

Preliminary Evidence of Students' Acceptance of Artificial Intelligence in Learning: A Pilot Study at UiTM Puncak Perdana

Nurin Syahidah Shahrim and Hasnah Hashim

Faculty of Information Science, Universiti Teknologi MARA (UiTM), Puncak Perdana Campus,
40150 Shah Alam, Selangor, Malaysia

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ABSTRACT

This study presents preliminary findings from a pilot study examining students' acceptance of artificial intelligence (AI) in learning at the Faculty of Information Science, Universiti Teknologi MARA (UiTM) Puncak Perdana. The target population comprised 2,253 undergraduate and postgraduate students. For the planned main investigation, a minimum sample size of 329 respondents was estimated using the Raosoft sample-size calculator, based on a 95% confidence level, a 5% margin of error, and a 50% response distribution. The pilot study involved 26 respondents and was conducted to assess the clarity, contextual suitability, and preliminary internal consistency of the research instrument. The questionnaire comprised six items for each construct and employed a five-point Likert scale ranging from 1, "Strongly Disagree," to 5, "Strongly Agree." Cronbach's alpha coefficients were 0.898 for perceived usefulness, 0.939 for digital literacy, 0.931 for institutional support, and 0.911 for student acceptance of AI in learning. These coefficients indicated good to very high preliminary internal consistency within the pilot sample. However, the findings do not establish construct validity, factor structure, statistically significant relationships, causal effects, or generalisable conclusions. The measurement items were therefore retained provisionally for further evaluation in the main investigation, which should involve at least 329 eligible respondents. The findings provide preliminary support for proceeding to the main study, subject to further refinement and validation of the research instrument.

Keywords - Artificial Intelligence; Student Acceptance; Perceived Usefulness; Digital Literacy; Institutional Support; Pilot Study

INTRODUCTION

Artificial intelligence (AI) has become increasingly prominent in higher education because of its potential to enhance learning efficiency, information access, independent learning, and critical-thinking development (Alam & Mohanty, 2022; Crompton & Burke, 2023). AI-supported applications may assist students with information retrieval, academic writing, programming, translation, content creation, and research-related activities. However, the educational value of AI depends not only on students' access to AI tools but also on their confidence, digital competencies, and ability to evaluate AI-generated outputs critically.

Students must be able to recognise the limitations of AI and use AI tools in ways that are academically appropriate and ethically responsible. The use of AI in education raises several concerns, including academic integrity, plagiarism, privacy, algorithmic bias, transparency, and overreliance on AI-generated content (Baldrich et al., 2025; Kasneci et al., 2023). These concerns suggest that responsible AI adoption requires more than technological access. It also depends on students' attitudes, competencies, ethical awareness, and the broader institutional environment in which AI-supported learning takes place (Anghel et al., 2025; Deep et al., 2025).

AI should therefore be understood not merely as a technological innovation but also as a development that may transform established educational practices. When used appropriately, AI may support students' learning

experiences and academic productivity. Nevertheless, the benefits of AI integration depend on students' readiness and willingness to engage with these technologies effectively and responsibly. Students may also have concerns about overreliance on AI, plagiarism, privacy, bias, transparency, and the ethical implications of using AI-generated content. Accordingly, AI acceptance should be examined as a multidimensional phenomenon involving individual perceptions, student capabilities, and institutional conditions (George-Reyes et al., 2026).

Malaysia's higher education sector is increasingly incorporating generative AI into teaching, learning, assessment, and academic support (Govindarajan, 2025). However, students' AI literacy, confidence, and perceptions of institutional readiness may vary considerably across universities, faculties, and academic disciplines. Such differences may influence students' willingness and ability to adopt AI responsibly in their learning. Institution-specific research is therefore necessary to develop a more contextualised understanding of AI acceptance among Malaysian university students.

The present paper reports preliminary findings from a pilot study involving students from the Faculty of Information Science at UiTM Puncak Perdana. The pilot study was conducted to assess the clarity, contextual suitability, and preliminary internal consistency of a research instrument designed to measure perceived usefulness, digital literacy, institutional support, and students' acceptance of AI in learning. The findings are not intended to establish statistically significant relationships, causal effects, or generalisable conclusions. Instead, they provide preliminary evidence to support the refinement of the research instrument and data-collection procedures before the main investigation.

RESEARCH PROBLEM

Research on students' acceptance of AI has been conducted in various national contexts, including China, South Korea, Thailand, Indonesia, Saudi Arabia, and selected Western countries (Tallawi et al., 2026; Umbar et al., 2025). Although research on AI adoption in Malaysia has expanded gradually, empirical evidence from Malaysian public universities remains limited. Differences in educational systems, institutional policies, technological infrastructure, academic cultures, and students' digital competencies may influence AI acceptance across national and institutional contexts. Consequently, findings from other countries may not be directly applicable to students in Malaysian public universities.

