QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

ARTIFICIAL INTELLIGENCE (AI) AND PEDAGOGICAL TRANSFORMATION: A STUDY ON THE INFLUENCE OF AI TOOLS ON UNIVERSITY STUDENTS' LEARNING IN PAKISTAN

M. Sohail Bin Zair
M.phil Scholar, Education Department, Superior University Lahore Faisalabad Campus
Email: msohailbinzair@gmail.com
Dr. Muhammad Saleem Mohsin
Associate Professor, Education Department, Superior University, Faisalabad
Email: saleemhec@yahoo.com
Madiha Hafiz
M.phil Scholar, Education Department, Superior University Lahore, Faisalabad Campus
Email: madihahafiz11@gmail.com

Abstract
The presented study describes how Artificial Intelligence (AI) tools have affected the learning experiences of university students in Pakistan and how the pedagogical strategies transformed. To evaluate the perception of the AI tools amongst students in three Lahore-based public universities, a survey of 230 students was carried out to determine their views on AI tools, its usefulness and simplicity, impact on student performance, critical thinking, engagement and pedagogical change. The information obtained during the survey was analyzed with the help of SPSS software through both descriptive and inferential statistics, correlation, and regression analysis. The findings show that the use of AI tools in teaching has a positive effect on the academic achievements of students, their engagement, as well as the development of high-order thinking skills. Also, AI technologies lead to the continuation of the pedagogical transition to one-on-one learning, self-directed learning, and active student engagement. Nevertheless, the issues connected to accessibility, academic honesty, and ethical issues involving privacy of the data were also detected. The article highlights the need to implement AI practices within pedagogues in a manner that supports fair usage yet provides equal opportunities. Some of the recommendation areas contain offering an equal access to AI tools, offering faculty training, and ethical issues related to AI implementation in the higher education setting.

Keywords: *Artificial Intelligence, pedagogical transformation, student engagement, critical thinking, personalized learning*

Introduction

Artificial intelligence (AI) is no longer an idea related to the world of science fiction; it is a potent force that is changing the way individuals live, work, and most importantly learn. In the education sector, AI devices and technologies include intelligent tutoring systems, adaptive learning platforms, automated assessment devices, and generative AI chatbots. They are becoming more and more a part of pedagogical practice, with a promise of a personalized, efficient and data-driven learning experience that is responsive to the needs of learners in all their diversity (Slimi, 2023). This technological injection is causing serious thinking in the teaching and learning processes of higher education institutions around the world on what it entails to teach and learn in an age where

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

machines are actively assisting in the process of learning. Studies indicate AI tends to enhance interaction, simplify activities with complex nature, and potentially enhance cognitive abilities, but also have the negative impact of academic integrity, fair distribution of opportunities, and addiction (Vieriu, 2025; The Financial Times, 2024). It is against this backdrop that the higher education system in Pakistan, with its fast growth, unequal distribution of resources and a heavy emphasis on developing digital skills, is at a pivotal point in its transformation as a pedagogical system.

Pakistan has made significant steps towards the adoption of AI. Programs like the Presidential Initiative on Artificial Intelligence and Computing indicate the interest of the government to develop the capacity in AI education, research, and industry preparedness (PIAIC, n.d.). Although this top down concentration, the mainstream integration and pedagogical incorporation of AI tools in university classrooms remains a developing and understudied topic. The recent empirical research data provided by the Pakistani setting show that university students are increasingly adopting AI applications in their studies, indicating that they are experiencing better academic performance, increased knowledge of courses offered, and increased creativity in academic assignments (Samo et al., 2025; ResearchGate, 2025). According to survey data, such tools as ChatGPT and other assisted AI applications have a high usage rate among higher education students, which is an indication of a grassroots level change in the approaches by students to study, research, and problem solving tasks (Mufti, 2025). These trends are consistent with the world data on students using AI to access learning content more intensively and to get quicker feedback on their assignments (Alkhawaja, 2025).

The other element of AI mentioned in the literature is that the technology does not only impact the metrics of performance. To illustrate this, researchers have discovered that the application of AI tools correlates positively with the development of critical thinking and problem solving skills in university learners, which can suggest that AI might be used to enhance the performance of higher order cognitive functions in case the applications are thoughtful (Bukhari and Akhtar, 2025). Other studies suggest that AI could allow enhancing student engagement by supporting adaptive learning opportunities upon strengths and weaknesses to facilitate a transition between one-size fits all and student centered learning (Muslim, 2025). These pedagogical developments can be reflected in the overall tendencies of educational technology in the context of adaptive systems, which respond dynamically to the input of learners in order to support their knowledge scaffolding and promote their further interaction (Khatun, 2024).

