was clear that there was a majority of those who were positive in all the measured dimensions though there was variation in the levels of agreement.

The affirmative answer was observed the most in case of the statement about AI making the instruction personal, and 72.3% of the respondents accepted this statement. The issue is indicative of the ability of AI to support the process of differentiated learning, particularly in learning institutions that have diverse student abilities.

Similarly, 70.2 percent of the participants confirmed that AI can help in creation of new teaching resources that suggest that the technology helps in providing educators with digital tools and resources that will enhance delivery of lessons. In addition, 68.1% believed that AI supports student-centered practices because the uses of AI are seen as stimulators of the shift between the traditional and teacher-centered practice to the more interactive and learner-centered practice.

A slightly lower proportion of 66.0 agreed with the fact that AI is being utilized to facilitate more efficient classroom, which implies that, even though a considerable proportion of the population agree with the fact that it is being used to simplify the work and exercise control in the learning environments, others do not care (19.1%) or even do not believe in it (14.9%).

The lowest percentage was indicated on the statement that AI will decrease the amount of work assigned to teachers (61.7%). This finding shows that despite the automatization of routine jobs, such as grading and feedback, many educators still feel that the introduction of AI will only introduce new obligations to them, such as the use of new software or adapting to technology-based teaching.

Overall, the results provided in Table 1 confirm the idea that the respondents are likely to regard AI as a powerful tool that can be utilized to enhance personalization, innovation, and engagement of students in the process of teaching. However, the reduced consensus regarding workload reduction remains comparatively low, which points to the fact of remaining troubled by the practical concerns of the implementation.

Table 2: AI Impact on Student Learning Performance

Statement (Learning)	**Agree/Strongly Agree**	**Neutral**	**Disagree/Strongly Disagree**
Enhances understanding of topics	350 (74.5%)	70 (14.9%)	50 (10.6%)
Improves academic performance	330 (70.2%)	80 (17.0%)	60 (12.8%)
Promotes independent learning	310 (66.0%)	90 (19.1%)	70 (14.9%)
Provides instant feedback	340 (72.3%)	80 (17.0%)	50 (10.6%)
Increases motivation & engagement	320 (68.1%)	90 (19.1%)	60 (12.8%)

Table 2 results reveal that the respondents tend to believe that Artificial Intelligence is a desirable factor in the outcomes of student learning. The degree of agreement on all statements is massive, which indicates that there is strong confidence in AI to improve the effectiveness of learning.

The most consensus was in relation to the statement that AI improves the comprehension of subjects, where 74.5% of the respondents agreed with the statement. This implies that AI-based tools are considered useful to simplify complicated concepts, to give adaptive explanations, and to support a variety of learning styles. Likewise, 72.3% of them said that AI offers immediate feedback, and it is worth noting that AI-based assessment systems can offer instant corrections and guidance, which also can substantially enhance the learning process.

Academically, three-quarters of interviewees were of the opinion that AI has a positive effect on academic performance, but 17.0% were neutral and 12.8% of interviewees disagreed. This shows that although several of them recognize the quantifiable increases in academic performance, some are skeptical about crediting the increases in performance to the use of AI.

The view that AI contributes to motivation and engagement was also quite robust with 68.1% of agreement. This observation conforms to the notion that interactive and gamified AI applications have the potential to make learning attractive to students. Besides, 66.0 percent of the respondents said that AI facilitates self-directed learning, which implies that AI tools motivate students to be more responsible when it comes to their own educational development. Nevertheless, the percentage of unopinioned (19.1%), and those who disagree (14.9) responses shows that there are still learners who might not be able to cope with self-directed learning in AI-driven settings.

Altogether, the findings of Table 2 highlight that AI is generally accepted as a tool that enhances knowledge, feedback, motivation, and self-directed learning, which results in better performance of students in the end. Nevertheless, the existence of neutral and dissenting answers indicates that there is a necessity to introduce the idea of balance to the process of integration so that AI can act as a complement, not substitutes of conventional teaching support.

