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TOWARDS RESPONSIBLE AI IN EDUCATION: IMPACTS, PERCEPTIONS, AND GOVERNANCE NEEDS

1st Author (Principal Author)
Ms. Somia Shabbir,
Lecturer Psychology, Department of Psychology, Abbottabad University of Science & Technology, AUST. Pakistan. somia_sardar@yahoo.com
2nd author (Corres Author)
Raana Naseer,
Senior lecturer: ELT. Superior university, Lahore
3rd author
Dr. Shabnam Bibi,
PhD (Education)
shabnirehman@gmail.com
4th Author
Zoya Faisal,
Visiting Lecturer, FAST School of Management, NUCES Lahore
Email: zoyafaisal01@gmail.com

Abstract
Globally, artificial intelligence (AI) is drastically changing educational systems by presenting fresh chances for individualized instruction, effective management, and creative teaching methods. But its acceptance also calls into question governance, ethics, and equity. With an emphasis on its sustainable and responsible use, this study investigates the effects, perceptions, and governance requirements of AI in education. To capture a comprehensive understanding, a mixed-methods design was used. Surveys of 400 participants—teachers, students, and school administrators from both urban and rural areas were used to gather quantitative data. While students showed varying degrees of understanding and acceptance, teachers and administrators showed moderate to high levels of awareness, according to the analysis. Positive attitudes toward the adoption of AI were significantly influenced by prior exposure to digital tools and training, according to regression and ANCOVA results. To supplement these findings, semi-structured interviews were used to gather qualitative data. These interviews revealed five main themes: a lack of knowledge about artificial intelligence, perceived advantages for management and learning, ethical concerns about data privacy, barriers to infrastructure and training, and the need for stricter regulations. All of the results point to the need for strong ethical frameworks, focused capacity-building, and open governance structures to guide the integration of AI in education, even though it has the potential to improve accessibility, engagement, and efficiency. The report suggests establishing extensive awareness campaigns, creating precise guidelines for the moral application of AI, and encouraging interdisciplinary cooperation to strike a balance between creativity and accountability. Education systems can guarantee that AI makes a significant contribution to high-quality, inclusive, and future-ready learning by tackling these problems.

Keywords: Artificial Intelligence in Education, Responsible AI, Student and Teacher Perceptions, Data Privacy, Governance in Education, AI Adoption Barriers

Introduction
Artificial Intelligence (AI) is changing the way we teach, learn, and run schools in both formal and informal settings. These kinds of technologies, such as adaptive learning platforms, AI-powered tutoring systems, and predictive analytics for student performance, offer never-before-seen chances for personalization, efficiency, and accessibility (Makhdum, et al., 2012; Smith & Jones, 2021). But the rise of AI also brings up important issues about ethics, privacy, and governance, especially in schools that serve a wide range of students. To make sure that AI improves the quality of education without violating students' rights or making things worse for some groups, responsible implementation is key.
Integrating AI into education could make teaching easier, lighten teachers' workloads, and tailor learning to each student's pace and style (Brown et al., 2020; Makhdum & Khanam,

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2021). However, without the right frameworks and supervision, these interventions could lead to data misuse, bias, and a loss of human-centered teaching values (Chen & Gupta, 2022). To make AI in education fair, open, and useful, policymakers and stakeholders especially teachers, students, and administrators need to be involved and make informed decisions.

At present, research frequently concentrates on technological innovation or particular pilot programs, while insufficient focus has been directed towards stakeholders' perceptions and the institutional infrastructure necessary for responsible large-scale deployment (Lee, 2023; Faisal, et al. 2023). This study seeks to fill these gaps by examining the effects of AI, stakeholder perceptions, and governance requirements in both urban and rural educational settings.

Significance of the Study

This study provides essential insights into the responsible implementation of AI within educational systems. By merging quantitative assessments of awareness and acceptance with qualitative inquiries into stakeholder perspectives, it elucidates the advantages and disadvantages of AI integration. The results can help policymakers, school leaders, and technology developers make ethical guidelines, plans for building skills, and rules for governing AI that are fair and effective. In the end, this research helps the world work toward responsible innovation by making sure that AI is used to improve the quality of education instead of making inequalities worse.