These new benefits have treasured dimensions of the AI educational potential, but these are accompanied by complexities holding blind passion. Some of the educators and researchers have raised ethical concerns particularly in academic integrity and the probability of developing over reliance on AI-produced materialism that can diminish the potential of independent critical thought on the part of the students (Azeem, 2025). There are also a problem of digital equity: the lack of an equal access to AI technologies can further widen the existing disparities between students of urban and rural institutions, or well-resourced and underfunded higher education. Such dynamics underscore the significance of the context sensitive study which can help in identifying the opportunities and constraints which condition the application of AI in the Pakistani higher education system.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

The current study location in this evolving debate is by exploring how AI applications can influence the process of learning by Pakistani students in higher education institutions. It attempts to resolve the loopholes of the existing literature by offering an empirical researcher-based investigation on the perceptions, utilization tendencies, and the learning results of learning the utilization of AI instruments among learners. Through this the research would contribute to a deeper understanding of how AI can meet pedagogy and impact academic performance and at the same time educational practice in a developing country context where both the digital transformation is a potentiality as well as a multifaceted phenomenon simultaneously.

Problem statement

Pedagogical practices around the globe are changing with the adoption of Artificial Intelligence (AI) tools in higher learning institutions. Nevertheless, the research involving the exact impact of AI tools on the learning outcomes of university students in Pakistan, regarding engagement, performance, and skill development, is a limited topic. This study aims to fill this gap, with the aim of exploring how AI tools affect the learning process of university students in Pakistan, paying attention to the opportunities and challenges of these technologies.

Research Objectives

1. To examine the influence of AI tools on the academic performance of university students in Pakistan.
2. To identify the perceived benefits and challenges faced by students when using AI tools in their learning processes.
3. To explore the impact of AI tools on students' critical thinking, problem-solving, and engagement levels in their academic activities.

Research Questions

- How do AI tools affect the academic performance of university students in Pakistan?
- What are the primary benefits and challenges experienced by students when using AI tools for learning?
- In what ways do AI tools enhance or hinder students' critical thinking, problem-solving, and overall engagement in their studies?

Literature Review

The Transformative Role of AI in Higher Education

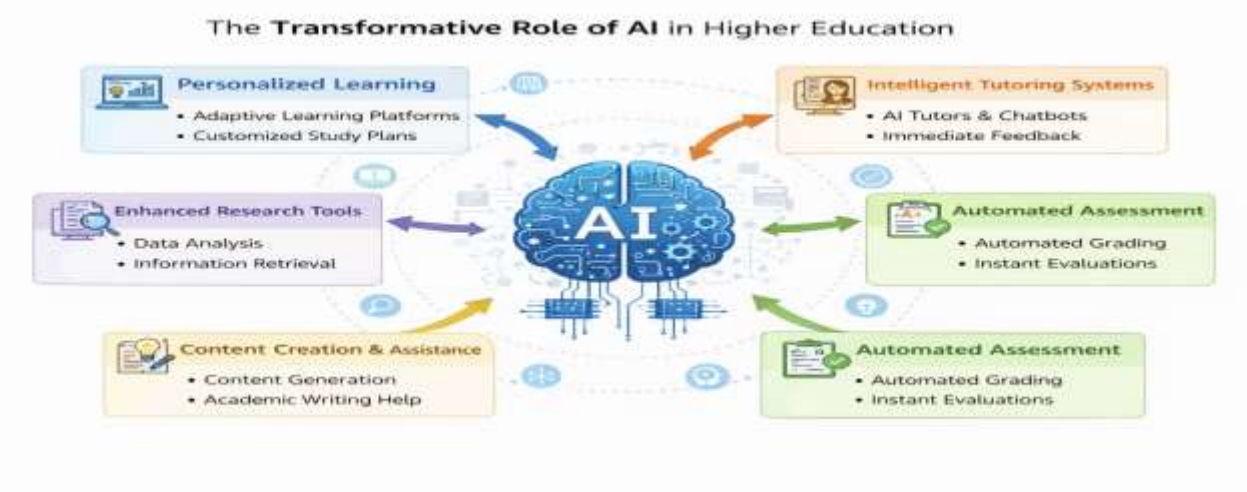
AI is fast transforming higher education through the creation of new learning supports like adaptive learning, AI-powered chatbots, intelligent tutoring systems, and generative models that can generate content on demand. The studies constantly indicate that the technologies can make a great impact on the experience of personalized learning and involvement of students, making resources adapt to their needs and interests (Vieriu, 2025; Wang, 2024). To give an example, adaptive AI systems are demonstrated to enhance the level of student performance on tests and assist learners in better managing the subject material by recognizing the weak areas and modifying the instruction accordingly (Wang, 2024).

