

Students' Perceptions of the Utilization of Artificial Intelligence in the Learning Process

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Article Info

Article history:

Accepted: 16 Februari 2026

Publish: 01 April 2026

Keywords:

Student perception;

Economic education;

Artificial Intelligence Utilization;

Learning Process.

Abstract

This study aims to explore the perceptions of Economic Education students at Muhammadiyah University of Sampit regarding the utilization of artificial intelligence (AI) in the learning process. The integration of AI in higher education has become a global phenomenon that is transforming learning paradigms; however, understanding of how students evaluate and interpret this technology remains limited, particularly within the context of Economic Education in Indonesia. This study involved 15 students selected through purposive sampling and employed a descriptive qualitative approach grounded in the Technology Acceptance Model (TAM). Data were collected through semi-structured interviews and analyzed thematically using NVivo 12 Pro. The findings reveal that students perceive AI as enhancing learning effectiveness, being easy to use, and fostering academic motivation and independence. Four major themes emerged: perceived usefulness, perceived ease of use, attitude toward using, and behavioral intention to use. The acceptance of AI was found to encompass not only technological dimensions but also social-emotional aspects. This study reinforces the relevance of TAM within the Indonesian higher education context and provides implications for developing ethical, creative, and adaptive technology-based learning policies aligned with students' needs in the digital era

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1. INTRODUCTION

Artificial intelligence (AI) has significantly transformed the landscape of education, marking a fundamental shift in how teaching and learning occur in higher education institutions. The integration of AI in higher education encompasses not only the use of tools such as ChatGPT, adaptive learning systems, and automated assessment tools, but also influences students' perceptions of the learning process itself. Slimi et al. (2025) note that AI adoption in higher education continues to expand in response to increasing demands for more personalized and efficient learning. Nevertheless, a perceptual gap persists between AI's potential as an educational innovation and ethical as well as pedagogical concerns surrounding its use.

This global phenomenon is also evident in Indonesia, where digital transformation in education accelerated following the COVID-19 pandemic. Educational institutions have shifted toward technology-based learning models; however, the readiness of both students and lecturers to utilize AI varies considerably. Pisica and Zaharia (2024) found that international students perceive AI

as an enriching learning tool, yet potentially fostering dependency that may hinder critical thinking skills. Similarly, Fawaz et al. (2025) reported ambivalence among health sciences students regarding generative AI: while some view it as expanding academic insight, others express concerns regarding academic validity and ethical implications.

Within the Indonesian context, AI utilization has begun to be implemented across various academic programs, including Economic Education, which requires students to understand technological applications in data analysis, decision-making, and digital economic simulations. However, limited research has deeply explored students' perceptions of AI integration in their learning process. As emphasized by Verboom et al. (2025), understanding such perceptions is essential to ensure that AI adoption policies align with the needs, values, and readiness of primary stakeholders—namely students and lecturers. This literature gap, particularly in qualitative research focusing on students' meanings, experiences, and social interpretations of new technologies, necessitates further investigation.

Accordingly, this study seeks to explore Economic Education students' perceptions at Muhammadiyah University of Sampit regarding the utilization of AI in the learning process. The study focuses on how students interpret AI as a learning tool, how they assess its impact on motivation, effectiveness, and academic interaction, and what challenges they encounter in its implementation. Theoretically, this research contributes to the development of constructivist learning theory in the digital era by emphasizing human–technology interaction. Practically, the findings are expected to inform innovative learning strategies and adaptive academic policies responsive to technological advancement in Indonesian higher education.

2. METHOD

This study is grounded in the Technology Acceptance Model (TAM) developed by Davis (1989), which has been widely used to explain technology acceptance in educational contexts. TAM posits that two primary determinants influence users' perceptions of technology: perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which an individual believes that using a particular system enhances performance, whereas perceived ease of use refers to the degree to which an individual believes that using a system requires minimal effort.

In AI-based learning contexts, perceived usefulness reflects the extent to which students believe AI enhances learning effectiveness and outcomes, while perceived ease of use relates to how easily AI systems can be operated without imposing excessive cognitive burden (Hasija & Esper, 2022). These constructs subsequently influence attitude toward using and behavioral intention to use, which collectively determine technology adoption in academic settings (Aldraiweesh & Alturki, 2025).

