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Students' Perceptions on Using Artificial Intelligence Tools in English Medium Instruction Classrooms at Ho Chi Minh University of Banking

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ABSTRACT: *The research investigates the perceptions of Ho Chi Minh University of Banking students on the use of ChatGPT, Gemini, and DeepSeek in English medium instruction (EMI) classrooms to enhance their language and content learning skills. As artificial intelligence (AI) is increasingly incorporated into EMI classrooms, these AI-powered apps provide students with instant feedback, grammar fixes, and writing guidance. In order to understand EMI students' experiences, benefits, and challenges with these technologies, the research collects data from them through surveys and interviews using a mixed-methods technique. According to the research's findings, students find ChatGPT, Gemini, and DeepSeek to be highly helpful for generating ideas, improving their language, and structuring their work. Because of their usability and accessibility, they are also useful resources for self-directed learning. However, there were also disadvantages, such as an over-reliance on information produced by AI, occasional mistakes, and a lack of comprehensive explanations. The research highlights how crucial it is to teach EMI students how to critically use AI tools in order to enhance learning outcomes. The research contributes to the growing body of research on AI-assisted language learning and provides teachers and educators with useful information about integrating AI technologies into English language instruction.*

KEYWORDS: **Students' perceptions, ChatGPT, Gemini, DeepSeek, EMI classrooms, HUB**

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1. Introduction

The fast development of Artificial Intelligence (AI), especially generative AI, has greatly transformed higher education worldwide. Large language models such as ChatGPT (developed by OpenAI), Gemini, and DeepSeek have attracted significant attention because they can produce human-like responses, provide immediate feedback, and support students in learning academic language (Barrot, 2023; Nguyen et al., 2022). These technologies are increasingly used in English as a Foreign Language (EFL) and EMI classrooms contexts, where listening, speaking, reading, and writing are still among the most challenging skills for learners (Holmes et al., 2019). As a result, AI tools are becoming important resources in modern language education.

Language and content are required aspects at the university level, yet many students continue to experience difficulties in academic writing and reading skills. Common problems include limited vocabulary, frequent grammatical errors, weak idea development, and poor coherence. Ho Chi Minh University of Banking (HUB), whose students come from various regions across the country of Vietnam, offers a suitable setting to explore how AI-based tools can support learning improvement. Although ChatGPT has been widely used globally, newer tools such as Gemini and DeepSeek have recently gained attention as promising alternatives, particularly for their strengths in reasoning and language generation (Cotton et al., 2024). Therefore, examining HUB students' perceptions and actual use of these tools is important to evaluate their impact on English and content learning outcomes.

ChatGPT, Gemini, and DeepSeek play a particularly significant role in enhancing writing proficiency. They provide instant corrections, suggest alternative phrasing, and guide learners in organising ideas more coherently, which collectively improve both the accuracy and fluency of written texts (Holmes et al., 2019). Their accessibility and user-friendly design also promote independent practice, reduce reliance on lecturers for error correction, and encourage learner autonomy. This independence is crucial for fostering self-directed learning and boosting students' confidence in academic writing (Barrot, 2023). Furthermore, AI applications support critical engagement by assisting students in developing arguments, improving coherence, and adopting a more academic style – skills that are indispensable for university assignments, research projects, and professional communication (Nguyen et al., 2022).

ChatGPT, Gemini, and DeepSeek play an important role in improving students' learning skills. They offer immediate corrections, recommend alternative expressions, and help learners organise their ideas more clearly, which enhances both accuracy and fluency in writing (Holmes et al., 2019). In addition, their easy access and user-friendly interfaces encourage students to practise independently, reducing their dependence on lecturers for feedback and promoting learner autonomy. This independence is essential for developing self-directed learning and increasing confidence in academic writing (Barrot, 2023). Moreover, these AI tools support critical thinking by helping students build stronger arguments, improve coherence, and use a more formal academic style, which are necessary for university assignments, research tasks, and professional communication (Nguyen et al., 2022).

Despite their considerable potential as writing and reading assistants, the use of AI chatbots in education remains a subject of ongoing debate. Proponents highlight their efficiency in correcting grammar, paraphrasing, summarising content, and generating ideas, thereby alleviating the workload for both students and instructors (Holmes et al., 2019). Conversely, critics express concerns about issues such as plagiarism, excessive reliance on AI, possible factual inaccuracies, and the erosion of critical thinking skills (Cotton et al., 2024). Within the Vietnamese context, empirical research on AI applications in English language education remains limited, particularly with regard to students' perceptions and actual usage practices (Nguyen et al., 2022).

