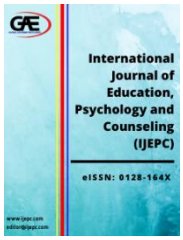
International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 11 Issue 64 (September 2026) PP. 1795-1814



INTERNATIONAL JOURNAL OF EDUCATION, PSYCHOLOGY AND COUNSELLING (IJEPC)
https://gaexcellence.com/ijepc

THE ACCEPTANCE OF AI TOOLS FOR LEARNING AMONG UNIVERSITY UNDERGRADUATES

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Article Info:

Article history:
Received date: 02.08.2026
Revised date: 18.08.2026
Accepted date: 09.09.2026
Published date: 30.09.2026

To cite this document:

Lingaiah, J., Mariappan, L., Tea, J., & Ng, Y. Z. (2026). The Acceptance of AI Tools for Learning Among University Undergraduates. *International Journal of Education, Psychology and Counselling, 11*(64), 1795-1814.

Abstract:

The fast development of Artificial Intelligence (AI) has changed higher education by giving students advanced tools to improve their learning, academic writing, problem solving, and personalised learning paths. The research sought to understand university undergraduates' perspectives, experiences and attitudes towards AI-assisted learning and their acceptance of AI tools for learning. The research employed a qualitative research design using semi-structured interviews with 20 undergraduate students at higher education institutions in Johor, Malaysia. Data were collected through a researcher-developed interview process of 15 open-ended questions and analysed through thematic analysis. The results identified six major themes, namely perceived benefits of AI tools, academic learning support, student motivation and engagement, accessibility and equity, challenges and ethical issues and future potential of AI in higher education. Participants generally considered AI as a useful educational tool, which can enhance learning efficiency, comprehension of difficult topics, academic output, and self-learning. But the issues like authenticity of AI-generated content, over-reliance on AI, academic dishonesty and unequal access to AI technologies still remain. The findings show that AI has huge potential to improve teaching and learning but requires responsible use, ethical awareness, institutional leadership and equitable access for effective implementation. This research contributes to the growing body of work on AI in higher education and provides qualitative insights and

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IJEPC
EISSN : 0128-164X
Volume 11 Issue 64 (September 2026) PP. 1795-1814

practical recommendations for educators, university administrators and policymakers committed to the ethical and effective use of AI technologies in teaching and learning.

DOI: 10.35631/IJEPC.1164099

Keywords:

Artificial Intelligence, Higher Education, Learning, Qualitative Research, University Undergraduates

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Introduction

Artificial Intelligence (AI) is one of the most revolutionary technologies of the twenty-first century. It has a huge impact on various fields such as healthcare, business, manufacturing and education. AI refers to computer systems that can perform tasks normally carried out by humans, such as understanding natural language, pattern recognition, problem-solving, decision-making, and content creation (Baidoo-Anu & Owusu Ansah, 2023; Kasneci et al., 2023). Currently, AI technologies are applied in areas such as intelligent tutoring systems, generative AI, adaptive learning platforms, automated assessment and content-creation (Kwid et al., 2024). The recent emergence of generative AI, such as large language models (e.g., ChatGPT, Google Gemini, Grok, and Microsoft Copilot), has enabled the integration of AI in higher education. This has allowed students to receive intelligent support for learning, research, academic writing, problem-solving and personalised learning support (Garzón et al., 2025).

The rapid introduction of artificial intelligence technologies has changed the way university students search for information, work with educational materials and perform academic tasks. Unlike traditional educational materials, AI-powered applications provide instant feedback, tailored explanations for an individual learner, fast summaries of complex academic material, assistance with language translation, and custom learning methods. These capabilities enable students to learn more autonomously and make education more efficient, engaging and accessible (Garzón et al., 2025; Gasaymeh et al., 2024). Therefore, AI is a valuable educational tool because it complements traditional teaching rather than replacing it.

However, the deployment of AI in higher education has been widely discussed. Concerns raised by scholars include the degradation of critical thinking skills, students' reliance on AI-generated content, academic integrity, plagiarism, algorithmic bias, misinformation, and unequal access to digital technologies (Kasneci et al., 2023; UNESCO, 2023). Moreover, the

effectiveness of AI tools in improving learning experiences is highly dependent on students' ability to use them responsibly, critically appraise AI-generated materials, and incorporate them into their learning processes (Baidoo-Anu & Owusu Ansah, 2023). These challenges emphasise the need for educational institutions to develop proper policies and to promote responsible AI literacy among university students. This need has become even more urgent as higher education institutions worldwide move from experimenting with AI to designing institution-wide governance frameworks to promote responsible, ethical and pedagogically effective use of generative AI (OECD, 2026).

