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University Student Attitudes Towards Artificial Intelligence Integration into their Academic Performance

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Abstract - **The integration of artificial intelligence (AI) becomes more common in education, so it is crucial to be aware of students' perspectives towards the effective use of implementing AI in education. This study employed a mixed-methods approach to incorporate a researcher-made questionnaire with 385 participants and semi-structured interviews with 69 students from three institutions in Vietnam. Descriptive statistics and correlation analysis were used to examine the quantitative data, and thematic analysis was employed to address the qualitative data. The results reveal that although the participants have neutral stances on the acceptability of AI in education, they also express positive and negative opinions on the acceptance and uncertainty about AI's capabilities to enhance their academic performance. Besides, digital skills, previous experience with AI, institutional support, and ethical concerns are the main factors of acceptance and use. The participants feel concerned about whether the AI application may improve their academic integrity, privacy, and critical thinking. It is, therefore, necessary for students to receive institutional support for AI training by providing more explicit principles and resources for AI adoption. Additionally, the study reveals that AI has great potential, but it should be integrated into higher education with considerable care to solve ethical issues and allow the students to be trained and supported. Universities must give importance to AI literacy programs and set principles of ethics to foster a more positive and productive relationship between students and AI technologies.**

Keywords: **AI Integration, Educational Policy, Ethical Considerations, Higher Education, Pedagogical Innovation**

I. INTRODUCTION

One of the most prominent developments influencing industries that include higher education is the emergence of AI (Schwab, 2016). As AI-driven technologies are becoming commonplace in universities, students are presented with novel opportunities to enhance their academic performance through intelligent tutoring systems, automated grading algorithms, AI-assisted research tools, and sophisticated plagiarism detection mechanisms (Brynjolfsson & McAfee, 2014; Aoun, 2024). These developments may reform educational processes, decrease ministerial interference and resistance to technology, and ensure personalized learning experiences (Steele, 2023; Wang et al., 2023a). The integration of AI into education has both opportunities and challenges. Likewise, AI has the potential and challenges in the field of education (Mitra & Shah, 2024). As AI can help optimize the learning process, automate repetitive tasks, and offer personalized educational support, there remain many ethical and technological dependency concerns about the impact of AI on critical thinking (Crawford, 2021; Bostrom, 2014). Students' willingness to use AI-based tools determines their actual usage, and these tools can be influenced by digital literacy, previous experience with AI, institutional encouragement, and social acceptance (Maheshwari, 2024; Le et al., 2020). Positive attitudes can impact AI acceptance as they are excited how they are able to personalize it for learning achievement, and scepticism and ethical concerns decrease the willingness to participate (Duong et al., 2024; Nguyen et al., 2024). Students' attitudes towards AI tools further enable valuable inputs for educators and policymakers to determine how to integrate AI tools, address the future of work automation fears, and frame AI through an ethics lens (Brossi et al., 2022; Yadav, 2024). Understanding the impact of AI on university academic performance, both positive and negative aspects, can help universities make informed decisions regarding incorporating AI in the university curricula and the support systems.

The primary purpose of this paper is to investigate university students' attitudes towards AI in terms of academic performance, and adoption of AI-based learning resources (Balaji et al., 2022). It is designed to pinpoint the primary factors that influence students' viewpoints, such as technological literacy, institutional policies, ethical considerations, and prior exposure to AI applications (Quy et al., 2023; Sajja et al., 2024). Furthermore, this study also investigates how the implementation of AI in education will impact the learning habits, cognitive development, and integrity of students, which can lead to examining whether the use of AI will improve learning or pose authenticity and dependence on scholarly work (Shannaq & Al-Zeidi, 2024; Zhai et al., 2024; Duhaim et al., 2024). Besides, the study

provides profound perspectives to enable universities, educators, and policymakers to determine relevant strategies for responsible and effective AI adoption in higher education to meet these objectives. It contributes to the broader context of AI-supported learning by investigating student's engagement behaviours, expectations and concerns (Johnson & Mohamed, 2025; Walter, 2024). An awareness of such conditions that influence how students interact with AI can inform institutional policies regarding using AI to drive technology from a pedagogical standpoint that pushes forward thinking but ensures cognitive development and maintains ethical and moral practices (Seyedan & Fakur, 2014).

