LEVERAGING ARTIFICIAL INTELLIGENCE TO PROMOTE SELF-LEARNING IN THE DIGITAL ENVIRONMENT - A STUDY AT THE FACULTY OF ENGLISH, HANOI OPEN UNIVERSITY

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Abstract: *This study investigates the impact of Artificial Intelligence (AI) on Self-Regulated Learning (SRL) among first-year English majors at Hanoi Open University. Using a mixed-methods approach, the research explores how Generative AI tools-such as ChatGPT and Bing Chat-serve as pedagogical "launchpads" rather than intellectual "crutches". Key findings show that AI feedback significantly strengthens the SRL cycle by helping learners decompose goals and providing immediate, non-judgmental diagnostic support. Notably, learners demonstrate high levels of "Technological Self-efficacy" and actively cross-verify AI outputs to mitigate the risk of "hallucinations." The study concludes that AI promotes independent thinking and adaptive help-seeking when positioned as a "debating partner." These results offer vital insights for higher education transitions, suggesting that AI-integrated frameworks can optimize self-learning capacity and cultivate the critical evaluation skills necessary for the Education 4.0 era.*

Keywords: *Artificial Intelligence (AI), learning thinking, logical thinking, initiative in learning*

I. Introduction

The rapid development of Industrial Revolution 4.0 and the shift to Education 4.0 have placed AI at the center of reshaping the learning experience, especially in digital environments. AI tools, from generative AI to intelligent tutoring systems, can provide instant feedback, personalize learning paths, and support learners at scale, features that are difficult to implement in traditional education models.

However, in Vietnam's foreign language training context, students, especially first-year students, often face significant challenges in self-regulated learning and self-regulation as they transition from high school to university. The pressure of a large volume of knowledge, large class sizes, and a lack of timely lecturer feedback make it difficult for many students to maintain initiative and independent thinking in digital learning.

Although many studies have evaluated the technical effectiveness of

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AI tools in education, a significant gap remains in how AI feedback specifically affects the self-learning cycle (preparation-implementation-reflection) and learners' adaptability and independent thinking.

To clarify these issues, this study explores how AI can promote self-learning in a digital environment through the case of a first-year student at the Faculty of English, Hanoi Open University. The study aims to answer questions related to three main issues:

- The current situation of using AI (type, frequency, purpose) among first-year students at the Faculty of English, Hanoi Open University
- Feedback on how AI use affects the stages of a student's self-learning cycle.
- The study examines the relationship between AI use and the adaptability and development of students' independent thinking in the university environment.

The research results are expected to provide a practical basis for proposing pedagogical orientations to optimize AI use and improve students' self-regulation and initiative in the digital era.

II. Literature review

In the Education 4.0 era, the intersection of cognitive science and AI has redefined the roadmap for knowledge acquisition. This research builds on three core theoretical pillars: (1) Learning Self-Regulation Theory in the Digital Age; (2) The shift from the traditional feedback model to generative AI (GenAI); and (3) The dialectical relationship between the support of technology and the development of independent thinking.

2.1. Self-Regulated Learning (SRL) in the digital environment

Self-regulated learning is the process by which learners are cognitively, motivationally, and behaviorally active to achieve personal goals (Zimmerman, 2002). With AI's rise, SRL is no longer purely internal but becomes a symbiotic interaction between learners and intelligent systems.

2.1.1. Zimmerman's three-stage SRL model and the impact of AI

Based on Zimmerman's (2000) theoretical framework, recent studies have clarified how AI intervenes at each stage of the learning cycle:

- Forethought Phase: This stage involves goal setting and task analysis. For first-year students, the biggest challenge is ambiguity in direction. AI acts as a "Goal Decomposition" tool. GenAI helps learners transform abstract goals (such as "English proficiency") into specific action pathways (S.M.A.R.T).
- Performance Phase: AI supports the "Adaptive Help-Seeking" strategy. Instead of passively receiving answers, students use AI to explain complex concepts or provide scaffolding.
- Self-Reflection Phase: AI has changed the nature of self-reflection. Instead of just knowing right/wrong, AI provides "Diagnostic Judgment", which helps students understand the "why is wrong".

2.1.2. Challenges of first-year students in digital transformation

First-year students often experience a "transition shock" from external adjustment (teacher-led) to internal adjustment (autonomy). The lack of timely feedback in large college classrooms creates a "support vacuum," where AI is expected to bridge the gap and keep the SRL cycle unbroken.