Existing studies have primarily focused on evaluating the effectiveness of AI technologies through quantitative approaches, systematic reviews, or technology acceptance models (Garzón et al., 2025; Gasaymeh et al., 2024). These studies provide useful evidence on the educational benefits and challenges of AI; however, there are limited studies on students lived experiences and perceptions using qualitative inquiry, especially in the Malaysian higher education context. It is important to understand students' perspectives because the experiences of students provide rich insight into how AI tools influence learning behaviours, academic performance, motivation and ethical decision making in real educational settings. Such evidence can help higher education institutions develop appropriate instructional strategies, digital literacy initiatives, and institutional guidelines for the responsible integration of AI into teaching and learning.

Thus, this study aims to explore the adoption of AI tools for learning among university undergraduates by investigating their perceptions, experiences, and attitudes towards the use of AI in higher education. This study explores university students' perceptions of the benefits, challenges, ethical issues and future opportunities of the AI-assisted learning through qualitative interviews. The findings are expected to contribute to the current body of knowledge on AI integration in higher education and provide practical implications to educators, university administrators and policymakers seeking to promote responsible and effective use of AI technologies in tertiary education.

Accordingly, this study was guided by the following research questions:

1. What are university students' perceptions of the benefits of AI tools in supporting their learning?
2. What challenges and ethical concerns do university students encounter when using AI tools for academic purposes?
3. How do university students perceive the future role of AI tools in higher education?

Literature Review

Artificial Intelligence in Higher Education

Artificial Intelligence (AI) is now firmly entrenched in higher education, changing the ways students search for information, interact with learning resources and carry out their academic work. Students now have access to tools like large language models like Copilot from Microsoft, Grok, Google's Gemini, and of course, the ever-popular, ChatGPT, to get instant explanations, personalised feedback, writing help, translation and problem solving. These abilities have transformed AI from a tool that provides information to an intelligent learning partner for self-directed and independent learning (Baidoo-Anu & Owusu Ansah, 2023; Garzón

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EISSN : 0128-164X
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et al., 2025). Recent systematic reviews suggest that AI can improve the teaching and learning process by higher learning efficiency, personalised instruction and support for diverse learning needs in education (Garzón et al., 2025). Yet, the UNESCO report (2023) stresses that generative AI's educational benefits will only materialise if these technologies are used responsibly and ethically under the umbrella of proper institutional governance. The new research highlights AI literacy and 21st century skills as a critical competency in higher education that can enable university students to successfully adopt and use generative AI (Salhab & Aboushi, 2025).

Benefits of AI Tools for Student Learning

The most frequently mentioned benefit of AI tools is the ability to enhance students' learning efficiency. The traditional academic research process requires students to search a variety of databases, evaluate a large number of sources and synthesise complex information in order to locate relevant materials. This process can be highly accelerated with AI-powered apps that generate summaries, interpret difficult concepts, suggest relevant materials, and help students structure information more effectively. In this way, students can spend more time on critical analysis and application of knowledge rather than on data retrieval (Garzón et al., 2025).

Another major advantage is the availability of AI learning support. Lecturers or tutors are only available for office hours or at certain times. AI tools are available and accessible at any time to provide instant answers to questions. Such flexibility promotes self-regulated learning and also guarantees that students are able to get help when they face problems in learning. University students perceived generative AI writing tools as useful learning partners because of the accessibility, quick response times and the ability to provide tailored explanations (Gasaymeh et al., 2024). Likewise, Baidoo-Anu and Owusu Ansah (2023) revealed that AI-assisted learning promotes learner autonomy to a greater extent as students can seek clarification and guidance by themselves outside the formal classroom setting.

AI tools also enable personalised learning experiences, with responses tailored to students' academic needs, prior knowledge and learning preferences. Generative AI systems can distil complex ideas, generate examples of different difficulty levels, and recommend individualised learning strategies, instead of providing everyone with the same explanations. Such adaptive support increases the students' engagement, motivation and confidence, and also supports self-directed learning (Garzón et al., 2025). Such capabilities are especially valuable in higher education, where students may come from a broad spectrum of academic backgrounds and learning styles.

AI can contribute significantly in the area of access in higher education. Advances in artificial intelligence can help deliver educational information to students with different language backgrounds or learning preferences Tools that can be used are speech recognition, text-to-speech, language translation, grammatical correction and content simplification. Such functionalities enable breaking linguistic barriers and support students with disabilities or different levels of school preparation, contributing to a more inclusive educational environment (UNESCO, 2023).

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Challenges and Ethical Concerns

Along with the educational benefits, the AI tools also bring some pedagogical and ethical difficulties. The most common issue raised is the over-reliance of students on AI-generated answers. If students just take generated answers and don't evaluate them, over-reliance on AI could mean less opportunity to solve problems independently, and think critically and be creative. Great potential of large language models for educational applications was shown by Kasneci et al. (2023), but they should be an adjunct of active learning and human thinking, not a replacement. AI-generated content could be inaccurate, biased by algorithms, include incorrect citations or misleading information" (UNESCO, 2023). Learners should critically assess AI-generated outputs before using them in their scholarly work.

