Navigating learning with generative AI: student perspectives and experiences in indonesian higher education

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Abstract
Generative AI tools like ChatGPT and Gemini are increasingly used by Indonesian students in their academic work. This study explores students' perceptions and usage of these technologies using the Technology Acceptance Model (TAM), focusing on perceived ease of use, usefulness, attitudes, behavioral intention, actual use, and AI digital literacy. A quantitative survey approach was employed. Results show that students with higher AI literacy find these tools easy to use and beneficial, and ease of use positively influences perceived usefulness and overall attitudes. While most students hold positive views toward AI, this positivity does not always translate into intent to continue using it, other contextual factors, like access and academic habits, play a significant role. However, those with strong intention to use AI are more likely to actively integrate it into their learning. Findings suggest that responsible AI use requires more than technical skills; it demands ethical awareness and critical thinking. Therefore, educational institutions should develop supportive frameworks through policies, guidance, and pedagogical strategies that promote AI not just as a tool, but as a collaborative partner in learning.

1. Introduction

The digital transformation of education has progressed rapidly over the past decade. Various new technologies have transformed the way people learn, communicate, and access information. One of the most significant innovations in this development is the emergence of Generative Artificial Intelligence (GenAI). This technology, through large language models such as ChatGPT, Gemini, and Claude, is capable of automatically generating text, images, audio, and other forms of content. In the context of higher education, GenAI is increasingly being used by students to assist with academic activities, such as preparing presentations, searching for references, and exploring ideas. There is certainly positive potential from using GenAI, including accelerating the learning process, supporting personalized learning, and broadening students' intellectual horizons. However, behind the benefits of using GenAI, there are a number of challenges. Concerns regarding the decline in intellectual autonomy, the potential for plagiarism, and the decline in critical and creative thinking skills have become important issues in academic discourse [1]; [2]. Therefore, students are required to have not only technical skills, but also digital literacy that includes an understanding of how AI works, the potential for algorithmic bias, ethical use, and responsibility in developing original ideas reflectively [3]; [4].

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Currently, most previous research on GenAI in the context of learning still focuses on institutional approaches. For example, such as the readiness of universities to integrate AI into the curriculum or pedagogical approaches, such as the role of lecturers in designing assignments compatible with the use of AI [5]. Meanwhile, the perspectives of students as the primary users of this technology have not been systematically explored, especially in the daily context of their use of GenAI to communicate, understand material, or organize ideas in the learning process [6]; [1]; [2]. Therefore, this study was conducted to fill the gap in theoretical and practical studies by exploring students' perceptions of the use of GenAI in higher education learning, including their motivations, learning strategies, supporting or inhibiting factors, and ethical reflections. This study aims to provide a unique, student-centered perspective to understand GenAI adoption beyond institutional readiness, by considering how intellectual autonomy, ethical awareness, and the influence of instructors and peers shape their learning behavior. As adoption of this technology increases, it is important to understand how students, as key actors in the learning process, interpret and utilize GenAI not only as a technical tool but also as a cognitive partner in shaping their thinking and learning in the digital age [7]. This study maps general patterns of GenAI use among students, measures the extent to which this technology is interpreted as a learning tool, and identifies its implications for digital literacy, cognitive autonomy, and collaborative and individual learning strategies. The findings of this study are expected to form the basis for designing digital learning policies that are more adaptive, ethical, and user-centered, especially for students as key actors in the transformation of higher education in the AI era.

This study uses the Technology Acceptance Model (TAM) framework developed by [8] as its theoretical foundation. TAM was chosen because it is one of the most influential models in the study of information technology user behavior, particularly in explaining the process of acceptance and use of new technologies in various contexts, including higher education. This model explains that acceptance of technology is influenced by two main factors: Perceived Usefulness (PU), which is the extent to which users believe that technology will improve their performance, and Perceived Ease of Use (PEU), which is the perception that the technology is easy to use. These two perceptions do not stand alone, but rather influence the user's attitude toward technology (Attitude Toward Using/ATU), which in turn influences behavioral intention to use (Behavioral Intention to Use/BI), and is ultimately reflected in actual use behavior (Actual Use/AU). In other words, the greater a person's belief in the usefulness and ease of use of technology, the higher the likelihood that they will develop a positive attitude and actually use the technology consistently in their daily activities. This model is particularly relevant in the context of GenAI because many early adopters (including students) form their perceptions based on technological intuition and initial experiences that are not necessarily fully reflective or ethical. Therefore, in this study, TAM is used not only as a tool to examine the relationship between psychological and behavioral variables, but also as a lens to understand broader dimensions of students' interactions with GenAI, including learning support, ethical challenges, and personal adaptation. Furthermore, TAM is flexible because it allows integration with other external variables relevant to a particular context. In this study, an external variable, AI Literacy, was added to capture aspects of students' technological literacy in understanding, evaluating, and using GenAI ethically and strategically. This is in line with the views of [9], who emphasized the importance of incorporating external factors such as knowledge, social norms, or ethical awareness into the TAM framework to be more responsive to the challenges and complexities of technology use in today's digital era.