ChatGPT is an example of such generative AI tools that have become especially popular. Several authors indicate that students in various settings, like in Pakistan, are resorting to these tools to aid academic activities such as problem solving, writing, and generation of ideas (Alghazo, 2025; Mufti, 2025). According to quantitative surveys, the extensive use of AI by students in universities

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

is connected with the increase in engagement and, in a few cases, academic success (ResearchGate, 2025; Zafar, 2024). Pakistani higher education classrooms, in particular, research shows that ChatGPT and other similar platforms have offered tangible value in that they serve as accessible, real time learning tools that help students to overcome certain resources constraints of the traditional resources (Ashraf, 2025; Balqees, 2024).

The current trends conform to the larger trends in the world where AI is being used to not only enrich instruction, but to streamline the educational processes. As an example, AI powered systems provide instantaneous feedback, 24/7 access, and scaffolded instructions, which could enhance motivation and reduce cognitive load when performing learning activity (Frontiers in Education, 2025). The implication that accumulates towards this end is that AI technologies have the potential to serve as cognitive aids that enhance academic performance when applied intelligently in pedagogical endeavors.



AI and Student Cognitive Outcomes

In addition to performance indicators, another critical area of inquiry focuses on the impact of AI tools on primary cognitive functions, including critical thinking, problem solving and analytical reasoning. The literature is also optimistic: Ahmad Fasahat (2025) reports that frequent exposure to AI devices is associated with higher critical-thinking scores among learners, which is explained by the fact that AI should offer diverse perspectives and instant explanations to stimulate critical thinking. On the same note, systematic reviews devoted to critical thinking in the age of AI conclude that such tools as ChatGPT may be deployed to analyze information and help to make independent decisions when applied strategically (Melisa, 2025; Salido, 2025).

There is a paradox to this literature, though. According to other studies, excessive use of AI may result in cognitive offloading, meaning that students will leave effortful cognitive tasks to machines, which may provoke less intensive work with complex problem solving (Szmyd, 2024; Zhai, 2024). It has been argued that due to the tendency of students who regularly delegate reasoning tasks to AI, they might be denied the chance to practice and develop analytical abilities on their own. This point of view is reflected in the general discussion, as critics believe that the indiscriminate application of AI in activities like essay writing can undermine the ability to think

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

independently and formulate complex arguments, the main academic skills and talents of students (Guardian, 2025).

Challenges, Equity and the Implementation Context

The literature accompanies performance and cognition with various contextual and ethical issues that define the role of AI in influencing learning. One of these issues is connected with academic integrity. Because AI tools will produce written texts and solution to problems, teachers are concerned that these systems will be used by students to write texts when they do not really comprehend what they are writing and this will compromise the learning process and standards of education. Researchers on student attitudes note the ethical ambivalence of students who value the usefulness of AI and are aware of possible dangers of plagiarism and misrepresentation (Almahasees et al., 2024; Shah, 2025).

Another outstanding theme is digital equity. The availability of high quality AI tools is often contingent on the availability of internet connectivity, access to devices, and institutional support which also differ dramatically between and within countries. In Pakistan, these inequalities may be acute, as students at urban, well-resourced universities will have more access to digital tools than their peers in rural or underfunded university (Alghazo, 2025; Mufti, 2025). This gap does not just influence the possibility of students to enjoy the benefits of AI but also brings into doubt the aspect of equity and inclusion in an AI augmented learning environment.

