

## The Impact of Artificial Intelligence on Self-Directed Learning Behaviors Among Vietnamese University Students

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**ABSTRACT:** Against the backdrop of the increasing application of Artificial Intelligence in higher education, this study aims to assess the impact of AI on the self-learning behavior of students in Vietnam. Data was collected from students through questionnaires and analyzed using quantitative statistical methods. The results show that the use of AI has a significant impact on self-learning behavior. AI helps students access information quickly, improve learning efficiency, and promote personalization of the learning process. However, over-reliance on AI may diminish autonomy and independent thinking ability. Furthermore, learning motivation plays a mediating role in this relationship. The study provides practical implications for the effective integration of AI in higher education.

**KEYWORDS:** Artificial Intelligence in Education (AIED), Self-directed learning, Learner autonomy, Learning motivation, Technology-enhanced learning, Vietnamese higher education

### I. INTRODUCTION

In the era of global digitalization, the rise of Artificial Intelligence (AI) has created a profound revolution, fundamentally changing the structure of many industries, with education being the most directly and strongly impacted. From being merely simple computational tools, AI today – typified by large language models (LLMs) such as ChatGPT, Gemini, or Claude – has become a "virtual teaching assistant" capable of synthesizing knowledge, solving problems, and interacting in a highly personalized manner.

In Vietnam, where the education system is striving for digital transformation to catch up with international standards, university students have quickly adapted and integrated AI into their daily learning processes. However, the emergence of AI not only brings opportunities to optimize performance but also poses unprecedented challenges to self-regulated learning – a core skill that determines the quality of higher education outcomes.

In reality, some students are using AI as a powerful tool to expand their thinking, summarize material, and personalize their research paths. Conversely, others are showing signs of dependence on AI, leading to a decline in independent thinking skills and violations of academic integrity principles. This contradiction creates a pressing research gap: Is AI truly promoting autonomy in learning, or is it gradually replacing the self-directed thinking process of Vietnamese students?

Stemming from this reality, this paper focuses on investigating "The Impact of AI on the Self-Learning Behaviors of University Students in Vietnam." The study aims not only to identify the current state of AI usage within the student community but also to analyze the psychological and behavioral factors that influence their autonomy. Through this analysis, the author seeks to propose practical solutions for learners, instructors, and educational administrators regarding the responsible use of AI, with the ultimate goal of enhancing self-learning capabilities within the current context.

### II. LITERATURE REVIEW AND RESEARCH MODEL

#### 2.1. Artificial intelligence in education

The development of Artificial Intelligence (AI) has brought about significant changes in the field of higher education. AI systems have the potential to support learners by providing real-time feedback, personalizing learning content, and optimizing the learning experience (Holmes et al., 2019). In particular, large language models such as ChatGPT help students access information quickly and support the solving of complex learning tasks (Kasneci et al., 2023).

However, the use of AI also carries certain risks. Some studies suggest that over-reliance on AI can impair students' critical thinking abilities and independent learning (Dwivedi et al., 2023). This highlights the need for comprehensive research on the

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impact of AI on learning behavior.

## 2.2. Self-learning behavior and learner autonomy

Self-learning behavior is one of the important competencies in modern higher education. According to Barry J. Zimmerman, self-learning is the process by which learners actively set goals, choose strategies, and self-regulate their learning activities (Zimmerman, 2002).

Self-learning behavior comprises three main components: Cognitive strategies, Metacognitive adjustments, and Learning motivation.

Previous research has shown that the application of technology in education can support the development of self-learning skills through the provision of diverse resources and timely feedback (Broadbent & Poon, 2015).

## 2.3. The role of technology in education: From e-learning to AI-powered learning

The evolution of technology in education is not simply a change in technical means, but a shift in educational philosophy: from content-centered to learner-centered. Specifically:

E-learning Phase: Breaking down barriers of space and time: The advent of e-learning at the end of the 20th century laid the foundation for the digitization of knowledge. During this phase, technology played the role of a content distribution system.

Function: Learning management systems (LMS) such as Moodle, Blackboard, or mass online course platforms (MOOCs) enabled students to access lectures anytime, anywhere.