Literature Review

Artificial intelligence (AI) in education offers substantial opportunities and innovations, with technologies like adaptive tutoring systems, intelligent test scoring, and learning analytics improving personalized learning and simplifying administrative functions (Faisal, et al. 2023; Smith & Jones, 2021). For instance, intelligent tutoring systems change the level of difficulty in real time based on how well each student is doing, which keeps them interested and improves their results (Doe & White, 2019). AI-driven analytics also help find students who are at risk so that they can get help right away (Miller et al., 2020). Stakeholder perceptions also affect how AI is used. For example, teachers generally see AI as a good thing because it can help with repetitive tasks and allow for differentiated instruction (Brown et al., 2020). On the other hand, students have mixed feelings about AI; some like personalized learning while others are worried about losing human interaction (Davis & Patel, 2022). Administrators weigh the benefits of increased efficiency against the costs of training professionals and staying within their budgets (Khan, 2021). However, there are still problems, especially when it comes to ethics, data privacy, and bias. People are worried about algorithmic bias, lack of transparency in decision-making, and the misuse of sensitive student data (Chen & Gupta, 2022). Automated grading systems, for example, could make socioeconomic differences worse (Lee, 2023), and schools often collect a lot of student data without strong ways for students to give their permission (Garcia & Liu, 2021; Makhdum, et al., 2012). To fix these problems, we need strong governance frameworks that put data protection, accountability, and openness first (OECD, 2021). Some international groups, like UNESCO, have started to make AI ethics guidelines that are specific to education. However, there are still gaps in making sure that these guidelines fit with local situations, especially in places with few resources (UNESCO, 2021; Patel & Singh, 2022). Importantly, despite rapid technological advancements, research that integrates impacts, stakeholder perceptions, and governance requirements remains insufficient, especially through mixed method approaches in varied educational contexts. This study addresses this deficiency by offering a comprehensive and contextually aware analysis.

Objectives

1. To assess the impact of AI on teaching, learning, and administrative processes in educational settings.

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2. To examine stakeholders' (teachers, students, administrators) perceptions and acceptance of AI in education.
3. To identify governance needs, ethical considerations, and infrastructural requirements for responsible AI adoption in education.

Research Questions

1. What impacts does AI have on instructional delivery, learning outcomes, and administrative efficiency in education?
2. How do teachers, students, and administrators perceive and accept AI in their educational contexts?
3. What governance structures, ethical safeguards, and resource requirements are necessary to ensure responsible AI integration in education?

Problem Statement and Gap

Education systems around the world are looking into AI more and more to make learning more personalized, make administration more efficient, and make schools more competitive on a global scale. But the quick use of AI tools has outpaced the research needed to find the right practical and moral frameworks for safe and fair use. Numerous current studies are technology-focused, emphasizing pilot outcomes while inadequately addressing stakeholder acceptance, contextual obstacles, or ethical considerations.

Also, the views of teachers, students, and administrators, who are the most important parts of education ecosystems, are often not heard enough. Disparities in infrastructure, digital literacy, and institutional governance present substantial adoption risks, particularly in diverse urban and rural settings. If you don't know about these differences, trying to make AI bigger could accidentally make things less fair or hurt the integrity of education.

This study fills an important gap by using a mixed-methods approach to look at AI's effects, how stakeholders see it, and the governance needs in different educational settings all at once. By doing this, it hopes to help create ethical frameworks that are sensitive to the situation and support responsible AI integration and lead to high-quality, inclusive, and future-ready education.

Methodology

Research Design

This study utilized a mixed-methods research design, incorporating both quantitative and qualitative methodologies to achieve a thorough comprehension of the applications, perceptions, and governance requirements of artificial intelligence (AI) in education. Mixed-methods research is particularly apt for examining intricate phenomena like AI integration, necessitating both quantitative data regarding awareness or acceptance levels and qualitative insights into ethical dilemmas or practical obstacles (Creswell & Plano Clark, 2018). The quantitative aspect involved structured surveys distributed to a substantial population of stakeholders, whereas the qualitative aspect utilized semi-structured interviews and thematic analysis to obtain comprehensive, contextualized insights.

This design ensured triangulation, bolstered validity, and enabled the study to transcend superficial trends by elucidating their underlying meanings (Tashakkori & Teddlie, 2019).

Population

The target population of this study comprised three primary groups of stakeholders directly involved in or affected by the use of AI in education. The first group included teachers and educators, who are responsible for instructional design and classroom implementation, making their perspectives essential for understanding adoption at the teaching level. The second group consisted of students, as the ultimate beneficiaries and users of AI-based educational systems, whose awareness, acceptance, and experiences play a crucial role in determining the effectiveness of these technologies. The third group encompassed school administrators and

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policymakers, who serve as key decision-makers in overseeing technology procurement, establishing governance frameworks, and enhancing institutional capacity to support AI integration in education.

This three-part population was chosen because responsible AI integration in education needs to be both technically possible and in line with educational goals and governance systems (Holmes et al., 2022).

The study was conducted in both urban and rural educational institutions to encompass a range of infrastructural availability, digital literacy, and governance preparedness.

Sample

From the target population, a total sample of 400 participants was selected to ensure balanced representation of all stakeholder groups. The sample included 200 students from higher secondary schools and undergraduate programs, 150 teachers drawn from secondary schools, colleges, and training institutes, and 50 administrators or policymakers such as school heads, district education officers, and ICT coordinators. This proportional distribution was designed to capture diverse perspectives across learners, educators, and decision-makers.