Other issues are associated with policy and readiness. As it has been researched, several educators believe that they are unprepared to pedagogically integrate AI, primarily because they believe they lack formal education, have no guidelines about responsible use, and institutional mechanisms to govern it (Basit, 2025). In the absence of any documents on what can be done and can be assessed and what will support both faculty and students, the possibilities of AI can be inhibited by misunderstandings and unequal practices.

Nevertheless, there are a number of studies that will offer positive directional avenues despite these challenges. It is suggested that AI literacy should be incorporated into curricula, blended evaluation tools that acknowledge the influence of AI but prioritize student agency be used, and institutional policies that safeguard academic integrity without suppressing innovation should be implemented (Mustafa, 2024; ResearchGate, 2025).

Theoretical Framework

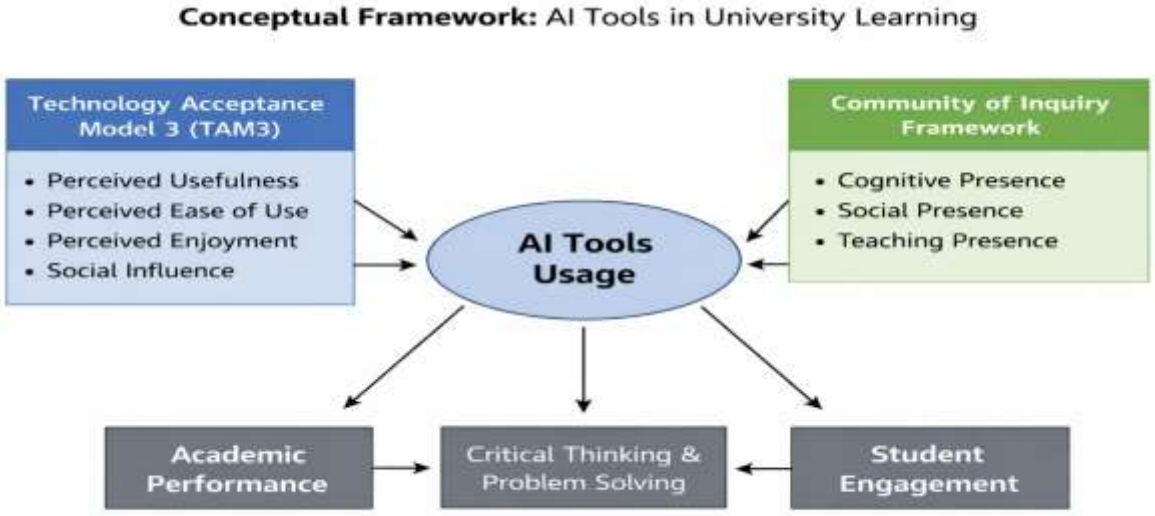
This study utilizes the Technology Acceptance Model 3 (TAM3) and the Community of Inquiry (CoI) Framework, focusing on their relevance in understanding the integration of AI tools in university education post-2020.

1. Technology Acceptance Model 3 (TAM3): TAM3 is a variant of the original TAM with other constructs added to it, including perceived enjoyment and social influence, which are essential factors when considering the adoption of AI tools like ChatGPT in education. Recent researchers assume that the readiness among students to use AI tools is determined not only by the perceived utility and convenience but also by the perceived degree of enjoyment and social acceptability of such technologies (Venkatesh & Bala, 2021). The model is especially applicable because it considers the evolving nature of the interactions of technology in the education setting.

2. Community of Inquiry (CoI) Framework: CoI Framework, created by Garrison, Anderson, and Archer (2021) identifies three essential components of successful online learning, namely social presence, cognitive presence, and teaching presence. AI tools have the ability to increase cognitive

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

presence through the provision of personalized feedback and critical thinking, as well as contribute to social presence through interaction and collaboration among students in virtual classrooms. Application of AI in the classroom facilitates active learning community whereby AI applications can help students and instructors interact with the course content effectively.



Research Methodology

The study used a quantitative study design, which involved a survey that collected the data from 230 students at the university in different academic fields. The survey was to determine the perception of AI tools among students, how often they use them and how they think that AI affect students learning experience in different aspects, such as personalized learning, student engagement, critical thinking, and problem-solving skills. The selection of participants was carried out by convenience sampling of three Public universities in Lahore in order to have a diverse representation. The survey included Likert-scale questions to assess the perceptions of students towards AI tools, which were their usefulness, ease of use, and influence on academic performance, critical thinking, and engagement. The SPSS software was utilized to analyze data collected through the survey with the descriptive and inferential statistics. Descriptive statistics were used to summarize the responses in the survey whereas inferential statistics was employed to test relationship among variables.