The present research, entitled "*Students' Perceptions on Using Artificial Intelligence Tools in English Medium Instruction Classrooms at Ho Chi Minh University of Banking*," is motivated by the increasing integration of AI in higher education and the need to evaluate its pedagogical impact from the learners' perspective. Specifically, the research seeks to examine students' attitudes towards the usefulness, effectiveness, and accessibility of ChatGPT, Gemini, and DeepSeek in enhancing English learning outcomes. By analysing students' lived experiences, the research aims to identify both the advantages and limitations of these tools, with particular attention to their influence on learner confidence, autonomy, and learning performance. The findings are expected to offer practical pedagogical implications, assisting lecturers in integrating AI more effectively into EMI classrooms at HUB, while also contributing to the broader academic discourse on the role of generative AI in facilitating writing development in Vietnamese higher education. Ultimately, this research aims to contribute to improving teaching methods and EMI student learning outcomes at HUB. The research team raised the following research questions:

1. What are HUB students' perceptions of using AI tools in EMI classrooms?

2. How do AI tools help HUB students to learn in EMI classrooms?

2. Literature review

Research on the integration of AI technologies, particularly ChatGPT, Gemini, and DeepSeek, into EMI programs has expanded considerably in recent years. The current body of literature can be broadly categorised into four principal strands. First, studies examine both the pedagogical potential and the associated challenges of

employing these tools in English Language Teaching (ELT) and EMI contexts. Second, a growing number of works investigate students' perceptions, attitudes, and experiences when using AI-powered applications. Third, research has focused on identifying key factors that influence the adoption and sustained use of such technologies. Finally, scholars have explored diverse applications of AI-driven learning assistants in higher education, highlighting their evolving role in supporting teaching and learning processes.

Potential and challenges of ChatGPT, Gemini, and DeepSeek in English Language Teaching and EMI classrooms

The incorporation of generative artificial intelligence tools such as ChatGPT, Gemini, and DeepSeek into ELT and EMI offers substantial pedagogical promise while simultaneously presenting multifaceted challenges. Recent systematic reviews (Carlson et al., 2023; Meniado, 2023) indicate that ChatGPT is well aligned with established second language (L2) acquisition theories, as it supports key cognitive processes, including idea generation, improved textual coherence, and the provision of immediate corrective feedback, all of which can foster greater learner autonomy (Barrot, 2023). In addition, educators have reported notable advantages in areas such as lesson planning, curriculum development, and the design of adaptive instructional materials, thereby enhancing both efficiency and innovation in teaching practices (Zawacki-Richter et al., 2019).

Nevertheless, these benefits are accompanied by significant concerns. Issues related to academic integrity, particularly plagiarism and excessive dependence on AI-generated content, may undermine students' independent learning capacities (Rodrigues et al., 2025). Furthermore, limitations such as occasional factual inaccuracies, the potential reinforcement of algorithmic biases, and unequal access to technological resources risk exacerbating existing educational disparities. Collectively, these findings suggest that while ChatGPT, Gemini, and DeepSeek possess considerable transformative potential in ELT and EMI contexts, their effective integration necessitates robust ethical guidelines, the development of digital literacy, and sustained critical pedagogical oversight to ensure responsible, balanced, and equitable implementation.

Students' perceptions of AI-powered tools

Overall, students in EMI contexts tend to demonstrate favourable attitudes towards ChatGPT and comparable AI-driven writing assistants, frequently characterising them as useful, motivating, and readily accessible tools for academic support (Meluwu et al., 2025; Zhao et al., 2025). In particular, learners highly appreciate the immediacy of feedback and the increased confidence they experience when completing writing tasks, as these features facilitate a more engaging and less intimidating learning process. Nevertheless, such perceptions are not uniform and appear to vary significantly across educational levels and socioeconomic contexts. For instance, postgraduate students in Australia have been found to perceive ChatGPT as less beneficial than undergraduate students, a difference that may be attributed to their more advanced prior knowledge and established academic skills. In contrast, students in Zimbabwe report relatively limited engagement with these tools, largely due to the financial constraints associated with paid versions and the perceived limitations of outdated free alternatives (Muchowe & Fodouop, 2024). These divergent experiences highlight the critical role of contextual and technological factors in shaping users' perceptions and patterns of AI adoption.

Factors influencing use of ChatGPT, Gemini, and DeepSeek

Students' adoption of ChatGPT, Gemini, and DeepSeek is influenced by a complex interplay of factors that extend beyond simple access, including prior knowledge, levels of AI literacy, and institutional policy frameworks. Although many learners acknowledge the advantages of generative AI in enhancing efficiency and providing timely feedback, others remain cautious due to concerns about output accuracy and the challenges of applying these tools to cognitively demanding academic tasks (Kasneci et al., 2023). Moreover, insufficient prompting skills can limit

effective use, as students unfamiliar with AI systems often struggle to produce meaningful and relevant outputs. Ethical uncertainty further complicates adoption patterns, with nearly a quarter of students viewing the use of such tools as a form of academic misconduct, thereby revealing tensions between technological innovation and academic integrity (Rodrigues et al., 2025). These findings highlight the urgent need for higher education institutions to implement clear guidelines and provide targeted training programmes that promote responsible engagement. By strengthening AI literacy, clarifying ethical expectations, and aligning institutional policies with pedagogical objectives, universities can support students in transitioning from passive dependence or avoidance to a more informed, critical, and ethically grounded use of generative AI in academic contexts.