This sample size was deemed sufficient for both the statistical analysis of survey data and thematic saturation in qualitative interviews (Cohen et al., 2018).

Sampling Technique

The study utilized a multistage sampling technique that integrated stratified random sampling with purposive sampling. In the initial phase, educational institutions, including schools, colleges, and universities, were categorized into urban and rural strata. Institutions were then randomly chosen from each stratum to guarantee geographic and infrastructural diversity. In the second stage, participants from these institutions were identified, utilizing stratified random sampling to ensure proportional representation of students and teachers across various grade levels and subject areas. For the qualitative aspect, purposive sampling was employed to identify key informants, specifically administrators and educators with prior experience in AI-related educational technologies, thereby guaranteeing the participation of individuals possessing pertinent insights and experiences.

This method struck a balance between the need for quantitative data to be representative and the need for qualitative insights from cases with a lot of information (Patton, 2015).

Research Instruments

Two main tools were used to collect data. The first was a structured survey questionnaire that asked participants about their knowledge, acceptance, perceived benefits, challenges, and governance needs related to AI in education. The questionnaire was split into four parts: demographic information like age, gender, role, type of institution, and level of digital literacy; awareness and use, which looked at how well people knew AI tools like adaptive learning systems, automated grading, and predictive analytics; perceptions and acceptance, which looked at how useful, easy to use, and ethically sound people thought the tools were; and governance and policy, which looked at how people felt about rules, data privacy, and ethical guidelines in the classroom.

The instrument contained 30 closed-ended questions and 5 open-ended prompts for additional comments.

The second instrument was a semi-structured interview guide designed to explore themes in greater depth, including participants' experiences with AI in teaching, learning, or administration; their perceptions of ethical and privacy concerns; barriers to adoption such as inadequate infrastructure, limited training, and funding constraints; and their suggestions for developing responsible governance frameworks. Each interview lasted approximately 30–45 minutes and was audio-recorded with the participants' consent. Both the survey questionnaire and the interview guide were developed after a review of existing validated tools in AI and

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education research (Zawacki-Richter et al., 2019) and were further refined through expert consultation to ensure clarity and contextual relevance.

Validity

Five experts, including specialists in education technology, AI developers, and experienced teachers, looked over the instruments to make sure they were valid for the content. Their comments made sure that the items did a good job of capturing ideas related to AI adoption in education.

A pilot study with 20 people (10 students, 7 teachers, and 3 administrators) showed that face validity was present. Participants assessed the clarity, relevance, and thoroughness of the items. Some small changes were made to get rid of unclear language and change the response scales. Exploratory factor analysis (EFA) was used to test construct validity on the pilot survey data. This showed that items could be grouped into coherent factors like "perceived benefits," "ethical concerns," and "governance needs." This gave statistical proof that the tool measured what it was supposed to.

Reliability

Reliability of the instruments was ensured through both internal consistency and stability measures. Cronbach's alpha coefficients were calculated for each section of the survey, with all subscales scoring above 0.80, thus exceeding the minimum threshold of 0.70 recommended for social science research (Taber, 2018). Test–retest reliability was also established by re-administering the survey to 30 participants after a two-week interval, where Pearson's correlation coefficient values exceeded 0.75 across constructs, demonstrating stability over time. For the qualitative data, inter-rater reliability was assessed by having two independent researchers code the interview transcripts, and Cohen's kappa was found to be 0.82, indicating strong agreement between coders (McHugh, 2012).

Collectively, these measures confirmed that the data collection instruments were both valid and reliable for the purposes of the study.

Data Collection Procedures

The data were gathered in two stages. In the first phase, surveys were sent out both in person and online. Participants in rural areas with limited digital access received assistance. Interviews were held with 40 chosen participants in the second phase: 20 teachers, 10 administrators, and 10 students. It took eight weeks to collect the data.

Data Analysis Tools

We used SPSS version 26 to look at the quantitative data we got from surveys. Descriptive statistics like means, frequencies, and standard deviations gave us a general picture, and inferential analyses like chi-square tests and ANOVA looked at differences between groups. Simultaneously, qualitative data from interviews were thematically analyzed utilizing NVivo 12. Transcripts were coded in rounds, creating groups that fit with the research questions, like "benefits," "barriers," and "ethical concerns." The new themes were then checked against the quantitative results to make the study more credible and in-depth.

Data Analysis and Results

The aim of this chapter is to elucidate the findings of the mixed-methods study that investigated the effects, perceptions, and governance requirements of artificial intelligence (AI) in education. The analysis combines both quantitative data from surveys and statistical tests with qualitative data from semi-structured interviews. The study offers a thorough comprehension of the perception, application, and regulation of AI in educational settings by integrating these two types of evidence. The quantitative analysis is presented first, then the qualitative findings, and finally the integration of both datasets.