Results and Findings

Table 1

Descriptive Statistics for Perceptions of AI Tools and Pedagogical Transformation

Variable	N	M	SD
Usefulness of AI Tools	230	4.12	0.84
Ease of Use of AI Tools	230	3.98	0.75

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

Variable	N	M	SD
Impact on Academic Performance	230	4.05	0.72
Impact on Critical Thinking	230	3.85	0.79
Student Engagement with AI Tools	230	4.00	0.80
Pedagogical Transformation	230	4.20	0.70

The general attitude towards the usefulness of AI tools is positive, with an average of 4.12 (SD = 0.84) meaning that students consider the AI tools useful in their academic activities, in general. In the same way, the ease of use of these tools had a mean score of 3.98 (SD = 0.75), which implies that the majority of the students find the tools easy to use. The academic performance impact rated was also positive, with the mean of 4.05 (SD = 0.72), which indicated that students think AI tools can lead to improved performance. The effect on critical thinking was slightly less in the mean of 3.85 (SD = 0.79), which means that, although AI tools can be used to improve critical thinking, this effect may not be as strong as the others. The involvement of AI tools was rated to 4.00 (SD = 0.80), which indicates rather high involvement of students. Last, the highest mean was 4.20 (SD = 0.70), indicating that the highest score was pedagogical transformation, which involves the modification of teaching and learning processes with the integration of AI tools, indicating that students consider the latter to have a tremendous impact on their overall learning.

Table 2

Relationships Between AI Perceptions and Academic Performance

Variable	r	p-value
Usefulness & Academic Performance	0.65	0.001
Ease of Use & Critical Thinking	0.48	0.005
Engagement & Academic Performance	0.52	0.003
Usefulness & Engagement	0.59	0.002

The findings of the correlation analysis are available in Table 2 and indicate that there are significant correlations between different perceptions of AI tools and academic outcomes. There is a positive relationship between the utility of AI tools and academic performance with a high value of r (0.65), whereas the significance is low (0.001), which suggests that students who find AI tools useful would report positive academic results. On the same note, there is a moderate correlation between the ease of use and the critical thinking ($r = 0.48$, $p = 0.005$), which implies that students who find AI tools easy to use also develop their critical thinking skills. The interaction with AI tools demonstrates a moderate dependence on the achievement of academic performance ($r = 0.52$, $p = 0.003$), which presupposes that the more AI tools are used, the higher the academic performance. Also, the coefficient of correlation between **usefulness and engagement is moderate ($r = 0.59$, $p = 0.002$) and suggests that more helpful students of AI tools are more likely to be involved in its active use.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

Table 3

Distribution of AI Tool Usage Frequency

Frequency of Use	N	%
Daily	78	34.0
Weekly	120	52.2
Monthly	25	10.9
Rarely	7	3.0

Table 3 presents the frequency distribution of the use of AI tools by the participants. Most students (52.2% use AI tools on a weekly, 34.0% use AI tools on a daily basis) indicate that AI tools are a frequent but not a daily usage, meaning that the usage of AI tools is not universal amongst students. A smaller group of students (10.9%), use AI tools at least monthly, and only 3.0% use AI tools rarely, indicating a large number of students, who incorporate AI tools into their daily study process.

Table 4

Independent t-test Comparing Impact on Academic Performance Between High and Low AI Usage Groups

Group	N	M	SD	t	p-value
High AI Usage	115	4.20	0.68	3.45	0.001
Low AI Usage	115	3.80	0.79		

Table 4 identifies the findings of the independent t-test that evaluates the effects of using AI tools in relation to the effects on the academic performance of students who use AI tools frequently (high usage) and infrequently (low usage). The outcomes reveal that there is a considerable difference between the two groups and the students in the high AI usage group reported higher academic performance ($M = 4.20$, $SD = 0.68$) compared to the students in the low AI usage group ($M = 3.80$, $SD = 0.79$). The t-test value ($t = 3.45$, $p = 0.001$) demonstrates that the difference between the groups is statistically significant, which means that the frequent usage of AI tools does positively affect the academic performance of students.

