

The Effectiveness of AI Applications in Enhancing Students' Learning Interest: A Case Study at Universitas Muslim Maros

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Abstract

This study aims to determine the extent to which students at Universitas Muslim Maros utilize Artificial Intelligence (AI)-based applications in the learning process, as well as to evaluate their impact on enhancing learning interest. The background of this research is grounded in the rapid advancement of digital technology, which has driven transformation in the field of education, particularly in how students access and manage information. This study employs a descriptive qualitative approach, with data collected through observation, questionnaires, and in-depth interviews. It also aims to analyze the relationship between the use of AI applications (variable X) and students' learning interest (variable Y), as well as to measure the effectiveness of AI in the context of higher education learning. The results of the study show that out of a total of 148 respondents, 44 students stated "agree" and 57 students stated "strongly agree" regarding the use of AI in learning activities. The percentage of agreement based on the index reached 53.5%, indicating that the majority of students support the use of AI applications as learning tools. Based on these findings, it can be concluded that the use of Artificial Intelligence technology significantly contributes to increasing the learning interest of students at Universitas Muslim Maros.

Keywords: AI Applications, Learning Interest, Digital Learning

Introduction

The development of Artificial Intelligence (AI) technology has become increasingly prevalent in various sectors of daily life, with education emerging as one of the most significantly affected domains. In recent years, the integration of AI-based applications such as ChatGPT, Grammarly, and QuillBot has rapidly expanded among university students, offering support in understanding course materials, completing assignments, improving writing quality, and accessing credible references. This technological trend has been amplified by the global shift toward digital learning environments, driven by the rapid pace of innovation and the growing demand for flexible, adaptive educational models (Holmes et al., 2019). The expansion of AI in education is not limited to urban areas; even in smaller cities such as Maros, students are increasingly utilizing AI tools to supplement their learning processes and overcome challenges related to limited academic resources.

From a social perspective, the penetration of AI into education reflects broader societal changes in how knowledge is produced, distributed, and consumed. In Indonesia, internet penetration reached more than 77% in 2023, with the majority of young adults accessing information through mobile devices and AI-assisted platforms. The digital habits of students have evolved significantly, shifting from passive consumption of information to interactive and AI-mediated learning experiences. However, while the adoption of AI applications has grown rapidly, their specific impact on students' learning interest—a critical affective factor that influences academic performance—remains underexplored in local contexts, particularly at Universitas Muslim Maros. The learning interest of students is a crucial component in

determining educational outcomes because it influences motivation, persistence, and engagement throughout the learning process (Sardiman, 2014).

From a literature standpoint, previous studies have demonstrated AI's potential to transform learning experiences by enabling personalized feedback, accelerating information retrieval, and supporting creative problem-solving (Russell & Norvig, 2016; Luckin et al., 2016). For example, Muchminiin et al. (2024) found that AI usage among informatics students positively influenced their enthusiasm for completing assignments and engaging in class discussions. Similarly, research by Siar et al. (2024) indicated that AI-assisted learning environments increased students' willingness to explore new topics and enhanced collaborative participation. However, these studies have predominantly focused on technology-oriented disciplines or institutions in major cities, leaving a research gap in understanding AI's role in non-technical disciplines and in smaller, regional universities. This lack of localized evidence underscores the need for further investigation, particularly in contexts where technological infrastructure and student readiness might differ from those in metropolitan settings.

The rapid advancement of technology and the increasing need for adaptive, skill-based, and personalized education require students to continuously upgrade their knowledge and competencies. In the context of essential 21st-century skills, both science and religious studies students must not only be familiar with AI but also be capable of critically evaluating, integrating, and applying it in academic tasks. Samsinar (2024) emphasizes that mastering AI as a learning resource is no longer optional; it is a prerequisite for effective learning and for achieving optimal competencies in the digital age. This reality is reinforced by the growing demand for graduates who can navigate complex technological environments while maintaining high levels of creativity, critical thinking, and adaptability.