As generative AI is adopted at a rapid pace in academic institutions, one of the major concerns that has arisen is that of academic integrity. AI tools can write essays, research papers, computer code and other work that, if used without properly attributing the source, can result in plagiarism or dependence on technology. Most institutions of higher education have moved from banning AI to promoting responsible AI literacy with a focus on transparency, ethical usage and authentic assessment methods (UNESCO, 2023). Also necessary are practical governance frameworks for the ethical implementation of AI, to enable higher education institutions to implement principles such as transparency, accountability, fairness and responsible decision-making in the use of AI for teaching, learning and assessment (Ayling & Chapman, 2022). Educators are being pushed more and more to look beyond the threat of AI and to redesign assessment methods to gauge students' understanding, reasoning, and critical thinking, rather than just the production of content.

In addition to that, there is the issue of uneven access to generative AI tools. Not all students will have access to digital infrastructure and premium AI services especially those from lower socio-economic and low connectivity backgrounds. There may be no digital support and equal access to technology which may further widen the existing inequalities in education (UNESCO, 2023). Successful integration of AI is not just a technical innovation. And we need institutional policies that prioritise ethical governance, responsible AI adoption and digital equity. The latest international guidelines (UNESCO, 2025) emphasise the integration of using AI in education in a human-centred way, so that learners' rights are respected, their privacy protected, transparency promoted and critical thinking encouraged not replaced by human judgement.

Research Gap

The educational potential and challenges of AI tools have been reported repeatedly in prior work. However, most of the previous studies have used quantitative methodologies or systematic reviews or technology acceptance models that focus on measuring behavioural intention, academic performance or learning outcomes (Garzón et al., 2025; Gasaymeh et al., 2024). Few qualitative studies have explored students lived experiences, perceptions and attitudes in the Malaysian higher education context. Besides the quantitative measurement, meaningful information can be obtained by understanding the students' perceptions of the opportunities and limitations of AI-assisted learning. This study seeks to address this gap by examining the acceptance of AI tools by Malaysian university students through qualitative interviews, providing richer contextual evidence to inform the responsible integration of AI in higher education.

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Methodology

Research Design

The current study adopted a qualitative research design using semi-structured interviews to explore the acceptance of artificial intelligence (AI) tools for learning among university students. A qualitative approach was considered appropriate as it enables researchers to obtain rich and detailed insights into participants' experiences, perceptions and attitudes towards a particular phenomenon (Creswell & Poth, 2018). Semi-structured interviews allow for flexibility for participants to elaborate on their answers and consistency between interviews as they follow a common interview protocol (Kallio et al., 2016). This approach was considered appropriate to explore the perceptions of university students on the benefits, challenges, ethical issues and future opportunities of AI-assisted learning.

Participants

The study involved 20 undergraduate students aged between 18 and 23 years old who had previously used AI tools for learning. Participants were recruited using convenience sampling through social media platforms, messaging applications and in-person invitations. To reduce potential sampling bias, multiple recruitment channels were used, and students from business, law and engineering programmes were included to obtain a broader range of perspectives. Participants were primarily enrolled at higher education institutions in Johor, Malaysia.

Since the aim of the study was to gain an in-depth understanding of the students' experiences rather than to generalise findings to a larger population, the sample size was appropriate for qualitative inquiry (Creswell & Poth, 2018). Table 1 presents the demographic characteristics of the participants.

Table 1: Demographic Characteristics of Participants

Characteristic	Description
Sample size	20 participants
Age range	18–23 years
Gender	11 males and 9 females
Academic level	Undergraduate
Academic disciplines	Business, law and engineering
Location	Higher education institutions in Johor, Malaysia

Research Instrument

Data were collected using a researcher-developed semi-structured interview protocol containing fifteen open-ended questions (see Appendix A). The questions for the interview were developed based on the objectives of the study and were guided by the previous literature

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on artificial intelligence in higher education, specifically, Baidoo-Anu and Owusu Ansah (2023), Kasneci et al. (2023), Gasaymeh et al. (2024), Garzón et al. (2025), and UNESCO (2023). The studies have identified the key dimensions of AI-assisted learning including learning efficiency, personalised learning, academic performance, motivation, accessibility, ethical concerns, trust and future opportunities.

The semi-structured interview format guaranteed that all participants were asked the same core questions but provided the flexibility to probe and clarify further when appropriate. This allowed for the collection of rich, contextualised qualitative data.

Instrument Validity

The interview protocol was reviewed by two academics with expertise in educational research and qualitative methodology to establish content validity. The reviewers assessed the interview questions regarding their clarity, relevance, comprehensiveness and alignment with the research objectives. On the basis of their recommendations, we made some minor revisions to improve the wording and sequencing of several questions before starting the data collection process.