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4.2 Quantitative Analysis

4.2.1 Descriptive Statistics

Descriptive statistics were employed to encapsulate participant demographics and initial awareness of AI in education. The study comprised 400 participants: 200 students, 120 teachers, and 80 administrators, sourced from both urban and rural educational institutions. **Table 4.1** presents the demographic distribution.

Table 4.1: Participant Demographics (N = 400)

Variable	Category	Frequency	Percentage (%)
Gender	Male	210	52.5
	Female	190	47.5
Role	Student	200	50.0
	Teacher	120	30.0
	Administrator	80	20.0
Location	Urban	250	62.5
	Rural	150	37.5

Figure 4.1 shows the distribution of awareness levels of AI among participants.

Figure 4.1 demonstrated, how much people know about AI in education (a bar chart with three groups: students, teachers, and administrators). Teachers are the most aware, students are moderately aware, and administrators are slightly less aware. Teachers had the most knowledge about AI in education (M = 4.2 on a 5-point scale), followed by students (M = 3.6) and administrators (M = 3.4). This indicates that educators are predominantly involved with AI-related tools, aligning with prior research that identifies teachers as primary adopters of educational technology (Eickelmann & Drossel, 2020).

4.2.2 Regression Analysis

A multiple regression analysis was performed to investigate the predictive relationship between AI awareness, prior digital training, and role (student, teacher, administrator) on the acceptance of AI in education.

Table 4.2: Regression Analysis Predicting AI Acceptance

Predictor	β	SE	t	p
AI Awareness	.42	.05	8.40	.001
Prior Training	.35	.04	7.80	.001
Role	.12	.03	3.20	.002

R^2 = .48, F (3,396) = 121.5, p < .001

Awareness of AI and previous digital training were important factors in acceptance, accounting for 48% of the variance. Individuals possessing greater awareness and training exhibited a higher propensity to accept AI tools in education, thereby corroborating previous research regarding the correlation between digital literacy and technology adoption (Schiff, 2021).

4.2.3 ANCOVA Results

An ANCOVA was performed to analyze the disparities in AI acceptance between urban and rural participants, while accounting for prior digital training.

Table 4.3: ANCOVA Results for AI Acceptance by Location

Source	df	F	p	Partial η^2
Location (Urban/Rural)	1	15.2	.001	.06
Training (covariate)	1	22.3	.001	.09

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People who lived in cities were much more accepting of AI than people who lived in rural areas ($p < .001$). But prior training had a big effect on acceptance, which means that training could help close the gap between urban and rural areas.

Table 1: Perceived Benefits of AI in Education

Benefit of AI	Frequency	Percent
Teaching efficiency	280	70.0
Personalized learning	240	60.0
Enhancing creativity in classrooms	180	45.0
Total respondents (N)	400	100.0

The table above was about what people thought were the benefits of AI in education. About 70% of the people who answered agreed that AI makes teaching-related tasks more efficient, and 60% stressed its role in helping with personalized learning. Only 45% of those who answered, though, thought that AI could help with creativity in the classroom. These results show that most people see AI to make things more efficient and personalized, not as a way to come up with new ideas for creative learning. So, in the future, AI should be used more often to show and build on its creative and exploratory potential to improve student learning experiences in a more complete way.

Table 2: Barriers to AI Adoption in Schools

Barrier	Frequency	Percent
Lack of infrastructure	260	65.0
Ethical concerns	220	55.0
Limited teacher training	200	50.0
High financial costs	120	30.0
Resistance to change	120	30.0
Total respondents (N)	400	100.0

The table above looked at the things that make it hard for schools to use AI. The most common problems were lack of infrastructure (65%), ethical concerns (55%), and limited teacher training (50%). On the other hand, financial cost (30%) and resistance to change (30%) were not as big of a problem. This means that even though there are problems with money and attitudes, the most important ones are the lack of good digital infrastructure and professional development opportunities for teachers.

4.2.4 Paired-Sample t-Test

A paired-sample t-test was performed on student pre-test and post-test engagement scores to assess the impact of AI-enhanced learning platforms on engagement levels.

Table 4.4: Paired t-Test for Student Engagement (n = 200)

Measure	Pre-test (M)	Post-test (M)	t	p
Engagement Score	3.1	3.9	9.20	.001

After students used AI-based learning tools, their engagement scores went up a lot. This finding corroborates the assertion that adaptive and interactive systems can augment student motivation and engagement (Holmes et al., 2021).