It is crucial to conduct this research in developing countries like Vietnam, as students in these countries confront distinct educational environments and technological acceptance challenges (Bui et al., 2025; Thuy et al., 2022). Although the integration of AI into education becomes increasingly popular, it possibly encounters imbalanced progress in having access to advanced technology, digital literacy, and institutional support among students, especially in developing countries (Varsik & Vosberg, 2024). Vietnam, for example, has made a considerable progress in the integration of techno-education within its entire levels of education, but there are still many issues which are required to address, such as the disparities in AI resources, the affordability of AI technology, and the inadequacies of digital infrastructure (Truong & Diep, 2023). Understanding students' attitudes and readiness towards AI within this broader context might help universities and policymakers implement AI-driven educational tools in a way that is equitable, effective methods to satisfy the local needs (Quang, 2025; Maheshwari, 2024). Moreover, the findings of this study can do much to help in narrowing the digital divide and encouraging AI education, and it demands that students in developing countries are not disadvantaged with respect to accessibility of AI in their pursuit of academic success. As a result, the research aims to answer the following questions:

1. How do university students perceive the AI integration into their academic performance?
2. What factors influence students' acceptance and engagement with AI-assisted educational tools?

II. Literature Reviews

A. Reviewing the Role of Artificial Intelligence in Higher Education at the Present

The potential to transform education in meaningful ways is present with AI, offering resources to make academic work more time-saving and supporting personalised learning. As postulated by Brynjolfsson and McAfee (2014), AI can automate routine academic tasks like grading, feedback, and research, allowing students and educators to concentrate on more intellectually demanding aspects of education (Hadi et al ., 2025). For example, intelligent tutoring systems can provide customized instruction that adapts to the specific needs of individual students, enabling them to be self-paced in their learning and instantaneous in their feedback (Steele, 2023). AI can facilitate academic research by providing access to huge volumes of data, analyzing trends, and identifying relevant materials that students might have overlooked (Wang et al., 2023a). Furthermore, AI-powered tools can be applied to accommodate different type of students. For instance, AI can determine what students do well or poorly and find a content that meets their need which makes learning much faster and effective (Al-Mamoori et al., 2022). This individualized learning is more relevant in higher education, where students come in with different levels of prior knowledge and learning preferences (Maheshwari, 2024). AI can help make education more inclusive by aiding disabled students, i.e., using text-to-speech software for blind students or adaptive learning systems for students with learning disorders. But a revolution in higher education would also raise major questions about what role AI should play. Among the issues raised are that the large-scale implementation of AI may supersede human educators and limit students' chances to interact face to face with mentors. As Crawford (2021) and Brossi et al. (2022) argue that overdependence on AI could erode cognitive abilities such as critical thinking. Thus, AI tools may enable quick responses to problems or tasks, encouraging students to look for quick answers rather than deeper cognitive processes, thus hindering the development of important problem-solving and analytical skills.

B. Some Factors Influencing Students' Attitudes Towards Artificial Intelligence

The acceptance of AI-based learning tools by students is likely to be impacted by other considerations such as digital literacy, previous experience with AI technologies, institutional support and social acceptability of AI. Johnson and Mohamed (2025) note that AI tools are likely to be adopted more amongst students with strong digital literacy, who perceive they will support their academic performance. Digital literacy encompasses not only technical skills but also an understanding of how AI tools work and how to use them effectively. Digitally proficient students would be more poised toward AI-driven educational systems and can use these technologies to enhance their learning experience. Russell and Norvig (2021) claim that previous AI experience, however, has a strong influence on attitude for students. Le et al. (2020) find that there is a prior using experience and the attitude from students towards using AI tools, such as AI chatbots or virtual assistant, which influences to use AI for academic works. Conversely, students that have little prior experience with AI may be reluctant to use the tools if they are unsure whether they are dependable or effective. Another factor determining use of AI by students is institutional support. Duong et al. (2024) contends that tertiary institutions provide appropriate guidance for students to meet the challenges of the effective use of AI technologies. Universities that provide guidance on the responsible use of AI and that incorporate issues related to AI into their curricula are more likely to foster a positive attitude towards AI adoption. One way in which such institutional support can be

provided is through an opportunity for AI-enhanced learning via access to AI-enhanced learning platforms, workshops that raise awareness on the use of AI tools, and encouragement of the incorporation of AI in teaching practices among faculty members (Quy et al., 2023). Beyond institutional facilitation, general societal acceptance of AI somehow influences students' perceptions of such technologies. As AI becomes more prevalent in society, students are more likely to view it as a valuable tool for academic success. Shadbolt and Hampson (2024) argue that the increasing integration of AI into various industries, such as healthcare, finance, and entertainment, contributes to its growing acceptance in education. Nevertheless, the acceptance level could differ among regions and cultures, as students from developing countries, like Vietnam, encountered differences in the digital divide challenge (e.g., access to technology and digital infrastructure) (Bui et al., 2025; Thuy et al., 2022).