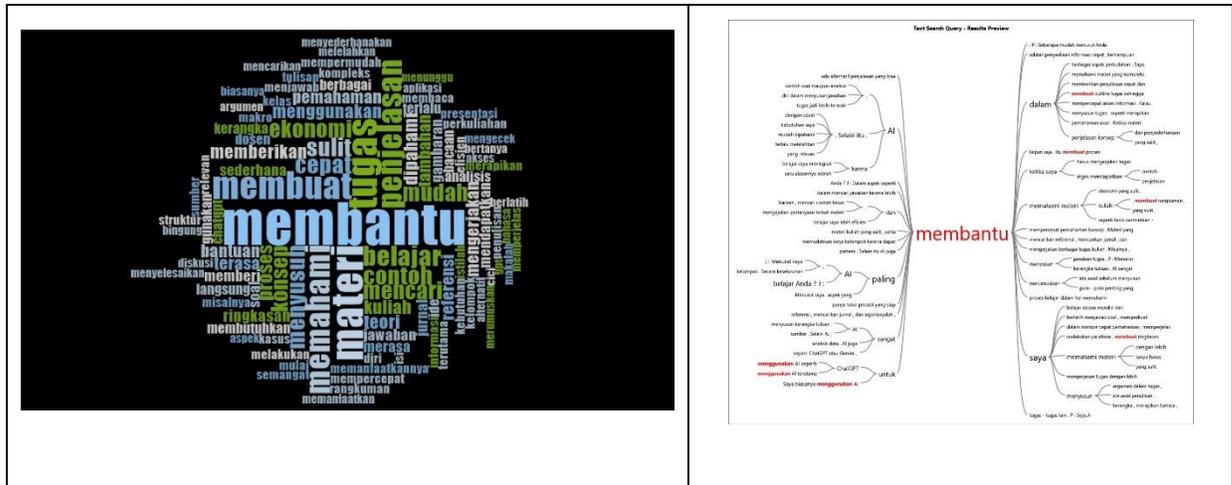
This study employed a descriptive qualitative approach to explore students' experiences and attitudes toward AI utilization in the learning process at Muhammadiyah University of Sampit. The research was conducted within the Economic Education Study Program, involving 15 active students selected through purposive sampling based on the following criteria: (1) enrolled at least in the fourth semester; (2) experienced in using AI applications such as ChatGPT or Grammarly; and (3) willing to participate as informants.

Data were collected through semi-structured interviews and participatory observation of AI-based academic activities. Interviews were recorded, transcribed, and analyzed using thematic analysis following Braun and Clarke’s six-stage framework: data familiarization, initial coding, theme searching, theme reviewing, theme naming, and reporting. Data validity was ensured through source and method triangulation, member checking, and maintaining an audit trail to enhance transparency and credibility.

3. RESULTS AND DISCUSSION

This study aims to comprehensively explore the perceptions of Economic Education students at Muhammadiyah University of Sampit regarding the utilization of artificial intelligence (AI) in the learning process. Based on the results of data analysis using NVivo 12 Pro, four principal themes were identified as representing students’ perceptions: (1) Perceived Usefulness, (2) Perceived Ease of Use, (3) Attitude Toward Using, and (4) Behavioral Intention to Use.