In addition, AI adoption in higher education involves more than students' willingness to use AI tools. Students must also possess the digital literacy required to understand, evaluate, and use AI-generated information appropriately. Institutional support may further influence adoption by providing access to digital infrastructure, lecturer guidance, training opportunities, technical assistance, institutional policies, and ethical governance. These factors are particularly important in educational environments where the use of AI is developing rapidly and where institutional expectations may still be evolving. This pilot study addresses this gap by providing a preliminary assessment of an instrument designed to measure perceived usefulness, digital literacy, institutional support, and students' acceptance of AI among undergraduate and postgraduate students in the Faculty of Information Science at UiTM Puncak Perdana. The study does not attempt to confirm significant predictors, causal relationships, or generalisable population estimates. Instead, it evaluates the preliminary suitability and internal consistency of the proposed measurement items and identifies potential refinements before the implementation of a larger main investigation.

LITERATURE REVIEW

Artificial Intelligence (AI)

AI refers to the capacity of computational systems to perform tasks traditionally associated with human intelligence, including learning, reasoning, problem-solving, decision-making, natural language understanding, and knowledge representation. Russell and Norvig (2021) conceptualise AI as computer-based systems capable of emulating key dimensions of human cognitive activity. As a general-purpose technology,

AI can perform tasks that have traditionally required human intervention and may be understood as the computational simulation of human cognitive capabilities through machine-based systems (Yue & Shyu, 2023). A defining characteristic of AI is its ability to be integrated into existing technologies, thereby extending their functionality and enabling more sophisticated forms of analysis and decision support. Consequently, AI has been applied across diverse fields, including chemistry and medicine, where AI-assisted systems can support routine diagnostic processes. Its interdisciplinary scope encompasses computer science, engineering, chemistry, biology, physics, astronomy, neuroscience, and the social sciences (Sadiku et al., 2020). This breadth of application underscores AI's transformative potential across scientific, professional, and societal domains.

AI in Higher Education

Within higher education, AI has evolved beyond its initial role as a tool for automation to become a strategic enabler of teaching and learning. Its applications include intelligent tutoring systems, adaptive learning platforms, learning analytics, and generative AI, all of which offer significant opportunities to personalise instruction, enhance student engagement, and improve educational outcomes. AI has evolved from a tool for automation to a powerful ally in improving learning and teaching experiences within higher education, through intelligent tutoring systems, adaptive learning platforms, learning analytics, and generative AI (Imran et al., 2024). Within education, AI is enabling unprecedented levels of flexibility, personalization, and adaptive support (Chen et al., 2020). By transforming teaching and learning practices, AI has the potential to enhance educational provision, streamline educators' responsibilities, and reshape the organization and delivery of instruction across schools and classrooms.

The recent emergence of Large Language Models (LLMs) has allowed the creation of generative AI technologies, including ChatGPT, Microsoft Copilot, Google Gemini, and Claude, to produce human-like responses, aid in academic writing, provide information summarisation, problem solving, and even self-directed learning (Jauhiainen & Toppari, 2025). The advancements have greatly increased the potential applications of AI in higher education, offering opportunities for more engaging, customised, and accessible learning (Kasneci et al., 2023). Together, these views show how AI has progressed from being a computational tool to an educational tool that creates knowledge, engages students, and enhances learning.

Perceived Usefulness

Perceived usefulness has emerged as a critical determinant of students' acceptance of artificial intelligence (AI) in learning. Students are more likely to adopt AI technologies when they perceive that these tools enhance learning effectiveness, increase academic productivity, and improve overall academic performance. Consistent with this perspective, perceived usefulness has been identified as one of the most influential predictors of AI acceptance across diverse educational contexts. Empirical evidence from higher education studies in Indonesia (Musyaffi et al., 2024), Thailand (Kanont et al., 2024), Malaysia (Zainuddin et al., 2025; Dahri et al., 2024), Vietnam (Dang, 2025), and Türkiye (Guler et al., 2026) demonstrates a significant positive relationship between perceived usefulness and students' willingness to use AI for learning. Collectively, these findings indicate that students are more inclined to adopt AI when they believe that it can improve the effectiveness of their learning, enhance academic productivity, and contribute to better academic performance.

Digital Literacy

Empirical evidence suggests that digital literacy is a significant positive predictor of students' acceptance of artificial intelligence (AI) in higher education. Students with stronger digital competencies are generally more confident in exploring AI technologies, critically evaluating AI-generated information, recognising the limitations of AI systems, and applying these tools responsibly within academic contexts. In this regard, UNESCO (2023) emphasised that students should be equipped to use AI systems in ways that maximise their educational benefits. Such use requires not only technical proficiency but also critical thinking, ethical awareness, and responsible digital practices. Consistent with this perspective, Borekci and Celik (2024), Sergeeva et al. (2025), Khoso et al. (2025), and Yaseen et al. (2025) reported similar findings across diverse

educational settings. Collectively, these studies underscore the importance of digital literacy in strengthening students' critical-thinking capabilities, ethical awareness, and capacity to engage with AI responsibly. Extending this argument, Kasneci et al. (2023) proposed that AI literacy should complement the broader construct of digital literacy by developing students' nuanced understanding of the capabilities, limitations, and appropriate applications of generative AI tools.

