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THE IMPACT OF ARTIFICIAL INTELLIGENCE TOOLS USAGE ON UNIVERSITY STUDENTS' ACADEMIC INTEGRITY AND PERFORMANCE

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Artificial Intelligence Tools, Academic Integrity, Academic Performance, University Students, Technology Acceptance Model

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ABSTRACT

The widespread use of AI tools among university students has created both opportunities and challenges in higher education. As a result, students are increasingly integrating AI tools into their learning processes to support coursework, assignments, and exam preparation. In this research, impacts of use of AI applications on academic integrity and academic performance of PhD Education and MPhil Education students enrolled at University of the Punjab were explored. The research adopted a quantitative correlational design in which a sample of 200 postgraduate students was selected through convenience sampling technique. Data were collected using standardized questionnaire comprising 44 questions, which had a reliability index of the Cronbach Alpha = .85. Data analysis techniques used included descriptive statistics, correlation, regression, t-test & ANOVA. The findings revealed that students used AI technology such as ChatGPT, Grammarly, DeepSeek, and QuillBot to assist their writing and research processes. Regression analysis showed that both were positively and significantly predicted by the use of AI. Thus, this study therefore advocates for urgent actions on the part of universities to establish ethical policies, raise awareness & provide training on the AI usage.

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INTRODUCTION

The artificial intelligence applications are being adopted at growing rate in advanced studies for scholastic writing, research assistance, idea generation, editing & improving students' understanding of course content. The tools like Gemini, ChatGPT, QuillBot, DeepSeek and Grammarly now have become common among university students because they provide quick access to information and academic support. The quick expansion of generative AI has transformed way students complete

academic tasks and interact with learning materials (Grassini, 2023; Dwivedi, Kshetri & Hughes, 2023). Although AI tools offer several educational benefits, their growing use has created serious concerns for higher institutions. Universities and teachers are becoming concerned about academic honesty, originality of work, independent study proficiencies, possible decline of cognitive analysis & overdependence on AI-driven work (Ateeq, Alzoraiki, Milhem & Ateeq, 2024; Yusuf, Pervin & González, 2024). In many cases, educators face difficulties in distinguishing between responsible & irresponsible application of AI technologies in the scholarly activities. The students often use these technologies without clear understanding of institutional policies & responsible academic practices (Evangelista, 2024).

Artificial Intelligence (AI) technology's swift advancement has greatly influenced each aspect of the society especially higher education. In recent years, students at universities have increasingly relied on AI-powered tools like Gemini, ChatGPT, QuillBot, DeepSeek, Grammarly and various other AI-enabled generative tools to help them out in diverse academic tasks, research, thoughts creation, information summarization, language editing, and understanding complex concepts (Na, Heo, Han, Shin & Roh, 2022b). The utilization of AI-powered tools such as Gemini, ChatGPT, QuillBot, DeepSeek, Grammarly and multiple new AI-driven generative apps has transformed how learners engage through academic content, offering them quick access to the information and adapted academic assistance when they want it most (Castaneda & Selwyn, 2018). AI-powered education systems offer personalized guidance and feedback, helping to boost students' learning experience, engagement, and productivity, researchers have noted (Vieriu & Petrea, 2025). AI's use in the education sector has spurred many opportunities to enhance teaching and learning. Use AI tools to organize thoughts, enhance writing, streamline learning workload & gain deeper insights into course content.

The accountable apply of AI expertise has been found to enhance students' confidence, learning efficiency, and academic achievement in previous research (Ateeq et al., 2024). Similarly, in the educational area, employ of the AI can boost self-regulated concept in learning and offer flexible learning experiences for learners in higher education contexts (Dahri, Yahaya, Al-Rahmi, Alturki, Shutaleva & Soomro, 2024). Hence, the employ of AI applications in advanced education learners are gaining momentum rapidly across globe, particularly in Pakistan. In spite of these advantages, mounting use of artificial intelligence tools in learning further provoked several educational and moral issues. Concerns have been raised by scholars and educators about students' reliance on AI-generated content, decreased critical thinking abilities, overreliance on AI for homework, and potential cheating on exams (Evangelista, 2024; Yusuf et al., 2024). Despite the rapid progress of research, educational roles in the field of AI, and empirical evidence of associations between AI application as well as academic variables in the field of education, the current research has been negligible in the context of academic integrity and academic performance among post-graduate students in Pakistan.