2. Hypothesis

The rapid development of artificial intelligence (AI) technology has completely revolutionized the way contemporary society lives, interacts, works, and learns [12]. To effectively adapt to this

profound digital transformation, individuals are required to build and enhance AI Literacy (AI-L) [13]; [14]. AI Literacy refers to competencies that encompass basic knowledge of AI, an understanding of the operational mechanisms of AI systems, and the skills to apply these technologies wisely in real-world contexts [1]. In an era where tools such as AI-Generated Content (AIGC) are becoming an integral part of academic and professional activities, the level of AI literacy is a key factor in determining the effectiveness and efficiency of technology use. Research shows that individuals with higher levels of AI-L tend to have more positive perceptions of technology—seeing it not only as a useful tool but also as easy to understand and use. This is in line with the Technology Acceptance Model (TAM), which states that perceived usefulness (PU) and perceived ease of use (PEU) are two key determinants of technology adoption [1]. Empirical evidence from recent studies [15]; [16] suggests that users with high AI literacy are more likely to implement AI effectively in their work, leading to an increase in both PU and PEU. Research by [17] demonstrates that AI literacy influences perceived ease of use and perceived usefulness. Therefore, this study hypothesizes:
H1. AI Literacy has an influence on perceived ease of use (PEU) of AI technology.
H2. AI Literacy has an influence on perceived usefulness (PU) of AI technology.

Perceived ease of use reflects the belief that a particular technology is easy to operate [18]. The greater the perceived ease of use, the more positively users tend to evaluate the technology, thus increasing their intention to adopt it [8]. Previous studies have shown that users are more likely to adopt new technologies when they offer clear advantages and conveniences compared to existing solutions [18]. Previous research has shown that perceived ease of use influences attitudes toward using AI [19]. Ease of use influences perceived usefulness when users adopt technologies that are intuitive and effective [20]. Studies on mobile applications for language learning [21] and learning management systems [22] show that people are more likely to use tools they perceive as easy to use. Because ChatGPT facilitates task performance, this study hypothesizes:
H3. Perceived ease of use has an influence on attitude toward using Gen AI.

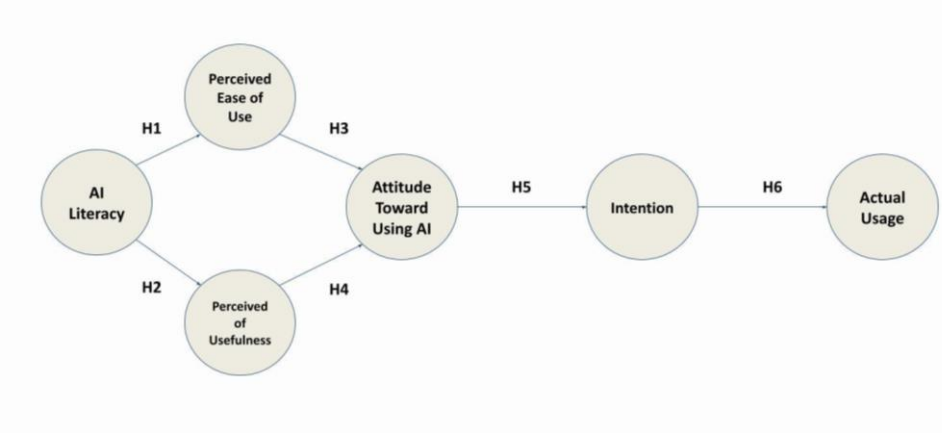
Perceived AI usefulness refers to an individual's assessment of the benefits and effectiveness offered by artificial intelligence [23]. This concept suggests that learning processes involving self-regulation and metacognition can be strengthened and performed more efficiently with the help of AI technologies such as ChatGPT [24]. User satisfaction with AI devices tends to increase if they believe the tool can significantly support their learning abilities. Within the Technology Acceptance Model (TAM) framework proposed by Davis, one of the key determinants is the perception of the technology's effectiveness. A study by Jauk et al. [25] also highlighted the crucial role of perceived usefulness in the context of AI adoption, particularly in learning scenarios. This perception also shapes how individuals understand and value artificial intelligence, as humans generally tend to associate intelligence with tangible functions or benefits [23]; [25]; [26]. Previous research has shown that perceived usefulness influences attitudes toward using Gen AI [24]. Therefore, this study hypothesizes:
H4. Perceived usefulness has an influence on attitude toward using Gen AI.