Institutional Support

As AI becomes increasingly embedded in higher education, universities are integrating AI-related training into their curricula to promote its effective and responsible use. Empirical research consistently demonstrates that institutional support is a significant positive predictor of students' acceptance of AI. The literature suggests that institutions equipped with adequate technological infrastructure, AI literacy programmes, lecturer guidance, and clear institutional policies are more likely to foster students' confidence and readiness to adopt AI technologies. These findings are supported by Jeilani and Abubakar (2025), Zhao et al. (2025), Aldraiweesh and Alturki (2025), and Mardiana et al. (2025). Collectively, their studies indicate that institutional support extends beyond the mere provision of technological infrastructure. Rather, it encompasses a comprehensive support ecosystem involving AI literacy training, instructional guidance from lecturers, enabling institutional policies, reliable technological resources, and robust ethical governance. Although the emphasis varies across studies, the evidence converges on the view that organisational support plays a central role in shaping students' acceptance and responsible use of AI in higher education.

THEORETICAL FRAMEWORK

This study integrates the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI) theory to provide complementary explanations of students' acceptance of AI in learning. TAM explains technology acceptance primarily through users' perceptions of the usefulness and ease of use of a technology (Davis, 1989). DOI theory provides a broader explanation by examining how an innovation is perceived, communicated, adopted, and supported within a social and organisational system (Rogers, 2003).

Technology Acceptance Model (TAM)

TAM proposes that individuals' acceptance of a technology is influenced by their perceptions of its usefulness and ease of use. Perceived usefulness refers to the extent to which an individual believes that using a particular technology will enhance performance in a specific task (Davis, 1989). In the present study, perceived usefulness refers to students' beliefs that AI can improve learning effectiveness, academic productivity, information access, and academic performance.

Although TAM traditionally includes perceived ease of use, the present pilot study focuses on perceived usefulness because the research is primarily concerned with students' perceptions of the educational value of AI. Perceived ease of use may be incorporated into a subsequent model if it is theoretically and empirically justified. The exclusion of perceived ease of use should be acknowledged when interpreting the application of TAM in this study.

Diffusion of Innovations Theory (DOI)

DOI theory explains how an innovation is introduced, communicated, evaluated, and adopted within a social system (Rogers, 2003). The theory emphasises the role of individual characteristics, perceived attributes of an innovation, communication channels, time, and the organisational environment in the adoption process.

In this study, digital literacy represents a student capability that may influence the ability to understand, evaluate, experiment with, and use AI as an emerging innovation. Digital literacy is relevant to AI adoption because students require technical knowledge, critical-evaluation skills, information-literacy abilities, and ethical awareness to engage with AI responsibly.

Institutional support is also informed primarily by DOI theory because innovation adoption is influenced by the organisational environment in which the innovation is introduced. In the present study, institutional support includes access to digital infrastructure, lecturer guidance, AI-related training, technical assistance, institutional policies, and ethical governance. These forms of support may facilitate adoption by reducing uncertainty, increasing students' confidence, and establishing appropriate conditions for responsible AI use.

The two theories are therefore applied jointly but distinctly. TAM primarily explains students' individual perceptions of the usefulness of AI, whereas DOI provides a broader account of the student capabilities and institutional conditions that may influence the diffusion and adoption of AI. The proposed relationships between perceived usefulness, digital literacy, institutional support, and students' acceptance of AI remain subject to empirical testing in the main investigation.