Data Collection Procedure

The data were collected over a two-week period, using face-to-face interviews, messaging applications and online communication platforms, depending on the availability and preference of the participants. Prior to each interview, participants were made aware of the purpose of the study, their right to refuse to participate, and the confidentiality of their answers. Prior to the interview, verbal informed consent was obtained.

All participants were asked the same 15 interview questions, which enabled consistency, but allowed for additional probing questions when clarification or elaboration was needed. Interviews produced rich qualitative data about participants' experiences, perceptions and attitudes of the participants to using AI tools in their learning.

Data Analysis

The interview data were analysed thematically using the six-phase framework proposed by Braun and Clarke (2006, 2022). First, the researchers familiarised themselves with the interview responses by reading them repeatedly. Second, initial codes were assigned to meaningful statements that were relevant to the research objectives. Third, similar codes were grouped into larger categories to generate preliminary themes. Fourth, themes were reviewed and refined for coherence with the data. Fifth, each theme was well defined and appropriately labelled. Finally, representative quotations were selected to illustrate and support each theme found.

The analysis resulted in six major themes that describe university students' acceptance of AI tools for learning: perceived benefits of AI tools, academic learning support, student motivation and engagement, accessibility and equity, challenges and ethical concerns, and future opportunities for AI in higher education.

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Reliability

The trustworthiness of the study was established according to the proposed criteria of Lincoln and Guba (1985). The credibility was enhanced through a semi-structured interview protocol, allowing participants to elaborate on their experiences while maintaining consistency in the interviews. The systematic data collection procedure and a well-documented thematic analysis process ensured dependability. For confirmability, representative quotations from participants were provided to support each identified theme, so the findings could be based on the perspective of participants and not the assumptions of researchers. The rich descriptions of the participants, research context, data collection procedures, and analytic processes afforded enhanced transferability, enabling readers to evaluate the applicability of the findings to comparable educational settings.

Ethical Issues

Participation in the study was completely voluntary. Participants were informed of the study's purpose and that they could withdraw at any time without penalty. No personal identifying information was collected; participants were assigned identification numbers (e.g., Participant 1, Participant 2) for the purposes of anonymity. All responses were confidential and used for academic research purposes only.

Results

The thematic analysis of the interview data identified six major themes describing university students' acceptance of artificial intelligence (AI) tools for learning. These themes were: (1) perceived benefits of AI tools, (2) academic learning support, (3) student motivation and engagement, (4) accessibility and equity, (5) challenges and ethical concerns, and (6) future opportunities for AI in higher education. Representative quotations are presented to illustrate each theme.

Theme 1: Perceived Benefits of AI Tools

All participants reported that AI tools had become an important part of their learning. Most respondents reported that AI improved learning efficiency by providing faster access to information, simplifying complicated ideas and reducing the time needed to complete academic tasks. Participants also felt that AI could help them to be more productive, by helping them to prepare notes, summarise academic materials and generate ideas for assignments.
Participant 5 reported:

> *"Well, for me the AI tools make studying much faster because they break down difficult concepts into something much easier to understand." (Participant 5)*

Similarly, Participant 2 pointed out:

> *"AI always helps me get through the difficult stuff. I can ask questions and quickly get explanations on the spot." (Participant 2)*

Overall, the participants viewed AI as a useful learning tool that enhanced the learning effectiveness and academic productivity.

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Theme 2: Support for Academic Learning

Participants described AI as a useful learning partner, not just as a provider of information. They said they used AI to simplify lecture content, generate revision material, improve academic writing and revise for exams. Participants also mentioned that AI helped them understand the technical jargon used by the lecturers by providing personalised explanations that were easier to understand than the textbooks alone.

Participant 7 shared:

> *"I use Grammarly to write, and for revision and ideas I use Quizlet AI and ChatGPT. They really improve my assignments a lot." (Participant 7)*

Participant 20 similarly stated:

> *"AI provides immediate feedback, deepens my understanding and saves me time when I do research." (Participant 20)*

Therefore, the results suggest that participants saw AI as a way to achieve independent learning and academic success through personalised, instant academic assistance.

Theme 3: Student Motivation and Engagement

Most of the participants believed the AI made the learning more interesting and interactive. The instant access to answers motivated them to study on their own and to keep going when they encountered difficult concepts.

Participant 5 added:

> *"…the AI helps keep me motivated, because it explains difficult terminology that I don't understand during lectures." (Participant 5)*

Participant 14 also commented:

> *"Well, learning with AI is a lot more interactive than reading textbooks because I can ask questions at any time." (Participant 14)*

But some warned against over-reliance on AI, warning it could interfere with the ability to think for yourself and discourage active learning.