Applications of AI-based learning assistants in higher education

Research on AI-based learning tools has increasingly extended beyond large language models such as ChatGPT, Gemini, and DeepSeek, with applications like Grammarly, QuillBot, and machine translation (MT) gaining significant prominence in higher education. Grammarly, for instance, offers corrective feedback on grammar, tone, and clarity; however, studies indicate that its accuracy and contextual appropriateness are not always reliable, thus requiring users to critically assess its suggestions (Barrot, 2023; Fitria, 2021). In contrast, QuillBot supports students in paraphrasing and enhancing textual cohesion, facilitating linguistic variation and more effective re-expression of ideas. Likewise, MT tools have been shown to improve vocabulary acquisition, grammatical precision, and writing strategies, although they may also introduce semantic inaccuracies and foster excessive reliance among learners (Pham & Le, 2024). Scholars have cautioned that overdependence on such technologies could weaken critical thinking and diminish original language production. Nevertheless, emerging studies highlight innovative applications of AI in education, including role-play simulations in counselling training (Maurya, 2023) and tools that enhance scientific writing through improved drafting, structure, and organisation (Zou & Huang, 2024). Collectively, these developments underscore both the opportunities and the potential risks of AI integration, emphasising the need for balanced, pedagogically grounded implementation.

Comparisons and contrasts

Across recent research, there is broad consensus that AI-based tools play a facilitative role in language learning, particularly by enhancing motivation, scaffolding writing, and providing readily accessible feedback. These tools are valued for their immediacy and adaptability, allowing learners to receive individualized support that can foster greater confidence and efficiency in academic writing (Cotton et al., 2024). Nonetheless, their perceived usefulness is not uniform, varying according to learners' academic level, disciplinary background, and socioeconomic context. A persistent tension underlies the literature: while AI technologies improve productivity and engagement, they simultaneously provoke concerns related to authenticity, creativity, and ethical use (Kasneci et al., 2023). This echoes earlier debates in the field of Computer-Assisted Language Learning (CALL), where research primarily centred on grammar correction and surface-level feedback (Gamper & Knapp, 2002; Warschauer & Healey, 1998). In contrast, contemporary studies highlight more advanced affordances, including discourse-level cohesion, paraphrasing, and intelligent tutoring, marking a clear shift in both pedagogical potential and research focus. Such developments suggest that the integration of AI into language education demands not only technological refinement but also nuanced pedagogical and ethical frameworks.

Research gaps

Despite the rapid integration of AI tools into higher education, several significant research gaps persist. First, much of the existing literature concentrates on undergraduate populations, thereby neglecting the more complex and discipline-specific writing demands faced by postgraduate students, who require advanced support in constructing scholarly arguments and

developing publication-oriented skills (Barrot, 2023; Zou & Huang, 2024). Second, research on AI literacy and ethical engagement remains fragmented and insufficiently developed. Although some scholars underscore the necessity of equipping students with the ability to critically evaluate AI outputs, relatively few studies examine how institutions can implement systematic guidelines or scaffold responsible usage on a broader scale (Kasneci et al., 2023; Rodrigues et al., 2025). Third, while AI-based tools such as Grammarly, QuillBot, and machine translation have been widely explored in general EFL and EMI contexts, their long-term impact on higher-order competencies – such as critical thinking, originality, and disciplinary reasoning – remains under-investigated (Fitria, 2021). This gap is particularly concerning given enduring concerns that excessive reliance on AI may undermine creativity and authenticity in academic writing (Hyland, 2003). Addressing these limitations is therefore essential to develop a more nuanced understanding of AI's role in supporting advanced academic writing and professional communication.

3. Methodology

The research was conducted within English medium instruction (EMI) classrooms at Ho Chi Minh University of Banking (HUB), a public institution recognised for its emphasis on economics, finance, and language education in Vietnam. As part of its commitment to internationalisation, HUB has increasingly adopted EMI programmes to prepare students for global academic and professional environments where English proficiency is essential. Within this institutional framework, SaigonISB International Training Institute, an affiliated unit of HUB, plays a pivotal role in delivering internationally oriented curricula. Established with the aim of creating a modern, dynamic, and globally aligned educational environment, SaigonISB provides an ideal context for investigating the integration of artificial intelligence (AI) into English language education. Its strong focus on academic English, critical thinking, and professional communication makes it particularly suitable for examining how AI tools can support writing development among university students.

In order to explore this issue comprehensively, the research adopted a qualitative and quantitative design aimed at generating in-depth insights into students' perceptions of using AI tools – specifically ChatGPT, Gemini, and DeepSeek – to enhance English learning skills. A mixed-methods approach is especially appropriate for this purpose, as it facilitates the exploration of participants' lived experiences within authentic educational settings. As Creswell (2014) emphasises, qualitative research enables a holistic understanding of complex phenomena by capturing the meanings individuals assign to their experiences, which may not be fully accessible through quantitative approaches. Similarly, Creswell and Poth (2018) argue that qualitative methodologies allow for flexible and context-sensitive investigation, enabling researchers to account for cultural, institutional, and situational variables that shape learning behaviours. In the domain of educational technology, such an approach is particularly valuable because students' interactions with AI tools are often influenced by a wide range of cognitive, motivational, and ethical factors (Nowell & Albrecht, 2019). Guided by these methodological principles, the present study sought to examine how learners perceive AI tools not merely as mechanisms for linguistic enhancement, but also as potential supports – or even constraints – in their broader academic writing development and learning practices.