Student Acceptance of AI

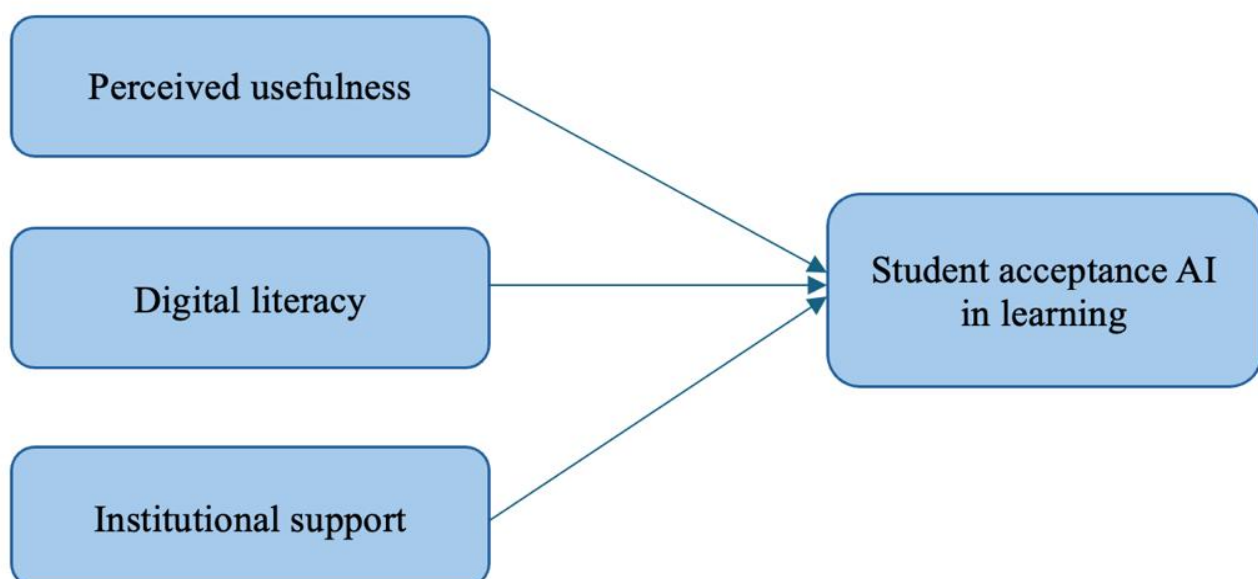
In this study, students' acceptance of AI refers to their overall favourable evaluation, openness, and willingness to consider AI as a useful tool for learning. Acceptance is conceptually distinct from behavioural intention and actual AI use. Behavioural intention refers to a student's stated likelihood or willingness to use AI in the future, whereas actual AI use refers to reported or observed engagement with AI tools during learning activities.

Although these concepts may be related, they should not be treated as interchangeable. A student may express a favourable evaluation of AI without intending to use it regularly, or may intend to use AI without having extensive experience with AI tools. The present pilot study focuses on students' perceived acceptance of AI and does not claim to measure actual AI use unless usage behaviour is assessed through separate and clearly specified items. This distinction should be maintained in the main investigation to ensure conceptual clarity and appropriate measurement. If the main study intends to examine behavioural intention or actual usage behaviour, these constructs should be measured separately and defined explicitly.

CONCEPTUAL FRAMEWORK

The conceptual framework positions perceived usefulness, digital literacy, and institutional support as proposed explanatory constructs for students' acceptance of AI in learning.

Figure 1: Conceptual framework of the study



Conceptual framework of the study

Perceived usefulness is derived primarily from TAM and captures students' beliefs that AI can improve learning performance, academic productivity, and learning effectiveness. Digital literacy is informed by DOI theory because students' knowledge, confidence, critical-evaluation skills, and ability to experiment with an innovation may influence their readiness to adopt AI. Institutional support is also informed by DOI theory and represents the organisational environment through which AI adoption may be enabled or constrained.

Institutional support includes access to digital infrastructure, lecturer guidance, AI-related training, technical assistance, institutional policies, and ethical governance. These forms of support may reduce uncertainty, strengthen students' confidence, and provide appropriate conditions for AI-supported learning.

The proposed conceptual framework therefore suggests that students' acceptance of AI may be associated with their perceptions of AI's usefulness, their digital literacy, and the level of institutional support available to them. However, because the present paper reports pilot findings, these proposed relationships should be interpreted as hypotheses for the main investigation rather than as empirically confirmed relationships or causal effects.

Research Questions

The study addresses the following research questions:

- What are the preliminary levels of perceived usefulness, digital literacy, institutional support, and students' acceptance of AI among students in the Faculty of Information Science at UiTM Puncak Perdana?
- Do the proposed measurement items demonstrate satisfactory preliminary internal consistency within the pilot sample?
- What revisions, if any, are required for the research instrument and data-collection procedures before the main investigation?

Research Objectives

The objectives of the study are:

- To examine the preliminary levels of perceived usefulness, digital literacy, institutional support, and students' acceptance of AI among students in the Faculty of Information Science at UiTM Puncak Perdana.
- To assess the preliminary internal consistency of the measurement items used to operationalise the study constructs.
- To identify potential revisions to the research instrument and data-collection procedures before conducting the main investigation.

RESEARCH METHODOLOGY

Research Design

A quantitative pilot-study design was adopted to evaluate the preliminary suitability of a questionnaire intended for a larger investigation of students' acceptance of AI in learning. The pilot study focused on item clarity, contextual suitability, and preliminary internal consistency. It was not designed to test hypotheses or establish generalisable relationships among the study constructs.

Population and Study Context

The target population comprised undergraduate and postgraduate students enrolled in the Faculty of Information Science at Universiti Teknologi MARA, Puncak Perdana Campus. The population was selected because students in Information Science programmes regularly engage with digital technologies and may

encounter AI applications in information retrieval, academic writing, programming, content creation, translation, and research support.