2.2. AI-Powered feedback: Nature and superiority

Feedback is the most important variable that impacts academic achievement (Hattie & Timperley, 2007). The emergence of GenAI (such as

ChatGPT, Claude, Gemini) has created a turning point from fixed feedback to constructive feedback.

2.2.1. The transition from ITS to Genesis (GenAI)

In the past, Intelligent Tutoring Systems only provided rule-based feedback. In contrast, GenAI now offers "Dialogic Feedback" (Kasneci et al., 2023). In language learning, GenAI's ability to understand context and nuances helps students not only correct grammatical errors but also perfect their expressive thinking.

2.2.2. Superior characteristics that promote SRL

Based on compilations from Baidoo-Anu and Owusu Ansah (2023), AI feedback possesses three key characteristics:

1. Immediacy: AI eliminates "feedback delay", which helps maintain the Cognitive Loop. When mistakes are corrected while the brain is most active, deep memorization occurs more effectively.

2. Personalization: According to Vygotsky's Zone of Proximal Development (ZPD), AI can adjust the difficulty and explanation style to suit each student's unique level.

3. Psychological Safety: Grassini's (2023) study shows that students are less anxious when they make mistakes in front of AI. The presence of a "non-judgmental" entity helps to reduce Foreign Language Anxiety, encouraging students to experiment and take risks in their studies.

2.3. Artificial intelligence and the development of independent thinking

A major concern in education is that the reliance on technology will shrink thinking (Le et al., 2026). However, the theoretical framework of "Hybrid Intelligence" suggests that AI can be a "launchpad" if used correctly.

2.3.1. "Scaffolding" and "Fading" mechanics (Scaffolding & Fading)

According to Susnjak (2022), AI acts as "Generative Scaffolding". To develop independent thinking, the key factor is the "Fading" mechanism (Luckin & Cukurova, 2019): AI support must gradually decrease as the learner's capacity increases. Highly adaptable students know how to proactively reduce their dependence on tools and solve problems on their own.

2.3.2. Critical thinking: From search to appraisal

The phenomenon of "AI hallucinations" forces students to shift their roles from information receivers to "Information Evaluators". Fact-checking and questioning AI is the sharpest way to train critical thinking in the modern environment.

2.3.3. Adaptability and finding help tools

First-year students' adaptability shows in how they use AI to understand the process rather than accept the output. This reflects lifelong learning in the digital era.

While AI's potential to boost SRL is enormous, most current research (2020-2024) still focuses on performance (scores) rather than students' internal cognitive processes, especially among multilingual first-year students. This research aims to clarify whether AI is really a "scaffolding" that supports thinking or just a "crutch" that creates intellectual dependence.

These theoretical foundations and gaps guide the study design and the survey questions in the subsequent sections of the article.

III. Research methodology

3.1. Research context and objectives

The research is conducted at the Faculty of English, Hanoi Open University, a pioneer in a technology-based, open,

and flexible education model. The study's core objective was to assess the impact of AI feedback on first-year students' self-regulated learning development.

3.2. Research methods

To address the research tasks, the article uses a mixed-methods research design. Combining quantitative and qualitative methods allows the authors to measure the prevalence and trends in AI use while also understanding the mechanisms of technology's impact on new students' psychology and learning behavior.

3.3. The participants and the scope

The study includes 100 first-year students (74 females, 26 males) from the Faculty of English, Hanoi Open University. In terms of scope, the study surveys students' learning behavior in digital environments, including self-study on the school's LMS and independent self-learning activities outside the LMS.

3.4. Research tools

The paper uses quantitative and qualitative methods, drawing on the literature and findings of previous scholars on the role of AI in promoting first-year students' self-learning ability in the digital era. A 10-question survey questionnaire was designed to measure AI use frequency and its impact on three stages of self-learning: Forethought, Performance, and Self-reflection.