Attitude is an important variable that can predict students' behavioral intention to use AI technology within the TPB framework, specifically referring to students' subjective emotional cognitions toward AI technology or products, such as ChatGPT. [27] asserted that the more positive a person's attitude, the greater the support from those closest to them, the stronger the perceived behavioral control, and the greater the intention to act; conversely, the lower their intention to act. Many scholars have empirically validated the influence of attitude on the final intention to act. For example, [28] revealed that customers' attitudes toward an environmentally friendly hotel positively influenced their intention to book the hotel. In education, [29]

demonstrated through an experimental study that teachers' attitudes toward ICT influenced their behavioral intention to use ICT. Finally, [18] used a survey to reveal that students' subjective attitudes toward online learning environments were a key determinant of their behavioral intention. Therefore, this study hypothesizes:
H5. Attitude toward using AI has an influence on behavioral intention.

Based on previous literature, BI is likely correlated with the actual use of a particular technology [30]. Behavioral intention is viewed as an indicator of an individual's readiness to perform a particular behavior and is considered a direct precursor to behavioral action [31]. Therefore, if employees demonstrate behavioral intention to use contemporary technologies such as ChatGpt integrated with AI, they are likely to exhibit appropriate usage behaviors to implement such systems. Therefore, this study hypothesizes:
H6. Behavioral intention has an influence on actual usage

Figure 1: Research Hypothesis



3. Method

This study employed a quantitative approach and surveys as data collection techniques. The quantitative approach was chosen because the objective of the study was to examine the relationships between variables described in the research model framework, in order to explain and objectively describe the attitudes and use of AI among students at universities in Indonesia. The sampling method used was non-probability sampling with a purposive sampling technique [10]. Questionnaires were distributed to students from various study programs at universities in Indonesia who had used or been exposed to GenAI technology in their learning process. The universities used as samples were selected based on several criteria, such as the implementation of AI policies, AI training activities, study program diversity, digital infrastructure, and institutional support for digital transformation. The respondents involved represented students who actively use GenAI, both for exploring ideas, completing assignments, and understanding material. The questionnaire contained several variables measured by 23 indicators presented in Table 1. The sample size set for this study was 230 respondents, which was in accordance with the sample size formula, namely the number of indicators multiplied by 5-10 [11]. The data analysis used is Structural Equation Modeling (SEM).

Table 1. Variables and Measurements

Variables	Measurement Items / Indicators
AI Literacy adapted from [34]	AL1. I understand how Generative AI works in generating answers or content.
	AL2. I can explain the limitations and potential errors in GenAI output.
	AL3. I use GenAI to help organize my academic assignments
	AL4. I use GenAI to speed up the learning process or the preparation of course materials.
	AL5. I can recognize bias in answers or text generated by GenAI
	AL6. I double-check the accuracy of the information generated by GenAI before using it.
	AL7. I understand the importance of avoiding plagiarism in using GenAI.
	AL8. I use GenAI in a manner consistent with academic ethics
Perceived Ease of Use Gen AI adapted from [36]	PEU1. Using GenAI is easy for me.
	PEU2. GenAI makes it easy for me to become skillful.
	PEU3. GenAI is clear and understandable.
Perceived Usefulness Gen AI adapted from [36]	PU1. Using GenAI improves my skills.
	PU2. Using GenAI enhances my learning.
	PU3. Using GenAI is helpful in my study and daily life.
Intentions to Use Gen AI adapted from [36]	BI1. I plan to use GenAI when I want to learn a new thing.
	BI2. I would use GenAI to improve my learning skills.
	BI3. I intend to continue using GenAI.
Attitude Toward Using adapted from [37]	ATU1. I think it is worthwhile to use GenAI
	ATU2. I like using GenAI
	ATU3. In my opinion, it is very desirable to use GenAI for academic and related purposes
	ATU4. I have a generally favorable attitude toward using GenAI

Actual Use adapted from [37]	AU1. I use GenAI to explore ideas or understand course material.
	AU2. I used GenAI actively in the last month
	AU3. I use GenAI in more than one course.