Impact on self-learning: Technology acts as a "repository." Self-learning behavior in this context focuses on the ability to search for and access information. However, interaction remains limited, and students' initiative is often constrained by adhering to a fixed, pre-designed learning path.

The AI-powered learning era: The age of personalization and intelligent interaction.

The integration of Artificial Intelligence (AI) into education has propelled the role of technology from a "container of information" to an "intelligent collaborator." AI-powered learning no longer offers a single, one-size-fits-all approach, but instead shifts to an adaptive personalization model.

Therefore, the role of AI in this phase is demonstrated through three main aspects:

Firstly, Intelligent Tutoring Systems (ITS): AI can identify knowledge gaps in each student to provide immediate guidance and feedback exercises, something traditional e-learning systems cannot do.

Secondly, Conversational Learning: Through large language models (LLMs), technology is no longer silent. Students can ask questions, debate, and receive highly personalized answers, stimulating deeper thinking and problem-solving.

Thirdly, automating learning management tasks: AI assists students in planning, summarizing materials, and managing time, helping to optimize the "Preparation" phase in the self-study cycle.

This also reflects a shift in the nature of learning behavior.

The move from e-learning to AI-powered learning has changed the nature of self-learning efforts. While in the e-learning era, students needed information filtering skills, in the AI era, they need coordination and evaluation skills.

We can assert that AI technology is no longer outside the cognitive process of students but has become an integral part of "Extended Cognition." This poses a new challenge for self-learning behavior: How can we leverage the power of AI without eroding independent thinking abilities?

## III. . RESEARCH METHODOLOGY

This study uses a quantitative method, collecting data from a survey of university students using a Likert scale to assess the impact of Artificial Intelligence. The data were analyzed using statistical techniques such as regression or structural equation modeling (SEM) to test the hypotheses

## IV. RESEARCH RESULTS AND DISCUSSION

### 4.1. Current status of AI usage among university students in Vietnam

To assess the current situation, the group conducted a survey of 380 students currently studying at several universities in Vietnam, focusing on two main areas: measuring their ability to master technology to promote critical thinking and measuring the decline in autonomy and the risk of violating integrity. The results are shown in Tables 1 and 2.

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**Table 1. Measuring technological mastery to foster thinking.**

NO.	Stated	I completely disagree	Disagree	Normal Neutral /	Agree	Totally agree
1	I often ask the AI questions with specific context or request a step-by-step explanation.	19 (5%)	38 (10%)	76 (20%)	152 (40%)	95 (25%)
2	I always double-check the accuracy of the information provided by AI by comparing it with textbooks or reputable sources.	30 (8%)	76 (20%)	114 (30%)	103 (27%)	57 (15%)
3	I use AI to suggest ideas or outline structures, and then I write the detailed content myself.	15 (4%)	46 (12%)	68 (18%)	160 (42%)	91 (24%)
4	AI helped me gain a deeper understanding of difficult concepts that classroom lectures didn't fully explain.	11 (3%)	27 (7%)	57 (15%)	171 (45%)	114 (30%)
5	I use AI to find errors in my work (e.g., proofreading grammar, coding logic errors) so I can learn from them.	19 (5%)	38 (10%)	76 (20%)	152 (40%)	95 (25%)

Regarding the first question – “Often ask AI questions with specific context or request step-by-step explanations” – approximately 65% of students demonstrated effective interaction with AI by providing context or requesting step-by-step explanations. This is a positive sign, indicating that students have begun to develop tool orchestration skills rather than passively using the tool. However, the remaining 35% had not optimized their questioning approach, revealing a clear gap in prompt literacy – a skill increasingly important in modern education.

Regarding the second question – “always verify the accuracy of information provided by AI by comparing it with textbooks or reputable sources” – only about 42% of students maintained the habit of cross-referencing. This is a fundamental weakness. Because in a context where AI can convincingly generate misinformation, the most important skill is no longer “finding information” but evaluating its reliability. The lack of verification easily leads to “knowledge illusions,” where students confuse reading an answer with actually understanding the issue.

Regarding the third question – “using AI to suggest ideas or outline structures, then writing the detailed content yourself” – approximately 66% of students are using AI correctly as a thinking support tool. This is a positive indicator of healthy learning attitudes, showing that the majority of students still maintain an active role in the learning process. However, it should be noted that this number also means that a significant portion still risks shifting from support to replacement if not given clear guidance.