IV. Research results and discussion

4.1. Research results

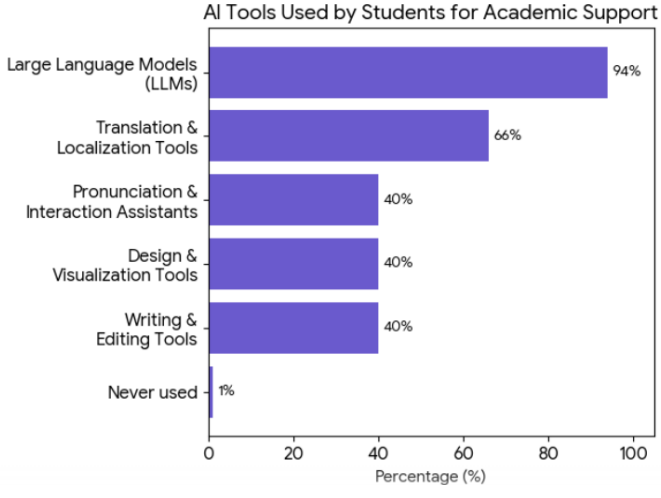


Figure 1. Artificial intelligence (AI) tools students have used to support learning

The graph provides a comprehensive view of students' penetration and trends in choosing AI tools, with the striking result that 99% of students have used at least one AI tool, while only 1% have never used one. In particular, Large Language Models (LLMs) such as ChatGPT and Bing Chat dominate, with a choice rate of up to 94%, showing that students prioritize versatile tools that can interact and flexibly solve many problems. This is followed by Intensive Translation Tools (66%), reflecting strong demand for reading comprehension support among first-year students. Notably, the three groups of specialized tools, Writing Support, Design, and Pronunciation Practice, are all balanced at 40%. This data shows that students not only use AI for passive lookup but also know how to "diversify" tools to support language skills comprehensively, forming a rich digital learning ecosystem that supports self-learning.

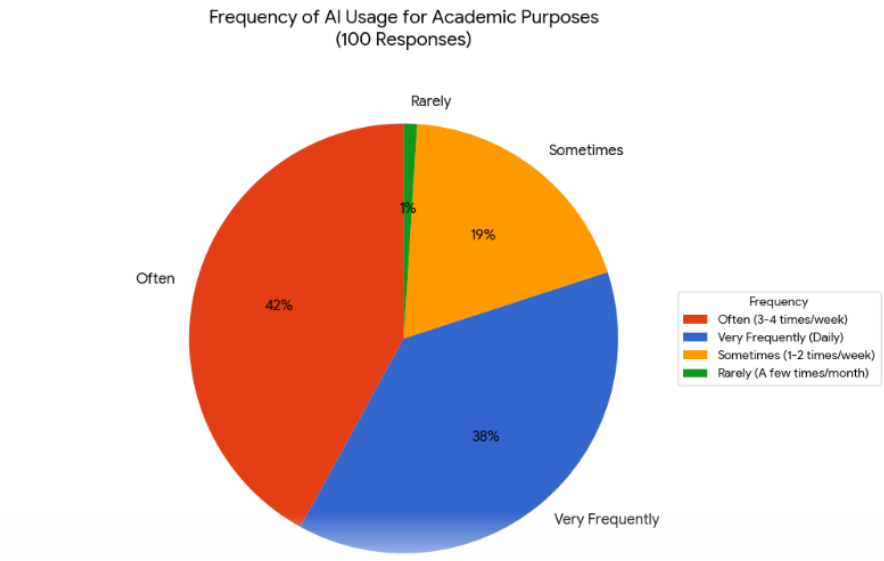


Figure 2. How often AI is used for learning purposes

The graph reflects the extent of the integration of AI into students' daily learning routines, showing the close bond between learners and technology. Specifically, students who use it frequently account for an overwhelming 80%, with 42% using it regularly (3-4 times/week) and 38% using it very often (daily). The group that used it occasionally (1-2 times a week) accounted for 19%, while the group that used it rarely accounted for only a negligible percentage (about 1%). This data shows that using AI among first-year students in the Faculty of English is no longer a momentary behavior or temporary curiosity, but a sustainable learning habit.