3.1 Validity and Reliability Test

Table 2. Results of Convergent Validity Test

	AL	ATU	AU	BI	PEU	Public Works
AL1	0.755					
AL2	0.638					
AL3	0.792					
AL4	0.700					
AL5	0.725					
AL6	0.706					
AL7	0.682					
AL8	0.706					
ATU1		0.839				
ATU2		0.879				
ATU3		0.903				
AU1			0.849			
AU2			0.870			
AU3			0.893			
BI1				0.848		
BI2				0.844		
BI3				0.836		
PEU1					0.877	
PEU2					0.877	
PEU3					0.731	
PU1						0.773
PU2						0.797
PU3						0.855

Table 3. Results of the Fornell-Larcker Criterion Discriminant Validity Test

	AL	ATU	AU	BI	PEU	Public Works
AL	0.714					
ATU	0.771	0.874				
AU	0.004	0.023	0.871			
BI	-0.024	-0.053	0.693	0.842		

PEU	0.736	0.743	-0.078	-0.096	0.831	
Public Works	0.661	0.626	-0.029	-0.008	0.630	0.809

Table 4. Results of Cross Loading Discriminant Validity Test

	AL	ATU	AU	BI	PEU	Public Works
AL1	0.755	0.651	-0.002	0.005	0.504	0.455
AL2	0.638	0.528	-0.053	-0.020	0.503	0.514
AL3	0.792	0.637	0.013	-0.023	0.545	0.502
AL4	0.700	0.552	-0.019	-0.033	0.554	0.525
AL5	0.725	0.533	-0.061	-0.070	0.622	0.490
AL6	0.706	0.526	-0.016	-0.046	0.469	0.400
AL7	0.682	0.457	0.118	0.060	0.484	0.481
AL8	0.706	0.507	0.059	-0.003	0.493	0.380
ATU1	0.639	0.839	0.021	-0.030	0.516	0.513
ATU2	0.672	0.879	0.017	-0.067	0.759	0.595
ATU3	0.709	0.903	0.022	-0.037	0.637	0.523
AU1	-0.023	-0.019	0.849	0.572	-0.086	-0.105
AU2	0.025	0.042	0.870	0.609	-0.060	0.049
AU3	0.006	0.034	0.893	0.629	-0.059	-0.023
BI1	0.028	-0.007	0.567	0.848	-0.057	0.027
BI2	-0.124	-0.112	0.551	0.844	-0.137	-0.100
BI3	0.028	-0.020	0.629	0.836	-0.053	0.045
PEU1	0.730	0.678	-0.050	-0.092	0.877	0.638
PEU2	0.609	0.630	-0.037	-0.057	0.877	0.517
PEU3	0.459	0.530	-0.125	-0.094	0.731	0.380
PU1	0.525	0.528	-0.006	0.012	0.548	0.773
PU2	0.460	0.423	0.021	0.007	0.442	0.797
PU3	0.605	0.552	-0.073	-0.035	0.528	0.855

The indicators in the research instrument were tested for validity and reliability to ensure that they accurately measure the variables and produce consistent measurements when assessing the same variable [10]. The results of the convergent validity test are presented in the tables below (Figure 1: Research Hypothesis). The results of the convergent validity test (Table 2) show that all valid indicators have outer loading values greater than 0.5 [11]. This means that each indicator used in the research model has a fairly strong correlation with the construct to be measured, thus indicating that these indicators are able to accurately represent the intended construct. The results of the discriminant validity test are represented by the cross-loading table (Table 3), which shows that all valid indicators have outer loading values for their respective constructs that are greater than the outer loading values for the other constructs [11]. This is important evidence that each indicator specifically correlates more strongly with the intended construct, compared to other constructs in the research model. Meanwhile, the Fornell-Larcker Criterion (Table 4) shows that

the AI Literacy (AL) variable has a smaller AVE value than the other constructs. The profile of 230 respondents revealed that 176 (76.52%) were male, and the remaining 23.48% were female. The intensity of AI use among students showed that 44.35% used AI daily, 36.95% used AI several times a week, and the remaining 18.70% only used AI occasionally during the week.