Research Objectives

1. To measure university students' usage & perceptions regarding AI tools, academic integrity and academic performance.

2. To determine relationship between AI tools usage and students' academic integrity concerns.
3. To determine the relationship between AI tools usage and students' academic performance.
4. To investigate the impact of use of AI tools on students' academic integrity and performance.

LITERATURE REVIEW

In today's higher education landscape, artificial intelligence (AI) tools are becoming commonplace in academic life. Students at universities today are leveraging tools like ChatGPT, Grammarly, Quillbot, and AI tutors to aid them in various learning processes, from the academic writing and research to exam preparation and conceptual understanding. These tools are thus becoming more common because they are seen as being helpful in making tasks more manageable and efficient (Shehri, 2023). Empirical research shows that students are mainly using intelligent automation as supportive edifying tools quite than as a replacement for studying have thus become increasingly accessible to university students. AI-powered tools have been studied in academic environments, revealing that students apply them to summarize academic texts, organize written assignments, and improve arguments, especially in academic writing (Chen, Xie & Hwang, 2020). Such tools, when used interactively, can offer students support when needed, which can improve students' learning of course content and facilitate their adaptation of the academic pressure (Shikokoti, Chepkonga & Mutegi, 2025).

In the framework of advanced edification in Pakistan, specifically in the province of Punjab, there is an increasing trend among students to utilize applications powered by artificial intelligence. The evidence of higher student engagement with AI-driven applications is available in the structure of top tutoring in Pakistan. University students indicate that they apply artificial intelligence tools to analyze data, assist them through research, compose academic papers, and prepare for exams. Tools like Gemini, ChatGPT, QuillBot & Grammarly can reduce cognitive load, enhance language, and structure educational material while engaging the students in the generation of ideas (Krause, Panchal & Ubhe, 2024). AI tools like ChatGPT, Grammarly, and Quillbot can alleviate cognitive strain, refine language, and organize academic content, improving productivity and engagement for the students (Shahzadi, Saleem, Hameed & Rehman, 2025). These types of tools can also help students obtain information in timely and efficient manner & customize learning activities to their own speed. Despite these benefits, academicians point to standing of AI being used as instructional and supportive tools.

Despite the ability to tailor instruction and give instant feedback, human aspects of interpretation, creativity, and critical thinking are not part of the mix with AI-based technologies. For meaningful learning to continue, students need to be actively involved, reflective and interactive in academic settings (Vieriu & Petrea, 2025). Hence, the teaching learning process is affected by educational value of AI tools used, depending on how they are deployed. AI can be used in educational settings to either assist or replace, with researchers distinguishing between these two (Zawacki, Marín, Bond & Gouverneur, 2019). Assistive use is defined as assisting students in realizing academic concepts, enhancing quality of writing, and organizing academic tasks; and substitutive use is defined as AI completing academic tasks for students. Research suggests that assistive applications are aligned with learning goals, since they provide learning support without undermining students' thinking

and skill acquisition (Ateeq et al., 2024). Especially generative AI tools are a major paradigm shift in educational technology.

The goal of these systems is to generate content that is suitable for context and is similar to humans, by learning patterns from the large amount of data. They can also be used for academic tasks like tied to their responsible use to facilitate learning, not replace cognitive engagement (Phua, Neo & Teo, 2025). Academic integrity is the ethical support of higher education and grounded in values like sincerity, responsibility, justice, respect and accountability. It calls for researcher to be original, give credit to the sources used, and follow institutional ethical norms (Johnson & Smith, 2019). Academic policies, ethical principles and awareness building programs are used by universities to help foster academic integrity and ensure trust and credibility in academic activities (Hwang, Xie, Wah & Gasevic, 2020). Higher education institutions are using more tools/technologies that rely on the concept of AI, which brings up complicated understandings of academic integrity. However, as capable as AI tools are in aiding academic success and education, they present certain problems concerning plagiarism and the attribution of the authorship, in addition to the lack of originality and critical thinking.