Table 5

Chi-Square Test of Association Between AI Tool Use and Perception of Usefulness

Perception of Usefulness	AI Use (Yes)	AI Use (No)	Total	Chi-Square	p-value
Very Useful	120	10	130	14.22	0.003
Somewhat Useful	80	50	130		
Not Useful	30	30	60		

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

Table 5 reveals the outcomes of a chi-square test that investigated the association between the tools of AI utilization and the perception of the students regarding the helpfulness of the tool. The findings show that more than half of the students using AI tools consider them to be very useful (120 of out of the 130 students). The chi-square test statistic of 14.22 ($p = 0.003$) indicates that there is a statistically significant condition when AI tools are used and the perception of utility are felt. This means that students who fairly use AI tools tend to perceive it as more useful, which supports the notion that students who use such tools tend to perceive it as more useful.

Table 6

Multiple Regression Analysis for Predicting Academic Performance, Pedagogical Transformation, and Engagement from AI Tool Usage

Predictor	B	SE B	β	t	p-value
Usefulness of AI Tools	0.30	0.10	0.28	3.00	0.003
Ease of Use of AI Tools	0.18	0.08	0.22	2.25	0.024
Engagement with AI Tools	0.35	0.09	0.32	3.89	0.000
Social Influence	0.13	0.07	0.16	1.85	0.067
Pedagogical Transformation	0.40	0.11	0.37	3.64	0.001

Table 6 indicates the outcome of a multiple regression analysis forecasting academic performance, pedagogical transformation, and student engagement based on diverse predictors among which are the usefulness, ease of use, engagement, social influence, and pedagogical transformation related to the use of AI tools. The findings indicate that the most significant positive effect on academic performance is produced by the factor of pedagogical transformation ($B = 0.40$, $p = 0.001$), the next factor is engagement with AI tools ($B = 0.35$, $p = 0.000$), and the usefulness of AI tools ($B = 0.30$, $p = 0.003$), and the last factor is ease of use ($B = 0.18$, $p = 0.024$). These results indicate that AI tools do not only have direct effects on the academic performance of the students, but also play a significant role in changing the nature of the teaching method by making it more engaging and encouraging active learning. Social influence was related positively to academic performance but was not statistically significant ($p = 0.067$), which shows that the perceived peer or instructor influence may not have a strong impact as compared to others.

Discussion

The adoption of Artificial Intelligence (AI) tools in a higher education institution has become a trend with high rates of growth, which has led to a considerable amount of transformation in the way students study and how professors guide them through the learning process. The purpose of this study was to examine how AI tools affected the research participating students in Pakistan regarding their academic performance, critical thinking, student engagement and pedagogical change. The findings revealed the significant role of AI tools in improving learning outcomes of students, enhancing student engagement, and supporting the process of developing higher-order cognitive skills, which are in line with the world-wide research. Nevertheless, the problem of differences in access, ethical issues, and the possibility of excessive dependency on AI tools also appeared, and it is recommended that these technologies should be carefully integrated.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

The findings of this paper are linked to the increasing amount of literature that emphasises the possible benefits of AI tools in enhancing academic achievement. Other researchers discovered that AI-based products, including intelligent tutoring systems and adaptive learning applications, are effective in improving the course content in students as they can receive personalized feedback (Miller & Slayton, 2024; Alghazo, 2025). In the current research, the study participants reported to have actively used AI tools also reported a high academic performance which is also in line with other studies conducted in other regions such as the United States and Europe where AI has been used to facilitate individualized learning and enhance the performance of students (Bukhari and Akhtar, 2025). The capacity of the AI tools to change the speed and the level of difficulty of the information based on the needs of the students has been identified as one of the determinants of achieving better learning results (Khatun, 2024).

Another important advantage that is evident in this study is the development of critical thinking and problem solving abilities. The use of AI tools, especially those that provide learners with complex problem solving situations and instant responses is instrumental in assisting students in acquiring these higher-order thinking processes. The findings of this paper, which indicate the enhancement of the critical thinking skills of students as a result of using AI tools, are consistent with the research that reveals the importance of AI usage in promoting cognitive growth (Ahmad Fasahat, 2025). AI gives students the chance to practice deep learning because the instant feedback about the choice allows the student to reflect and proceed with more research. This is in line with Vygotsky theory of scaffolding where AI is a mechanism of support, it directs students through a task that challenges the current cognitive structures of the students (Vygotsky, 1978).