4. Result and Discussion

4.1 Discussion

After conducting a data collection and analysis process through a survey of 230 students from 17 universities in Indonesia, the results of this study provide an in-depth picture of how Generative AI (GenAI) technology is accepted, perceived, and utilized in the context of learning in higher education. These findings are mapped using the Technology Acceptance Model (TAM) framework which includes five main constructs. The first is Perceived Usefulness (PU), namely the extent to which students believe that using GenAI will improve the effectiveness and efficiency of their learning. The second is Perceived Ease of Use (PEU), namely the extent to which students feel that using GenAI is easy and does not require much effort. The third is Attitude Toward Using (ATU), namely the general attitude of students towards the use of GenAI in learning. The fourth is Behavioral Intention (BI), namely the intention of students to use GenAI continuously in learning. The fifth is Actual Use (AU), namely the realization of using GenAI in learning. In addition, one additional external variable is added, namely the level of student GenAI literacy as a technical and reflective ability in using GenAI ethically and functionally which can influence the perception and behavior of technology users. Each construct was analyzed to determine its relationship to students' experiences and attitudes in using GenAI, across technical, cognitive, and ethical contexts. These findings not only provide theoretical insights into technology acceptance but also have practical implications for educational institutions in designing learning policies that adapt to technological advancements. The following are the results of the data analysis (Table 5. F-Square Test):

Table 5. F-Square Test

	AL	ATU	AU	BI	PEU	Public Works
AL					1,182	0.165
ATU				0.003		
AU						
BI			0.926			
PEU		0.493				0.087
Public Works		0.102				

The F-Square (f^2) test is a metric that measures the effect size of exogenous variables on endogenous variables in a model, with small ($f^2 = 0.02$), medium ($f^2 = 0.15$), and large ($f^2 = 0.35$) value categories [11]. Based on Table 5, small effects were found in the relationships between Attitude Toward Using AI and Behavioral Intention, Perceived Usefulness and Attitude Toward Using AI, and Perceived Ease of Use and Perceived Usefulness. This indicates that the influence of these variables, although present, is not very strong in practice. In contrast, AI Literacy shows a moderate effect on both Perceived Ease of Use and Perceived Usefulness, indicating that AI understanding has a significant impact on perceived ease and usefulness. Most notable is the large effect on the relationship of Intention to Actual Usage, which shows that intention is a very strong

predictor of actual AI usage, and the Perceived Ease of Use variable also has a large effect on variables not specifically mentioned.

Table 6. R-Square Test

	R Square
ATU	0.593
AU	0.481
BI	0.003
PEU	0.542
Public Works	0.482

Table 7. Fit Model

	Saturated Model
SRMR	0.075
NFI	0.723

The R-Square (R^2) test is a statistical measure that indicates the extent to which an independent variable can explain variability in a dependent variable, with values ranging from 0% to 100%, where higher values indicate better model predictive ability. Based on Table 6, it was found that AI Literacy is quite strong in explaining Perceived Ease of Use by 54.2% and Perceived Usefulness by 48.2%. Then, Perceived Ease of Use and Perceived Usefulness together have good explanatory power towards Attitude Toward Using AI, which is 59.3%. Attitude Toward Using AI is only able to explain 3% of Intention, indicating the presence of other factors that are more dominant in shaping intention. Finally, Intention emerged as a very strong predictor for Actual Usage, explaining 48.1% of the variation in actual usage. SRMR in Table 7 shows good results with a value of 0.075. The SRMR is considered to indicate good fit if its value is less than 0.08 [32]. On the other hand, the NFI should be closer to 1 or above 0.9 to be acceptable [33].