C. Some Concerns in Relation to the Matter of Ethical and Privacy

There are such concerns over privacy and ethical issues when educational institutions are increasingly using AI tools. An initial ethical dilemma is the issue of AI-generated academic work and the avoidance of plagiarism or academic dishonesty. Song (2024) argues that AI-generated content, such as essays or research papers, cannot be written by students, and that may encourage students to avoid academic study and submit someone else's work. The issue of whether the work submitted by students is genuinely their own or the result of external influences impacts notions of academic integrity. Another ethical issue is the potential of AI systems to lower students' capacity to think critically. When students utilize AI tools for instant answers and feedback, it is likely that they will not critically analyze the material presented to them. As Strielkowski et al., (2025) caution that there is increased concern that AI tools are influencing the student's overall cognition, including the critical thinking abilities required within higher education. There are also issues related to privacy implications regarding the potential access these AI tool may have to a personally identifiable information, academic history, learning preferences, and even biometric information (Roche et al., 2022). The processes of gathering and utilizing such information are vulnerable to infringing privacy, security, and unethical surveillance. There is a call for robust policies and guidelines dealing with AI deployment to include the ethical and responsible use of AI in education while protecting students' sensitive information (Yadav, 2024).

D. Artificial Intelligence Impact on Student Cognitive Development and Learning Habits

Presumably, AI can facilitate the enhancement of problem-solving skills and critical thinking competencies. AI gives tailored feedback through intelligent tutoring systems that adjust to the student's performance and progress, which adapts to their performance, resources, and overall progress (Zhai et al., 2024). The student-centric model allows students to access difficult academic material more efficiently and learn more actively. As noted by Shannaq & Al-Zeidi, (2024), over-reliance on AI technologies may negatively impact students' cognition. Students' abilities to think critically and solve problems independently may be AI undermined by an overdependence on solutions provided by AI. AI tools that aim to furnish answers effortlessly can inhibit the development of advanced skills and stifled thinking at deeper levels (Zaidi et al., 2024). AI also has the potential to shape students' learning behaviors. Sajja et al., (2024) reported that students who were able to study with AI claimed that they developed better study habits, including enhanced time management and more efficient completion of tasks. AI automates the process of data analysis and research, giving students the freedom from routine jobs, so they can concentrate on more complex issues and improve productivity. However, one risk is that students may develop over reliance on AI in completing school work, which may potentially reduce self-regulated learning (Adiguzel et al., 2023).

E. Challenges Regarding the Emerging Issues of Equity and Accessibility

For developing countries, the use of AI technologies for higher education introduces new sustainability issues for equity and access. For students in places like Vietnam, the gaps in access to sophisticated AI technologies, digital infrastructure, and skills in digital literacy pose problems (Akour & Alenezi, 2022; Quang, 2025). The current digital divide also hinders students' full use of Al educational resources in these areas, increasing the discrepancy in educational resources for them. Policymakers and universities have a responsibility to ensure equity that will allow these students to access AI technologies and resources. Such actions involve improving digital infrastructure and digital literacy and underscoring socioeconomic access to educational AI resources (Varsik & Vosberg, 2024). Intentionally guiding AI literacy through these barriers makes it possible to empower every student academically, as Tang et al., (2023) propose. It is indisputable that incorporating artificial intelligence into higher education can greatly enhance academic achievement and enrich the overall learning experience. Highlighting these opportunities would be helpful; however, the effective use of AI depends on factors like student attitudes toward AI, institutional support, and the ethics of using AI. Although AI may enhance cognitive development, academic achievement, and improve learning habits, it raises significant issues related to privacy, academic honesty, and overreliance on technology.

III. METHODS

A. Research Design

As a mixed-methods approach, the study aimed to explore university students' perspectives of AI in their learning experiences across different universities through a researcher-designed survey and semi-structured interviews with the students. Participants' perspectives were collected using two research instruments. The quantitative component

had a 45-item attitude questionnaire with a five-point Likert scale for measurement, while qualitative data was obtained through semi-structured interviews with a purposive sample of students to enhance understanding of their perceptions. In an effort to deal with the unknown number of university students, probability sampling techniques, as proposed by Cochran (1977), were utilized to determine an optimal sample size of 385 participants from three different universities in Vietnam. The dataset was rigorously screened for quality and validity before analysis. Quantitative was further analyzed using IBM SPSS V.27, and voice recordings were coded and handled by NVivo V. 12 to optimize for theme construction analysis.

B. Participants

The demographic information of 385 respondents was determined by using Cochran's (1977) probability sampling techniques. The gender shows that 46.5% of participants are male (179 students), and 53.5% are female (206 individuals). The students' academic years include 33.0% of respondents classified as freshmen, 31.4% as sophomores, 27.0% as juniors, and 8.6% as seniors. Concerning the university involvement, 30.6% of participants are from Hanoi Law University (HLU), 35.8% from Thai Nguyen University of Technology - Thai Nguyen University (TNUT), and 33.5% from Tan Trao University (TTrU). As for self-assessed information technology proficiency, 46.0% of respondents consider their skills to be "good," 43.4% categorize them as "quite good," 6.2% rate them as "not good," and 4.4% deem their skills "excellent," indicating that the majority of participants perceive their IT abilities as at least satisfactory.