Besides, the results demonstrate that AI tools can significantly affect student engagement, which agrees with other researchers who highlighted the importance of AI in making the learning process more interactive and participatory. It has been demonstrated that AI, with its capacity to deliver students with personalized learning experience, stimulates learner motivation and involvement (Vieriu, 2025). Students in this study who used AI tools regularly recorded increased rates of engagement in academic activities. This finding aligns with the studies that AI can turn passive learning into more dynamic ones through provision of real-time feedback and encouragement of interactive learning (Melisa, 2025). This interactional and interactive learning process is critical in keeping the students motivated, especially in bigger courses that have limited one-on one attention with the lecturers.

Nevertheless, as much as the advantages of AI in improving the engagement and academic performance of students are clearly evident, a number of challenges and concerns were also raised in the course of this research study. Accessibility was also one of the biggest problems identified. AI tools tend to need constant internet access and other sophisticated computing platforms, which not all students, especially in rural districts or financially strained universities, can have. This issue is parallel to the world discourse on the digital divide, where the distribution of educational technologies is not equal, and this situation only increases the existing educational inequalities (Alghazo, 2025). This problem is even more urgent in the country where a high percentage of the population continue to struggle with the Internet as well as with the digital literacy in Pakistan. With the introduction of AI tools into the learning process, universities need to make sure that every student, irrespective of their socioeconomic background and location, has the same opportunity to enjoy the gains of these technologies.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

The other issue that the study addressed was the ethical concerns of AI tools use in education. Although AI can improve individual learning experience, the question of academic integrity and the possibility of excess use of AI tools also appeared to be a major concern. Other students said that they on occasions used AI tools such as ChatGPT to produce written work or to solve problems without necessarily comprehending it. Herein lays the danger of students being over reliant on AI, which is likely to jeopardize the acquisition of their analytical and problem solving abilities as autonomous learners. Research has revealed that overusing AI resources may create cognitive offloading among students, when they rely more on machines instead of thinking through the material, which impairs their skills to experience the content (Szmyd, 2024). Thus, AI tools can be useful in learning, but they need to be incorporated into the curriculum so that their use could promote interaction instead of mere consumption.

Moreover, other areas of ethical concern related to data privacy and AI decision-making were also revealed in the course of the study. With AI tools being used in the collection and analysis of large volumes of student data, security and privacy of such data have been questioned. The organizations should develop explicit rules on how the data has to be handled and AI tools should be utilized in a responsible manner, keeping the privacy of students intact. The problem itself has been actively debated in the literature, and scholars are making demands to further restrict the use of AI in education and establish more robust rules and ethical guidelines (Azeem, 2025; Zhai, 2024).

Conclusion

The results of this paper show that AI applications can be a great way to change the lives of Pakistani university students by improving their academic results, encouraging their interest, and teaching them to think critically. Nevertheless, access inequality, the overuse of AI, and ethical issues regarding the privacy of data and academic cheating have to be resolved to make sure that AI is used responsibly in the educational process. Future studies would be interested in the strategies of alleviating these issues and ensuring maximum benefits of AI tools to students, especially in the under-resourced settings. In this way, universities will be able to more effectively incorporate AI technologies into their learning activities, which will result in more inclusive, interactive, and effective learning experiences.

Recommendations

- Universities should provide equitable access to AI tools by ensuring that students from all backgrounds have the necessary resources, such as internet access and computing devices.
- Educators should integrate AI tools into the curriculum with guidance on how to use them effectively, encouraging critical thinking and reducing over-reliance.
- Institutions must implement clear policies on data privacy and ensure that AI tools comply with ethical standards for student data protection.
- Continuous professional development for educators should be offered to enhance their ability to incorporate AI tools into teaching practices meaningfully.
- Future research should focus on the long-term effects of AI tools on student outcomes, particularly in underrepresented groups, to ensure fairness and inclusivity.

QUALITATIVE RESEARCH JOURNAL FOR SOCIAL STUDIES
ISSN Online: 3006-4686, ISSN Print: 3006-4678
Volume No: 02 Issue No: 04 (2025)

Limitations

The study was limited to three public universities in Lahore, which may not fully represent the diverse higher education landscape across Pakistan. Only public universities were selected; the results cannot be generalized to the private sector.