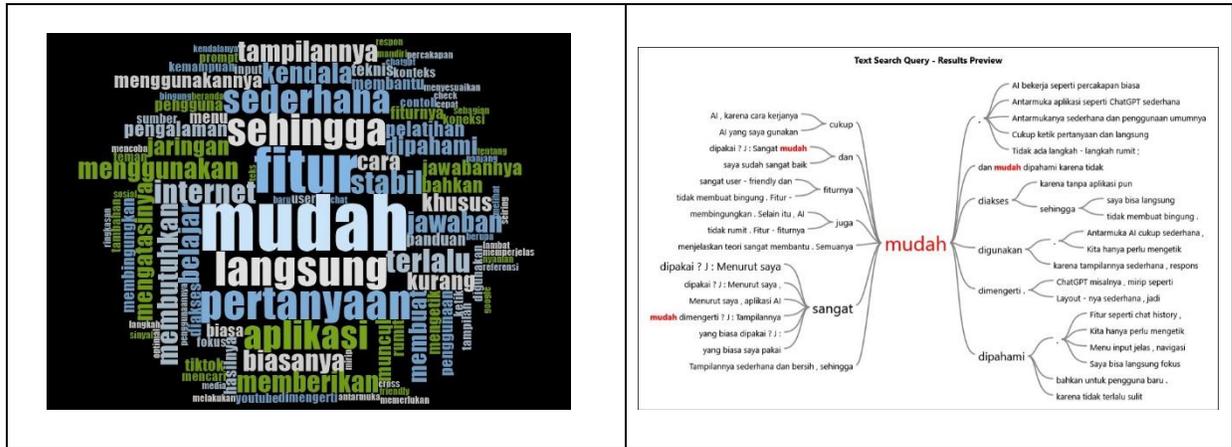
A. Perceived Usefulness



Based on the data analysis conducted using NVivo 12 Pro, Economic Education students at Muhammadiyah University of Sampit demonstrate highly positive perceptions regarding the usefulness of artificial intelligence (AI) in the learning process. Dominant words such as “help,” “learning,” and “materials” appearing in the word cloud indicate that AI is perceived as a tool that enhances learning effectiveness.

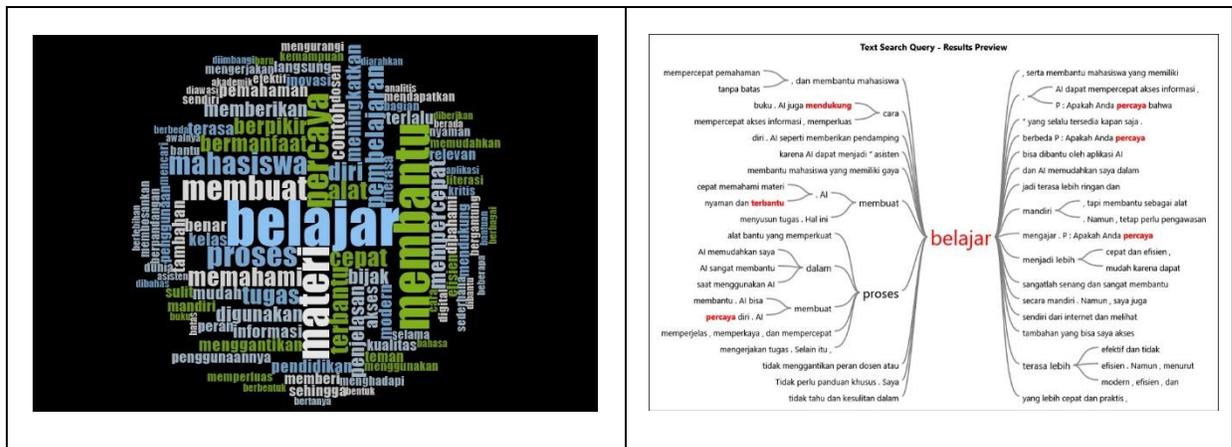
The majority of informants stated that the use of AI assists them in understanding complex economic theories and completing academic assignments more efficiently. One student remarked, “AI enables me to complete assignments more quickly and better understand the course material.” This finding suggests that AI is perceived not merely as a supportive tool, but as an active learning partner that expands students’ cognitive capacity.

B. Perceived Ease Of Use



Perceived Ease of Use is reflected in the prominence of dominant words such as “easy,” “features,” “direct,” and “simple” in the word cloud and word tree analyses. Students described their experience of using AI as straightforward and not requiring specialized training. One participant stated, “AI such as ChatGPT is easy to use because its interface is simple and we only need to type a question.” This finding indicates that ease of access and a user-friendly interface enhance students’ comfort and confidence in utilizing AI.