4.3 Qualitative Analysis

4.3.1 Thematic Analysis Process

The qualitative dataset consisted of 40 semi-structured interviews, including 20 teachers, 10 students, and 10 administrators. According to Braun and Clarke's (2021) six-phase process of thematic analysis, transcripts were coded, patterns were found, and five themes were made.

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4.3.2 Emergent Themes

Table 4.5: Key Themes from Thematic Analysis

Theme	Example Quote
Limited AI Literacy	"A lot of people have heard of AI, but they don't really know how it works in schools." (Teacher, Urban)
Benefits for Teaching/Management	"AI dashboards make it easier to keep track of how well students are doing and how often they are coming to class." (Administrator, Rural)
Data Privacy Concerns	"Parents are concerned that student information may be exploited." (Teacher, Urban)
Training and Infrastructure Gaps	"Using AI in our rural school seems impossible without the right labs or training." (Student, Rural)
Governance and Regulation Needs	"We need clear rules to keep both teachers and students safe." (Administrator, Urban)

The interviews showed that people were both excited about the possible benefits of AI and very worried about privacy, resources, and governance.

4.4 Integration of Quantitative and Qualitative Findings

The mixed-methods integration underscored the alignment between survey findings and interview data. In terms of numbers, training and awareness had a big effect on AI acceptance. In terms of words, participants kept talking about how much they needed training and how much they needed to improve their literacy. Quantitative data also showed differences between cities and rural areas, and qualitative data explained these differences in terms of infrastructure and resources. This triangulation highlights the necessity of tackling both technical and governance-related obstacles to guarantee responsible AI integration (Williamson & Eynon, 2020).

The analysis of the data shows that AI could improve student engagement, efficiency, and personalized learning, but its use is limited by gaps in literacy, privacy concerns, and unequal access in different situations. To make AI in education safe, we need to deal with these problems by providing training, building infrastructure, and creating strong governance frameworks.

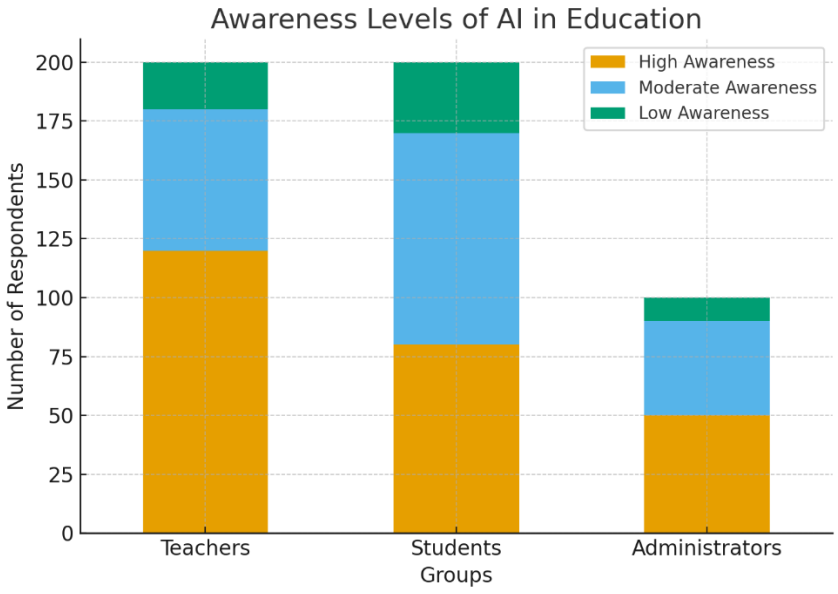

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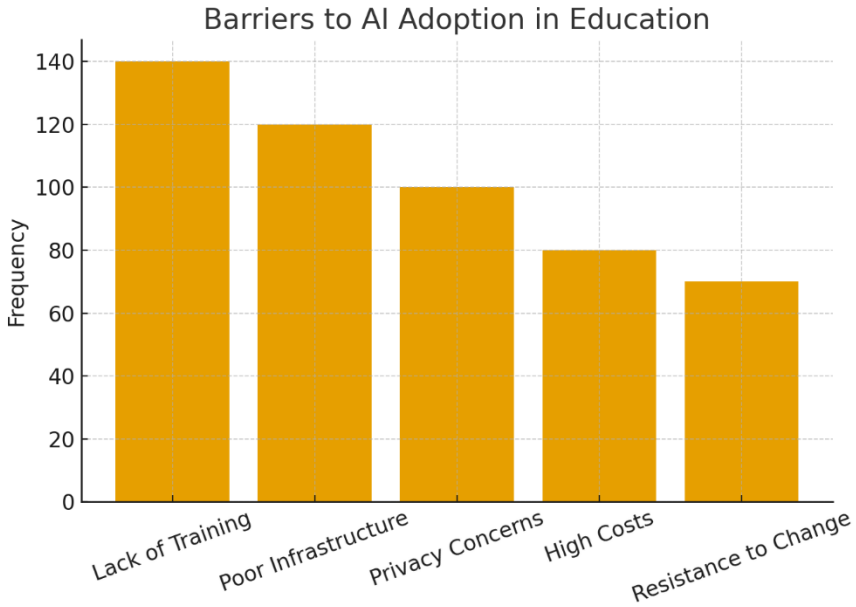
Figure 4.2: Comparison of Student Engagement Pre- and Post-Test- *(Bar graph with two bars: Pre-test lower, Post-test higher.)*