Graph 1. Path Diagram

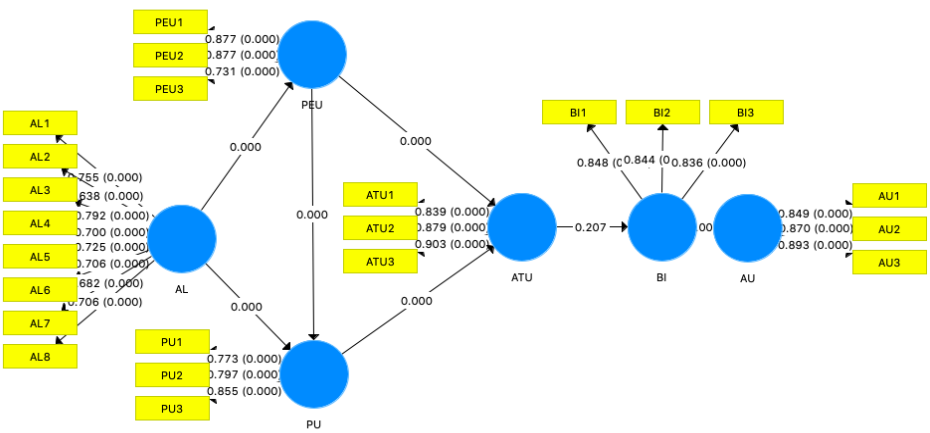


Table 8. Path Diagram Results

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values
AL -> PEU	0.736	24,782	0,000
AL -> PU	0.431	6,860	0,000
ATU -> BI	-0.053	0.817	0.207
BI -> AU	0.693	18,369	0,000
PEU -> ATU	0.577	9,197	0,000
PU -> ATU	0.262	3,847	0,000

H1. AI Literacy (AL) has a positive effect on Perceived Ease of Use (PEU)
Based on the results of the hypothesis testing in Table 8, it is known that the p-value of 0.000 is less than 0.05 [11] and the original sample is positive at 0.736. Therefore, it can be concluded that hypothesis 1 is supported. AI Literacy is proven to have a significant positive effect on Perceived Ease of Use (PEU). This finding indicates that students who understand how GenAI works, its limitations, and the ethics of its use tend to feel easier and more comfortable in using the technology, while also assessing that GenAI provides concrete benefits in supporting their learning. Theoretically, this strengthens the findings of [34] and [3] who emphasize that AI literacy is not only technical skills, but also includes critical and reflective understanding. This means that students who have AI literacy provisions do not only use GenAI mechanically, but also strategically, ethically, and responsibly.

H2. AI Literacy (AL) has a positive effect on Perceived Usefulness (PU)
Based on the results of the hypothesis testing in Table 8, it is known that the p-value of 0.000 is less than 0.05 [11] and the original sample is positive at 0.431. Therefore, it can be concluded that hypothesis 2 is supported. AI Literacy is proven to have a significant positive effect on Perceived Usefulness (PU). Students who have good AI literacy tend to view GenAI as a useful tool for improving academic productivity and understanding of the material. They use GenAI to accelerate the learning process, find research ideas, or organize arguments more systematically. This finding strengthens the view that conceptual understanding of technology contributes to the perception of its usefulness, as outlined by [8] in TAM. This means that students do not only use GenAI because it is trendy, but because they understand how this technology actually helps achieve their learning goals.

H3. Perceived Ease of Use (PEU) has a positive effect on Attitude Toward Using Gen AI (ATU)
Based on the results of the hypothesis testing in Table 8, it is known that the p-value of 0.000 is less than 0.05 [11] and the original sample is positive at 0.577. Therefore, it can be concluded that hypothesis 3 is supported. Perceived Ease of Use (PEU) is proven to have a significant positive effect on Attitude Toward Using Gen AI. Students who perceive Gen AI as easy to use have a more positive attitude towards its use. This finding confirms that ease and technical comfort in use are important entry points for students in accepting and integrating this new technology. This is also supported by previous studies such as by [35] which emphasize that ease of use is an early determinant in the adoption of new technology in the education sector. When the Gen AI interface is intuitive and easy to understand, students tend to adopt it more widely, including for cross-subject study purposes. Ease of use also opens up significant opportunities for higher education institutions to use technical ease as a bridge to strengthening Gen AI literacy to be more critical about the ethics of use, information accuracy, and the limits of Gen AI's use in academic contexts.

H4. Perceived Usefulness (PU) has a positive effect on Attitude Toward Using Gen AI (ATU)
Based on the results of the hypothesis testing in Table 8, it is known that the p-value of 0.000 is less than 0.05 [11] and the original sample is positive at 0.262. Therefore, it can be concluded that hypothesis 4 is supported. Perceived Usefulness (PU) is proven to have a significant positive effect on Attitude Toward Using Gen AI. Students who consider Gen AI useful in supporting their studies tend to have a more positive attitude towards its use. However, the effect of Perceived Usefulness (PU) on this attitude (ATU) is weaker than the effect of Perceived Ease of Use (PEU). This indicates that although students recognize the benefits of Gen AI, aspects of convenience and ease of use remain the main drivers of positive attitudes. In this context, perceived usefulness is cognitive, while ease of use is affective, which together shape students' initial acceptance of technology.