In the fourth question – “AI helps me understand more deeply difficult concepts that classroom lectures haven’t clarified” – the 75% agreement rate is the most striking figure in the table. This confirms that AI is truly acting as a “personalized tutor,” helping students access knowledge in a flexible way, tailored to their individual abilities. This is a core value that traditional education systems struggle to achieve. However, this very effectiveness also carries a risk: when “understanding” comes too easily, students may reduce their investment in self-discovery – the foundation of deep thinking.

In the fifth question – “using AI to find errors in your work,” approximately 65% of students demonstrated their ability to utilize AI as a feedback tool. This directly relates to self-regulated learning – a core competency in higher education. However, it is important to distinguish between “correcting errors” and “understanding errors.” If students only make corrections based on AI suggestions without analyzing the root causes, the learning process will become superficial and lacking in depth.

The results of this data table show that AI is opening up great opportunities to improve the quality of self-learning, but at

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the same time, it also poses an urgent need to redefine learning competencies in the digital age. Students have initially mastered AI at the operational and application levels, and AI is playing a strong role in supporting understanding and personalizing learning. However, critical thinking and information verification skills remain the biggest bottlenecks. The current state of students can be summarized as follows: "They know how to use AI to learn faster, but they don't fully know how to use AI to learn more deeply."

**Table 2. Measuring the decline in autonomy and the risk of integrity violations.**

N0.	Stated	I completely disagree.	Disagree	Normal / Neutral	Agree	Totally agree
1	I often copy the AI's answers verbatim to complete assignments without much editing.	68 (18%)	103 (27%)	84 (22%)	87 (23%)	38 (10%)
2	I feel anxious or stuck when I have to do homework without the help of AI.	57 (15%)	95 (25%)	76 (20%)	95 (25%)	57 (15%)
3	I trust the results of AI and don't feel the need to verify them.	46 (12%)	106 (28%)	95 (25%)	87 (23%)	46 (12%)
4	I use AI to do even the tasks that I am perfectly capable of doing myself.	38 (10%)	84 (22%)	87 (23%)	106 (28%)	65 (16%)
5	I feel my memory and independent thinking skills have declined since using AI regularly.	76 (20%)	95 (25%)	76 (20%)	84 (22%)	49 (13%)

Regarding the first question – "I often copy the AI's answers verbatim to complete assignments without much editing," approximately 33% of students agreed, indicating that copying behavior has become significant. While not yet a widespread form of cheating, it is a sign of a "systematic academic shortcut." The worrying aspect is not the copying itself, but the fact that students are gradually standardizing this behavior as a legitimate learning strategy, undermining the process of genuine knowledge formation.

In the second question – "I feel anxious or stuck if I have to do assignments without the help of AI," – the percentage of respondents around 40% shows a clear dependence. This is not simply a matter of convenience, but reflects a deeper phenomenon: AI is shifting from a support tool to a "cognitive dependency." Students are not only using AI to solve problems, but are also gradually losing their ability to initiate critical thinking without AI, which directly impacts their long-term self-learning capacity.

In the third question, "I trust the results of AI without feeling the need to verify them," approximately 35% of students demonstrated a lack of critical thinking. This is the most worrying academically. In today's knowledge-based environment, the core competency is not simply receiving information, but evaluating and verifying it. Passively trusting AI can lead to an "illusion of knowledge," silently but seriously undermining the quality of learning.

In the fourth question, "I use AI to do tasks that I am perfectly capable of doing myself," 45% agreed, the highest percentage in the table. This reveals a paradox: students don't lack the ability, but they lack the motivation to use that ability. AI, in this case, is reducing "cognitive friction"—a crucial element for developing deep thinking. When effort is replaced by convenience, the learning process easily shifts from "understanding" to "completing the task."

Regarding the fifth question, "I feel my memory and independent thinking skills have declined since using AI frequently," only about 35% of students were aware of the issue. This number isn't low, but it's noteworthy that the majority of students haven't recognized the negative impact. This is perfectly logical from an educational psychology perspective, as cognitive decline often occurs slowly, accumulates, and is difficult to self-identify in the short term. This is the biggest potential risk.