AI's ability to produce academic work has made it harder to tell if a student's work is original or AI-driven, leading to ethical alarms. Accessibility of the AI apps to create academic content makes it challenging to find when students have produced original work versus AI-generated work, posing ethical issues (Phua, Neo & Teo, 2025). There are several studies that point out how beneficial AI tools are to academic performance, but come with significant ethical pitfalls. Studies conducted by various educational institutions have shown that students might be using AI to produce work for their projects, leading to lack of critical thinking, originality, or understanding and engagement of the learning material (Shikokoti et al., 2025). These can raise likelihood of plagiarism & cheating, especially when AI tools are utilized without proper attribution. The function of productive AI is exacerbated by these concerns as it generates human-like texts which can evade the traditional plagiarism tools. Students may become dependent on these tools and loose analytical and ethical abilities which can result in plagiarizing own work and cheating by providing assistance to others (Ateeq et al., 2024).

The challenges inform on the consequence of being careful to distinguish between proper academic assistance and improperly filling the student's work. The access to the information and academic support provided to students are enhanced, but the risk of misuse and unethical practices are heightened when there is lack of regulatory frameworks as well as digital inequalities (Shahzadi, Saleem, Hameed & Rehman, 2025). As a result, students are increasingly integrating AI tools into their learning processes to support coursework, assignments, and exam preparation. The application of the artificial intelligence (AI) tools in higher education has initiated to attract considerable interest because of their possible impact on academic students' performance (Shi, Cui, Zhang, Hui, Li, Ouyang & Pan, 2026). The academic integrity refers to the ethical principles of honesty, trust, fairness, respect, responsibility, and courage in educational activities. However, there is empirical evidence that (AI) enable information, by offering prompt academic help, aiding in comprehending

learning material, and facilitating student performance in learning assessments when employed as supplement to learning.

The research shows that in the academic environments, AI has optimistic impact upon the studious performance, helping students in their academic writing, research work, and understanding of the concepts (Shikokoti, Chepkonga & Mutegi, 2025). Likewise, students who used AI to aid in the understanding of lecture content had higher scores on written exams, especially when using tools to clarify and edit the text, but not to copy it (Shikokoti et al., 2025). AI applications can facilitate learning by improving access to information, supporting critical thinking, and enhancing problem-solving skills. However, the excessive dependence on AI tools may reduce students' independent learning abilities, creativity, and cognitive engagement. Moreover, AI aids in student achievement by enhancing efficiency and productivity. Automated feedback, automated data analysis support, and structured study assistance allow students to take control of academic tasks to be able to devote more time to deepening and problem-solving. AI tools can also help students grasp tricky concepts by providing explanations and alternative viewpoints, thereby improving their learning results (Abah et al., 2025).

RESEARCH METHODOLOGY

This research aimed to examine the relationship between concerns of academic integrity, usage of AI tools, and academic performance of university students. The type of research was correlational research. The population of the study consisted of MPhil and PhD education scholars learning at Institute of Education and Research, University of Punjab, Lahore. These students are postgraduate learners, are engaged in the academic writing, research activities, and are doing coursework, thus further to be expected to utilize AI tools for their academic work. The learners were from different specializations within the education programmes at IER. Students from both genders were included to gain a more comprehensive perspective of students' experiences using AI tools. The group was deemed appropriate for the study, as post-graduate students often use digital tools for research writing, assignments and academic reading, thereby increasing the opportunity of their interaction with these digital AI tools like ChatGPT, Gemini, Grammarly. 200 students (Master of Philosophy and Ph.D. level) enrolled at the Institute of Education and Research of the University of the Punjab took part in study.

Convenience sampling was used for selection of the participants. Convenience sampling is a kind of non-probability sampling where sample members are chosen based on what works best for the researcher. Given the focus of the study was AI tool usage among postgraduate students, the study targeted students who knew about or were using AI tools in their learning activities during regular class times. The primary way of collecting data was structured questionnaire. The questionnaire's three primary goals were to: (1) measure students' employ of AI tools; (2) gauge their apprehensions about academic integrity; and (3) estimate the impact of these tools on students' performance and academic integrity. There were 44 question items in all, divided among the three main sections of the questionnaire. This framework enables the examination of both direct effects of AI tool usage and the relationship between academic integrity and academic performance among university

students. Thus, the variables and their corresponding number of questionnaire items are presented in the table below:

Table 1 Research Variables and Questionnaire Items

Variables	Type of Variables	Number of Items	Item Range
AI Tools Usage	Independent Variable	22	Item 1 – 22
Academic Integrity Concerns	Dependent Variable	17	Item 23 – 39
Academic Performance	Dependent Variable	5	Item 40 – 44

This structure allowed the researcher to examine how the usage of AI tools and students' ethical perceptions influence their academic performance. Once the data collection was completed, the completed questionnaires were thoroughly examined to ensure they were filled out properly and accurate. All incomplete or unclear responses were verified and dealt with appropriately prior to data entry. Collected data were systematically coded & analyzed using descriptive and inferential statistics with SPSS.