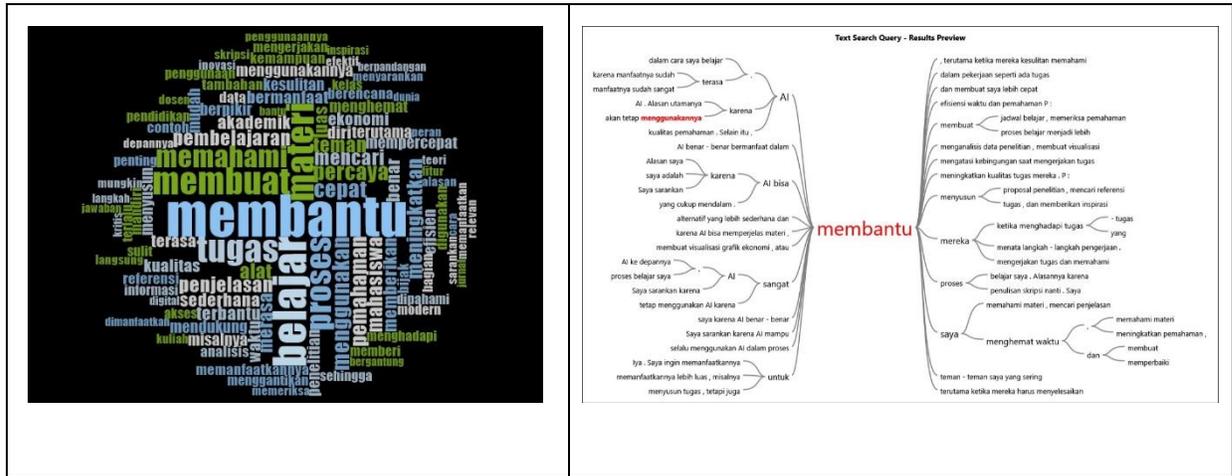
C. Attitude Toward Using



This theme illustrates students’ positive attitudes toward the use of AI in the learning process. Based on the interview findings, words such as “happy,” “confident,” and “assisted” appeared repeatedly. Students demonstrated strong enthusiasm for utilizing AI, as the technology was perceived to support independent learning.

Several participants stated that they “feel more confident when completing assignments with the assistance of AI” and “become more motivated to study.” This positive attitude was further reflected in statements describing AI as a “learning companion” with whom they could engage in discussion to better understand economic theories.

D. Behavioral Intention to Use



The final findings indicate that students demonstrate a strong intention to continue using AI in their academic activities. Words such as “continue,” “recommend,” and “plan” frequently appeared in the word cloud and word tree analyses. Many students stated that they “plan to use AI for future assignments” and “would recommend the use of AI to their peers.” This intention is driven by the positive experiences they have had while using AI, particularly in terms of ease of use, efficiency, and improved learning outcomes.

The findings of this study confirm that the four principal themes—perceived usefulness, perceived ease of use, attitude toward using, and behavioral intention to use—collectively represent Economic Education students’ perceptions at Muhammadiyah University of Sampit regarding the integration of artificial intelligence (AI) in the learning process. This pattern reflects a technology acceptance process consistent with the Technology Acceptance Model (TAM) developed by Davis (1989). The model posits that individuals’ beliefs about the usefulness and ease of use of a system shape positive attitudes, which subsequently influence sustained behavioral intention to use the technology (Davis, 1989). In this study, students’ perceptions of AI’s usefulness and ease of use not only facilitated functional acceptance but also fostered trust, motivation, and intellectual curiosity toward the learning process itself.

Students perceive artificial intelligence as a highly beneficial tool for enhancing both the efficiency and quality of the learning process. AI is considered capable of bridging the gap between complex economic theories and their real-world applications. The technology assists students in understanding abstract concepts, accelerating the completion of academic assignments, and facilitating access to relevant resources. These findings are consistent with Labrague and Al Harrasi (2025), who emphasized that perceived usefulness of AI significantly contributes to improved learning outcomes and student autonomy in higher education. However, within the local context of Muhammadiyah University of Sampit, the usefulness of AI is not measured solely in terms of academic efficiency but also in its contribution to the development of critical and reflective thinking skills. Students reported that AI helps them construct deeper understanding of economic concepts while enhancing their confidence in presenting independent academic arguments. This suggests that AI functions as an intellectual partner that strengthens learner autonomy in the digital era.

Beyond perceived usefulness, ease of use emerged as a crucial factor reinforcing technology acceptance in academic contexts. Students described AI as simple, fast, and easy to operate without requiring specialized technical skills. This finding supports Wicaksono et al. (2024), who reported that perceptions of interface simplicity and technological accessibility directly contribute to positive user attitudes.

The perceived ease of use among students at Muhammadiyah University of Sampit also reflects their digital readiness as a generation accustomed to interacting with technology. AI is no longer viewed as a complex innovation but rather as a natural component of everyday academic life. Notably, this ease of use extends beyond technical functionality to include psychological comfort. Students reported feeling secure and free to experiment without fear of making mistakes. Thus, in this context, perceived ease of use encompasses affective elements that enhance students' comfort within the digital learning ecosystem.

Students' attitudes toward AI usage also reveal strong emotional and motivational dimensions. They perceive AI as an engaging and interactive learning medium capable of stimulating renewed academic enthusiasm. This aligns with Zakour and Selmi (2025), who highlighted that affective components such as satisfaction, enjoyment, and confidence are critical determinants of sustained technology use in educational settings. Students described AI as a "learning companion" capable of re-explaining difficult materials or topics not fully addressed in class.