Participants, on the whole, regarded AI as a means of enhancing learning engagement but also recognised the need to maintain independent learning habits.

Theme 4: Equity and Access

Participants perceived AI as a very accessible educational tool, that it could be accessed anywhere, anytime, as long as there was internet access. Many thought AI would be a great equaliser for education, providing instant academic help whenever and wherever it was needed. Participant 4 stated:

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> "*...everyone should have access to AI. The reason is that it saves time and makes learning easier for students. (Participant 4)*

Some participants said access could be a problem, especially for students who don't have reliable internet access or the means to pay for premium AI subscriptions.

Participant 10 added:

> *"...and I believe students that have better tech and internet will be able to do better." (Participant 10)*

Findings show that AI has the potential to make education more accessible but also show technology and financial barriers for equitable student access.

Theme 5: Problems and Ethical Issues

Participants had a generally positive attitude towards AI but also mentioned some challenges and ethical concerns regarding its use. The most frequently mentioned concern was the necessity to verify the facts of the information provided by the AI, as the answers were sometimes found to be inaccurate, incomplete or without reliable evidence.
Participant 9 reported that:

> *"Sometimes you have to be really specific with AI or you won't get an accurate answer." (Participant 9)*

Likewise, in terms of plagiarism issues, too much dependence on AI can lead to lack of critical thinking.

Participant 7 explained:

> *"I use AI as a guide, not as a copy, I am afraid of being too dependent." (Participant 7)*

Others mentioned that universities should provide formal training on the ethical and responsible use of AI, rather than a blanket ban. In general, the participants agreed that the educational benefits of AI should be balanced with responsible use, academic integrity and guidance from the institutions.

Theme 6: Artificial Intelligence Future in Higher Education

Participants were overall positive about the future of AI in higher education. AI was expected to continue to support personalised learning, adapting explanations and learning resources to the needs and learning styles of individual students.

As Participant 15 observed:

> *"AI could be the personal tutor for each student." (Participant 15)*

Participant 20 also expressed:

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EISSN : 0128-164X
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"Personalised education support is too valuable to ignore in light of the current ethical concerns." (Participant 20).

Overall, participants perceived AI to be a useful educational technology with great potential to enhance learning, and this could be achieved if there is the implementation of appropriate institutional policies, ethical guidelines and responsible use practices.

Discussion

The present study explored the acceptance of artificial intelligence (AI) tools for learning among university students by means of semi-structured interviews with undergraduate students. In summary, the findings suggest that students perceive AI as a useful educational technology that supports the learning process, improves understanding of the subject matter, motivates and enables personalised learning. Participants also identified several challenges including concerns about academic integrity, over-reliance on AI, unequal access to digital technologies and verifiability of information generated by AI. The findings highlight the importance of responsible AI usage, institutional support, and student AI literacy for successful AI adoption in higher education even as AI holds great educational promise. To move beyond a purely descriptive interpretation, the findings are discussed through the Technology Acceptance Model (TAM), which explains technology acceptance principally through perceived usefulness and perceived ease of use (Davis, 1989).

The first significant finding was that students consider AI tools effective learning partners, increasing learning efficiency by saving time in searching for information, summarising academic material, and understanding complex ideas. The participants appreciated the AI's ability to explain things on the fly and to help them prepare for assignments so they could spend more time understanding the course material. The results of the present study are consistent with the systematic review of Garzón et al. (2025) who found that AI technologies improve learning by means of personalisation of instructional support, quick access to materials and adaptive feedback. Baidoo-Anu and Owusu Ansah (2023) also argue that generative AI supports self-directed learning by providing academic support to students when their instructors are not available. Viewed through the Technology Acceptance Model (TAM), these findings reflect perceived usefulness, as participants believed that AI tools improved their learning efficiency, understanding of complex concepts and academic productivity. The immediate explanations and on-demand academic support provided by AI further demonstrate how students' perceptions of its usefulness contributed to their acceptance of AI tools for learning.

Another major finding was the role of AI in supporting academic learning. Participants described AI not just as an information retrieval tool, but as a personalised learning assistant which could clarify difficult concepts, improve academic writing, generate revision materials and facilitate self-directed learning. This is consistent with Gasaymeh et al. (2024) who found that university students liked generative AI writing tools because they could provide instant and customised feedback that improved learning and academic efficiency. The findings also support UNESCO (2023) that when properly embedded in teaching and learning, generative AI has the potential to improve the quality of education significantly.

Participants' descriptions of immediate, personalised and easily understandable explanations also relate to perceived ease of use. AI tools reduced the effort required to obtain academic assistance and enabled students to request clarification whenever needed. According to TAM, when a technology is perceived as both useful and easy to use, users are more likely to develop favourable attitudes towards it. This combination helps explain participants' generally positive acceptance of AI-assisted learning.