The participants comprised 200 undergraduate students enrolled in the SaigonISB International Training Institute at HUB. These students were selected through purposive sampling to ensure that all participants had at least some degree of familiarity with one or more AI tools, including ChatGPT, Gemini, and DeepSeek. This sampling strategy was crucial in ensuring that the data collected would be grounded in actual user experiences rather than hypothetical assumptions. Furthermore, the participants represented a diverse range of academic years and English proficiency levels, thereby enabling the study to capture a wide spectrum of perspectives

on AI usage. Such diversity is particularly important in qualitative research, as it allows for a more nuanced understanding of how individual differences influence engagement with emerging technologies in language learning contexts.

Data collection was conducted using a combination of qualitative and quantitative instruments designed to yield both broad and in-depth insights. Initially, a structured questionnaire was administered to all 200 participants to gather general information regarding their experiences, attitudes, and patterns of AI tool usage. While the questionnaire provided a comprehensive overview, it was supplemented by more detailed methods, including semi-structured interviews and focus group discussions with a subset of 30 students. These follow-up methods enabled the researcher to probe more deeply into participants' perspectives, allowing for clarification, elaboration, and the emergence of unanticipated themes. Through this multi-layered approach, the research was able to examine how students utilised AI tools across various stages of the writing process, including idea generation, drafting, revising, and editing. This holistic perspective offered valuable insights into both the practical and cognitive dimensions of AI-assisted writing.

All interviews and focus group discussions were audio-recorded with participants' consent and subsequently transcribed verbatim for analysis. The data were analysed using thematic analysis, following the well-established framework proposed by Braun and Clarke (2006). This analytical approach involved an inductive coding process, whereby patterns and themes were derived directly from the data rather than imposed a priori. The analysis began with repeated readings of the transcripts to identify meaningful units of information, which were then systematically coded. These codes were subsequently organised into broader thematic categories that reflected students' perceptions of the benefits and challenges associated with AI use. The iterative nature of this process ensured that the resulting themes were both data-driven and analytically robust.

To enhance the credibility and trustworthiness of the findings, the study employed data triangulation. Specifically, the results obtained from the questionnaire were cross-validated with insights derived from interviews and focus group discussions. This triangulated approach helped to ensure consistency in the findings and reduced the likelihood of bias in interpretation. Particular attention was given to themes related to writing development, such as improvements in grammatical accuracy, vocabulary expansion, idea generation, and structural coherence. At the same time, the analysis also addressed concerns raised by participants, including the risk of over-reliance on AI tools, the potential decline in critical thinking skills, and issues related to academic integrity (Joshi, 2019; Nguyen, 2023; Rodrigues et al., 2025). By examining both the affordances and limitations of AI, the study aimed to provide a balanced and comprehensive account of its role in EMI contexts.

Ethical considerations were rigorously observed throughout the research process. Participation in the study was entirely voluntary, and informed consent was obtained from all participants prior to data collection. Students were fully informed about the purpose of the research, the procedures involved, and their right to withdraw at any stage without penalty. To ensure confidentiality and anonymity, all personal identifiers were removed from the data during transcription, and findings were reported in aggregated form. Furthermore, all collected data were stored securely and used exclusively for research purposes, with strict measures in place to prevent unauthorised access. These ethical safeguards were essential in maintaining the integrity of the research process and ensuring that participants felt comfortable expressing their genuine views.

In conclusion, this research provides valuable insights into the integration of AI tools within EMI classrooms at HUB, particularly within the innovative educational environment of SaigonISB. By employing a rigorous mixed research methodology, the research captures the complexity of students' experiences with AI-assisted writing, highlighting both its potential

benefits and inherent challenges. The findings contribute to a deeper understanding of how tools such as ChatGPT, Gemini, and DeepSeek can support – or, in some cases, hinder – academic writing development. More broadly, the research underscores the importance of adopting a balanced and pedagogically informed approach to AI integration, one that aligns technological innovation with the educational, ethical, and cognitive goals of higher education.

4. Results and discussions

The data for the research were collected through a systematic analysis of student responses obtained from questionnaires and interviews. These complementary methods generated rich and nuanced insights into how students at HUB perceive ChatGPT, Gemini, and DeepSeek as AI-assisted tools for enhancing both English language proficiency and content-based learning. To ensure analytical clarity, the findings were quantified by calculating the proportion of responses across the entire participant cohort and are presented in a structured manner in Tables 1, 2, 3, and 4. By organising the data into clearly defined categories, the research provides a coherent overview of students' perceptions of AI's role in developing key language skills, including listening, speaking, reading, and writing, and the content subject.

Based on the collected responses, the data were classified into five categories: strongly disagree (SD), disagree (D), undecided (U), agree (A), and strongly agree (SA). This categorisation enabled a more precise and systematic interpretation of students' attitudes towards AI-powered learning tools. The responses were subsequently ranked according to frequency, thereby highlighting dominant trends and overall sentiment regarding AI integration in English learning. As noted by Dörnyei (2007), such categorisation facilitates the identification of patterns and supports the derivation of meaningful conclusions from survey data. Through this structured analytical approach, the study offers a comprehensive evaluation of both the perceived benefits and potential limitations of AI in EFL contexts, contributing valuable insights to ongoing discussions on its effective pedagogical implementation.