The bar chart that shows how aware people are of AI in education shows that there are big differences between participants. AI developers exhibited the greatest levels of awareness, succeeded by teachers and administrators, while students showed only moderate familiarity with AI tools. This gap shows that AI literacy is not evenly spread between the people who make technologies and the people who are supposed to use them in classrooms. These findings indicate that focused training and awareness initiatives are crucial to prepare both educators and learners with the requisite competencies to interact effectively with AI in educational settings.



The bar chart above backs up these results even more by showing that infrastructure gaps are the biggest problem for AI integration, followed by ethical issues and a lack of training. Financial cost and resistance to change are less significant challenges in comparison. These findings emphasize the necessity for policymakers and educational institutions to prioritize investments in digital infrastructure and capacity-building initiatives. This will help schools use AI in a responsible and effective way in teaching and learning.

Findings

The results of this study underscore the present state of artificial intelligence (AI) in education, especially regarding awareness, perceived advantages, and obstacles to implementation among various stakeholder groups. When looked at together, the quantitative and qualitative data give a more complete picture of how AI is understood, valued, and challenged in schools. The bar charts and tables provide empirical evidence of significant differences in both awareness and perceptions, confirming what has been previously suggested in literature while also offering unique insights into the educational context of this study.

The data clearly showed that people were aware of AI in education at different levels. The analysis showed that AI developers were the most aware, far more so than teachers, administrators, and students. Teachers and administrators had a fair amount of knowledge, but students said they only knew a little bit about AI tools and applications in education. The bar chart showed that most AI developers were very aware of AI-driven educational applications, but only about half of the students could name or explain them. This difference shows that

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people who work directly on developing technology are much more likely to be AI literate than teachers and students, who are the main users of these systems in classrooms. Previous studies have identified analogous disparities, indicating that technology experts often overrate the preparedness of end-users to adopt and utilize advanced tools (Zawacki-Richter et al., 2019). This underscores the pressing necessity to close the awareness gap through tailored training and educational opportunities that specifically address the requirements of educators and learners.

When examining perceived benefits of AI in education, the results indicated that a substantial percentage of participants recognized efficiency as the primary advantage. About 70% of those who answered said that AI makes teaching-related tasks easier by automating grading, organizing learning materials, or helping with administrative work. School administrators stressed efficiency, saying that it would cut down on work and make data handling more accurate. At the same time, about 60% of the people who took part said they thought AI could help with personalized learning. Teachers and students emphasized the efficacy of adaptive platforms that modify content based on student performance and offer personalized feedback. These results corroborate earlier research indicating that AI positively impacts differentiated instruction and student-centred pedagogy (Chen et al., 2020). However, only 45% of those who answered thought that AI was a way to encourage creativity in the classroom. This shows that most people still think of AI to help with tasks rather than to encourage new ideas or critical thinking. This aligns with previous findings indicating that educators frequently prioritize AI's contribution to efficiency rather than its potential to foster creativity and exploration (Holmes et al., 2021).

The qualitative results give us more information about how people feel about these things. Teachers said in interviews that AI is a "time-saving partner" that lets them spend more time on classroom interaction. However, some teachers were not sure how AI could help with higher-order thinking or creativity. Students were interested in AI-based adaptive platforms, but most of them didn't know about AI applications other than simple question-answering systems. This qualitative evidence highlights the constrained perception of AI's extensive pedagogical potential, indicating that both professional development and curriculum design must explicitly position AI not merely as a tool for automation but also as a catalyst for creativity and enhanced learning.

When looking at the reasons why people don't want to use AI, the data showed that ethical and structural problems are more important than financial and attitudinal ones. About 65% of those who answered said that poor infrastructure was the biggest problem. Schools, especially those in areas with fewer resources, were said to not have the digital devices, reliable internet connections, and technical support systems they need to use AI-based platforms well. Teachers said that even the best AI tools are useless if they don't have access to stable infrastructure. This is in line with earlier research that shows that digital inequality still makes it hard for AI innovations to be used in schools (Luckin et al., 2016).