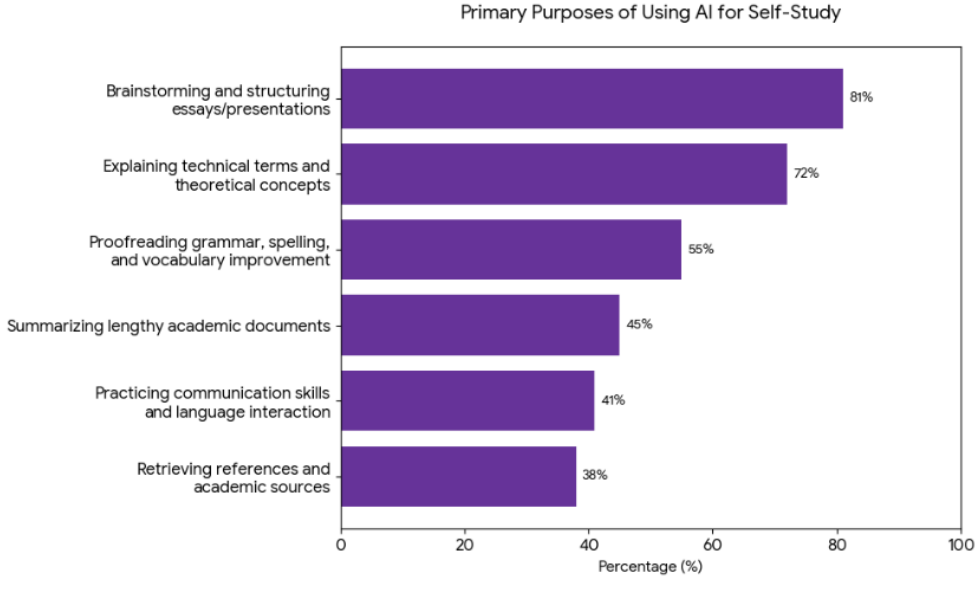


Figure 3. The main purpose of using AI in self-learning

The bar chart clearly depicts the versatile role of artificial intelligence in the self-learning cycle, showing students' strong preference for tasks that support higher-order thinking. Specifically, the most common purpose is "Conceptualizing and structuring articles/presentations" accounting for an overwhelming proportion (81%), closely followed by the need to "Explain terms and concepts" (72%). In addition, students also

focus on supporting specialized skills, with 55% using AI to proofread grammar and 41% to practice communication. Information processing tasks (document summarizing) and searching for sources account for 45% and 38%, respectively, showing that AI is deeply involved at every stage of the self-learning process, from ideation and reading comprehension to producing the final product.

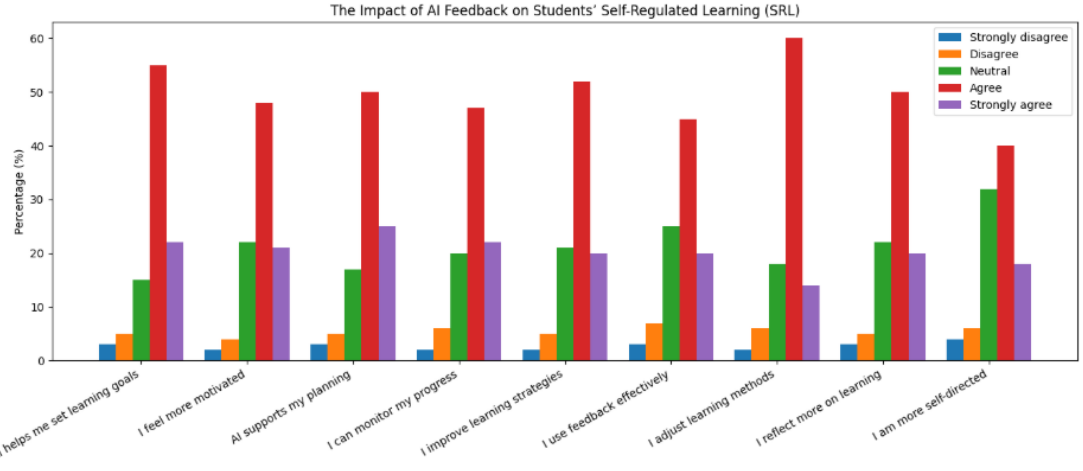


Figure 4. The dynamics of AI feedback on self-learning

Figure 5 reflects students' assessment of the impact of AI feedback on Self-Regulated Learning based on the 5-level Likert scale. The dominant trend across the graph is positive consensus, as shown by the higher Agree and Fully Agree columns. Across most evaluation criteria-from planning support to initiative to learning habit formation-positive feedback consistently dominates (60% to over 75%). In contrast, the opposition rate is very low, almost insignificant. The moderately neutral group suggests that some students are still cautiously evaluating its effectiveness. Still, overall, the data clearly shows that first-year students recognize the powerful role of AI in promoting and optimizing the stages of the self-learning cycle.