RESULTS OF STUDY

All the statistics were analyzed by SPSS 16.0 version; descriptive statistics (mean and standard deviation) and inferential statistics (correlation, regression, t-test and ANOVA) were used for the presentation of data.

Table 1 Reliability Statistics

Cronbach's Alpha Value	Number of Items
.85	44

From the Cronbach's alpha value obtained, 0.81, the data and research instrument produced was considered to have good reliability that further ensured that construct have acceptable internal consistency in study

Table 2 Demographic Summary of Participants

		f	%
Gender	Male	125	62.5
	Female	75	37.5
Study Program	M.Phil	121	60.5
	PhD	79	39.5
Study Year	1st Year	56	28.0
	2nd Year	75	37.5
	3rd Year	27	13.5
	4th Year	42	21.0
Age	21-25 year	67	33.5
	26-30	92	46.0
	31=>	41	20.5
Total		200	100.0

Based on profile of participants, gender, academic, year of study and age diversity are moderate. Concerning gender, males comprised 62.5% of the sample while females comprised 37.5% which

implies that there were more males present than females. Majority of them had gone for Ph.D. (60.5%) while the M.Phil. scholars were 39.5%, thus the information obtained was largely from the perspective of M.Phil. students in the study program. With respect to distribution by study years, the second-year students showed to be highest in number (37.5%) and then the first-year students (28%). 4th year had students (21%) while 3rd year students had the least (13.5%). This implies that there was a greater representation of students during the middle stages, especially in second year. As for age, respondents were between 26 and 30 years old (46%), while 33.5% aged 21–25 and 20.5% were 31 or older. It means that respondents were composed of young adults as is common in post-graduate studies.

Table 3 Demographic Summary of AI Tools Used

	f	%
ChatGPT	100	50.0
Grammarly	9	4.5
Quillbot	18	9.0
Gemini	10	5.0
DeepSeek	63	31.5
Total	200	100.0

The participants also have their own preferences regarding use of AI tools. The most common tool was ChatGPT, used by 50% of respondents, indicating that it was the most popular and effective tool for academic or research purposes. The second most popular was DeepSeek used by 31.5% of the participants, suggesting it is another significant choice, likely due to its features or availability. Other tools, including Quillbot, Gemini, Grammarly, were far less frequently utilized with usage rates of 9%, 5% and 4.5%, respectively. This means that although these tools are offered, they are not as popular as ChatGPT and DeepSeek. The results indicated that participants are more likely to prefer multifunctional & conversational AI tool like ChatGPT than specific tools like Grammarly as well as Quillbot.

Table 4 Descriptive Statistics of AI Tools Usage

	Mean	SD
For me, academic tasks are more efficiently completed with the use of AI tools.	3.26	1.165
AI is a valuable resource for learning.	3.62	1.000
AI tools improve my learning and comprehended knowledge of course material.	3.82	.851
Using AI tools increases my academic productivity.	3.51	1.116
AI tools can help me to enhance my academic performance.	3.55	1.251
Learning to use AI tools for academic purposes is easy for me.	3.59	1.217
I find AI tools easy to use for my coursework.	3.58	.871
Interacting with AI tools does not require much effort.	3.50	.868
I can use AI tools without needing technical assistance.	3.69	.944
It is easy for me to become skillful at using AI tools.	3.65	1.060
Using AI tools for academic work is a beneficial practice.	3.61	1.012
I have a positive feeling toward using AI tools in my studies.	3.44	1.030
I enjoy using AI tools to support my academic activities.	3.59	1.043