The results also show that AI has a positive impact on students' motivation and engagement. The participants stated that the use of AI helped them to reduce their learning anxiety, as it provided explanations according to their needs, and they could ask questions without fear of embarrassment. This flexibility facilitated greater involvement in independent learning and maintained student engagement with challenging academic content. Previous research has also indicated that AI-driven personalised learning environments can improve students' motivation, confidence and engagement through the customisation of instructional support to individual learning preferences (Garzón et al., 2025). Therefore, AI seems to be an extension rather than a replacement of traditional learning, providing additional academic support beyond the formal classroom teaching.

The motivational benefits reported by participants may also be interpreted as a positive attitudinal outcome of perceived usefulness and ease of use. When AI reduced learning anxiety, provided accessible explanations and allowed students to ask questions without embarrassment, these favourable experiences appeared to strengthen their willingness to continue using AI tools for learning.

Despite these benefits, participants reported a number of challenges of AI-assisted learning. In the interviews many concerns were voiced about plagiarism, reliance, inaccurate responses and a decline in critical thinking skills. A number of participants stressed the importance of verifying the authenticity of AI-generated content before employing it for academic purposes. These observations are consistent with the work of Kasneci et al. (2023) who found that large language models have considerable educational potentials but can also produce false and misleading information and should therefore be carefully reviewed by humans. Similarly, UNESCO (2023) recognised that responsible AI use relies on students developing critical AI literacy, rather than uncritically using AI-generated outputs. The results reported here are consistent with recent evidence of a significant association between perceived usefulness and fit between AI capabilities and academic tasks for university students' responsible AI use. This underlines the need for promoting responsible AI practices in tandem with technology adoption as noted by Wang et al. (2026).

Nevertheless, students' acceptance of AI was conditional rather than uncritical. Concerns about inaccurate information, plagiarism, over-reliance and declining critical-thinking skills may reduce students' trust in AI-generated outputs and weaken perceived usefulness. These findings extend the basic TAM interpretation by demonstrating that information reliability, ethical risk and students' ability to evaluate AI-generated content also influence their acceptance of AI tools.

A further major issue that has been raised by the research is the fair distribution of AI technologies. Most participants agreed that AI is very accessible, but some pointed out that access is not equal. Some students do not have reliable internet access or cannot afford premium AI services. Such disparities can lead to unequal opportunities to learn for students from

different socioeconomic backgrounds. This is consistent with UNESCO's (2023) claim that digital inequality is one of the major obstacles to the successful integration of AI in education. Thus, universities should promote the responsible use of AI while ensuring equitable digital access for all students.

Cost, internet connectivity and access to premium AI services functioned as external conditions affecting students' actual use of AI tools. Although students might perceive AI as useful and easy to use, these positive perceptions may not result in equitable adoption when access is restricted by financial or technological barriers. Therefore, acceptance of AI tools must be understood within students' broader institutional and socioeconomic contexts.

Finally, participants felt positive about the role of AI in higher education. Most anticipated AI to be a personal learning assistant, offering teaching assistance according to each student's individual learning styles and educational needs. Participants emphasised that human judgement, mentoring and relationships between people still count in higher education and AI should be used to supplement faculty, not replace them. Recent studies also show that AI is more effective as a complement, rather than a substitute, to human teaching (Kasneci et al., 2023; UNESCO, 2023).

Taken together, the findings indicate that students' acceptance of AI tools was driven primarily by perceived usefulness, perceived ease of use and positive learning experiences. However, acceptance was constrained by concerns about information accuracy, academic integrity, over-reliance and unequal access. TAM provides a useful framework for organising these findings, while the qualitative evidence demonstrates that students' acceptance is also shaped by ethical, institutional and socioeconomic conditions.

Overall, the results show a general acceptance of AI by university students as an educational tool that improves the efficiency of learning and academic productivity. To embed AI effectively in higher education, however, universities will need to establish clear institutional policies, cultivate responsible AI literacy, re-design assessment practices to foster authentic learning, and ensure equitable access to AI technologies. These actions will empower higher education institutions to maximise the educational benefits of AI, and to minimise its potential risks of use. This guidance builds on recent international recommendations for institution-wide AI governance structures embedding ethical principles, digital literacy and pedagogically meaningful uses of generative AI in higher education (OECD, 2026).

Implications of the Study

The results of this study have several important implications for higher education institutions, educators, policy makers and future research on the use of artificial intelligence (AI) tools in university teaching and learning.

From a pedagogical perspective, the results indicate that AI tools can serve as a beneficial learning partner to enhance students' comprehension of complex concepts, improve learning efficiency, and support self-directed learning. AI should be used as a complementary educational tool that promotes active learning, critical thinking and individual academic support, not as a replacement for conventional teaching methods. Therefore, educators may want to consider incorporating AI-assisted learning activities in their teaching practices, and to guide students to use such technologies in a responsible and critical manner.