The study focused on students within a single faculty and campus. This context enabled the researchers to assess the suitability of the questionnaire among participants who were likely to have varying levels of exposure to digital technologies and AI-supported learning.

Sampling Technique

Convenience sampling was used because participants were recruited based on their accessibility, availability, and willingness to participate. The questionnaire was distributed through official university email, lecturers, programme coordinators, and students' WhatsApp groups. Participation was voluntary and limited to students who met the study's eligibility criteria. The use of convenience sampling presents important limitations.

The pilot sample may not be representative of the wider UiTM student population or Malaysian university students generally. Students who were more interested in AI, more confident in using digital technologies, or more motivated to participate in research may have been more likely to respond. The sampling method may therefore introduce self-selection bias and restrict the generalisability of the findings.

Sample-Size Determination for the Main Investigation

The target population for the planned main investigation comprised 2,253 undergraduate and postgraduate students enrolled in the Faculty of Information Science at UiTM Puncak Perdana Campus. The required sample size was estimated using the Raosoft sample-size calculator, assuming a 95% confidence level, a 5% margin of error, and a 50% response distribution. Based on these assumptions and the finite-population correction, the recommended minimum sample size was 329 respondents.

The recommended sample of 329 respondents applies to the planned main investigation and should not be confused with the pilot sample. The pilot study involved 26 respondents and was conducted solely to assess the clarity, contextual suitability, and preliminary internal consistency of the research instrument. The pilot respondents were not intended to be included in the final main-study analysis.

The sample-size estimate of 329 should be regarded as a preliminary planning estimate. The adequacy of the final sample should also be reassessed after data collection by considering the number of predictors, missing data, response rate, statistical power, expected effect sizes, and the assumptions of the intended statistical analyses.

Pilot Sample

The pilot study involved 26 respondents recruited from the target population through convenience sampling. The respondents were undergraduate and postgraduate students from the Faculty of Information Science at UiTM Puncak Perdana Campus. They participated voluntarily and completed the questionnaire after receiving information about the purpose and nature of the study.

The pilot respondents were not included in the main-study analysis to avoid duplication of observations and potential contamination of the final sample.

Research Instrument

The questionnaire consisted of four proposed constructs:

- perceived usefulness;
- digital literacy;
- institutional support; and
- students' acceptance of AI in learning.

Table 1: Research Instrument

Variable	Operational Definition	Measurement Source
Perceived usefulness	Students' perception that AI improves learning effectiveness	Adapted from TAM proposed by Davis (1989); adapted from previous study on AI acceptance by Musyaffi et al., (2024), Kanont et al., (2024) and Dang (2025).
Digital literacy	Students' ability to use, evaluate and apply technologies responsibly and effectively in learning.	Adapted from Borekci and Celik (2024), with the digital literacy concept supplemented by UNESCO (2023).
Institutional support	Students' perceptions of the support, infrastructure, guidance and policies provided by the university to facilitate AI use.	Adapted from Jeilani and Abubakar (2025) and modified to fit the context of the study on AI in higher education.
Students' acceptance of AI	Student willingness and behavioural intention to adopt and use AI consistently in learning	Based on the behavioural intention construct of TAM (Davis, 1989) adapted and modified

Each construct was measured using six items, resulting in a total of 24 measurement items. The questionnaire employed a five-point Likert scale ranging from 1, "Strongly Disagree," to 5, "Strongly Agree." The measurement items were adapted from previously published instruments and revised to reflect the context of AI-supported learning at UiTM Puncak Perdana. The perceived usefulness items were informed by TAM and previous studies of AI acceptance. The digital literacy items were informed by Borekci and Celik (2024) and UNESCO (2023), whereas the institutional-support items were adapted from Jeilani and Abubakar (2025). Items measuring students' acceptance of AI were developed or adapted based on the conceptual definition of acceptance established in this study.

The adapted items should be reviewed by subject-matter experts before the main investigation to assess content relevance, clarity, and contextual appropriateness. Any changes made following the pilot study should be documented clearly in the final research report.

Ethics and Informed Consent

Ethical approval was obtained from the relevant institutional authority before data collection commenced. Participants were provided with information about the purpose of the study, the voluntary nature of participation, the expected completion time, and their right to withdraw without penalty. Informed consent was obtained before respondents accessed the questionnaire.

No personally identifying information was required unless it was explicitly justified by the research protocol. All collected data were treated confidentially, stored securely, and used solely for academic research purposes. Participation did not involve academic penalties or benefits, and respondents were not required to provide information that was unrelated to the objectives of the study.

Pilot-Study Procedure

The pilot study was conducted before the planned main investigation. The questionnaire was distributed electronically to eligible students through official university communication channels, lecturers, programme coordinators, and students' WhatsApp groups.