I feel comfortable incorporating AI tools into my regular learning activities.	3.15	1.300
I intend to use AI tools for my academic work in the future.	3.36	1.008
I plan to continue using AI tools in my studies.	3.38	1.010
I am likely to use AI tools whenever they are available for academic tasks.	3.76	1.039
I expect my use of AI tools for academic purposes to increase.	3.70	.935
I frequently use AI tools to do assignments.	3.52	1.103
I utilize AI tools for writing academic work or research tasks.	3.50	.868
I use AI to understand abstract academic concepts.	3.65	1.115
AI tools are a regular part of my academic activities.	3.66	.812

The descriptive analysis of attitudes of 200 participants of using AI tools in academic activities shows a moderately to highly positive attitude, which is rated at 3.15 to 3.82. The highest agreement was given to the concept of AI tools facilitating learning and understanding (M = 3.82, SD = 0.851). The participants agreed that tools have educational value because these tools improve academic work (M = 3.62), help in performance (M = 3.55). To ensure ease of use, respondents felt comfortable using AI with technical assistance (M = 3.69), and were comfortable getting good at it (M = 3.65). The relatively small standard deviations indicate that there are stable perceptions within group. Attitudes: Participants enjoyed employ of AI tools (M = 3.59), were alert of the benefits of using AI apparatus (M = 3.61).

Nevertheless, they did not feel identical confident about integrating AI into their normal learning activities (M = 3.15), but some hesitation was observed. The future adoption was high among the participants with regards to behavioral intention. They tended to use AI tools, if available, (M = 3.76) and anticipated that they will use more of the tools in the future (M = 3.70). Agreement was moderate for continuing use (M = 3.38) as well as for academic use (M = 3.36). Finally, on practical application, the students moderately used the AI tools for assignments (M = 3.52), academic writing (M = 3.50), and understanding the complex concepts (M = 3.65). The perception that AI tools are increasingly becoming a normal part of educational activities (M = 3.66) shows their increasing use in students' learning.

Table 5 Descriptive Statistics of Academic Integrity

		Mean	SD
1.	I use AI to support thinking process, but do not expect it to replace my thinking.	3.72	1.072
2.	When using AI tools to prepare work, I adhere to guidelines as much as I can.	3.83	.978
3.	I think about what I have to say my use of AI in relation to values of integrity.	4.03	.804
4.	I am making sure to give own voice to my work instead of letting AI dominate.	3.61	1.203
5.	It is not unethical to create content using AI without giving attribution to it.	3.51	1.199
6.	When I get information from AI, I check it with reliable source: book or paper.	3.15	1.138
7.	I understand that AI tools can exhibit biases from research currently available.	3.19	1.175
8.	I am aware of misuse of the AI to have negative effect on the learning outcomes.	3.39	1.124
9.	At my University, I'm aware there are some penalties for the misuse of AI.	3.47	1.186
10.	I feel that using AI as a source of my own work is dishonesty in school.	3.49	.946
11.	I know AI tools can produce credible-looking but factually incorrect information.	3.56	1.137
12.	I understand AI tools can be misused to bypass plagiarism detection.	3.33	1.079

13.	I use AI tools to assist with improving grammar & clarity of academic writing.	3.47	1.041
14.	I find AI tools caring for clarifying complex ideas in early stages of writing.	3.74	1.107
15.	I rely on AI tools to help initiate writing tasks when I face difficulty starting.	3.66	1.091
16.	I use AI-generated suggestions to refine wording of my own original ideas.	3.60	1.169
17.	I use AI tools as support to check originality issues before submitting my work.	3.88	.938
18.	AI tools help me to meet requirements I previously found difficult to achieve.	3.72	1.072
19.	The use of AI tools has improved quality of academic work (research tasks).	3.83	.978
20.	AI tools have helped me understand course concepts & academic material.	4.03	.804
21.	Using AI tools have increased my productivity & task completion efficiency.	3.61	1.203
22.	Overall, use of AI tools has positively influenced my academic performance.	3.51	1.199

The descriptive data on academic integrity awareness and responsible attitudes of 200 students indicate that the students' awareness of academic integrity is generally at moderate to high level with mean value ranging from 3.15 to 4.03. The agreement on ethical awareness and compliance was highest with the item "Now try to think about whether use of AI is compatible with academic honesty (M = 4.03, SD = 0.804). The participants also indicated adhering to university guidelines (M = 3.83) and using AI to enhance their own thinking processes (M = 3.72). This demonstrates a high level of responsibility for upholding standards of ethics. About academic honesty and perceptions of the academic misconduct, participants all agreed that using AI-generated work as their own is considered misconduct (M = 3.49) and creating content without attribution is considered unethical (M = 3.51). Moderate scores indicate that there is awareness, yet this is not necessarily internalized by everyone.