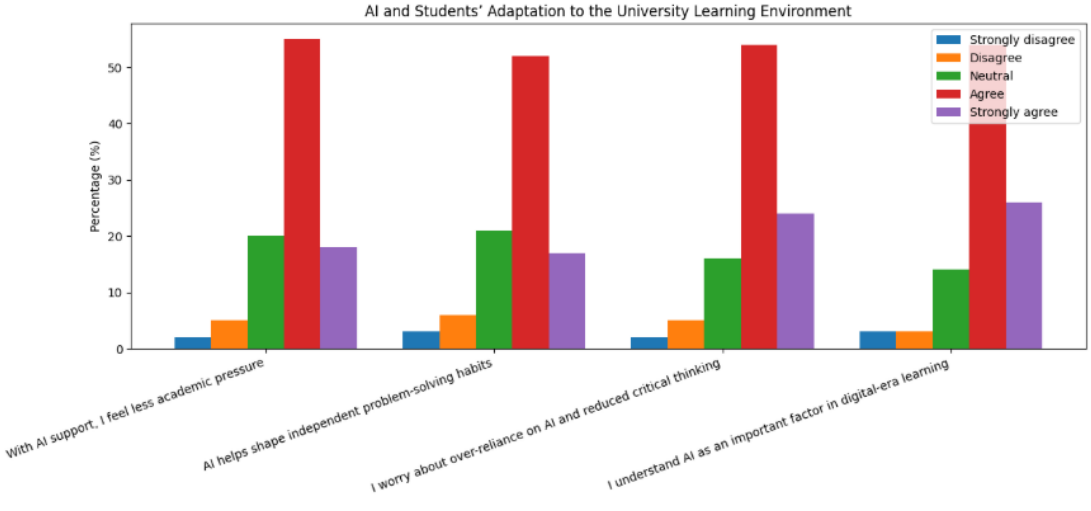


Figure 5. AI and its adaptation to the university environment

The adaptation rating Figure shows a very interesting and mature dual awareness picture of first-year students. On the positive side, most students recognize AI as an effective "assistant" that helps minimize school culture shock when entering university, relieve pressure from the huge amount of knowledge, and build a habit of proactive problem-solving. However, the bright spot of the data lies in the third statement: a very high consensus rate for "perceived risks of relying on AI and limiting deep thinking". This shows that students do not mindlessly deify technology but think critically about the risks of misusing it. In conclusion, the highest consensus in the last criterion affirms that students have clearly identified AI literacy as a core skill needed for effective self-learning in the digital era.

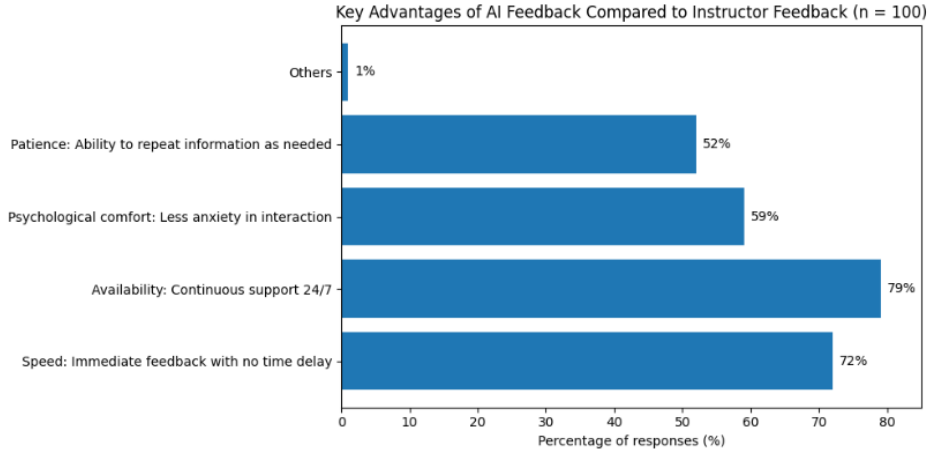


Figure 6. The most prominent advantages of feedback from AI over feedback from instructors

The bar chart clarifies the two most overwhelming advantages: Availability (79%) and Speed (72%). This data affirms that the core value of AI lies in its ability to break down time barriers, provide instant support day and night (24/7), and solve the "bottleneck" of latency when waiting for feedback from lecturers. However, an equally important finding relates to school psychology: up to 59% of students appreciate the "non-judgmental" interactive environment, and 52% appreciate AI's infinite patience.