Given this background, the primary objective of this study is to examine the extent to which students at Universitas Muslim Maros utilize AI-based applications in their learning processes and to evaluate the effectiveness of these tools in enhancing their learning interest. Specifically, the study seeks to identify patterns of AI usage across different academic disciplines, assess students' perceptions of AI's role in improving their motivation, focus, and engagement, and determine the relationship between the intensity of AI usage and the level of learning interest. Addressing these objectives is crucial because the relationship between technology adoption and affective learning outcomes remains insufficiently documented in the context of Indonesian higher education, especially in regional institutions.

The significance of this research lies in its potential to fill both theoretical and practical gaps. Theoretically, it contributes to the growing body of literature on AI in education by providing empirical evidence from a non-metropolitan, multidisciplinary higher education environment. This is important because educational technology studies have often overlooked smaller institutions, despite their unique challenges and opportunities. Practically, the findings can inform policymakers, curriculum designers, and educators at Universitas Muslim Maros and similar institutions in developing AI-integrated teaching strategies that maximize student motivation and engagement while mitigating potential drawbacks such as overreliance on automated tools. As Pranatawijaya et al. (2019) note, evaluating the affective dimensions of learning in technology-assisted environments is essential for ensuring that technological adoption leads to meaningful educational improvements rather than superficial engagement.

In conclusion, the proliferation of AI tools in education represents both a promising opportunity and a significant challenge. While existing research has shown that AI can enhance cognitive outcomes and streamline learning processes, its influence on students' intrinsic motivation and sustained engagement warrants closer examination, particularly in underrepresented contexts. This study responds to that need by focusing on Universitas Muslim

Maros, offering insights that are both locally relevant and potentially applicable to broader educational settings. By situating the investigation within the specific social and institutional realities of this university, the research aims to contribute to a more nuanced understanding of how AI adoption can be harnessed to foster—not just facilitate—student learning interest in higher education.

Method

This study employs a descriptive qualitative approach. According to Moleong (2021), qualitative research is a type of research aimed at gaining an in-depth understanding of phenomena experienced by research subjects, such as behaviors, perceptions, and actions. This understanding is presented descriptively through language, within a specific natural context, and utilizes various scientific methods.

The research was conducted at Universitas Muslim Maros during May–June 2025. The population and sample in this study refer to Sugiyono's (2017) definition, which states that a population is the entirety of subjects or objects possessing certain characteristics to be studied. In this study, the population consists of all active students at Universitas Muslim Maros in the 2024/2025 academic year. This population was selected based on the assumption that the majority of students today have access to digital technology and are familiar with or have used artificial intelligence (AI)-based applications. The sample for this study includes 148 students from the Biology Education Department.

The data collection methods used in this study include student response questionnaires, observation, interviews, and documentation. The questionnaire used in this research is a closed-ended questionnaire regarding students' interest in using AI, in which students respond to a series of statements representing the aspects to be explored, accompanied by multiple-choice answers. Students are asked to respond to each statement based on their opinion by selecting one of the following options: "Strongly Agree," "Agree," "Neutral," or "Strongly Disagree."

The second data collection method is observation. In this process, the researcher uses an observation sheet containing indicators related to students' interest in learning with AI. The third method is interviews. In this study, the researcher applies a semi-structured interview technique. A set of questions is prepared as an instrument to be answered by the respondents.

Data analysis is conducted in three stages: the pre-data collection stage; the data collection stage in the field, which includes data reduction, data presentation, and conclusion drawing; and the final analysis stage after all data has been collected. At this stage, all collected data are thoroughly analyzed from beginning to end to compile the report and draw conclusions. Specifically, the collected data are averaged and analyzed using a descriptive qualitative approach.