The pilot study was intended to identify unclear wording, ambiguous terminology, inappropriate response options, and potential difficulties in completing the questionnaire. It also provided preliminary evidence regarding the internal consistency of the proposed measurement items. The pilot results were used to determine whether the items could be retained provisionally for further examination in the main investigation.

Data Analysis

The pilot data were analysed using descriptive statistics and Cronbach's alpha coefficients. Descriptive analysis was used to summarise the respondents and examine the distribution of responses. Cronbach's alpha was calculated to estimate the preliminary internal consistency of the items associated with each construct.

Because the pilot sample was small, the analysis was intentionally limited to preliminary reliability assessment. No factor analysis, correlation analysis, regression analysis, hypothesis testing, or causal analysis was conducted. The pilot findings were not used to generate generalisable population estimates.

For the planned main investigation, the data-analysis procedure should include descriptive statistics, reliability analysis using the final sample, and exploratory or confirmatory factor analysis where appropriate. Convergent validity and discriminant validity should also be assessed. Correlation and regression analyses may subsequently be conducted to examine the relationships between perceived usefulness, digital literacy, institutional support, and students' acceptance of AI. Statistical significance should be reported together with effect sizes and confidence intervals.

PILOT RESULTS

Preliminary Internal Consistency

The pilot study involved 26 respondents. The Cronbach's alpha coefficients were 0.898 for perceived usefulness, 0.939 for digital literacy, 0.931 for institutional support, and 0.911 for students' acceptance of AI in learning.

Table 2: Preliminary Internal Consistency

Construct	Number of items	Cronbach's alpha
Perceived usefulness	6	0.898
Digital literacy	6	0.939
Institutional support	6	0.931
Students' acceptance of AI	6	0.911

All coefficients exceeded the commonly used minimum threshold of 0.70 and indicated good to very high preliminary internal consistency within the pilot sample.

Interpretation of the Reliability Results

The reliability results should nevertheless be interpreted cautiously. Cronbach's alpha assesses the extent to which items within a construct are correlated, but it does not establish construct validity, factor structure, unidimensionality, or discriminant validity. In addition, coefficients above 0.90 may indicate that some items are highly similar or potentially redundant.

The high coefficients may also partly reflect the use of six items per construct and the relatively homogenous nature of the pilot sample. The items were therefore retained provisionally for the main investigation, subject to further assessment of content validity, item clarity, factor structure, convergent validity, discriminant validity, and reliability using the final sample.

Scope of the Pilot Findings

No correlation, regression, or statistical significance testing was conducted because the present manuscript reports pilot-stage findings only. The pilot sample was not sufficiently large or representative to support generalisable conclusions about students' acceptance of AI. The findings should therefore be understood as preliminary evidence concerning the internal consistency and potential suitability of the measurement instrument.

DISCUSSION

The pilot findings provide preliminary support for the continued use of the proposed questionnaire in the main investigation. The Cronbach's alpha coefficients for the four constructs ranged from 0.898 to 0.939, suggesting that the items within each construct demonstrated a high degree of preliminary internal consistency in the pilot sample.

However, high internal consistency should not be interpreted as evidence that the instrument is valid in all respects. Reliability is a necessary but insufficient condition for measurement quality. The main investigation should therefore examine whether the items adequately represent their intended constructs and whether the constructs are empirically distinguishable from one another.

The pilot findings also reinforce the importance of distinguishing instrument assessment from substantive hypothesis testing. The present study did not establish that perceived usefulness, digital literacy, or institutional support significantly predicts students' acceptance of AI. Such relationships can only be examined after the final sample has been collected and the measurement model has been evaluated.

The proposed integration of TAM and DOI provides a useful theoretical basis for examining AI acceptance from both individual and organisational perspectives. TAM highlights the importance of students' perceptions of AI's usefulness, whereas DOI draws attention to the role of student capabilities and institutional conditions. Nevertheless, the proposed theoretical relationships require empirical testing in the main study.

LIMITATIONS

This pilot study has several limitations. First, the sample comprised only 26 respondents, which limits the stability and interpretability of the reliability coefficients. Second, convenience sampling may have introduced self-selection bias because students with greater interest in AI or higher digital confidence may have been more likely to participate.

Third, the study was conducted within a single faculty and campus. The findings may therefore not be generalisable to students from other faculties, campuses, universities, or educational systems. Fourth, the study relied on self-reported questionnaire responses, which may be influenced by respondents' perceptions, memory, social desirability, or familiarity with AI.

Fifth, the pilot analysis was limited to descriptive statistics and Cronbach's alpha. Factor structure, construct validity, convergent validity, discriminant validity, statistical significance, causal effects, and generalisable relationships were not examined. Finally, the pilot findings do not establish students' actual frequency or quality of AI use. Acceptance, behavioural intention, and actual AI use should be measured as separate constructs in the main investigation if all three dimensions are of interest.