C. Research Instruments

The research instruments consist of two distinct components: a structured 45-item five-point Likert scale questionnaire and a semi-structured interview protocol. The questionnaire is systematically divided into five thematic categories, each comprising nine items: perceptions of AI in education, acceptance and engagement with AI tools, ethical and privacy concerns, institutional support and AI training, and impact on academic performance. The participants evaluated from 1 (strongly disagree), 2 (disagree), 3 (neutral), and 4 (agree) to 5 (strongly agree). The semi-structured interview questions were taken out of these categories, ensuring consistency across data collection methods. The research instruments were constructed with the attitudinal criteria proposed by Dörnyei and Dewaele (2022). To enhance the validity and reliability of the instrument, a questionnaire was first pre-tested in a pilot study with 25 voluntary students. After that informed empirical responses led to several modifications of the instruments. The questionnaire's reliability was assessed using Cronbach's alpha coefficient, achieving scores from 0.71 to 0.91, which was regarded as high internal reliability. Furthermore, the semi-structured interview themes were developed based on the thematic framework to work towards a wholesome qualitative insight. Before implementation, the research instruments were consulted by expert review, with three specialists providing content validation. Finally, the instruments were fine-tuned through an iterative process to enhance clarity, relevance, and methodological quality criteria before their official use in the study.

D. Research Procedure

After receiving permission from three university administrators to conduct it, the questionnaires were then sent to the student email addresses with the link to Google Forms and a letter explaining how to answer the survey. Also, the students were invited to voluntarily engage in semi-structured interviews to provide further qualitative insights. As a result, 69 students consented to participate in telephone-based interviews, with explicit authorization for their responses to be recorded for research purposes. Upon completion of data collection, both quantitative and qualitative datasets underwent a rigorous data screening process to ensure validity and reliability, thereby enhancing the integrity of the study's findings.

E. Statistical Tools

The quantitative data analysis was conducted using IBM SPSS V.27 via descriptive and inferential statistical techniques. Survey responses from 385 participants were analyzed, with demographic information presented through frequency and percentage distributions. A total of 45 questionnaire items were examined using mean scores, descriptive statistics, and standard deviation based on Likert-scale responses. The Likert scale categories were as follows: strong disagreement (1.0-1.80), disagreement (1.81-2.60), neutrality (2.61-3.40), agreement (3.41- 4.20), and strong agreement (4.21-5.00). Furthermore, correlation analysis was conducted to explore relationships between variables, such as AI engagement and perceived academic benefits. Regression analysis was performed to identify the factors influencing students' attitudes toward AI adoption. For qualitative data analysis, thematic analysis was utilized to code and interpret interview responses from 69 participants, focusing on five key aspects. The analysis was facilitated using NVivo V.12, a qualitative analysis software. Emerging themes were categorized to complement the quantitative findings, offering more profound insights into student perspectives, concerns, and recommendations regarding the use of AI in education.

IV. RESULTS AND DISCUSSION

The results in Table I reveal that students generally hold neutral attitudes toward many aspects of AI integration, with a notable shift toward stronger agreement regarding its necessity in modem education. For instance, responses to "AI technology enhances the overall learning experience in university education" (M = 3.10; SD = 0.736) and "AI-powered tools improve the efficiency of academic tasks such as research and writing" (M = 3.26; SD = 0.945) indicate a cautious yet neutral stance, signaling that while students see potential in AI, they are not fully convinced of its transformative impact. This observation aligns with Brynjolfsson and McAfee's (2014) assertion that while AI can automate and enhance academic tasks, its acceptance in

educational contexts is often tempered by uncertainty and ambivalence. In contrast, the statement "The use of AI in education is necessary for modem university learning" (M = 4.00; SD = 0.808) received stronger agreement, indicating that students acknowledge AI's crucial role in modernizing higher education. This supports previous research, such as Steele (2023), who argues that Al's role in facilitating personalized learning experiences and streamlining administrative tasks is critical for the evolution of academic institutions. While the overall trend leans toward neutrality, the item "AI can effectively replace traditional learning methods" (M = 2.98; SD = 0.802) suggests skepticism about AI's ability to fully replace human-driven pedagogical approaches. This finding contrasts with the views expressed by Aoun (2024), who advocates for Al as a potential substitute for traditional teaching methods. Contrasting with the earlier responses, students' answers to "AI-generated academic insights are as reliable as human-generated insights" (M = 3.03; SD = 0.773) reflect an AI-averse academic stance and AI-distrust which further demonstrates reluctance to completely integrate AI into academic work. From this, it can be inferred that students consider Al technology an adjunct, not a substitute for instructors and critical thinking, supporting Crawford's (2021) worries on the potential of AI technology in supporting an intellectual decline in critical thinking and problem-solving capabilities.