The data presented in Table 1 illustrates students' perceptions of ChatGPT in EMI classrooms by combining the proportions of "agree" (A) and "strongly agree" (SA) responses across ten survey statements. Overall, the data reveal a consistently high level of positive evaluation, with all categories exceeding

Table 1. Students' perception and experience of ChatGPT in EMI classrooms

No	Statements	SD	D	U	A	SA
1	ChatGPT is easy to use.	0%	0%	4%	14,2%	81,8%
2	ChatGPT is very effective.	0%	0%	3%	61,2%	35,8%
3	ChatGPT is easily accessible anywhere and anytime.	0%	9,5%	12,2%	56,7%	21,6%
4	ChatGPT is more convenient to use than similar AI apps.	0%	0%	4%	65,2%	30,8%
5	You use other AI assistant tools for learning your English assignments.	0%	0%	15,5%	64,3%	20,2%
6	You frequently use ChatGPT for your learning tasks.	0%	8,5%	20,5%	55%	16%
7	ChatGPT has the potential to strengthen your skills in EMI classrooms.	0%	0%	25%	53%	22 %
8	Using ChatGPT during your learning tasks is a pleasant experience.	0%	7%	8%	71,1%	13,9%
9	ChatGPT has increased your learning efficiency.	0%	0%	15,5%	71,1%	13,4%
10	You would suggest ChatGPT to your friends for EMI assignments.	0%	0%	11%	56%	33%

70% combined agreement, indicating strong acceptance of ChatGPT as an educational tool.

A particularly notable trend is observed in the category "ChatGPT is easy to use", which demonstrates the highest level of strong agreement. This suggests that usability is a decisive factor in students' adoption of AI tools, as intuitive interfaces reduce cognitive load and allow learners to focus more on task completion rather than technical navigation. Similarly, "ChatGPT is very effective" and "ChatGPT is more convenient than similar AI apps" also show high levels of agreement, reflecting students' recognition of its functional advantages over alternative platforms.

In terms of accessibility, although the combined agreement remains relatively high, it is comparatively lower than other categories. This indicates that external factors – such as internet connectivity or device availability – may influence students' experiences. Meanwhile, the statement regarding the use of other AI tools reveals that students are not exclusively dependent on ChatGPT, but rather engage with a broader ecosystem of digital learning resources. Usage frequency presents a more moderate distribution, suggesting that while students value ChatGPT, its integration into daily academic routines is not yet universal. This aligns with the slightly lower agreement observed in "ChatGPT strengthens EMI skills", where a significant proportion of students remain neutral. Such findings imply that although students perceive immediate benefits, they may still be uncertain about its long-term impact on deeper language competencies. Conversely, the categories "pleasant experience" and "increases learning efficiency" demonstrate strong positive trends, highlighting the motivational and practical benefits of AI-assisted learning. These factors are crucial in sustaining engagement and promoting autonomous learning behaviours. Finally, the high percentage of students willing to recommend ChatGPT underscores overall satisfaction and trust in its effectiveness.

Overall, the overwhelmingly positive reception suggests that ChatGPT holds a promising role in shaping future approaches to in EMI contexts, provided that its limitations are critically examined and pedagogically integrated. Students have very favourable opinions about ChatGPT, especially when it comes to its general learning support, usability, and efficiency. Some students are still unsure about its long-term effects on skill

Table 2. Students' perception and experience of Gemini in EMI classrooms

No	Statements	SD	D	U	A	SA
1	Gemini is easy to use.	0%	2%	5,4%	50%	42,6%
2	Gemini is very effective.	0%	1,5%	12,5%	65,5%	20,5%
3	Gemini is easily accessible anywhere and anytime.	0%	0%	30,6%	48,6%	20,8%
4	Gemini is more convenient to use than similar AI apps.	0%	4%	35,6%	40,4%	20%
5	You believe Gemini will play a significant role in education in the coming years.	0%	0,4%	20,3%	42,1%	37,2%
6	You frequently use Gemini for your English reading and writing tasks.	0%	0%	21%	62,4%	16,6%
7	You find Gemini useful for organizing their listening and speaking ideas.	0%	2%	15,8%	46,4%	35,8%
8	Gemini has the potential to strengthen your skills in EMI classrooms.	0%	0%	20,4%	50,8%	28,8%
9	You use Gemini to prepare for mid-term and final tests.	0%	2%	30,6%	46,8%	20,6%
10	You would suggest Gemini to your friends for EMI assignments.	0%	0%	33,5%	40,6%	25,9%

development, even though the majority of them find it helpful. Even doubtful students appear to be aware of its potential, as seen by the lack of significant disagreement in any of the categories. To optimize ChatGPT's educational advantages, future initiatives should concentrate on resolving uncertainties surrounding skill development and guaranteeing accessibility.