Results

Level of AI Usage in the Learning Process

Based on the results of a questionnaire completed by 148 respondents, it was found that the use of Artificial Intelligence (AI)-based applications such as ChatGPT, Grammarly, and QuillBot has become an integral part of students' learning activities at Universitas Muslim Maros. The majority of respondents stated that they use these applications to help them understand course materials, complete assignments, improve grammar, and find relevant references.

The analysis shows that 44 respondents (29.7%) agreed and 57 respondents (38.5%) strongly agreed that the use of AI has a positive impact on their learning process. Meanwhile, 21 respondents (14.2%) chose neutral and 26 respondents (17.6%) disagreed. These findings indicate that more than

half of the students have a positive view of AI's role in learning, although there are still some students who are not fully convinced of its benefits.

This data reflects a relatively high level of technology adoption, consistent with the global trend of increasing AI utilization in higher education. However, the diverse perceptions suggest the need for a more systematic implementation strategy to ensure that the use of AI truly enhances the quality of learning.

Student Responses to the Use of AI

Table 1 summarizes student responses to 15 statements measuring their interest in learning within the context of AI usage. Each statement is grouped into specific indicators, such as attention to learning materials, appreciation of learning, preference for methods, and level of engagement in AI-based activities.

Tabel 1. Results of Statements, Scores, and Parameters

No	Statement	Score				Parameter
		SS	S	N	TS	
1	I find it easier to focus and remember learning materials delivered with the help of AI technology compared to lessons that do not use AI.	4	2	2	2	Attention and Retention of Learning Materials
2	The use of AI technology in the learning process makes it easier for me to understand and retain material for a longer period of time.	5	3	1	1	
3	I tend to concentrate more when participating in lessons that involve the use of AI technology.	4	3	2	1	
4	The use of AI technology in lessons makes me more enthusiastic about learning.	3	3	2	2	Self-Appreciation and Satisfaction with Lessons That Capture Interest
5	Using AI in learning makes me feel more satisfied.	2	3	2	3	
6	AI technology in learning gives me a greater sense of achievement.	2	2	3	3	
7	I prefer classes that use AI technology over those that do not.	5	4	0	1	Tendency to Choose Things of Personal Interest
8	I feel more excited when working on projects that involve AI technology.	2	2	3	3	
9	I prefer taking courses that incorporate AI technology in the learning process.	6	3	0	1	

10	I show higher levels of participation in classes that utilize AI.	3	2	2	3	Involvement in Various Activities and Programs
11	I actively take part in various training programs related to AI technology.	4	5	0	1	
12	Classroom discussions involving AI motivate me to participate more actively.	5	3	1	1	
13	Lessons that use AI provide a more enjoyable learning experience for me.	7	3	0	0	Enthusiasm in Attending Lessons That Spark Interest
14	AI technology in learning helps create a more enjoyable learning experience for me.	4	4	1	1	
15	I am more interested in courses that involve the use of AI technology.	1	2	5	2	
TOTAL		57	44	21	26	

Tabel 2. Results of Respondents' Answers

Number of Respondents	Response
57	SA (Strongly Agree)
44	A (Agree)
21	N (Neutral)
26	D (Disagree)

Based on the data presented in the table above, a total of 148 respondents expressed agreement (with 44 respondents selecting "Agree" and 57 selecting "Strongly Agree"). From these findings, it can be concluded that the majority of respondents support the influence of Artificial Intelligence (AI) usage on the learning interest of students at Universitas Muslim Maros, which is perceived to have a positive impact.

One way to interpret the results of a Likert scale is by using the interval analysis approach. In this method, each response option is assigned a specific score or weight. For example, for the statement "I am more interested in courses that use AI technology," the responses are scored as follows: Strongly Agree (SA) = 4, Agree (A) = 3, Neutral (N) = 2, and Disagree (D) = 1. Suppose out of 200 respondents, the following data were obtained: 57 chose SA ($57 \times 4 = 228$), 44 chose A ($44 \times 3 = 132$), 21 chose N ($21 \times 2 = 42$), and 11 chose D ($11 \times 1 = 11$), resulting in a total score of 413. The maximum possible score would be $200 \times 4 = 800$, and the minimum possible score would be $200 \times 1 = 200$. Thus, the percentage index is calculated as $(413 / 800) \times 100 = 51.6\%$.