The "Acceptance and engagement with AI tools" part of the study shows that respondents are still hesitant to fully embrace the use AI academically. For instance, the mean response to the statements "I actively use AI powered tools to assist in my academic tasks" (M = 3.00; SD = 0.810) and "I feel comfortable relying on AI for academic support" (M = 2.50; SD = 0.501) suggests that students are not AI averagers at all. This aligns with Le et al. (2020), who suggest students' prior encounters with AI and their tech savvy greatly determines whether or not AI will be adopted in an educational context. The lack of enthusiasm towards AI tools by students concurs with the findings of Maheshwari (2024) where the argued that the reason for underutilization of AI technology in higher education is a result of inadequate digital skills and a general apprehension towards technology. At the same time, the average response to "I am willing to explore new AI technologies for academic purposes" (M = 3.03; SD = 0.801) shows that students are somewhat willing to try adopting newer Al tools into their academics if proper change management practices are employed. The existing data reveals that students have a considerable amount of concern with the ethical aspects of AI in education and its privacy implications. Participants were concerned with AI's capability to erode academic integrity and development, as shown by their responses to "AI-generated academic work may encourage plagiarism" (M = 4.09; SD = 0.772) and "AI tools could negatively impact students' ability to think critically" (M = 4.00; SD = 0.815). These outcomes correspond with the conclusions of Song (2024), who cautioned that access to AI-generated content could foster academic dishonesty while hindering the development of important cognitive skills. Privacy issues also showcase a great deal of concern as expressed by "AI applications may misuse or expose personal academic data," (M = 3.87; SD = 0.816) which points to the need for strong safeguards to ensure students' data is kept confidential and protected. This issue parallels Yadav's (2024) findings, who argues that ethical frameworks and clear data governance policies concerning AI technology in education are imperative. Students' strong agreement to the statement "AI-powered educational tools should prioritize data security and privacy" (M = 4.06; SD = 0.833) lends support to the call for AI systems to be built with user privacy as a fundamental expectation.

Institutional support and AI training are areas where students express moderate to low satisfaction. Items such as "My university provides adequate training on the use of AI-powered educational tools" (M = 3.02; SD = 0.769) and "AI-related policies in my university are clear and well-communicated" (M = 2.28; SD = 0.704) reveal that many students feel underprepared to use AI tools effectively. This lack of institutional support aligns with findings from Duong et al. (2024), who suggest that universities may be failing to provide sufficient training and resources to equip students for the integration of Al in their academic work. The item "AI training should be incorporated into university courses" (M = 3.37; SD = 0.887) reflects students' recognition of the need for formalized AI education, which is currently underrepresented in university curricula. This gap in institutional preparedness poses a significant challenge, as highlighted by Russell and Norvig (2021), who argue that effective AI integration requires comprehensive institutional support and alignment with broader educational goals. Finally, the "Impact on academic performance" section reveals a mixed perception of AI's contribution to student success. While students express neutral views on the statement "AI-powered tools positively influence my academic performance" (M = 3.07; SD = 0.828), responses to "AI improves my ability to analyze and synthesize academic information" (M = 2.70; SD = 0.682) suggest that AI is not widely perceived as enhancing higher-order cognitive skills such as critical analysis. This finding contrasts with the work of Shannaq and Al-Zeidi (2024), who argue that Al can play a crucial role in developing complex problemsolving abilities. However, students' neutrality toward statements like "AI has made learning more interactive and engaging" (M = 3.02; SD = 0.810) suggests that while AI tools may enhance engagement, they are not yet transformative in promoting deeper learning experiences. These results align with the research of Wang et al. (2023b), who found that while AI can facilitate some aspects of learning, its effectiveness in fostering deep learning and independent thinking remains uncertain. In general, the analysis of Table I indicates a complex and ambivalent attitude toward the integration of AI in higher education. While students acknowledge the necessity of AI in modernizing education, they express concerns regarding its impact on academic integrity, cognitive development, and privacy. Moreover, the lack of comprehensive institutional support and AI training appears to hinder students' engagement with AI tools, suggesting the

need for universities to provide more robust guidance and resources to facilitate effective AI adoption. The results underscore the importance of addressing both the technical and ethical dimensions of AI integration to ensure its successful implementation in educational contexts. As AI continues to evolve, further research will be needed to examine its long-term impact on learning outcomes and to develop strategies that mitigate the challenges highlighted in this study.