Table 3: Challenges and Perceptions of AI in Education

Statement (Challenges)	Agree/Strongly Agree	Neutral	Disagree/Strongly Disagree
Lack of training prevents effective use	300 (63.8%)	90 (19.1%)	80 (17.0%)
AI tools are costly	280 (59.6%)	100 (21.3%)	90 (19.1%)
AI may reduce teacher role	250 (53.2%)	120 (25.5%)	100 (21.3%)
Privacy & ethical concerns exist	320 (68.1%)	90 (19.1%)	60 (12.8%)
AI will positively transform education	360 (76.6%)	60 (12.8%)	50 (10.6%)

Table 3 shows the opinions of respondents regarding the difficulties related to Artificial Intelligence in education, their general attitude towards the opportunities offered by AI. The results are that even though the participants are optimistic with regard to the transformative capabilities of AI, they also indicate that there are major obstacles that can impede successful AI implementation.

Most (63.8) participants stated that they did not believe that AI can be effectively used in classrooms because of the lack of training. This is an indicator of a general problem that exists in the educational

institutions in which educators and administrators might not undergo adequate professional development to successfully implement AI tools. Likewise, 59.6% of participants felt that AI tools are expensive and that this is a significant obstacle, especially in financially constrained situations, such as in many institutions in Islamabad.

The issues relating to the impact of AI on the traditional teaching functions also came up clearly with 53.2% preferring that AI can diminish the role of the teacher. Nonetheless, the percentage of neutral answers (25.5) is rather high, which may indicate that a good number of respondents are still unsure on whether AI can substitute or supplement educators.

Moral issues also came out strongly with 68.1% of participants recognizing privacy and ethics in the adoption of AI. This discovery supports the need to resolve the challenges of student data security, algorithmic discrimination, and the responsible use of AI in learning institutions.

In spite of these difficulties, most of the respondents (76.6) were confident that AI will have a positive impact on education. This is a general positive attitude, which shows that the stakeholders perceive AI not only as a disruptive player but also as the means of innovations, customization, and better learning results; however, the issues of training, financial limits, and ethics are resolved successfully.

Overall, the results of Table 3 represent a two-sided picture: on the one hand, the participants acknowledge the obstacles to adoption, but on the other hand, they are more than confident in the idea of AI that can transform education positively and futuristically.

DISCUSSION

The research results of this paper yield useful information in the context of the application of Artificial Intelligence (AI) to improve the teaching practices and educational outcomes of students in the economics education system of the city of Islamabad (Islam et al., 2025). The demographic profile shows that most of the respondents were students and younger participants which is in line with the rising digital literacy and willingness to adopt technology in the younger generations. It implies that the students are the main beneficiaries of educational technologies, which means that they are in a good position to feel and assess the effects of AI tools (Ullah et al., 2024).

The first significant results of this study include the high awareness percentage of AI where most of four out of five people said they were aware of how AI could be applied in education. The awareness of this kind is reflective of a growing realization of AI as a component and complement of modern teaching and learning (Suri, 2020). However, the usage rate indicates a more conservative attitude to adoption, whereby a significant proportion of the respondents must use AI tools weekly or even less. It states that awareness is rather usual, and integration in the everyday educational practices are in the stages of development (Chen et al., 2020).

The possible ability to change the teaching methodologies with the assistance of AI is also indicated in the results. The respondents largely agreed that AI is a good method of enhancing personalization, creative content and student-oriented methods. These kinds of findings prove that AI could be used to change the traditional, teacher-centered classrooms into more interactive and learner-centered classrooms. However, the circumstance that the consensus on the workload decrease is relatively low suggests that the teachers may experience problems with the implementation of AI in their daily routine and with the need to improve the supporting and training systems (Iqbal, 2023).

