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Research Article

Integrating AI into Higher Education Students' Learning: Experiences, Attitudes, Acceptance, and Challenges

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ABSTRACT

The integration of artificial intelligence (AI) into higher education has immense potential to transform students' learning experiences and foster inclusivity. This study aims to investigate students' experiences, attitudes, acceptance, and challenges related to AI integration in higher education. A quantitative approach was employed, using a structured questionnaire to gather data from a sample of 31 students enrolled in instructional technology educational programs. The data were analyzed using SPSS software. The findings reveal diverse student perspectives, with some emphasizing AI's ability to enhance learning opportunities and provide personalized experiences, while others raise concerns about its impact on human interaction. This research offers valuable insights into fostering AI inclusivity among students to support the development of an effective learning environment.

Keywords: Acceptance, Artificial Intelligence, Attitudes, Challenges, Experiences, Higher Education.

INTRODUCTION

The integration of artificial intelligence (AI) in higher education has garnered significant attention due to its potential to transform learning environments through personalized, adaptive, and efficient educational experiences. AI technologies enhance various aspects of education by providing real-time feedback, automating administrative tasks, and enabling educators to focus more on teaching and mentoring. Institutions are increasingly adopting AI-driven tools such as intelligent tutoring systems, adaptive learning platforms, and analytics to track student performance and engagement. According to Zawacki-Richter et al. [1], AI plays a crucial role in personalizing learning by tailoring content to individual student needs and learning paces. Additionally, AI's ability to analyze vast datasets offers educators deeper insights into student behaviors and learning patterns, ultimately informing more effective instructional strategies [2]. Despite these advancements, the success of AI in education depends not only on technological capabilities but also on students' acceptance and willingness to engage with these tools, which are influenced by factors such as prior experience, perceived usefulness, and privacy concerns [3].

Students' perceptions of AI significantly impact its successful integration into higher education. While many students recognize the benefits of AI in providing personalized support, some remain skeptical due to concerns about reduced human interaction and potential biases in AI-driven decisions [4]. These mixed perspectives highlight the need for a nuanced understanding of students' attitudes toward AI and the challenges they face in adopting these technologies. As AI continues to evolve, ongoing assessment of students' acceptance and concerns is necessary to ensure its effective implementation in academic settings. This study explores students' experiences, attitudes, acceptance, and challenges regarding AI integration in higher education. Using a quantitative approach and data collected from students in instructional technology programs, this research aims to provide insights into how AI is perceived and utilized in learning environments. The findings will contribute to the broader discourse on AI in education, offering recommendations to enhance the inclusivity and effectiveness of AI tools, ultimately shaping the future of higher education.

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BACKGROUND

The rapid evolution of artificial intelligence (AI) in higher education presents both opportunities and challenges for educators and students. AI technologies, such as intelligent tutoring systems, adaptive learning platforms, and automated administrative processes, are designed to enhance learning experiences by improving efficiency and personalization. According to De la Vall and Araya [5], AI in classroom learning offers numerous benefits, including time-saving capabilities, personalized learning experiences, and exposure to diverse cultural perspectives. AI facilitates interactive and responsive learning while maintaining confidentiality, providing valuable insights into students' learning needs. Research further suggests that chatbots can serve as engaging conversational tools that support concept reinforcement and deliver educational resources effectively [6]. One of AI's most significant advantages is its ability to personalize learning by analyzing large datasets to tailor content and instruction to individual student needs. This adaptive approach enables AI to identify students' areas of difficulty and offer targeted interventions, ultimately enhancing engagement and motivation [2]. Consequently, personalized AI-driven learning has the potential to bridge knowledge gaps and foster inclusivity in education [7].