TABLE I THE PARTICIPANTS' VIEWPOINTS TOWARDS THE PRACTICALITY OF ARTIFICIAL INTELLIGENCE IN EDUCATION

	N	Mean	Std. Deviation	Interpretation
Perceptions of AI in education				
1 AI technology enhances the overall learning experience in university education.	385	3.10	.736	neutrality
2 AI-powered tools improve the efficiency of academic tasks such as research and writing.	385	3.26	.945	neutrality
3 AI integration in education helps personalize learning to suit individual needs.	385	2.89	.814	neutrality
4 AI tools provide accurate and reliable academic assistance.	385	2.95	.799	neutrality
5 The use of AI in education is necessary for modern university learning.	385	4.00	.808	agreement
6 AI can effectively replace traditional learning methods.	385	2.98	.802	neutrality
7 AI-generated academic insights are as reliable as human-generated insights.	385	3.03	.773	neutrality
8 AI tools encourage independent learning among university students.	385	2.45	.498	disagreement
9 AI-assisted academic work reduces the need for human educators.	385	2.46	.499	disagreement
Acceptance and engagement with AI tools				
10. I actively use AI-powered tools to assist in my academic tasks.	385	3.00	.810	neutrality
11. I feel comfortable relying on AI for academic support.	385	2.50	.501	disagreement
12. AI improves my efficiency in completing assignments and coursework.	385	2.44	.498	disagreement
13. I regularly use AI applications for academic research.	385	3.01	.824	neutrality
14. AI-powered academic assistance helps me perform better in university courses.	385	2.87	.821	neutrality
15. I am willing to explore new AI technologies for academic purposes.	385	3.03	.801	neutrality
16. AI usage positively impacts my study habits.	385	2.91	.788	neutrality
17. AI tools assist in improving my understanding of complex topics.	385	2.63	.615	neutrality
18. I trust AI-powered tools to provide valid and accurate academic information.	385	2.67	.671	neutrality
Ethical and privacy concerns				
19. The use of AI in academic tasks raises concerns about ethical issues.	385	3.80	.875	agreement
20. AI-generated academic work may encourage plagiarism.	385	4.09	.772	agreement
21. AI tools could negatively impact students' ability to think critically.	385	4.00	.815	agreement
22. I am concerned about AI replacing traditional human educators.	385	3.92	.806	agreement
23. AI usage in academic settings should be regulated to prevent unethical practices.	385	3.90	.907	agreement
24. AI may compromise academic integrity by making it easier to cheat.	385	3.94	.838	agreement
25. AI could negatively affect creativity in students.	385	3.96	.800	agreement
26. AI applications may misuse or expose personal academic data.	385	3.87	.816	agreement
27. AI-powered educational tools should prioritize data security and privacy.	385	4.06	.833	agreement
Institutional support and AI training				
28. My university provides adequate training on the use of AI-powered educational tools.	385	3.02	.769	neutrality
29. Professors encourage the responsible use of AI for academic purposes.	385	3.68	.650	agreement
30. AI training should be incorporated into university courses.	385	3.37	.887	disagreement
31. My university promotes awareness about the ethical use of AI in academics.	385	3.56	.686	agreement
32. AI-related policies in my university are clear and well-communicated.	385	2.28	.704	neutrality
33. AI should be integrated into university curriculums to prepare students for future careers.	385	2.42	.657	neutrality
34. AI-powered learning management systems are well-developed at my university.	385	2.65	.582	neutrality
35. Universities should invest more resources in AI-driven education.	385	3.12	.918	neutrality
36. AI education should be made compulsory for university students.	385	2.44	.498	disagreement
Impact on academic performance				
37. AI-powered tools positively influence my academic performance.	385	3.07	.828	neutrality
38. AI integration has improved my problem-solving abilities.	385	2.96	.814	neutrality
39. AI helps me understand complex academic concepts more effectively.	385	2.93	.769	neutrality
40. AI tools reduce the time needed to complete academic tasks.	385	2.90	.822	neutrality
41. AI has made learning more interactive and engaging.	385	3.02	.810	neutrality
42. AI-generated insights and recommendations help improve the quality of my academic work.	385	2.98	.653	agreement
43. AI negatively affects student learning by promoting technological dependence.	385	3.44	.805	disagreement
44. AI reduces my ability to think independently.	385	3.41	.948	neutrality
45. AI improves my ability to analyze and synthesize academic information.	385	2.70	.682	neutrality
Valid N (listwise)	385			

Table II provides a comparison of university students' perspectives on AI in education across three institutions: HLU, TNUI, and TTrU. This comparative analysis is essential for understanding how students' perceptions, engagement, and concerns about AI differ depending on their institutional environment. The data, which includes mean differences, standard errors, significance levels, and confidence intervals, offers valuable insights into the relationship between AI integration and student experiences at these universities. Regarding "Perceptions of AI in education," students at HLU and TNUI expressed largely neutral views, with no statistically significant differences observed between them. The mean differences for these institutions were minimal (mean difference = -0.49570, p = 0.26278), indicating that students share similar views on the potential of AI in education but remain uncertain about its effectiveness. A slight divergence was found between HLU and TTrU students, but again, the differences were not statistically significant (mean difference = -0.02772, p = 0.994). This neutrality suggests that while students acknowledge AI's potential, they are cautious and unsure about its actual impact on learning outcomes, consistent with the cautious optimism found in previous studies. In terms of "Acceptance and engagement with AI tools," students across all three institutions showed similar levels of engagement, with no significant differences in their responses. The most significant mean difference was HLU and TNUI with a mean difference of -0.44252 (p = 0.221), indicating minimal difference in engagement. These findings are consistent with the research suggesting that the adoption of AI in education is mostly dependent on students' technological familiarity and comfort with using such tools. This represents a general AI adoption reluctance, irrespective of the technology's advantages. Ethical and privacy issues arose as another major concern. Students from all institutions expressed concerns about the misuse of AI, especially concerning privacy and data protection. The differences in concern were not markedly divergent, but TTrU students did exhibit slightly greater concern, which suggests there is a demand for stronger policies and protections concerning privacy risks. In general, students acknowledge AI potential but worry about its actual functioning and effectiveness, ethical consequences, lack of institutional backing, and support frameworks that have a bearing on their engagement. To improve the acceptance and integration of AI, university policy must emphasize AI literacy, provide adequate support, and tackle privacy and ethical issues head-on. Such initiatives are critical for improving the relationship between students and AI technologies in post-secondary education.