H5. Attitude Toward Using Gen AI (ATU) has a positive effect on Behavioral Intention (BI)
Based on the results of the hypothesis testing in Table 8, it is known that the p-value of 0.207 is greater than 0.05 [11] and the original sample is negative at 0.053. Therefore, it can be concluded that hypothesis 5 is not supported. Attitude toward using Gen AI has no effect on Behavioral Intention. This finding indicates that a positive attitude toward Gen AI does not always translate into an intention to use the technology consistently. There are external factors that are more dominant in shaping students' behavioral intentions, such as task pressure, practical needs, or social influence from friends and lecturers. Students may have a positive view of Gen AI, but they only use it when facing a high academic load or when it is urgent. Thus, institutional policies are not enough to only foster positive attitudes, but also need to create a directed ecosystem of use through ethical guidelines and relevant training.

H6. Behavioral Intention (BI) has a positive effect on Actual Usage (AU)
Based on the results of the hypothesis testing in Table 8, it is known that the p-value of 0.000 is less than 0.05 [11] and the original sample is positive at 0.693. Therefore, it can be concluded that hypothesis 6 is supported. Behavioral Intention is proven to have a significant positive effect on Actual Usage. Students who have a strong intention to use GenAI actually apply it in their daily practice. They use GenAI to help understand the material, compose essays, design presentations, and even brainstorm research ideas. These results strengthen the basic theory of TAM that behavioral intention is a direct predictor of actual behavior [8]; [27]. These findings also confirm that GenAI is not just an experimental technology, but has become an integral part of how students learn and interact with knowledge in the digital age.

Table 9: Summary of findings

Hypothesis	Connection	Result
AI Literacy → Perceived Ease of Use (PEOU)	Significant (+)	Supported (H1)
AI Literacy → Perceived Usefulness (PU)	Significant (+)	Supported (H2)
Perceived Ease of Use (PEOU) → Attitude Toward Use (ATU)	Significant (+)	Supported (H3)
PU → Attitude Toward Use (ATU)	Significant (+)	Supported (H4)
Attitude Toward Use (ATU) → Behavioral Intention (BI)	Not significant (-)	Not Supported (H5)
Behavioral Intention (BI) → Actual Use AU)	Significant (+)	Supported (H6)

4.2 Discussion

To understand how Indonesian students in higher education accept, evaluate, and interpret the use of Generative Artificial Intelligence (GenAI) technology in their learning process, this study adopts the Technology Acceptance Model (TAM) framework as its primary approach. With this framework, this study not only examines the interplay between variables such as perceived usefulness and ease of use but also adds an external dimension in the form of AI literacy as a factor relevant to the current digital education context. The results of this study strengthen previous findings in technology adoption studies and offer a new, more contextual perspective, particularly amidst the increasingly rapid digital transformation in the campus environment. The following section presents an in-depth discussion based on the results of the data analysis and hypothesis testing that have been conducted:

4.2.1 AI Literacy as a Foundation for Perception and Use

The first and most important finding of this study is the significant positive effect of AI literacy on perceived ease of use (PEOU) and usefulness (PU) of GenAI. This means that students who understand how GenAI works, including how to use it ethically and are aware of its limitations, are more likely to rate the technology as easy and useful. This finding strengthens the argument that digital literacy is not only about technical skills but also involves reflective, ethical, and critical dimensions in dealing with new technologies. This aligns with the views of [3] and [34] who call AI literacy a "key competency" in the future digital society. It also emphasizes the importance of educational institutions not only providing access to technology but also education on how to use it responsibly. Universities that provide GenAI literacy training, ethical guidelines for using GenAI, or even dedicated courses on GenAI have the potential to be more successful in assisting students in the era of artificial intelligence. GenAI literacy training, which is of a basic technical nature, can be the beginning of a more in-depth GenAI literacy program, with a focus on utilization, evaluation of results, and academic integrity.

4.2.2 Ease of Use as a Gateway to Technology Adoption

The results also show that perceived ease of use (PEOU) significantly influences perceived usefulness (PU) and attitudes toward using GenAI (ATU). This supports the classic finding in the TAM model, that convenience and simplicity in using a technology are key to initial acceptance. In the context of GenAI, intuitive interfaces such as those in ChatGPT or Gemini, the use of natural language, and ease of access across various devices are key factors in students' rapid adoption in their academic lives. Even students from non-technical backgrounds feel capable of using GenAI without requiring special training. However, this finding also opens up discussion that ease of use without in-depth understanding risks creating shallow or unethical use. Therefore, AI development strategies for education must integrate user-friendly interfaces with curricula that instill critical literacy and awareness.