Lower scores were found for verifying information generated by AI (M = 3.15) and for identifying AI biases (M = 3.19), indicating that these are areas that need to be improved for critical evaluation and responsible use. This means that there are shortcomings in fact checking and critical engagement that are vital to integrity. The participants were somewhat aware of risks consequences, especially of how overreliance on AI can negatively affect learning (M = 3.39), how there can be disciplinary consequences (M = 3.47), and how AI can generate false information (M = 3.56) or be misused to cheat on plagiarism checks (M = 3.33). Students stated using such tools as ChatGPT and Grammarly to help them with grammar, to clarify thoughts, to get started on writing tasks, and to edit their work for practical and purposes, with mean scores ranging from 3.47 to 3.74. This shows AI is mainly used as an aid rather than substitute. Lastly, as regards academic results, participants indicated positive effects, understanding course material better (M = 4.03), better performance (M = 3.51), and higher productivity (M = 3.61).

Table 6 Descriptive Statistics of Academic Performance

		Mean	SD
1.	I use AI to help me fulfill academic standards that I find challenging.	3.89	.859
2.	I have used AI tools to enhance work, research tasks (improving quality).	3.70	.981
3.	AI tools have helped me to gain better understanding on academic material.	3.56	1.119
4.	Using AI tools increased academic productivity & task completion efficiency.	3.50	1.022
5.	Overall, use of AI tools has had positive impact on my academic performance.	3.43	1.054

The academic performance descriptive data reveals that overall, the students perceive AI tools as positively influencing their learning with mean scores in the range of 3.43 to 3.89. With the highest score (M = 3.89, SD = 0.859), it can be inferred that AI tools are contributing to overcome challenges handle complex tasks to meet scholarly requirements, which was previously difficult. Participants also found that AI tools assist them to get better the excellence of their teaching (M = 3.70), which better understanding of the concepts they learned from the course (M = 3.56), indicating that they are useful tools for learning. When it comes to productivity, the mean score (M = 3.50) suggests that AI tools usefully add to students' productivity, enabling them to finish tasks more quickly, which can be useful in workload management. The perception of assenting effect of AI tools on scholastic performance (M = 3.43) supports the known importance of AI tools, though there was a slightly lower result than other items, indicating that not everyone feels this effect of AI tools to academic performance as strongly.

Table 7 Pearson Product Moment Correlation Coefficient (N=200)

Variables	'r'	'p'
AI tools usage and Perceived academic integrity score	.571	.001

The overall result of the Pearson product moment correlation analysis indicates a moderate positive correlation between the use of AI tools and students' perceptions of academic integrity ($r = 0.571$, $p = 0.001$, $n = 200$). The correlation coefficients of 0.571 specify that greater application of AI tools is linked with high rank of supposed scholastic veracity. Teachers who use AI tools more frequently are more likely to engage in responsible and ethical academic practices. Since p value is less than 0.05, it is statistically significant and chance cannot explain this result. The correlation is moderate, indicating that AI tools is linked with academic integrity, but not exclusively. Factors like personal ethics, institutional policies and knowledge of academic rules and regulations can also impact the students' integrity.

Table 8 Pearson Product Moment Correlation Coefficient

Variables	'r'	'p'
AI tools Usage and Perceived academic performance score	.526	.001

According to Pearson product moment correlation analysis, there is reasonable positive correlation amid employ of AI tools and students' academic performance ($r = 0.526$, $p = 0.001$, $n = 200$). The correlation coefficient of 0.526 point toward the use of AI tools if increases, students are inclined to their studies. The p value is very low (0.001) and significantly less than the 0.05 level, indicating that this relationship is not coincidental but is statistically noteworthy. The correlation is moderate, indicating that employ of AI tools has a significant force on academic achievement, though it is not solely responsible for it. Other factors like study skills, motivation or teaching methods can also be vital for performance.