Assessment Interval:

Index 0% – 24.99%	: Strongly Disagree
Index 25% – 49.99%	: Disagree
Index 50% – 74.99%	: Agree
Index 75% – 100%	: Strongly Agree

With an index score of 53.5% obtained from the calculation, it can be concluded that the respondents “AGREE” that the use of Artificial Intelligence (AI) has a positive impact on the learning interest of students at Universitas Muslim Maros.

The observation results show that students who actively use AI tend to complete assignments more quickly and feel more confident in presenting materials. AI is used not only to search for information but also to check grammar, simplify complex concepts, and provide practical examples relevant to lecture topics.

In-depth interviews revealed that most students consider AI to be a “personal learning assistant” capable of providing instant feedback. However, there are concerns regarding the potential for dependency on technology, particularly in terms of critical thinking skills. Some students stated that without AI, they felt less confident in starting assignments or answering complex questions.

This qualitative data reinforces the quantitative findings, indicating that although AI enhances learning interest, learning strategies should still be directed toward fostering student independence and critical thinking skills.

Discussion

The findings of this study reveal that the use of AI-based applications such as ChatGPT, Grammarly, and QuillBot has become an integral part of students’ learning activities at Universitas Muslim Maros. Out of 148 respondents, 29.7% agreed and 38.5% strongly agreed that AI positively influences their learning process, while 14.2% were neutral and 17.6% disagreed. These results indicate that more than half of the students have a favorable perception of AI’s role in enhancing their learning interest, particularly in improving focus, comprehension, and overall engagement. The highest positive responses were recorded for statements related to the enjoyment and motivation gained from AI-assisted learning. The overall index score of 53.5% places students’ perceptions in the “agree” category, reflecting a moderate-to-high level of acceptance toward AI in academic contexts.

Qualitative data from observations and interviews further support these quantitative results. Students who actively use AI tend to complete assignments more quickly, demonstrate greater confidence in presentations, and benefit from AI’s ability to simplify complex concepts and provide relevant examples. Many view AI as a “personal learning assistant” that offers instant feedback, although concerns remain about potential overreliance on technology and its impact on critical thinking. This suggests that while AI can be a powerful tool to enhance learning interest, its integration in higher education should be accompanied by strategies that foster independence, analytical skills, and responsible use among students.

The results of this study, which show that more than half of the students at Universitas Muslim Maros perceive AI as having a positive influence on their learning interest, are consistent with previous research highlighting AI’s role in enhancing motivation and engagement in educational contexts. Muchminiin et al. (2024) found that AI usage among informatics students significantly increased their enthusiasm for learning, particularly in completing assignments and engaging in classroom discussions. This aligns with the current study’s finding that AI-assisted

learning promotes greater focus and enjoyment, as reflected in the high agreement rates for statements related to the enjoyment of AI-assisted classes. Similarly, Siar et al. (2024) demonstrated that AI integration in learning environments fostered active participation and curiosity, echoing the observation data from this research where students showed increased confidence and willingness to contribute when AI was incorporated into lessons.

From a theoretical standpoint, the positive relationship between AI usage and learning interest supports the arguments of Holmes et al. (2019) and Luckin et al. (2016), who emphasize that AI technologies can offer personalized learning experiences, immediate feedback, and tailored resources, all of which contribute to sustaining student motivation. The qualitative findings in this study—where students described AI as a “personal learning assistant”—reflect the concept of adaptive learning environments described by Russell and Norvig (2016), in which AI systems adapt content delivery to suit individual needs. Furthermore, Samsinar (2024) stresses that in the current digital era, mastering AI is not only an asset but a necessity for achieving optimal competencies. The reported improvement in students’ confidence and ability to present materials in this research suggests that AI can help bridge skill gaps and support the development of 21st-century competencies.