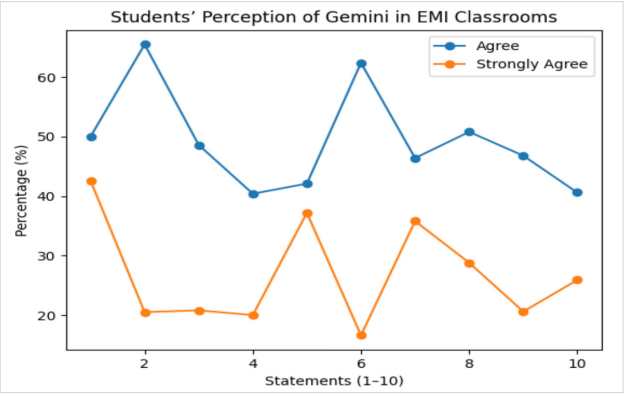


Figure 1. Students' perception of Gemini in EM classrooms

Beginning with "Gemini is easy to use", the graph shows a high level of approval, with 50% of respondents agreeing and an additional 42.6% strongly agreeing. This indicates that usability is one of Gemini's most appreciated attributes, with nearly universal positive feedback and minimal resistance. A similar trend is observed in "Gemini is very effective", where the "Agree" category peaks at 65.5%, the highest among all items. However, the "Strongly Agree" percentage drops to 20.5%, suggesting that while many students recognize its effectiveness, fewer are fully convinced at the highest level of endorsement. This discrepancy between agreement and strong agreement may imply cautious optimism rather than absolute confidence.

"Gemini is easily accessible anywhere and anytime", which addresses accessibility, shows a slight decline in both agreement levels, with 48.6% agreeing and 20.8% strongly agreeing. This indicates that although accessibility is generally perceived positively, it may not be as universally experienced as ease of use. Factors such as internet connectivity, device availability, or platform limitations could contribute to this perception. The trend continues in "Gemini is more convenient to use than similar AI apps", where convenience relative to other AI applications is evaluated. Here, the "Agree" percentage drops further to 40.4%, and "Strongly Agree" remains at 20%, suggesting a more moderate comparative advantage rather than a clearly dominant position. A notable increase appears in "Gemini will play a significant role in education in the coming years", which explores future expectations. The "Strongly Agree" percentage rises sharply to 37.2%, one of the highest in the dataset, while "Agree" stands at 42.1%. This indicates a strong forward-looking confidence in Gemini's potential, even if current experiences are still being evaluated critically. Students seem more willing to strongly endorse its future impact than some of its present functionalities.

Regarding frequent use for English reading and writing tasks, the "Agree" category again reaches a high point at 62.4%, while "Strongly Agree" drops to 16.6%, the lowest among all items. This suggests that although Gemini is widely used, students may rely on it more as a supplementary tool rather than an indispensable resource. The gap between usage frequency and strong endorsement may reflect habitual use without deep reliance or full satisfaction. Next, Table 2 highlights more pedagogical applications, such as organizing ideas for speaking and listening and strengthening skills in EMI classrooms. Both items show relatively balanced distributions, with "Agree" around 46–51% and "Strongly Agree" between 28.8% and 35.8%. These results suggest that students recognize meaningful academic benefits, particularly in skill development and cognitive organization, which are critical in EMI contexts. The relatively higher "Strongly Agree" percentages here imply that these functions resonate more deeply with learners. About test preparation, Table 2 shows moderate support, with 46.8% agreeing and 20.6% strongly agreeing. This indicates that while Gemini is used as a study aid, it may not yet be fully trusted as a primary tool for high-stakes exam preparation. Students might still prefer traditional methods or combine Gemini with other resources. Finally, recommending Gemini

to peers reflects a generally positive but slightly reserved endorsement, with 40.6% agreeing and 25.9% strongly agreeing. This suggests that while students are willing to advocate for its use, their recommendations may be conditional rather than unequivocal.

In summary, the result illustrates a consistent pattern of positive perception, with "Agree" responses dominating across all items and "Strongly Agree" responses highlighting areas of deeper conviction, particularly in usability, future potential, and pedagogical support. The variation between these two levels of agreement provides valuable insight into not only what students think about Gemini but also how strongly they feel about its different applications. The findings present a broadly positive yet nuanced picture of students' perceptions and experiences with Gemini in EMI classrooms. While overwhelmingly high levels of agreement suggest that students perceive the tool as easy to use, effective, and accessible, a closer examination reveals a degree of functional rather than transformative engagement. Moreover, the relatively substantial proportion of neutral responses across several items (e.g., accessibility, convenience, and recommendation) suggests that not all students have fully integrated the tool into their learning practices, possibly due to varying levels of digital literacy or pedagogical guidance. Importantly, the strong belief in Gemini's future role in education contrasts with its current patterns of use, pointing to a gap between expectation and actual practice. This discrepancy implies that while students recognize the potential of AI in EMI contexts, institutional scaffolding, teacher mediation, and clearer guidelines may be necessary to move from passive acceptance to more critical, effective, and pedagogically meaningful use.