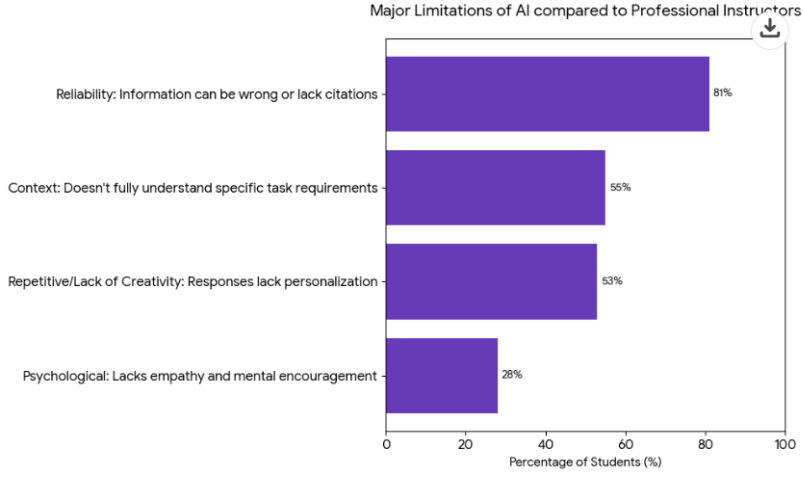


Figure 7. The biggest limitation of AI compared to specialized trainers

The Figure clearly outlines that the most "critical" disadvantage of AI is unanimously confirmed by the vast majority of students (81%): Reliability. This overwhelming number reflects learners' deep concern about "AI hallucinations", misinformation, or fabricated sources, which only lecturer verification can ensure is academically accurate. In addition, more than half of students found that AI struggles with context (55%) and makes stereotypical errors (53%), suggesting that algorithms still cannot provide the same flexible, creative, and deeply personalized instruction as humans. Notably, lack of empathy is the lowest concern (28%), suggesting students have a realistic view: they accept AI as an emotionally inanimate tool but still demand accurate information.

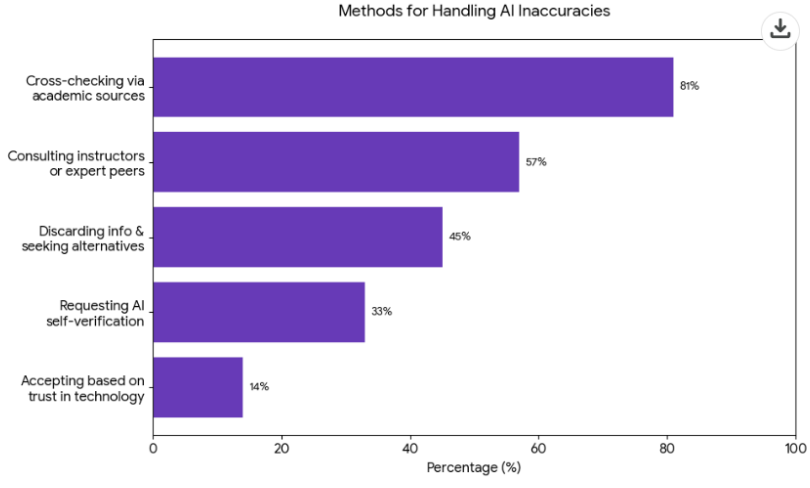


Figure 8. How to handle when the accuracy of information from AI is doubted

The Figure states that when faced with uncertain data, the vast majority of students (81%) have prioritized the most standard solution of cross-checking with the syllabus and academic materials, reaffirming the "root" position of official sources. In addition, 57% of students choose to return to human support (lecturers, friends), and 33% know how to use "prompting" skills to ask AI to provide its own citations. Most importantly, only a minority (14%) are willing to turn a blind eye and trust technology completely.