Implications for the Main Investigation

The main investigation should recruit at least 329 eligible respondents, subject to a final assessment of statistical power, expected effect sizes, missing data, response rate, and the number of proposed predictors. The final study should report the number of questionnaires distributed, the number returned, the number of valid responses, the response rate, and the criteria used to exclude incomplete or invalid responses.

Before the main data collection, the questionnaire should undergo expert review to assess content validity and contextual suitability. The researchers should also document any changes made to the wording, order, or number of items after the pilot study.

The main investigation should evaluate the measurement model using appropriate statistical procedures. These procedures may include exploratory factor analysis, confirmatory factor analysis, composite reliability, convergent validity, discriminant validity, and item-level assessment. The selection of analytical procedures should be guided by the study design, sample size, theoretical model, and assumptions of the statistical techniques.

The main study should also distinguish clearly among perceived acceptance, behavioural intention, and actual AI use. If the research aims to explain actual adoption behaviour, acceptance alone may be insufficient as the outcome variable. Separate measures should be used to assess intention and actual usage behaviour.

CONCLUSION

This pilot study provided a preliminary assessment of a questionnaire designed to measure perceived usefulness, digital literacy, institutional support, and students' acceptance of AI in learning. The pilot study involved 26 respondents, whereas the planned main investigation should target at least 329 eligible respondents from the population of 2,253 students. These sample sizes serve different purposes and should not be conflated.

The Cronbach's alpha coefficients ranged from 0.898 to 0.939, indicating good to very high preliminary internal consistency within the pilot sample. These findings suggest that the measurement items may be suitable for further investigation. However, the results do not establish factor structure, construct validity, statistically significant relationships, causal effects, or generalisable conclusions.

The measurement items should therefore be retained provisionally and evaluated further using the main-study sample. The main investigation should report the final number of valid responses, response rate, respondent characteristics, sampling procedures, descriptive statistics, reliability coefficients, factor-analysis results, validity evidence, correlation or regression results, statistical significance, effect sizes, and confidence intervals.

Because convenience sampling will be used, the main study should acknowledge the potential effects of self-selection bias and limited generalisability. Ultimately, the results of the main investigation should determine whether the proposed conceptual framework and measurement model are empirically supported.

REFERENCES

1. Alam, A., & Mohanty, A. (2022, December). Foundation for the future of higher education or 'misplaced optimism'? Being human in the age of artificial intelligence. In *International Conference on Innovations in Intelligent Computing and Communications* (pp. 17-29). Cham: Springer International Publishing.
2. Aldraiweesh, A. A., & Alturki, U. (2025). The influence of social support theory on AI acceptance: Examining educational support and perceived usefulness using SEM analysis. *IEEE Access*, 13, 18366-18385.

3. Anghel, G. A., Zafir, C. M., Matei, F. L., Voicu, C. D., & Neacşa, R. A. (2025). The integration of artificial intelligence in academic learning practices: A comprehensive approach. *Education sciences*, 15(5), 616.
4. Baldrich, K., Perez-Garcia, C., & Santamarina-Sancho, M. (2025). Artificial intelligence in academic literacy: Empirical evidence on reading and writing practices in. *Frontiers in Education*, 10, Article 1701238. <https://doi.org/10.3389/feduc.2025.1701238>
5. Borekci, C., & Celik, O. (2024). Exploring the Role of Digital Literacy in University Students' Engagement with AI Through the Technology Acceptance Model. *Sakarya University Journal of Education*, 14(2), 228–249. <https://doi.org/10.19126/suje.1468866>
6. Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *IEEE access*, 8, 75264-75278.
7. Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International journal of educational technology in higher education*, 20(1), 22.
8. Dang, T. (2025). An investigation into the application of artificial intelligence for language teaching and learning in Vietnam. *Vietnam Journal of Education*.
9. Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
10. Deep, P. D., Ghosh, N., & Chen, Y. (2025). Faculty burnout in higher education: Effects on student engagement, learning outcomes, and artificial intelligence-driven institutional responses. *Journal of Educational and Developmental Psychology*, 15(1), 29-42.
11. George-Reyes, C. E., Mérida-Córdova, E. J., Yeguas-Bolivar, E., & Monzalvo-Serrano, L. (2026). Artificial Intelligence Acceptance in Higher Education: Perceptions from Mexico, Spain, and Finland. *Information*, 17(6), 575.
12. Govindarajan, S. (2025). Artificial intelligence and pedagogical transformation: opportunities and challenges in higher education. *Journal of Communication in Scientific Inquiry (JCSI)*, 7(2), 21-30.
13. Güler, M. A., Dağ, S., Kayal, S., Can, M., & Şimşekkaya, S. N. (2026). Physiotherapy students' acceptance of AI-based chatbots (including ChatGPT) in education: a multi-institutional study from Turkey. *BMC Medical Education*, 26(1), 174.
14. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th ed.). Cengage.
15. Imran, M., Almusharraf, N., Abdellatif, M. S., & Abbasova, M. Y. (2024). Artificial intelligence in higher education: Enhancing learning systems and transforming educational paradigms.
16. Jauhiainen, J. S., & Toppari, A. (2025). Generative Artificial Intelligence and Agents in Research and Teaching. *arXiv preprint arXiv:2508.16701*.
17. Jeilani, A., & Abubakar, S. (2025, March). Perceived institutional support and its effects on student perceptions of AI learning in higher education: The role of mediating perceived learning outcomes and moderating technology self-efficacy. In *Frontiers in Education* (Vol. 10, p. 1548900). Frontiers Media SA.
18. Kanont, K., Pingmuang, P., Simasathien, T., Wisnuwong, S., Wiwatsiripong, B., Poonpirome, K., ... & Khlaisang, J. (2024). Generative-AI, a Learning Assistant? Factors Influencing Higher-Ed Students' Technology Acceptance. *Electronic journal of e-Learning*, 22(6), 18-33.
19. Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeiffer, F., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., & Kasneci, G. (2023). ChatGPT for Good? On Opportunities and Challenges of Large Language Models for Education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
20. Khoso, A. K., Honggang, W., & Darazi, M. A. (2025). Trust and attitude towards AI as pathways to creativity: A TAM model study of EFL students' digital literacy and AI acceptance. *Humanities and Social Sciences Communications*, 13(1), 69.
21. Mardiana, H., Kasim, M. B., & Md Jaafar, F. B. (2026). Developing digital literacy and competence in Southeast Asia higher education: the role of institutional support and prior AI experience. *Asian Education and Development Studies*, 1-18.