The scores were very positive in terms of the learning performance of the students. Most of the respondents indicated that AI is capable of aiding to understand complicated concepts, connect academic performance, and increase motivation (Wang et al., 2023). This is aligned with the existing literature

which emphasizes the benefits of AI-driven adaptive learning and real time feedback system. The findings indicate that AI may not only lead to the cognitive development of learners, but also to their engagement, which is the guarantee of positive academic results in the long-term.

Nonetheless, the study also has several challenges. The key problem that could be identified and was mainly obstacle in training and the cost, privacy and the likely demotion of teachers and their functions. These problems prove that it is important to have a balanced approach to implementation that upholds the primary role of educators and utilizes AI to make the education effective and creative (Afzal et al., 2025). However, the overall perspective on AI as a transformational force is quite optimistic, and this fact indicates that the education sector in Islamabad is open to implementing AI solutions (Munir et al., 2022).

In conclusion, it was observed that AI is widely believed to be a catalyst of a desirable change in education. However, the aspects of successful implementation will be overcoming the obstacles to implementation, providing adequate training, and ethical use.

CONCLUSION AND RECOMMENDATIONS

The paper examined how Artificial Intelligence (AI) can be used to promote an improved teaching practice and improve the student learning performance in the education sector of Islamabad. The findings indicate that there is a great awareness rate among students, teachers, and administrators, which proves that there is a high awareness of the increasing significance of AI in the contemporary education. Nevertheless, the rate of use is not even, as many respondents have infrequent or weekly use of AI tools. This shows that although AI has been accepted to a large extent, its unremitting implementation into the day-to-day education system is yet to be developed.

The outcomes of the research, as far as the methodological aspects of teaching are concerned, demonstrate how invaluable AI can be. It is also factual that the respondents were mostly tolerant towards the idea that AI personalizes the teaching, enhances classroom performance, and help in developing new learning tools. In addition to it, it was believed to support the student-centered practices and reduce the teacher workload. All these reactions are indicative of the fact that AI may alter the old-fashioned pedagogic traditions and make them flexible, adaptive and learner-oriented.

The element of AI was also conceptualized in a highly favorable manner in regard to student learning performance. The overwhelming majority of the interviewees claimed that AI increases the level of knowledge of the subjects, academic performance, and self-study. Moreover, it was also very welcome due to its capability of delivering prompt feedback and facilitating and involving learners. These results imply that AI may not be able to mediate the cognitive development alone, but it can play the role in the learning process to a considerable degree in terms of affective and motivational factors.

Despite these perceived advantages, there was also a list of acute challenges that were recognized in the research. The lack of proper training became one of the most significant deterring factors and most of the teachers were unprepared to use AI in the most effective manner. Costs also raised issues that were raised particularly in small-budget institutions where the matter of affordability is of great concern. The focus on the ethical concerns, such as the privacy and the safety of the data, was also greatly highlighted, and the need to be a responsible party in the implementation of AI was highlighted as well. Moreover, the respondents were scared that with AI, the teacher role will be diminished hence the necessity to strike a balance in which technology will augment the traditional teaching and not substitute it.

In a bid to overcome these obstacles, this research presents a number of recommendations. To start with, the capacity-building initiatives should take the first place, regularly training the teachers, administrators, to enhance their skills in the integration of AI. Second, affordable and accessible AI infrastructure in educational institutions needs to be aided by the policy and should be funded. Third, a pedagogical

paradigm, centered around a teacher, must be preserved and AI should be introduced as an aid that will minimize routine tasks and can instead allow teachers to concentrate on mentoring, creative, and advanced teaching activities. Fourth, a set of ethical standards and guidelines should be constructed to protect the privacy of data and guarantee the transparency of AI utilization. Finally, awareness campaigns are to be encouraged to foster trust among interested parties and underline the supportive character of AI in the improvement, but not substitution of the human factor in education.

Finally, AI proves to have great potential in changing the education in Islamabad by making the process innovative, more efficient, and enhancing the learning results of students. Through proper policies, investment in training and creating the ethical standards, AI might become a pillar of the sustainable, effective, and future-oriented education.

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