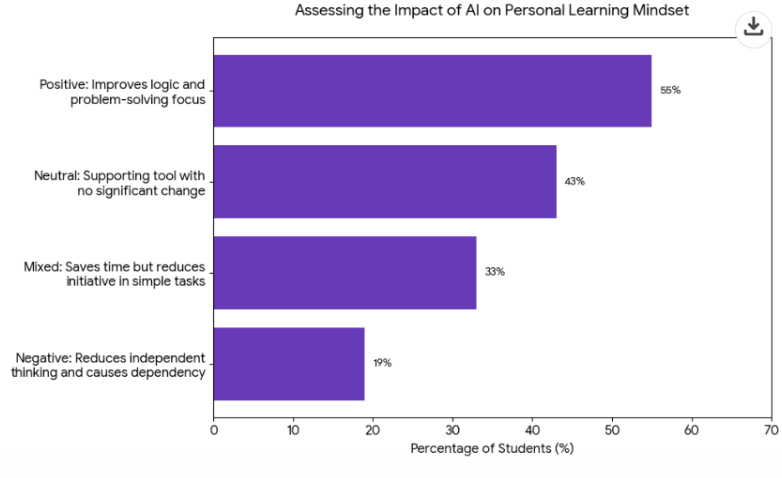


Figure 9. Assessing the impact of AI on personal learning mindset

The survey on the impact of AI on personal learning mindset finds that most participants had a positive or neutral view of the technology. Specifically, the opinion group accounted for the highest percentage of positive responses (55%), saying that AI helps improve logic and problem-solving skills. Second, a neutral view accounted for 43%, viewing AI as a pure support tool that does not significantly change personal thinking. Additionally, a significant portion (33%) find that AI saves time but also reduces initiative in simple tasks. Notably, only 19% of respondents expressed concern that AI could impair their ability to think independently and cause resentment.

4.2. Discussion

Synthesizing and analyzing data from survey Figures on first-year students in the Faculty of English, Hanoi Open University, provides a complete picture of the drastic shift in learning methods in the digital age. The results of the study lead to the following three main conclusions:

Firstly, about the current state of use: Artificial Intelligence has officially passed the stage of "emerging technology" to become an indispensable organic component in the academic life of students. With a near-absolute penetration rate (99%) and frequent usage (80%), AI has shaped a "hybrid learning ecosystem" where large language models (LLMs) and translation tools play a leading role. Notably, students do not use AI passively; they already know how to diversify tools to support each language skill (Listening, Speaking, Reading, Writing) and prioritize AI for higher-order thinking tasks such as conceptualization and concept explanation (81%).

Secondly, regarding the impact on self-learning capacity (SRL), AI acts as a powerful catalyst that helps optimize the self-learning cycle. The outstanding advantages of "Speed" and "24/7 Availability" (79%) of AI have solved the biggest bottleneck of traditional education: the delay in response. Moreover, AI creates a safe psychological buffer, helping students overcome the fear of making mistakes, become more proactive in seeking knowledge, and reduce pressure as they adapt to the university environment.

Third, independent thinking and adaptability: This is the study's most important finding. First-year students exhibit a surprising digital maturity. They maintain a "dual awareness": leveraging AI to adapt quickly to university pressure while staying acutely aware of the risk of dependency and the limits of machine reliability (81%). The overwhelming proportion of cross-checking behavior shows that students are not "entrusting" their thinking to AI, but are using it as a selective reference tool.

In summary, the study confirms that the relationship between students and AI is now a controlled symbiotic relationship. Artificial intelligence does not replace the role of lecturers or the independent thinking of learners, but acts as an effective "virtual teaching assistant", helping to free students from impasses in the process of self-learning. However, lecturers' role in guiding, ensuring knowledge, and inspiring remains an irreplaceable core factor in ensuring the accuracy and depth of specialized education.

Based on the quantitative results in the survey figure below, the following academic and practical suggestions aim to optimize first-year students' use of Artificial Intelligence (AI) in the Faculty of English, Hanoi Open University.

These proposals are built on the principle that AI is a cognitive tool, not an intellectual substitute.

1. Establish a "Dual Verification" process to develop critical thinking

The survey results reveal a notable cognitive conflict. While 94% of students use large language models (LLMs), up to 81% are aware of AI's reliability risks and lack of sources. Therefore, the first proposal is that students shift from an attitude of "passive reception" to "active appraisal." Students in the Faculty of English should treat AI information as raw data. All knowledge gathered, especially explanations of grammar and specialized vocabulary, should be cross-checked against the official syllabus or confirmed with the lecturer, a method students already use. Maintaining this process not only ensures academic accuracy but also helps students practice critical thinking and avoid falling into the trap of "AI hallucinations."

2. Leverage AI as "Cognitive Scaffolding" in the idea generation phase

The data indicates that the biggest use of AI by students is "Conceptual Building and Structuring" (81%), far exceeding other purposes. This highlights AI's potential as a brainstorming partner. First-year students should take advantage of AI to overcome the "writer's block" at the beginning of English essays. Instead of asking AI to write an entire essay, which can create dependency and limit deep thinking, students should prompt AI to suggest arguments, create logical outlines, or provide thematic vocabulary. This approach turns AI into an assistant that helps organize thinking, saving time so students can invest more deeply in content development and personal style.