22. Mukhamedkarimova, D. F., & Umurkulova, M. M. (2025). Factors contributing to higher education students' acceptance of Artificial Intelligence: A systematic review. *European Journal of Educational Research*, 14(4), 1373-1388.
23. Musyaffi, A. M., Baxtishodovich, B. S., Afriadi, B., Hafeez, M., Adha, M. A., & Wibowo, S. N. (2024). New challenges of learning accounting with artificial intelligence: The role of innovation and trust in technology. *European Journal of Educational Research*, 13(1), 183-195.
24. Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). Free Press.
25. Sergeeva, O. V., Masalimova, A. R., Zheltukhina, M. R., Chikileva, L. S., Lutskovskai, L. Y., & Luzin, A. (2025, June). Impact of digital media literacy on attitude toward generative AI acceptance in higher education. In *Frontiers in Education* (Vol. 10, p. 1563148). Frontiers Media SA.
26. Sekaran, U., & Bougie, R. (2020). *Research Methods for Business: A Skill-building Approach* (8th ed.). Wiley.
27. Sadiku, M. N., Fagbohunbe, O. I., & Musa, S. M. (2020). Artificial intelligence in cyber security. *International Journal of Engineering Research and Advanced Technology*, 6(05), 01-07.
28. Tallawi, S., Crowley, C., & Levels, M. (2026). How and why do users in Non-Western Countries use AI Chatbots? A Systematic Literature Review. *A Systematic Literature Review* (February 12, 2026). This paper was submitted to *Telematics and Informatics Reports* on, 17.
29. Umbar, K., Azkiyah, S. N., Maswani, M., Wahab, M. A., & Zulkifli, Z. (2025). A Systematic Review of AI-Powered Language Teaching Trends, Innovations, and Challenges. *Ascarya: Journal of Islamic Science, Culture, and Social Studies*, 5(2), 248-261.
30. UNESCO. (2023). Guidance for generative AI in education and research. UNESCO. <https://unesdoc.unesco.org/>
31. Yaseen, H., Mohammad, A. S., Ashal, N., Abusaimh, H., Ali, A., & Sharabati, A. A. A. (2025). The impact of adaptive learning technologies, personalized feedback, and interactive AI tools on student engagement: The moderating role of digital literacy. *Sustainability*, 17(3), 1133.
32. Yue, Y., & Shyu, J. Z. (2023). An overview of research on human-centered design in the development of artificial general intelligence. *arXiv preprint arXiv:2309.12352*.
33. Zainuddin, K., Daud, K. A. M., & Asmaa'Hussein, N. (2025). A PLS-SEM Analysis of Antecedents Influencing Polytechnic Students' Acceptance And Use Of Artificial Intelligence (AI) Tools for Technical English. *International Journal of Modern Languages and Applied Linguistics*, 9(4).
34. Zhao, D., & Ji, J. (2025, December). Research Context and Trends of Artificial Intelligence Literacy among Higher Education Teachers in China--A Bibliometric Analysis Based on CiteSpace. In *Proceedings of the 2025 3rd International Conference on Information Education and Artificial Intelligence* (pp. 1199-1202).