Despite these advantages, several challenges hinder AI's full integration into higher education. A primary concern revolves around ethical considerations, particularly regarding data privacy and security. AI systems rely on extensive data collection, raising concerns about how student information is stored and used [8]. Ensuring strict ethical standards and safeguarding sensitive data is crucial for fostering trust and encouraging AI adoption among students. Additionally, some fear that an overreliance on AI could diminish the human element of education, which is vital for fostering critical thinking and interpersonal skills [9]. Students' attitudes toward AI also play a significant role in its successful implementation. Research indicates that acceptance is influenced by prior technology experiences, perceived usefulness, and privacy concerns [4]. While some students embrace AI's potential, others remain skeptical about its biases and the reduction of human interaction. Understanding these perspectives is essential for designing user-friendly AI tools that effectively support student learning. This study aims to investigate students' experiences, attitudes, and challenges related to AI integration in education. By employing a quantitative approach and structured questionnaires, the research will provide insights into AI adoption in academic settings and offer recommendations for improving inclusivity and effectiveness. As higher education continues to embrace AI advancements, addressing student concerns is imperative to ensure positive educational outcomes [1].

METHODOLOGY

Research Design and Sample

A quantitative approach was employed. Data were collected through online questionnaires administered via Google Forms. This online platform was chosen for its speed and convenience in reaching respondents (Sekaran & Bougie, 2016). In detail, questionnaires were distributed to 50 students enrolled in instructional technology educational programs at a public university in Malaysia, and 31 responses were returned and analyzed. A minimum of 30 respondents is suggested as the sample size for preliminary studies (Serdar et al., 2021).

Research Instrument

The questionnaire for this study is divided into four sections: experiences with AI, attitudes towards AI, acceptance of AI, and challenges in using AI. The first section (3 items) explores students' prior experience with AI tools, their frequency of use, and the types of AI applications they have engaged with in their studies. The second section (3 items) examines their comfort level in using AI, perceptions of its benefits in higher education, and any concerns they may have regarding its use. The third section (4 items) focuses on students' acceptance of AI, including their willingness to recommend it, the perceived advantages, and their level of trust in AI-generated information. The final section (2 items) identifies challenges faced by students when using AI tools and gathers their recommendations for improving AI integration in classroom learning.

Respondents are required to rate each statement on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Additionally, checkboxes are provided to capture their perspectives and opinions on AI integration as master's degree students in instructional technology educational programs.

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DATA ANALYSIS

The Statistical Package for the Social Sciences (SPSS) software was used to analyze the data obtained from 31 responses. Other than frequencies and percentages, the descriptive analysis was performed to check the data. Descriptive analysis provides a summary of the data, giving a clear picture of what has been collected. It helps in understanding the central tendencies (mean, median, mode), dispersion (range, variance, standard deviation), and overall distribution of the data. For this study, knowing the average score on a Likert scale can indicate the general experiences, attitudes, acceptances and challenges of the respondents towards the integration of AI in their studies. According to Loeb et al. (2017), descriptive statistics are essential for summarizing research data and forming the basis for further statistical analysis.

RESULTS

Experiences with AI

Based on the data obtained regarding the students' experiences using AI for their learning, all students stated that they have experience using AI in their studies. As a result of this section, out of the 31 samples, 12 (38.7%) students mentioned that they use AI daily or weekly in their studies, followed by 4 (12.9%) students who use AI monthly, and 3 (9.7%) students who use AI rarely, which is just a few times a year. Apart from frequency, students were also asked about the AI tools or applications they used in their studies. The majority of them used chatbots (96.8%), followed by virtual assistants (22.6%). They agreed that ChatGPT is one of the most helpful AI tools for completing their tasks. The details of the responses can be seen in Fig. 1.