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The results have important institutional implications as well. Explicit policies and procedures should be in place at universities to ensure the ethical and appropriate use of AI in instruction, learning and assessment. Instead of explicitly forbidding the usage of AI tools, higher education institutions should take the initiative to teach students to be AI-literate. This includes prompt engineering, critically assessing AI-generated content, academic integrity, data privacy, and correct citation practices. Such programmes would allow students to minimise the risks of plagiarism and over-reliance and maximise the educational benefits of AI. Recent studies show that institutional rules focused on AI literacy promote academic integrity and ethical decision-making in higher education but also encourage students' development of responsible generative AI activities (Dai & Chan, 2026).

The study further demonstrates that everyone should have access to AI technologies. Some of the participants indicated that finance and internet access were among the barriers to the effective adoption of AI. As such, universities should aim to democratise access to institutional AI platforms, improve digital infrastructure and provide learning opportunities so that all students, no matter their socioeconomic background, are able to access AI-enabled learning. Addressing these challenges would enhance digital equity in higher education.

The findings support, from the policy perspective, continuous efforts to develop national and institutional frameworks for the responsible integration of AI in education. Education policy makers should foster the development of AI governance frameworks that balance technological innovation and ethical responsibility, transparency, academic integrity and student wellbeing. These frameworks should also help lecturers identify suitable ways of embedding AI into curriculum design, teaching strategies and assessment practices.

The study also adds to the growing literature on the use of AI in higher education by providing qualitative evidence of university students' experiences and perspectives. Other studies have applied quantitative methodologies or systematic reviews, but this study provides a deeper knowledge about how students assess the advantages, difficulties and future prospects in relation to AI-assisted learning. These findings contribute to the literature and provide context that may inform institutional decision-making and future educational research.

Overall, the results suggest that the use of AI, embedded in a framework of ethical awareness, equal access and responsible use, has great potential to improve higher education. Thus, to support human-centred education, academic integrity and meaningful learning, educators, institutional leaders, technology developers and legislators must join forces to effectively integrate AI in higher education.

Limitations of the Study

There are several limitations to consider in interpreting the present study findings. Firstly, a sample of 20 undergraduate students was recruited via convenience sampling. The sampling strategy was appropriate for an in-depth exploration of the participants' experiences, but the findings may not be generalisable to all university students in Malaysia or other educational settings.

Second, the respondents were from the higher learning institutions in Johor, Malaysia. Students from different parts of the world, other universities, other academic disciplines or cultural backgrounds may have different experiences of and perceptions of the use of artificial

intelligence (AI) tools for learning. Thus, the results must be interpreted in relation to the participants included in this study.

Third, the study employed self-reported interview data. The responses of the participants were based on their own experiences and perceptions, which could have been influenced by recall bias, individual opinions or social desirability. Although attempts were made to ensure an honest response, the self-reported data may not always represent the actual learning behaviours or AI usage practices.

Finally, this study used a qualitative research design to obtain an in-depth insight on students' perspectives. This method yielded valuable contextual information, but it did not quantify the efficacy of the AI tools using metrics such as academic achievement, learning outcomes, or technology acceptance scales. Thus, the findings should be taken as exploratory insights into the students' experiences and not as evidence of causal relationships between AI use and academic performance.

However, the study provides valuable qualitative evidence about university students' acceptance of AI tools for learning and contributes meaningful insights into the opportunities and challenges of integrating AI in higher education.

Future Research

Further studies should be conducted with the use of larger and more diverse samples from colleges in other parts of Malaysia and other countries. Further studies should be carried out. A larger number of participants would improve the generalisability of the findings and allow comparisons to be made between academic subjects, institutions, demographics and cultural settings.

Moreover, future studies may employ mixed-methods or quantitative research to supplement the qualitative findings reported in this study. Quantitative methods could examine the relationship of AI use with academic performance, motivation to learn, self-regulated learning, critical thinking, digital literacy, and technology acceptance. The mixed-methods approach will combine the statistics and the students lived experiences and thus offer a richer understanding. Future studies should explore the long-term effects of AI-based learning on students' academic growth. Researchers may conduct longitudinal studies to examine the effects of extended use of AI on learning habits, critical thinking skills, academic integrity, problem-solving abilities, and independent learning.

Comparative analyses with other AI platforms such as ChatGPT, Google Gemini, Microsoft Copilot, Grok, Claude and Perplexity AI would also provide insight into the relative advantages, disadvantages and efficacy of the various generative AI tools in education. Such comparisons can help educators and educational institutions to make the best choices of technology for different teaching and learning situations.