Table 9 Inter-correlations among Study Variables

	1	2	3	4	5	6	7	8	9
Perceived Usefulness	-	.712**	.789**	.658**	.670**	.486**	.407**	.428**	.524**

Perceived Ease of Use	--	.827**	.525**	.590**	.460**	.317**	.322**	.359**
Attitude toward using AI Tools		--	.592**	.700**	.542**	.504**	.536**	.490**
Intention to Use AI Tools			--	.647**	.490**	.305**	.348**	.449**
Actual use of AI Tools				--	.372**	.522**	.460**	.429**
Ethical use of AI					--	.653**	.633**	.783**
Awareness of Misuse Risks						--	.689**	.675**
Academic Writing Support							--	.733**
Academic Performance								--

The correlation found is statistically significant at 0.01 level (both-tailed). Within the study positive correlation values were significant ($p < 0.01$) for all the study variables. The findings point out that student who perceived AI tools as helpful and user-friendly exhibited positive attitude, behavioral intention, and actual usage of AI tools in their studies. The outcome showed that there were high positive correlations amid perceived usefulness and perceived ease of use ($r = .712$), amid attitude toward AI tools and attitudes toward actual usage ($r = .789$, $r = .670$ respectively), suggesting that when students perceived the utility of the AI tools, they tended to have more affirmative attitudes toward the tools and use them more. Perceived Ease of Use also had a high correlation with Attitude toward Using AI Tools ($r = .827$), suggesting that user-friendly the AI tools are, positive attitudes to using them are.

Likewise, Actual Use of AI Tools ($r = .700$), Ethical Use of AI ($r = .542$) were correlated with positive attitude towards using AI tools. The strong positive correlations for Ethical Use with Awareness of Misuse Risks ($r = .653$), Academic Writing Support ($r = .633$) and Academic Performance ($r = .783$) demonstrate the positive impact of responsible and principled employ of AI in academic contexts. there was positive correlation amid Academic Writing Support and Academic Performance ($r = .733$), indicating that the use of AI tools for writing enhances student academic performance. The results highlight vital responsibility of positive perceptions, principled use, awareness, academic support in fostering better academic outcomes and increasing acceptance of AI technologies in the edification division.

Table 10 T-Test for Perceived AI Tools Usage Scale with Regard to Gender

Variable	Gender	N	Mean	S. D	t	DF	SIG
AI Tools Usage	Male	125	3.60	.622	1.442	198	.151
	Female	75	3.46	.685			

A one-way independent samples t test was applied to examine if the participants' perceived AI tool use scores were significantly different when broken down by gender. 125 males and 75 female students were the sample. Regularity and homogeneity of variance tests were performed, and the results showed that the data was suitable for parametric testing. The findings point out that student who perceived AI tools as helpful and user-friendly exhibited positive attitude towards the research variables. Results indicated that male students tended to report a higher mean score ($M = 3.60$, $SD = 0.622$) than female students ($M = 3.46$, $SD = 0.685$), but the disparity was not significant.

Results of the independent samples t-test exposed no statistically significant difference, t (198) = 1.442, p = 0.151.

Table 11 T-Test for Perceived Academic Integrity Scale with Regard to Gender

Variable	Gender	N	Mean	S.D	T	DF	SIG
Academic integrity	Male	125	3.55	.688	.310	198	.757
	Female	75	3.59	.711			

An independent samples t test was performed to compare the difference between the perceived academic integrity of 125 boys and 75 girls. It was determined whether the difference between the means scores of both groups was statistically significant enough to indicate a generalizable trend to support this method. Results indicated that females (M = 3.59, SD = 0.711) scored a slightly higher than males (M = 3.55, SD = 0.688) however the distinction was not statistically significant, t (198) = 0.310, p = 0.757.

Table 12 T-Test for Perceived Academic Performance Scale with Regard to Gender

Variable	Gender	N	Mean	S.D	T	DF	SIG
Academic performance	Male	125	3.60	.641	.601	198	.548
	Female	75	3.66	.680			

An independent samples t-test was used to conclude divergence between the means of male and female students in terms of perceived academic performance. A total of 200 people were analyzed (125 males & 75 females). The purpose of analysis was to determine if the dissimilarity in the mean scores among groups was large enough to represent a general population trend. The descriptive statistics showed that females (M = 3.66, SD = 0.680) achieved slightly raised than males (M = 3.60, SD = 0.641) but independent samples t-test discovered no statistically significant difference, t (198) = 0.601, p = 0.548.