3. Harness the "Psychological Comfort Zone" to improve communication and writing skills

One of the most valuable findings of the study was that 59% of students appreciated the "non-judgmental" interactive environment and 52% appreciated the patience of AI. This clearly shows a key advantage of technology over the traditional classroom, especially for first-year students, who still have many apprehensions. It is recommended that students actively use pronunciation training tools (such as Elsa Speak and Duolingo, currently accounting for 40%) and chatbots to practice simulated conversations. Interacting with AI reduces language anxiety, allowing students to make mistakes and correct them repeatedly without pressure from peers or lecturers. At the same time, the use of writing aids (Grammarly, Quillbot - 40%) should be considered a "pre-moderation" step for students to identify basic grammatical errors before submitting the paper, helping the feedback process from the lecturer then focus more on the thinking and structure of the article.

4. Reorient the role of lecturers: Focus on context and emotions

Data on AI's limitations shows that 55% of students find that AI cannot understand context, and 28% think it lacks empathy. This puts a requirement on the English Faculty in designing the curriculum. Trainers should focus on what AI cannot replace: teaching cultural nuances, analyzing real-world communication contexts, and inspiring learning. Schools should encourage students to use AI for technical tasks (speed, lookup, spelling correction), so classroom time can be maximized for deep interaction, group discussions, and soft skills development, where the "stereotype" (53%) of AI cannot be met.

V. Conclusion

The research has painted a panoramic picture of the shift in self-learning methods in the digital age. Survey results from 100 students show that AI is no longer a strange technology but has become an organic component of the learning ecosystem. It confirms that AI plays an active role in promoting self-regulated learning. With its speed and 24/7 availability, AI helps students overcome time and psychological bottlenecks, creating a "safe" practice environment and reducing the pressure of making mistakes. In particular, first-year students show remarkable digital maturity: they do not unquestioningly depend on technology, but maintain strong critical thinking, value cross-checking, and clearly define the limits of AI reliability.

Research still has certain limitations. First, the survey sample (100 students) focuses entirely on first-year students and has a large gender gap, so it does not reflect a comprehensive picture of students in other courses. Second, the quantitative method relies on self-report questionnaires, which may be subjective and do not measure the actual impact of using AI on specific learning outcomes.

To address this, future studies should expand the survey to final-year students and include lecturers' perspectives for a more multidimensional assessment. At the same time, it is recommended to combine qualitative methods (in-depth interviews) or empirical research to measure the effectiveness of AI for each language skill more accurately, rather than stopping at cognitive surveys.

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TẬN DỤNG TRÍ TUỆ NHÂN TẠO ĐỂ THÚC ĐẨY KHẢ NĂNG TỰ HỌC TRONG MÔI TRƯỜNG SỐ - MỘT NGHIÊN CỨU TẠI KHOA TIẾNG ANH, TRƯỜNG ĐẠI HỌC MỞ HÀ NỘI

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Tóm tắt*: Nghiên cứu tập trung phân tích tác động của trí tuệ nhân tạo (AI) đối với việc học tập tự điều chỉnh (SRL) của sinh viên năm thứ nhất Khoa Tiếng Anh, Trường Đại học Mở Hà Nội. Sử dụng phương pháp nghiên cứu định tính và định lượng, các tác giả đã tiến hành nghiên cứu với 100 sinh viên, phân tích các công cụ AI tổng quát và phản hồi AI tăng cường chu trình SRL. Kết quả nghiên cứu chỉ ra rằng đa số người học có thái độ đón nhận tích cực hoặc trung lập đối với công nghệ này. Tuy nhiên, nghiên cứu cũng ghi nhận những lo ngại về sự suy giảm tính chủ động và nguy cơ gây ỷ lại, làm giảm khả năng tư duy độc lập. Từ những dữ liệu này, bài viết thảo luận về tầm quan trọng của việc định hướng sử dụng AI như một phương tiện bổ trợ nhằm tối ưu hóa quá trình học tập, đồng thời vẫn duy trì năng lực tư duy phản biện cốt lõi của người học.*

Từ khóa*: trí tuệ nhân tạo, tư duy học tập, tư duy logic, tính chủ động trong học tập*

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