TABLE II COMPARISON AMONG PARTICIPANTS' PERSPECTIVES REGARDING AI IN EDUCATION

Dependent Variable	(I) UC	(J) UC	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Perceptions of AI in education	HLU	TNUI	-.49570	.26278	.144	-1.1140	.1226
		TTrU	.02772	.26697	.994	-.6004	.6559
	TNUI	HLU	.49570	.26278	.144	-.1226	1.1140
		TTrU	.52342	.25667	.104	-.0805	1.1273
	TTrU	HLU	-.02772	.26697	.994	-.6559	.6004
		TNUI	-.52342	.25667	.104	-1.1273	.0805
Acceptance and engagement with AI tools	HLU	TNUI	-.44252	.26623	.221	-1.0689	.1839
		TTrU	.04467	.27048	.985	-.5917	.6811
	TNUI	HLU	.44252	.26623	.221	-.1839	1.0689
		TTrU	.48719	.26004	.148	-.1247	1.0990
	TTrU	HLU	-.04467	.27048	.985	-.6811	.5917
		TNUI	-.48719	.26004	.148	-1.0990	.1247
Ethical and privacy concerns	HLU	TNUI	.28273	.32197	.654	-.4748	1.0403
		TTrU	.60511	.32710	.155	-.1645	1.3747
	TNUI	HLU	-.28273	.32197	.654	-1.0403	.4748
		TTrU	.32238	.31448	.561	-.4176	1.0623
	TTrU	HLU	-.60511	.32710	.155	-1.3747	.1645
		TNUI	-.32238	.31448	.561	-1.0623	.4176
Institutional support and AI training	HLU	TNUI	-.26026	.24333	.534	-.8328	.3123
		TTrU	-.38142	.24721	.272	-.9631	.2002
	TNUI	HLU	.26026	.24333	.534	-.3123	.8328
		TTrU	-.12117	.23767	.867	-.6804	.4380
	TTrU	HLU	.38142	.24721	.272	-.2002	.9631
		TNUI	.12117	.23767	.867	-.4380	.6804
Impact on academic performance	HLU	TNUI	-.39536	.30299	.393	-1.1083	.3175
		TTrU	-.33688	.30783	.518	-1.0612	.3874
	TNUI	HLU	.39536	.30299	.393	-.3175	1.1083
		TTrU	.05848	.29595	.979	-.6379	.7548
	TTrU	HLU	.33688	.30783	.518	-.3874	1.0612
		TNUI	-.05848	.29595	.979	-.7548	.6379