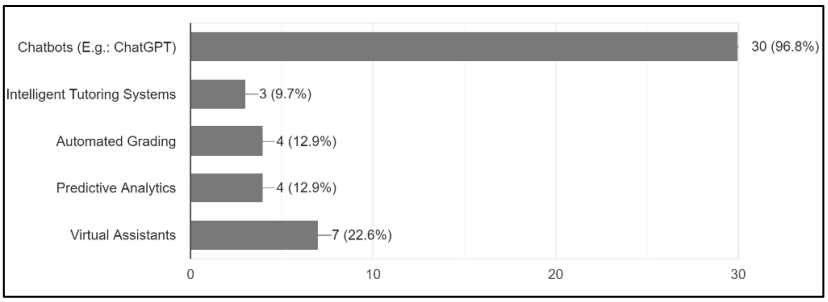

Figure 1. AI tools used for students to complete their academic tasks

Attitudes towards AI

Regarding students' attitudes towards AI, 10 out of 31 students (32.3%) agreed that they felt comfortable using AI in their learning, while 9 students (29%) strongly agreed with this statement. Additionally, 8 students (25.8%) were neutral. However, 4 students (13%) stated that they did not find AI comfortable to use in their studies. Apart from this question, students were asked their opinion on whether AI can enhance the learning experience in higher education. As higher education students who need to complete many assignments, 13 students (41.9%) strongly agreed, and an additional 13 (41.9%) agreed. However, a small percentage (16.2%), represented by 5 students, rated neutral. Based on Fig. 2, 24 (77.4%) of students expressed concerns about the accuracy and reliability of using AI to help them in their studies. Additionally, students expressed concerns about privacy issues (54.8%), lack of human interaction (38.7%), and ethical concerns, which were not a significant issue for most, as only 7 out of 31 students raised this concern.

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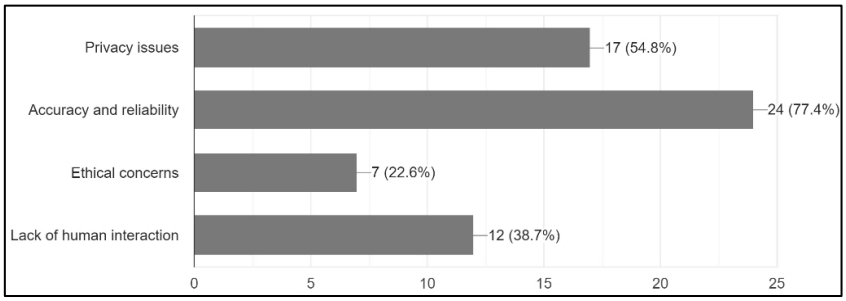

Figure 2. Students' concern on the use of AI

Acceptance of AI

For this part, students were required to answer four questions regarding their acceptance of using AI in their learning. Specifically, the questions are: Q7, whether students are likely to recommend AI tools to their friends; Q8, students' opinions on the aspects where AI is beneficial; Q9, students' opinions on the benefits of AI; and Q10, students' trust in using AI tools to provide accurate and reliable information. Descriptive statistics focusing on central tendency were performed for Q7, Q9, and Q10, which include mode (to see the most frequently occurring response) and median (to check the middle response when data is ordered).

Table 1: Analysis of students' acceptance towards AI

Number of Questions		**Q7**	**Q9**	**Q10**
N	Valid	31	31	31
	Missing	0	0	0
Median		3	3	3
Mode		4	4	4

According to Table 1, the median for all the questions is 3, and the mode is 4 (agree). Therefore, the students are likely to recommend AI tools to their friends, agree that AI provides benefits for their learning, and trust that the information conveyed by AI tools is accurate and reliable for their studies. In addition, for Q8, the highest response was 21 out of 31 students indicating that AI is most beneficial for them in terms of time-saving, followed by 16 responses for personalized learning and real-time feedback.

Challenges of AI

The collected data indicate that students face challenges in using AI tools for their learning due to a lack of training, with 19 students (61.3%) agreeing on this issue. Additionally, 16 students reported limited access to AI tools, 15 students experienced technical difficulties, and 12 students expressed ethical concerns.

As a result, students emphasized the need for more training on how to effectively utilize AI tools. This need is further supported by 27 students (87.1%), who identified training as a key recommendation for improving AI integration in their learning. Other recommendations include enhancing AI tools to provide real-time feedback and support, which was supported by 18 students (58.1%), improving the user interface and usability of AI tools (54.8%), and incorporating AI tools into a broader range of subjects and courses (51.6%). Figure 3 depicts the results for this section.