However, the findings also reveal concerns about potential overreliance on AI, which aligns with the caution raised by Pranatawijaya et al. (2019) regarding the need to evaluate both cognitive and affective learning outcomes in technology-assisted environments. While AI can significantly enhance engagement, educators must ensure that it does not replace critical thinking and independent problem-solving skills. This is in line with Sardiman’s (2014) view that true learning interest is rooted in active mental engagement, not passive reception of information. Therefore, the integration of AI in higher education should be guided by pedagogical strategies that encourage balanced usage—leveraging AI’s strengths in efficiency and personalization while safeguarding the development of students’ analytical and creative capacities. The convergence of these findings with existing literature confirms AI’s potential as a transformative learning tool, but also underscores the necessity for deliberate instructional design to maximize its benefits and mitigate its risks.

The findings of this study contribute to the growing body of literature on the role of Artificial Intelligence (AI) in higher education by providing empirical evidence from a regional university context in Indonesia. While prior studies (Holmes et al., 2019; Luckin et al., 2016; Muchminiin et al., 2024; Siar et al., 2024) have examined AI’s potential to improve learning motivation and engagement, most have been conducted in urban institutions or technology-focused disciplines. This research expands the theoretical understanding by showing that positive perceptions of AI’s role in enhancing learning interest also exist in non-metropolitan, multidisciplinary academic environments. It reinforces adaptive learning theories (Russell & Norvig, 2016) by illustrating how AI functions as a personalized learning assistant, capable of increasing students’ focus, motivation, and comprehension across diverse fields of study.

Moreover, the study confirms the relevance of affective learning factors in technology adoption, as emphasized by Pranatawijaya et al. (2019) and Sardiman (2014), highlighting that engagement, enjoyment, and confidence are critical mediators in the relationship between AI usage and academic success. By integrating both quantitative and qualitative evidence, the research strengthens the argument that learning interest is not solely a cognitive construct but also deeply shaped by students’ emotional and behavioral responses to technological tools.

Conclusion

This study demonstrates that the use of AI-based applications such as ChatGPT, Grammarly, and QuillBot has a positive influence on the learning interest of students at

Universitas Muslim Maros. With more than half of the 148 respondents agreeing or strongly agreeing that AI supports their learning process, the findings indicate that AI can enhance focus, comprehension, motivation, and overall engagement in academic activities. The highest levels of agreement were observed in statements related to the enjoyment of AI-assisted learning, suggesting that affective factors such as satisfaction and enthusiasm play a central role in technology adoption in education.

The qualitative data further reveal that students perceive AI as a “personal learning assistant” that provides instant feedback, simplifies complex concepts, and offers relevant examples. However, concerns regarding potential overreliance on technology highlight the need for strategies that maintain a balance between leveraging AI’s advantages and fostering independent critical thinking. These findings align with previous research (Holmes et al., 2019; Luckin et al., 2016; Muchminiin et al., 2024; Siar et al., 2024) which underscores AI’s potential to personalize learning, improve engagement, and develop 21st-century competencies, while also reinforcing the caution raised by Pranatawijaya et al. (2019) on the importance of safeguarding the cognitive and affective dimensions of learning.

Overall, this study contributes to the theoretical understanding of AI’s role in higher education, particularly in non-metropolitan university contexts, and provides practical insights for educators and policymakers on designing AI-integrated learning strategies. It is recommended that AI be implemented through structured policies, supported by training and pedagogical designs that encourage ethical use, creativity, and active participation. By doing so, higher education institutions can maximize AI’s potential as a catalyst for learning interest while ensuring that students remain independent, critical, and adaptive learners in the digital era.

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