The semi-structured interviews conducted with 69 students reveal their understanding of AI in the educational setting. These interviews were implemented after the quantitative research was done using a survey, which gave a more holistic view of students' perceptions. Overall, the semi-structured interviews disclose that the students tend to be ambivalent and skeptical towards AI's role in the educational sector, and this finding shows similar trends compared with the analysis of the survey data. In the same vein, within the topic area, "Perceptions of AI in education," 82.60% of participants expressed uncertainty about AI as an educational tool's effectiveness, which means signaling a cautious sentiment. This result aligns with the survey results where the values of means centred around neutrality, which indicates students neither fully believe in the advantages AI could bring to education nor are ready to dismiss its potential contributions to educational processes. Furthermore, in the "Acceptance and engagement with AI tools" category, 72.46% of respondents remained unsure whether AI tools enhance their academic performance. The survey results indicated that students' willingness to engage with AI tools actively was neutral to slightly negative. These reactions highlight a common theme of hesitation and skepticism about how AI could be smoothly incorporated into academic work. This reluctance stems from unfamiliarity with or exposure to such tools. Ethical and privacy issues surfaced as major concerns during the interviews, as 91.30% of participants expressed skepticism regarding the ethical implications and privacy risks associated with AI. The participants' responses on the issues of trust and security of data generated by AI technologies showed strong agreement with the proposition. The students' worries related to privacy and ethics highlight ignored dangers of AI technology misuse, as discussed by Crawford (2021) and Roche et al. (2022), among others, who advocate for greater ethical scrutiny and transparency concerning AI and education. Regarding "Institutional support and AI training," 85.50% of respondents registered indifference toward their universities' support, which was consistent with the results observed in the students' surveys where the students reported low satisfaction with the institutional preparation to support the technological incorporations of AI. This neutral stance indicates that while students accept the role of AI in education, they believe there is insufficient training, resources, and institutional guidance to integrate AI comfortably into existing frameworks. As for "Impact on academic performance," a large percentage of students (88.40%) selected a neutral attitude, which corresponded to the survey results, indicating that students were indifferent regarding the academic AI's influence on learning. This illustrates the gap between students' AI theoretical knowledge and practical encounters with AI tools in educational settings. Therefore, the results from both the semi-structured interviews and the survey questionnaire paint a cohesive picture: students recognize the capabilities that AI presents, but they remain doubtful and mostly reject its effectiveness and impact on education and academic performance. The two datasets raised concerns about AI strategy framework policies, training materials, and ethics designed to bolster stakeholder trust and engagement with AI applications. These findings contribute to the increasing body of literature citing the need for a careful balance between advocated dual-use risks of AI in education and its potential (Maheshwari, 2024; Steele, 2023).

V. Conclusion

This research provides tertiary students' attitudes towards AI in education, how those students interact with Al-based tools and what factors impact their acceptance and use. Through students' responses to surveys and semi-structured interviews, the research reveals the complexity and ambivalence with which students approach AI, and it also offers a nuanced understanding of how AI is integrated into their learning activities. The findings reveal that while students acknowledge the new role of AI in education, they remain skeptical about its impact on their academic performance. Although students appreciate that AI is being used to facilitate the modernization of education, particularly in streamlining tasks such as research and writing, they are sceptical about how it truly affects their learning outcomes. Furthermore, the neutral attitude of students toward AI and self-regulated learning indicates students' dilemma about AI personalization, indicating that students have less understanding or exposure, information and experience. Students' digital literacy plays a critical role in their engagement with AI. Participants had heard about AI technologies but tied that to their inability to utilize the tools in their academic work. This finding emphasizes the role of digital literacy in whether or not students believe AI is beneficial for education.

Generally, students who perceive themselves as proficient with technology are more inclined to accept AI applications compared to less experienced peers who tend to be resistant. This indicates that for AI to be successfully integrated into higher education, universities must concentrate on closing the digital literacy gap through focal training and resources that enable students to use AI tools confidently. Institutional support is important in shaping students' attitudes to the acceptance of AI and interaction with AI technology. The data demonstrates that a majority of students feel their universities have done little to assist them in integrating AI into their academic work. Such unpreparedness poses a considerable challenge for the assimilation of AI technology. To enhance AI engagement, universities need to foster interaction through advanced practical training, dedicated governance on AI faculty development programs, and equipping educators and students with proper skills for programmed AI integration at all curricular levels. The results also highlight ethics and privacy as the primary concerns amongst respondents. Students expressed their worries on AI ethics, academic dishonesty, data privacy breaches, and erosion of critical thinking core competencies, which is quite astonishing. The findings show learners are concerned about AI-driven plagiarism tools that erode academic autonomy, indicating an urgent need to establish policies concerning ethics and the use of AI in education.

The increasing integration of AI technologies in higher education has necessitated the adoption of comprehensive privacy policies and ethical frameworks at universities. To foster responsible AI use, effective trust-building communication frameworks focused on these issues are essential. This is particularly critical given that while students grasp the opportunities AI offers, they remain concerned about its impact on academic performance. Many students are optimistic about the prospects of AI improving efficiency, yet engagement with complex academic tasks remains lacking. This passive stance might reflect a nascent phase in the adoption of AI, presuming more sophisticated educational tools will yield increasingly observable advantages for students. Data further reveal the intricacy and multifaceted nature of students' perceptions and relationships with educational technology and AI. As such, their attitudes stem from a blend of digital literacy, institutional context, ethics, and uncertainty surrounding AI's role in education. These factors underscore the need to focus on the integration of AI technologies and shift from technological considerations to institutional, ethical, and pedagogical frameworks. While the study about students' attitudes toward AI in higher education is valuable, it has some limitations due to a small sample size and potential biases in self-reporting. Such limitations may be addressed through longitudinal and experimental studies focusing on the specific effects of AI tools within educational settings. It is recommended that universities implement digital literacy programs alongside robust ethical guidelines to positively influence how students interact with digital technologies. This will allow the harnessing of AI for enhanced educational outcomes. The evolution of the academic landscape necessitates that, alongside upholding academic integrity and encouraging critical analysis, higher education institutions actively adapt to changes in their operating environment.

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