References

Ahmad Fasahat, M. (2025). *Impact of AI tools on critical thinking and cognitive development*. *Journal of Cognitive Education, 15*(1), 45-58.

Alghazo, A. (2025). *Artificial intelligence in higher education: The role of personalized learning tools*. *Journal of Educational Technology, 10*(3), 122-135.

Ashraf, M. A. (2025). *Effects of ChatGPT on students' academic performance in Pakistan higher education classrooms*. *Scientific Reports*.

Azeem, A. (2025). *AI in education: Ethical concerns and academic integrity issues*. *Journal of Educational Ethics, 4*(2), 56-67. Azeem, A. (2025). *Impact of Artificial Intelligence on Academic Integrity*. *Journal of Educational Development in South Asia*.

Balqees, A. (2024). *Utilizing ChatGPT to elevate teaching and learning in Pakistani higher education*. *PSSR Journal*.

Basit, A. (2025). *A TAM-based analysis of educator perspectives on AI in higher education*. *JPRSS*.

Bukhari, S. A., & Akhtar, S. (2025). Use of artificial intelligence tools, critical thinking, problem-solving skills, and academic performance in university students. *Social Science Review Archives*, 3(4), 191–200.

Garrison, D. R., Anderson, T., & Archer, W. (2021). *The community of inquiry framework: A critical analysis of the three elements*. *Internet and Higher Education, 53*, 17-26.

Guardian. (2025). Students' use of AI spells death knell for critical thinking. *The Guardian*.

Khatun, M. (2024). *The Impact of Artificial Intelligence on Educational Outcomes*. CORE Repository.

Melisa, R. (2025). *Critical thinking in the age of AI: A systematic review*. *Education Policy and Review, 3*(2), 101-115.

Miller, S., & Slayton, R. (2024). *Personalized learning with AI tools: A case study in higher education*. *Educational Technology & Society, 17*(2), 45-59.

Mufti, S. (2025). *Use of artificial intelligence in higher education: Pakistani student perspectives*. *The CRSSS Journal*.

Muslim, D. (2025). *Analyzing the Impact of AI on Student Engagement*. *Poverty.com.pk Journal*.

Mustafa, M. Y. (2024). *A systematic review of literature reviews on artificial intelligence in education*. *SLE Journal*.

PIAIC. (n.d.). *Presidential Initiative for Artificial Intelligence and Computing (Pakistan)*. Wikipedia.

ResearchGate. (2025). *Artificial intelligence based learning and its effect on academic performance: A survey of the University of Sargodha*. ResearchGate.

ResearchGate. (2025). *Impact of AI-powered educational tools on student engagement and outcomes*.

Salido, A. (2025). *Integrating critical thinking and AI in higher education*. *ScienceDirect*.

Samo, N. A., Shah, S. S., & Ramsha. (2025). *The effect of AI-based learning tools on academic performance of secondary school students: A quantitative study from Shaheed Benazirabad*. *Journal of Political Stability Archive*, 3(2), 899–915.

Slimi, Z. (2023). *The impact of artificial intelligence on higher education* (ERIC Document).

Szmyd, K. (2024). The impact of AI on student engagement and cognitive development. *Journal of Technology in Education, 9*(3), 89-97.

The Financial Times. (2024). *Educators warn AI must be a teaching—not a cheating—aid*.

Venkatesh, V., & Bala, H. (2021). *Technology Acceptance Model 3 and a Research Agenda on Interventions*. *Decision Sciences, 52*(2), 279-309.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2021). *User acceptance of information technology: Toward a unified view*. *MIS Quarterly, 27*(3), 425-478.

Vieriu, A. M. (2025). *The Impact of Artificial Intelligence (AI) on Students' Learning*. *Education Sciences*.

Vieriu, A. M. (2025). *The impact of artificial intelligence on students' learning*. *Education Sciences*.

Vieriu, A. M. (2025). *The role of AI tools in transforming educational practices: A systematic review*. *Journal of Educational Research, 32*(1), 10-22.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Wang, S. (2024). *Artificial intelligence in education: A systematic literature review*.

Zafar, S. (2024). *Use of ChatGPT and generative AI in higher education*. *International RASD Journal of Education Research*.

Zhai, C. (2024). *Ethical concerns of AI in education: A review of privacy, security, and integrity issues*. *International Journal of Educational Technology, 11*(3), 233-240.