4.2.3 Positive Attitudes Don't Always Lead to Positive Behavior

Another interesting finding is that while PU influenced positive attitudes toward GenAI (ATU), it did not significantly influence intention to use (BI). This suggests a gap between cognitive appreciation of the technology and the actual decision to use it consistently. This can be explained by several external factors, such as assignment pressure or the time students use GenAI when pressed for deadlines. Social influence, such as friends or lecturers encouraging or prohibiting the use of AI, is also a factor. The uncertainty of campus policy, where the lack of clear rules sometimes makes students hesitant or ambivalent. This suggests that student use of GenAI is more influenced by pragmatic needs than purely emotional or cognitive attitudes. This suggests that campus policy development should not only focus on user attitudes but also accommodate the dynamics of students' actual needs.

4.2.4 Intention Leads to Real Action

One important confirmation of this study is that intention to use (BI) was shown to have a strong influence on actual use (AU). Students who stated they would use GenAI actually implemented it in their daily academic activities, such as brainstorming ideas, creating outlines, translating languages, and understanding difficult material. This finding strengthens TAM's position as a reliable predictive model in technology adoption studies. Furthermore, this finding demonstrates that GenAI is not just a technology trend but has become an integrated tool in students' learning strategies. Furthermore, the data shows that the frequency of use increases as the academic load increases, such as when exams or assignment deadlines approach. This indicates that GenAI is being used functionally and contextually, not simply as a "technological gimmick."

5. Conclusion

This study highlights how Indonesian students accept, interpret, and use Generative AI (GenAI) technology in their daily academic lives. Using the Technology Acceptance Model (TAM), it can be concluded that AI literacy plays a central role in shaping students' perceptions regarding both the ease of use and the usefulness of this technology. When students have a sufficient understanding of how GenAI works, the ethics of its use, and its limitations, they tend to be more confident and wise in utilizing it as a learning support tool. However, the results of this study also reveal interesting dynamics. First, although many students have a positive attitude toward GenAI, this does not always translate into their intention to use it consistently. Second, behind the decision to use GenAI are often contextual factors such as time pressure, unclear campus policies, and the influence of peers or lecturers. These findings encourage us to see that technology adoption is not only about desire, but also about the conditions that support or hinder its use. Furthermore, what is quite convincing is the finding that students who do intend to use GenAI are proven to truly integrate it into their learning process, from formulating ideas, understanding difficult material, to completing academic assignments. This confirms that GenAI has become a real part of students' learning strategies, not just a passing trend. Overall, this study provides a richer understanding of how students are not merely passive users of technology, but also reflective actors who consider the ethical, practical, and strategic aspects of using GenAI. Therefore, future policy and learning program development needs to be more sensitive to students' real needs and encourage them to not only "use" technology but also to think alongside it in shaping a more humane and meaningful future of learning.

Based on the findings and discussions in this study, there are a number of strategic suggestions that can be directed to various stakeholders in the field of higher education, particularly in managing the integration of GenAI technology ethically and effectively:

For Higher Education Institutions: first, there is a need to formulate official policies and ethical guidelines regarding the use of GenAI in academic activities. These guidelines should not only limit or regulate but also empower students and lecturers to use GenAI reflectively and responsibly. Second, provide an interdisciplinary and sustainable AI literacy program so that students from various study programs can understand this technology comprehensively. Third, integrate GenAI into the curriculum and use the Learning Management System (LMS) as part of the learning transformation, without sacrificing students' critical thinking autonomy.

For Lecturers: first, there is a need for adaptations in learning design, including assessment strategies that can differentiate between AI-generated content and students' thought processes. Second, lecturers are also advised to encourage reflective and critical classroom discussions on the social impact, ethics, and future implications of AI, so that students become not only users but also thinkers aware of the benefits and challenges of technology.

For Students: first, students are advised to not rely solely on GenAI as a technical tool but also to develop ethical awareness and metacognitive skills in using this technology. Second, becoming part of a supportive AI user community can help them share experiences and collectively understand the risks and benefits of GenAI.

For Further Researchers: first, it is recommended to conduct a longitudinal study to observe changes in student attitudes and behavior toward GenAI over the long term. Second, a mixed-methods approach, combining quantitative data and in-depth interviews, should be conducted to deepen our understanding of the motivations and values underlying the use of this technology. Second, cross-cultural and cross-institutional research should be conducted, for example, comparing the context of Indonesia with other countries in the Global South to provide global insights into AI adoption in the higher education sector.

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