Table 13 ANOVA for AI Tools Usage Based on Study Year

	Sum of Squares	DF	Mean Square	F	SIG.
Between Groups	.376	3	.125	.295	.829
Within Groups	83.200	196	.424		
Total	83.576	199			

A one-way ANOVA was conducted to conclude if there was any distinction in the use of AI tools across study years. Study year was used as independent variable (4 categories: 4 years of the typical degree program) and the mean score for AI tools usage as reliant variable. The aim of this analysis was to examine as students at diverse level of academic in different extents. The results indicated that students in diverse years of study did not differ pointedly for perceived AI tool usage, F (3, 196) = 0.295, p = 0.829.

Table 14 ANOVA for Academic Integrity Based on Study Years

	Sum of Squares	DF	Mean Square	F	SIG.
Between Groups	.576	3	.192	.394	.757

Within Groups	95.496	196	.487
Total	96.072	199	

A one-way ANOVA was exercised to contrast the perceived academic integrity amid the study years. Year of study was the independent variable with the four levels corresponding to students' advancement in a degree program, and the mean integrity score was the dependent variable. For this analysis the size of the sample was set to total 200 participants (N = 200). The results showed no differences in students' perceptions of academic integrity across all study years with F (3, 196) = 0.394, p = 0.757.

Table 15 ANOVA for Perceived Academic Performance Based on Study Year

	Sum of Squares	DF	Mean Square	F	SIG.
Between Groups	1.183	3	.394	.918	.433
Within Groups	84.177	196	.429		
Total	85.360	199			

One way ANOVA was performed to establish if there was any significant divergence in perceived academic performance for the various study years. The independent variable was the progression of years of study within the degree program with four groups, and the dependent variable was self-reported academic performance. The findings showed that perceived academic performance was consistent across the study years, with no statistically significant difference, F (3, 196) = 0.918, p = 0.433. The overall differences in performance scores (SS = 85.360) were accounted for mainly by differences between the individual students in each study year, rather than by differences between the study years.

CONCLUSION

The results concluded that post-graduate student academic writing is influenced by employ of AI tools for inscription support, research assistance, editing, idea generation and understanding the meaning of course concepts. The students saw AI tools as valuable, trouble-free to use, and helpful technologies that enhanced their productivity and efficiency in learning. The study also initiated that the exploit of AI tools has an optimistic impact on the students' self-assessment of instructive achievement. The findings indicated that employ of AI technologies significantly aided scholars in their academic tasks, enhancing their understanding of material, academic writing, and efficiency in completing work. The positive correlation and regression findings validated that was optimistic relation amid the use of AI tools and perceived academic performance in post-graduate students. The results exposed that students knew there were concerns regarding academic integrity with the employ of AI tools.

The participants were aware of the potential for problems with plagiarism, originality, and studious truthfulness in cases where AI-formulated content is used inappropriately or excessively. The study also found that students who used AI tools regularly had higher levels of ethical understanding about academic work and accountable use of AI. Based on the conclusions drawn from the study, it is clear that AI tools have a constructive impact when they are exercised in a principled and liable

manner in higher education. However, if the employ of AI in producing work is not accompanied by the proper consciousness and institutional guidance, it can have an adverse impact on genuine learning, academic integrity. Thus, incorporating AI technologies into learning/education system in balanced and principled manner is essential to harness educational value of AI while minimizing any risks it poses.

Recommendations

1. The universities should create clear policies & ethical frameworks on responsible utilization of AI tools in academic research; this will help in improving the quality in teaching as well research in institutions.
2. The workshops, seminars, and awareness programs should be organized by the educational institutions to educate the students about ethical apply of the AI, prevention of copying, and academic integrity.
3. The students' teachers and supervisors should lead students in using AI technologies in class assignments, research and academic writing appropriately and responsibly to address the potential outcomes.
4. The higher education systems should integrate AI literacy and responsible technology use into education to endow scholars with tools to critically assess AI-generated content toward better consequences.
5. The university educators and administrators should make sure that scholars are able to use AI tools to support them, while not depending greatly on AI-generated work to produce the innovative outcomes.
6. The colleges and universities need to continually review assessment practices and academic work to answer for the issues caused by new AI technologies in higher education to ensure the genuine outputs.
7. Further research is recommended in the future to investigate the instructive forthcoming of AI tools usage with the larger samples, various research designs, and other universities and educational levels.

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