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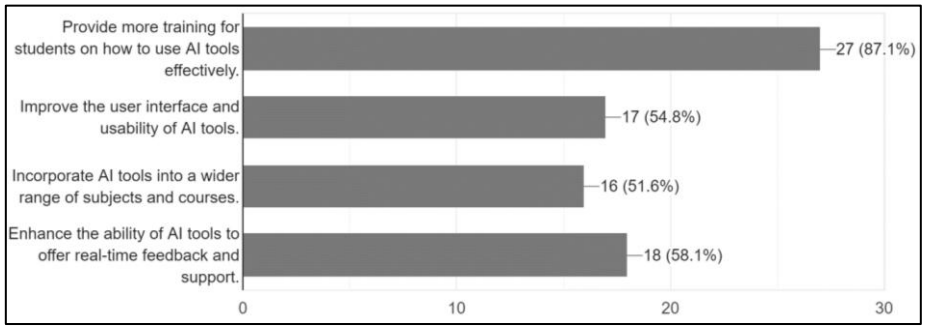

Figure 3. Students' recommendations to improve AI integration

DISCUSSIONS

Students' Experiences and Attitudes towards AI

The analysis of students' experiences in using AI shows that students often use AI in their learning (as seen in Table 2). Previous studies have agreed that the application of AI technologies in the educational field initiates significant changes, enhancing students' learning experiences and improving educational outcomes [11][12]. Students are more likely to use chatbots to assist them in completing learning tasks. According to [13], ChatGPT has the potential to enhance teaching and learning, focusing on providing active learning.

Moreover, the findings of this research indicate that students show positive attitudes and feel comfortable using AI for their learning. This statement aligns with [14], who found that students' perceptions of new technologies like AI, particularly regarding ease of communication and usefulness, significantly influence their willingness to adopt AI-based teaching assistants in their educational experience.

Students' Acceptance and Challenges to Integrate AI

The obtained data show that students accepted the use of AI in their studies and recommend this technology to their friends due to the advantages provided by AI. The potential of AI to transform the education system includes offering personalized learning experiences for students [15]. Additionally, a previous study agreed that an AI tool like chatbots excels in providing real-time feedback and saving time by handling routine administrative tasks [16].

The lack of training has become a challenge for students in integrating AI into their learning. According to [17], insufficient training from AI experts to teach students for clinical settings is an issue in implementing AI in medical education. In terms of ethics, the implications of AI systems are often overlooked in educational contexts within the computing curriculum. Therefore, it is crucial to identify and address these challenges, introducing them to both teachers and students to facilitate the effective integration of AI in the classroom [18][19].

IMPLICATIONS

The findings of this research have several key implications for higher education institutions, educators, and policymakers. First, through the positive student attitudes towards AI integration, the need for institutions to further invest in and develop AI-driven educational tools is highlighted. By leveraging AI's capabilities to personalize learning experiences and provide immediate feedback, institutions can enhance student engagement and academic performance. However, to maximize the benefits of AI, it is essential to address the concerns raised by students, particularly those related to data privacy and the reduction of human interaction.

Second, the study emphasizes the importance of continuous professional development for educators to effectively integrate AI into their teaching practices. Educators must be trained not only to use AI tools but also to understand their potential and limitations. This will enable them to guide students in navigating these technologies and addressing any challenges that arise. Additionally, the findings suggest that policymakers should consider creating frameworks and guidelines to support ethical AI use in education, emphasizing transparency, accountability, and inclusivity. Thus, this study contributes to the necessity for higher education institutions to adopt a thoughtful

approach towards AI integration, ensuring that technological advancements are balanced with the need for human elements in education.

Furthermore, this research underscores the importance of fostering an inclusive AI ecosystem in education. The integration of AI tools should not only focus on technological enhancement but also address the diverse needs of all students, including those with disabilities and different learning styles. Institutions should ensure that AI applications are accessible and equitable, offering equal opportunities for all students to benefit from these innovations. By doing so, universities can create a more inclusive learning environment that leverages AI to support diverse educational outcomes, promoting both academic success and social equality. This holistic approach to AI in education can enhance its role as a transformative tool, bridging gaps in access and improving educational equity for all learners.

CONCLUSION

This study has provided valuable insights into higher education students' experiences, attitudes, acceptance, and challenges regarding the integration of artificial intelligence (AI) in their learning processes. The findings suggest a generally positive outlook towards the potential of AI to enhance educational experiences through personalized learning and increased efficiency. Students appreciated AI's ability to tailor learning experiences to individual needs and provide real-time feedback, which they found conducive to better understanding and engagement. However, the study also highlighted significant concerns, particularly regarding the potential reduction in human interaction and the ethical implications surrounding data privacy and security. These concerns must be addressed to foster a balanced and effective integration of AI in educational settings.

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Research Article

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