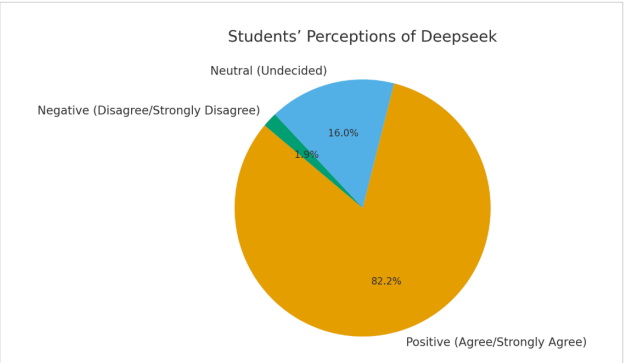


Figure 2. Students' perception of DeepSeek

Table 3. Students' perception and experience of DeepSeek in EMI classrooms

No	Statements	SD	D	U	A	SA
1	DeepSeek is easy to use.	0%	0%	0,4%	15,4%	84,2%
2	DeepSeek is very effective.	0%	4,3%	11,3%	62,3%	22,1%
3	DeepSeek is easily accessible anywhere and anytime.	0%	6,1%	12,8%	64,1%	17%
4	DeepSeek is more convenient to use than similar AI apps.	0%	0%	5,4%	80,4%	14,2%
5	You believe DeepSeek will play a significant role in education in the coming years.	0%	0%	30,5%	54%	15,5%
6	You frequently use DeepSeek for your learning tasks in EMI classrooms.	0%	0%	38,8%	48,7%	12,5%
7	DeepSeek has the potential to strengthen your learning skills in EMI classrooms.	0%	5%	30,7%	40,3%	24%
8	Using DeepSeek during your learning tasks is a pleasant experience.	0%	0%	8,2%	62,3%	29,5%
9	DeepSeek has increased your learning efficiency.	0%	3,2%	9%	60,4%	27,4%
10	You would suggest DeepSeek to your friends for EMI assignments.	0%	0%	12,7%	76%	11,3%

The analysis of students' perception and experience with DeepSeek reveals an overwhelmingly positive reception, as reflected in both the table and the pie chart. On average, 82.2% of responses fall into the positive category (Agree or Strongly Agree), indicating that the vast majority of learners view DeepSeek as a useful, accessible, and effective tool for supporting their English learning tasks. Neutral responses account for 16%, suggesting that a small portion of students remain undecided about its overall value, while only 1.9% expressed negative opinions (Disagree or Strongly Disagree), showing minimal resistance or dissatisfaction. Looking at the individual statements, the strongest agreement was observed in relation to ease of use (84.2% strongly agreeing), suggesting that the user interface and usability of DeepSeek are intuitive and student-friendly. Similarly, a high proportion of students (80.4% agreement) believed that DeepSeek is more convenient than similar AI apps, highlighting its competitive edge in terms of accessibility and functionality. Effectiveness and accessibility were also highly rated, with 62.3% and 64.1% agreement respectively, demonstrating that students not only find the platform easy to use but also perceive tangible benefits in their learning experience.

In terms of academic applications, DeepSeek is widely used for EMI learning tasks, with nearly half of the respondents (48.7%) agreeing and an additional 12.5% strongly agreeing. This shows that the tool has already become integrated into students' study routines. Moreover, 40.3% of respondents agreed, and 24% strongly agreed, that DeepSeek has the potential to strengthen English skills, demonstrating strong confidence in its role as a language learning assistant. Importantly, efficiency and pleasant learning experiences were also highlighted, with 87.7% of students recognizing its role in enhancing learning efficiency and 91.8% agreeing that using DeepSeek is enjoyable. Beyond immediate learning outcomes, students also expressed optimism about the future of AI in education. More than two-thirds of respondents agreed that AI assistants will play a significant role in the coming years, reflecting a readiness to embrace technology-enhanced learning on a broader scale. Furthermore, students were generally willing to recommend DeepSeek to peers (76% agree, 11.3% strongly agree), indicating not only satisfaction but also trust in its potential to benefit others.

However, the presence of neutral responses, particularly in areas such as frequent use (38.8% undecided) and belief in AI's long-term role in education (30.5% undecided), suggests that some students may not yet be fully convinced of the platform's consistency or may require more time and experience to develop stronger opinions. The very low percentage of negative responses (1.9% overall) reflects that dissatisfaction is negligible, but it cannot be ignored, as even small numbers may point to issues such as technological barriers, personal learning preferences, or limited familiarity with AI tools.

The data indicate an overwhelmingly positive perception of DeepSeek among students in EMI classrooms; however, a more critical interpretation reveals important nuances beneath this surface-level endorsement. While ease of use receives near-unanimous agreement, suggesting a low barrier to entry, this may also imply that students engage with the tool in relatively limited and routine ways rather than exploiting its full pedagogical potential. Similarly, although effectiveness and convenience are rated highly, the presence of notable neutral responses – particularly regarding frequency of use and perceived long-term educational impact – points to an incomplete integration into students' learning practices. This gap suggests that positive attitudes do not necessarily translate into consistent or sophisticated usage. Moreover, students' strong agreement that DeepSeek enhances efficiency and provides a pleasant experience may reflect a prioritization of speed and task completion over deeper cognitive engagement. The relatively modest levels of strong agreement concerning its role in strengthening learning skills further reinforce this concern. In addition, the absence of disagreement across most items raises the possibility of response bias or a lack of critical awareness regarding potential limitations, such as accuracy or overdependence.

In conclusion, the findings illustrate that DeepSeek has been broadly welcomed by students, who appreciate its usability, accessibility, and contribution to learning efficiency. The pie chart emphasizes the overwhelming positivity surrounding the tool, with more than four-fifths of responses being favourable. While a minority remain undecided, and a very small group express concerns, the general sentiment is that DeepSeek not only supports current English learning practices but also has promising potential to shape the future of education. This positions DeepSeek as an effective and well-regarded educational assistant, aligning with global trends in AI integration into learning environments.