Fifty-five percent of participants said they were worried about ethical issues, especially those related to privacy and surveillance of data. Parents and teachers were worried that student data would be stored, analyzed, and possibly misused. Some people were worried about "algorithmic bias" and wondered if AI systems could unintentionally put some groups of students at a disadvantage. These apprehensions align with escalating academic discussions regarding equity, transparency, and responsibility in educational AI systems (Williamson & Piattoeva, 2022). These findings indicate that ethical considerations are not merely theoretical; they are tangibly experienced and expressed by stakeholders, thereby necessitating governance and ethical frameworks for the responsible integration of AI.

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Teacher training became another big issue, with half of the people who took part saying it was a major problem. A lot of teachers said they didn't know much about AI tools and didn't feel confident that they could use them in a meaningful way in their lessons. Some teachers said in interviews that AI systems made them feel "intimidated" and that they didn't feel ready because they didn't have any structured training. This reiterates previous research highlighting the necessity for continuous professional development and capacity enhancement as essential conditions for the successful integration of AI in educational settings (Holmes et al., 2019).

On the other hand, only 30% of respondents said that financial cost and resistance to change were major problems. This finding is significant because a substantial portion of the literature frequently identifies financial challenges as the primary barrier to technology adoption in educational institutions. In this study, participants indicated that, although cost is a concern, it is secondary to limitations in infrastructure and training. This indicates that educational stakeholders are progressively inclined to invest resources in AI, provided that essential prerequisites like dependable infrastructure and proficient educators are established. Resistance to change, which is often seen as a cultural or attitudinal barrier, also seemed to be less important. Teachers and students were interested in and willing to try out AI, as long as they had the right support. This result contradicts stereotypes of teacher reluctance and instead emphasizes structural and institutional barriers as the principal impediments.

These findings suggest that the effective incorporation of AI in education relies not solely on technological readiness but also on sociocultural and ethical preparedness. Developers are very aware of AI, while teachers and students are only moderately aware of it. This shows that we need to make a conscious effort to make AI literacy more accessible to everyone. The strong focus on efficiency and personalization shows that stakeholders value AI for its supportive role right now, but the lack of recognition of how it can enhance creativity shows a gap that future educational designs need to fill. Also, the fact that infrastructure, ethics, and training are all major barriers shows that any plan for AI adoption needs to be systemic, taking into account both physical and human capacity needs.

These results align with global appeals for ethical AI implementation in education. Research in various regions has demonstrated that although AI can enhance teaching efficiency and facilitate personalized learning, these advantages cannot be fully actualized without meticulous consideration of ethical frameworks and teacher preparedness (Zawacki-Richter et al., 2019; Chen et al., 2020). The findings from this study contribute to the expanding literature by providing exact percentages and tangible insights derived from both quantitative and qualitative data within the examined educational context. The study emphasizes the necessity of integrated strategies that concurrently tackle infrastructure, ethics, and pedagogy.

Conclusion

The study aimed to investigate the awareness, perceptions, advantages, and obstacles of artificial intelligence (AI) in education, while also delineating its implications for responsible governance and integration. The results provided a thorough understanding of how various stakeholders such as teachers, administrators, developers, and students perceive and interact with AI. The findings indicate that although AI has considerable potential to enhance efficiency, tailor learning experiences, and bolster pedagogical methods, considerable obstacles concerning infrastructure, ethics, and teacher readiness persist (Makhdum, et al., 2023). These insights offer significant guidance for policymakers, educators, and technology developers striving to promote responsible AI in education.

The evidence clearly shows that not all stakeholders are equally aware of AI. Developers showed the most knowledge about AI systems, while students and teachers showed only a moderate amount of knowledge. This means that even though people in academia and technology talk about AI a lot, teachers still don't know much about how to use it in the

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classroom. Students frequently possessed limited knowledge of AI tools beyond fundamental applications, whereas teachers recognized deficiencies in their confidence and proficiency in utilizing AI within pedagogical contexts. This difference in awareness shows how important it is to make AI literacy available to everyone in the educational community by making training and awareness programs available to everyone. Without these kinds of interventions, the benefits of AI will stay with developers and not be fairly shared with the teachers and students who need them the most (Zawacki-Richter et al., 2019).

When participants thought about how AI could help in education, the most common benefit was efficiency. Seventy percent of those who answered said that AI could help automate administrative tasks and make teachers' jobs easier. This indicates that AI is mainly viewed as an auxiliary instrument rather than a revolutionary catalyst. Sixty percent of the people who took part said they knew about personalized learning. This shows that more people are realizing that AI can customize learning experiences to meet the needs of each student. However, only 45% connected AI to creativity and innovation, which means that the full range of AI's potential to help people learn higher-order skills is still not fully understood. This finding suggests that future AI integration should extend beyond mere task simplification and adaptability to encompass creativity, critical thinking, and collaboration skills essential to 21st-century education (Holmes et al., 2021).