Given the ethical concerns raised by participants, future studies should explore ways to motivate responsible use of AI in higher education. Topics may include academic integrity standards, assessment reform, institutional governance frameworks, AI literacy initiatives, and lecturers' readiness to integrate AI into teaching and assessment. Research in these areas would

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Volume 11 Issue 64 (September 2026) PP. 1795-1814
help to inform evidence-based guidelines for the successful, moral and egalitarian integration of AI in higher education.

Finally, future research should take into account the views of other education stakeholders such as academics, administrators and lawmakers. Further, understanding the experiences and expectations of different stakeholder groups will improve understanding of AI adoption in higher education and the development of holistic institutional strategies for the responsible integration of AI technologies into teaching, learning and assessment.

Conclusion

This study used qualitative semi-structured interviews to explore university students' attitudes, experiences and views of the use of artificial intelligence (AI) tools in education. The results show that AI has become a useful educational tool that helps students in their learning quest by improving learning effectiveness, making difficult subjects easier, increasing academic production, and encouraging individualised and self-paced learning. Most participants had a positive view of AI tools and recognised the potential of AI tools to enhance overall learning experiences, promote independent learning and provide immediate academic support.

But the research also found some drawbacks of AI-assisted learning. Concerns have been raised regarding accuracy of AI-generated data, over-reliance on AI, research integrity and inequalities in access to AI technologies. The findings also call for the need to develop students' critical evaluation and AI literacy skills for the ethical and responsible use of AI in higher education. Universities should offer meaningful learning and academic integrity, relevant guidance, institutional policies, and equitable access to AI tools.

This study contributes to the expanding literature on AI in higher education by offering qualitative insights into the perceptions of university students in the Malaysian context. The study offers useful insight to teachers, policy makers and university administrators to develop strategies for ethical application of AI in teaching, learning and assessment and the benefits and drawbacks of AI supported learning.

In summary, artificial intelligence can lead to a significant improvement in the higher education system by offering more personalised, effective and practical learning experiences. Finally, it is a question of how institutions, teachers and students use education with ethics and responsibility. As students prepare themselves for a future increasingly defined by digital and AI technologies, they can look to technological innovation, effective teaching practices, and academic integrity to guide them.

Acknowledgement(s): The authors would like to express their sincere gratitude to the university involved for providing the necessary support for this research. The authors would also like to extend their deepest gratitude and credit to all the participants who participated in the study for their support, and without their enthusiastic involvement, the authors would not have been able to bring this work to completion.

Funding Statement: No Funding

Conflict of Interest Statement: The authors declare that there is no conflict of interest regarding the publication of this paper. All authors have contributed to this work and approved the final version of the manuscript for submission to the International Journal of Education, Psychology and Counselling (IJEPC).

Ethics Statement: This study adhered to recognised ethical standards for research involving human participants. Participation was voluntary, and informed consent was obtained from all participants prior to data collection. Participants were informed of the purpose of the study, assured that their responses would remain confidential, and advised of their right to withdraw from the study at any time without penalty. Anonymity was maintained through the removal of identifiable information from all records and reporting. In accordance with the institutional research ethics guidelines of the participating private university, formal ethics committee approval was not required for this minimal-risk study involving voluntary adult participants.

Author Contribution Statement: Jayasri Lingaiah was responsible for the critical revisions, literature review and drafting of the original manuscript. Logenthini Mariappan helped to analyse the data and interpret the results. Tea Joseph and Ng Yan Zhi assisted in data collection, conceptualisation of the study and provided overall research supervision. All authors have read and approved the final version of the work.

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IJEPC
EISSN : 0128-164X
Volume 11 Issue 64 (September 2026) PP. 1795-1814

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International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 11 Issue 64 (September 2026) PP. 1795-1814

Appendix A: Interview Questions

1. Have AI tools made your studying process more efficient, or do they sometimes create distractions?
2. Do you feel AI tools make it easier to understand difficult concepts? Can you give an example?
3. How do AI tools compare with traditional study methods like textbooks or tutoring?
4. Can you give examples of AI tools that have positively impacted your learning or academic performance?
5. In what ways have AI tools helped you improve your academic performance (e.g., grades, comprehension, time management)?
6. What impact does AI have on student motivation and engagement?
7. Do you find learning with AI tools more enjoyable or interactive than traditional methods?
8. Do you think all students have equal access to AI tools, or do some groups benefit more than others?
9. What challenges or barriers have you faced when trying to use AI tools (e.g., cost, internet, training)?
10. What can schools or institutions do to ensure more equitable access to AI tools for all students?
11. Do you trust the accuracy and fairness of the answers AI tools provide? Why or why not?
12. Have you ever worried about academic honesty when using AI tools (e.g., plagiarism, over-reliance)?
13. How can students use AI tools responsibly to enhance learning without crossing ethical boundaries?
14. Do you believe AI tools will remain a beneficial part of student learning in the long run? Why or why not?
15. What do you believe is the biggest opportunity AI brings to the future of education?