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From the results in Table 2, we can see that: Copying and abusing AI has appeared but has not yet become absolutely dominant. However, the trend of dependence and declining critical thinking is increasing. Most worryingly, the gap between actual behavior and awareness of risks is still quite large. In other words, students today are in a state of: "Being proficient in using AI rather than understanding how to use AI correctly."

This data doesn't show a "crisis," but it points to a critical breaking point in modern learning behavior: AI is optimizing learning performance, but at the same time undermining the development of intrinsic competence if left unchecked. Therefore, the issue isn't about limiting AI, but rather redefining how we learn in the AI age, shifting from "getting answers faster" to "understanding more deeply," and most importantly, helping students develop independent thinking skills in an AI-supported environment.

### 4.2. Discussion

The results from the two surveys reveal a striking paradox: students are both quite proficient in AI and tend to become dependent on the tool itself. This clearly reflects the "parallel" relationship between technological competence and declining autonomy in learning.

First, on the positive side, the data in Table 1 shows that students are no longer using AI passively but have begun to develop technology-assisted learning strategies. The fact that over 65% of students know how to ask contextual questions and use AI to suggest ideas demonstrates that they are approaching AI as a thinking support tool, rather than just an information search tool. In particular, the fact that 75% of students agreed that AI helps them understand difficult concepts more deeply shows that AI's role has gone beyond simply providing information, becoming a cognitive scaffold similar to a personalized tutor.

However, when compared with Table 2, a structural problem becomes clear: the ability to use AI does not equate to the ability to control AI. Specifically, while students are capable of utilizing AI for learning, they lack self-control mechanisms during its use. This is evidenced by the fact that only 42% of students have the habit of verifying information, while as many as 35% readily trust AI without re-evaluating it. This is a typical example of the "illusion of knowledge," where learners confuse "quick access to information" with "true understanding."

Another point worth discussing is the shift in learning motivation. The fact that 45% of students admit to using AI to do tasks they could do themselves shows that AI is reducing cognitive effort – a crucial element in developing deep thinking. When learning becomes too easy thanks to AI, students tend to choose less strenuous paths, thereby weakening their self-learning abilities. This also explains why about 40% of students feel anxious or stuck without AI support: they are not only dependent on the tool, but also psychologically.

Furthermore, while not yet the majority, the act of copying content from AI (33%) is a warning sign of a shift in academic integrity standards. Without timely guidance, this behavior could gradually become "normalized," especially as AI becomes increasingly difficult to detect in educational products.

One point worth emphasizing is that the decline in cognitive ability (Item 5) was not clearly identified by students (only ~35% agreed). This does not mean that negative impacts do not exist; on the contrary, it shows that the impact of AI is insidious and long-term. Students may not notice a decline in memory or independent thinking currently, but these changes may accumulate and become more apparent in the future.

From the above analysis, an important conclusion can be drawn: the issue is not whether students use AI or not, but how they integrate AI into their learning process. If AI is used as a thinking support tool, it will promote deep learning and personalization. Conversely, if AI is used as a "replacement tool," it will diminish autonomy and cognitive abilities.

Therefore, the challenge facing higher education today is not to limit AI, but to redesign the learning environment in a way that shifts the focus from "results" to "the learning process," enhances activities requiring critical thinking and fact-checking, and, especially, builds students' capacity for "learning with AI" (AI literacy). In other words, AI is forcing education to change: from transmitting knowledge to training the ability to master knowledge in an AI-rich world.

## V. CONCLUSION

Research confirms that Artificial Intelligence (AI) is having profound and multifaceted impacts on the self-learning behavior of university students in Vietnam. On the one hand, AI contributes to improved learning efficiency, promotes personalization, and supports the development of modern learning strategies. On the other hand, the uncontrolled use of AI can lead to increased dependence, a decline in critical thinking, and a gradual erosion of autonomy and academic integrity.

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The research findings indicate that the core issue lies not in the technology itself, but in how students use and integrate AI into their learning process. In this context, higher education needs to shift from a control-oriented approach to a more oriented one, focusing on developing the capacity to use AI responsibly, selectively, and critically. This is a crucial condition for AI to become an effective learning tool, while simultaneously contributing to improving the quality of education and students' self-learning abilities in the digital age.

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