At the same time, students demonstrated ethical awareness regarding AI utilization. Several participants emphasized the importance of using AI responsibly and avoiding excessive dependency. They stressed the necessity of integrating personal analytical abilities with technological assistance to maintain originality in learning outcomes. This perspective reflects a mature level of digital literacy and moral awareness rooted in Muhammadiyah educational values, which emphasize a balance between intellectual development and ethical responsibility.

Students' intention to continuously use AI in academic activities further indicates sustained and internalized adoption. They expressed intentions not only to use AI for coursework but also for research projects, academic writing, and future professional development. These findings suggest that positive interactions with AI have cultivated new learning habits—reflective and adaptive digital practices aligned with technological advancement. This is consistent with Xu et al. (2024), who emphasized that sustained intention to use educational technology is often influenced by social and cultural academic environments. Within Muhammadiyah University of Sampit, a collaborative learning culture encourages students to share experiences, recommend AI tools, and discuss ethical and effective usage practices. This demonstrates that AI adoption is not merely individual but also social, as students collectively construct technology-based learning communities.

Theoretically, this study extends the TAM framework by incorporating social and cultural dimensions as significant contextual factors in technology acceptance among Indonesian students. Perceptions of usefulness and ease of use are shaped not only by individual interaction with the system but also by social norms, academic values, and collective practices within the university environment. This suggests that technology adoption in Indonesian education is not

solely a cognitive process but also a social phenomenon influenced by communal values and collaborative learning traditions.

Practically, the findings have significant implications for higher education policy and practice in the digital era. Universities, particularly Muhammadiyah University of Sampit, are encouraged to strengthen digital literacy initiatives and provide ethical AI usage training for both students and lecturers. AI integration into curricula should not focus solely on enhancing academic efficiency but also on fostering character development, creativity, and critical thinking skills.

Furthermore, the findings support the development of an inclusive, collaborative, and value-based digital academic culture grounded in Islamic principles. AI should not be positioned merely as a technical instrument but as a medium that strengthens the relationship between human beings, knowledge, and morality. When utilized responsibly, AI can facilitate the development of analytical competence, innovation, and broader social responsibility. This is essential, considering that higher education institutions are tasked not only with producing technologically adaptive graduates but also with cultivating individuals who demonstrate integrity and global competitiveness. Therefore, this study advances both theoretical and practical understanding of how technology can be integrated into a humanistic, ethical, and contextually grounded learning system within Indonesian higher education.

4. CONCLUSION

Economic Education students at Muhammadiyah University of Sampit demonstrate positive perceptions toward the utilization of artificial intelligence (AI) in the learning process. Based on qualitative analysis, the four principal themes that emerged—perceived usefulness, perceived ease of use, attitude toward using, and behavioral intention to use—indicate that AI is regarded not merely as a technological tool but as a learning partner that enhances productivity, efficiency, and students' academic independence. Students perceive AI as accelerating their understanding of economic concepts, facilitating task completion, and increasing learning motivation. This positive perception reflects a high level of technology acceptance among students and confirms the relevance of the Technology Acceptance Model (TAM) within the Indonesian higher education context.

Theoretically, this study extends the understanding of TAM by incorporating social and cultural dimensions into technology acceptance within academic environments. Students' perceptions of AI's usefulness and ease of use are shaped not only by individual interaction with the system but also by social norms, academic values, and the collaborative culture that characterizes campus life. Thus, this study offers a conceptual contribution by contextualizing the technology acceptance framework within the Indonesian educational reality, which is grounded in collective values, reflective learning practices, and ethical orientation.

From a practical perspective, the findings have significant implications for policy development supporting technology-based learning in higher education. Educational institutions are encouraged to establish ethical guidelines for AI utilization in academic activities, enhance digital literacy among lecturers and students, and integrate AI into curricula as an interactive learning medium that promotes creativity and independent thinking. Furthermore, future research may expand its focus to include

lecturers' perceptions or cross-disciplinary perspectives in order to achieve a more comprehensive understanding of AI integration within the higher education ecosystem.

In conclusion, this study underscores the importance of implementing technology in a humanistic and context-sensitive manner as a strategic step toward fostering an innovative, adaptive, and globally competitive higher education transformation.

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