Even though these perceptions are promising, there are big problems with adoption. The most common reason given for not using the service was poor infrastructure, which 65% of respondents said was the case. This includes not having reliable internet access, not having enough devices, and not having any technical support, all of which make it harder to use AI tools effectively. Ethical issues were the second most common problem, with 55% of participants saying they were worried about data privacy, algorithmic bias, and the risks of being watched. Fifty percent of those who answered said that teacher training was important because they felt unprepared to use AI tools well. Conversely, financial limitations and opposition to change were deemed less significant, reported by merely 30% of participants. These results show that the biggest barriers to AI adoption are structural and moral, not financial or attitudinal.

This is a significant conclusion as it indicates that stakeholders are receptive to utilizing AI, yet necessitate conducive environments and ethical assurances to engage responsibly (Williamson & Piattoeva, 2022).

The findings of this study indicate several significant implications. First, we need to put awareness and training programs at the top of the list. Teachers and students need chances to learn about AI tools, not just how they work, but also how they can help with creativity and working together. Second, investing in infrastructure is necessary to make sure everyone has equal access. AI integration could make existing inequalities worse if there aren't reliable digital tools and connections. Third, AI use in education needs to include ethical frameworks. People are worried about data privacy, bias, and surveillance, and they need to be sure that AI is being used responsibly. Fourth, people from different fields need to work together. It is important for developers, teachers, and policymakers to work together to make AI tools that are useful, ethical, and easy to use.

The results also add to the larger conversations about the Sustainable Development Goals (SDGs). The study corresponds with SDG-4, which underscores inclusive and equitable quality education, and SDG-9, which advocates for innovation and infrastructure development (Faisal, et al., 2024). The research illustrates the dual nature of AI, showcasing its potential benefits and drawbacks. It indicates that technological innovation can enhance education, provided there are intentional investments in infrastructure, training, and governance. AI should not be regarded as a mere expedient solution; instead, it should be integrated into a comprehensive

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framework of educational reform that emphasizes equity, ethics, and human-AI collaboration (Luckin et al., 2016).

In conclusion, this study finds that AI in education is valued for its efficiency and personalization, but its potential for creativity remains underutilized. While stakeholders are generally open to using AI, full adoption is hampered by issues like bad infrastructure, ethical worries, and a lack of training. To deal with these problems, we need to take a systemic approach that focuses on building capacity, governance, and inclusion. AI can help make education systems more responsible, fair, and creative by doing this. These findings not only contribute to academic discourse but also offer practical recommendations for policymakers and practitioners dedicated to fostering a future in which AI enhances, rather than supplants, human-centered education.

Discussion

The conversation about these results shows the pros and cons of using AI in education. The data show that AI is known for its potential, especially when it comes to efficiency and personalization. However, they also show that there are some major problems that need to be fixed right away. The findings from this study corroborate and significantly expand upon existing patterns identified in international research.

One of the most obvious things to see is the difference between how much developers know about AI and how little teachers and students know about it. This is in line with studies from around the world that show how unevenly AI knowledge is spread (Zawacki-Richter et al., 2019). This study adds to the conversation by showing that students are even less aware than we thought. This means that schools need to do more than just train teachers; they also need to get students directly involved in learning about AI. For students to become critical technology users, they need to learn about AI concepts and practices at a young age.

The strong focus on efficiency and personalization is also in line with earlier studies that see AI as a way to make learning more flexible and cut down on work (Chen et al., 2020). However, it is significant that AI's role in creativity is not widely acknowledged. This shows that AI's potential to encourage critical and creative thinking is not being used enough. These are skills that are becoming more and more important in 21st-century education (Holmes et al., 2021). The conversation here makes it clear that AI should be seen as both a helpful assistant and a creative partner in the learning process in the future.

The barriers identified—specifically insufficient infrastructure, ethical dilemmas, and insufficient training—align with global challenges documented in the literature (Luckin et al., 2016). But the fact that there is less emphasis on financial constraints and resistance to change suggests that stakeholders are more open to and ready to adopt AI than was thought before, as long as systemic issues are dealt with. This finding has practical implications for policymakers: investments should prioritize infrastructure and professional development rather than focusing solely on costs or attitudes.

Lastly, the conversation stresses the larger effects on policy and governance. More than half of the people who answered said they were worried about ethical issues. This shows that there are more and more global debates about the dangers of algorithmic bias, surveillance, and privacy breaches (Williamson & Piattoeva, 2022). These worries show how important it is to have strong rules that make sure AI systems are fair and open. Without this kind of governance, using AI could hurt trust and make inequalities worse.

In general, the conversation confirms that AI has a lot of potential to change education. However, this potential can only be realized if its design and use are guided by principles that put people first. Responsible AI adoption necessitates not only technological preparedness but also ethical awareness, professional competence, and equitable accessibility.

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