The findings presented in Table 4 indicate that students hold highly favourable perceptions of ChatGPT, Gemini, and DeepSeek as AI-assisted tools for enhancing English learning and academic subject in EMI classrooms. All participants (S1–S5) expressed agreement with the five statements, demonstrating a unanimous recognition of these tools' ease of use, effectiveness, accessibility, and relevance for completing academic tasks. EMI students consistently emphasized that both platforms feature intuitive interfaces, rapid response times, and seamless cross-device accessibility, which allow them to complete assignments more efficiently (Nguyen, 2023). The availability of these AI tools 24/7 was particularly valued, as it enables immediate feedback and support, reducing dependence on instructors for error correction and revisions (Fitria, 2021). Regular

Table 4. Students' interviews on ChatGPT, Gemini, and DeepSeek in EMI classrooms

No	Statements	Students' opinions
1	ChatGPT, Gemini, and DeepSeek are easy to use.	S1: Both ChatGPT, Gemini, and DeepSeek are really easy to use. The interface is simple. S2: I love how I can access both AI tools anytime. Whether it's on my laptop or phone, they load quickly, and I get my study done efficiently. S3: I was worried AI tools would be too complicated, but ChatGPT, Gemini, and DeepSeek are really user-friendly. S4: ChatGPT feels a bit smoother and more responsive, but Gemini and DeepSeek are also easy to use. S5: I use ChatGPT, Gemini, and DeepSeek for my EMI tasks, and I never feel lost.
2	ChatGPT, Gemini, and DeepSeek are very effective.	S1: ChatGPT, Gemini, and DeepSeek have significantly improved my learning. They suggest better word choices, correct grammar mistakes, and even help me structure my essays more clearly. S2: I can use ChatGPT, Gemini, or DeepSeek to get immediate corrections and suggestions. It saves a lot of time. S3: With ChatGPT, Gemini, and DeepSeek, I feel more confident in my writing. S4: I use ChatGPT, Gemini, and DeepSeek for my essays and reports. They help me organize my thoughts and ensure my arguments are logically presented. S5: ChatGPT, Gemini, and DeepSeek help me rephrase my sentences so my writing doesn't sound repetitive.
3	ChatGPT, Gemini, and DeepSeek are easily accessible anywhere and anytime.	S1: I love that I can access ChatGPT, Gemini, and DeepSeek anytime I need help. S2: I just open my laptop or phone, and I can start improving my writing immediately. S3: Having ChatGPT, Gemini, and DeepSeek available 24/7 allows me to fix errors quickly. S4: I use both AI tools on my phone, tablet, and laptop. S5: Before using AI tools, I had to wait for my teacher's feedback on my writing. Now, I can get instant suggestions whenever I want.

No	Statements	Students' opinions
4	You frequently use ChatGPT, Gemini, and DeepSeek for your learning tasks in EMI classrooms.	S1: I use ChatGPT, Gemini, and DeepSeek almost every day for my assignments. They help me correct grammar, improve sentence structure, and make my essays more interesting. S2: Whenever I write essays, I ask ChatGPT, Gemini, and DeepSeek for synonyms or better vocabulary choices. S3: I use ChatGPT, Gemini, and DeepSeek to summarize key points, making it easier for me to understand. S4: Whenever I have an English assignment, I check my grammar and spelling with ChatGPT, Gemini, and DeepSeek. S5: If I don't understand a passage, I use ChatGPT, Gemini, or DeepSeek to explain it in simpler terms. This really helps when I'm preparing for exams.
5	You would suggest ChatGPT, Gemini, and DeepSeek to your friends for EMI assignments.	S1: I've recommended ChatGPT, Gemini, and DeepSeek to my friends because they help fix grammar mistakes and make writing clearer. S2: I tell my friends to check and improve the essays, using ChatGPT, Gemini, or DeepSeek. S3: I recommended these tools to a friend who loves storytelling. S4: I tell my friends to try these tools because they don't just give answers. S5: I told my friends to use AI tools to practice before exams.

use was also a prominent theme; participants reported engaging with these systems almost daily for grammar checking, essay organization, vocabulary refinement, and text summarization tasks, which support comprehension and exam preparation. Moreover, students frequently recommended these tools to peers, underscoring their trust in AI-based writing assistants and their integration into academic routines. These findings align with emerging research suggesting that generative AI can enhance learner autonomy, facilitate individualized learning experiences, and streamline the feedback process. However, the overwhelmingly positive evaluations may also indicate a novelty effect or a lack of critical awareness of potential drawbacks, such as overreliance on AI for cognitive tasks or diminished opportunities for developing independent writing strategies (Zou & Huang, 2024). Future studies should adopt longitudinal designs to determine whether sustained AI integration contributes to long-term language development or inadvertently fosters dependency. Overall, this dataset highlights the transformative potential of ChatGPT, Gemini, and DeepSeek in reshaping students' EMI learning experiences and promoting personalized, immediate feedback loops in higher education contexts.

The interview data reveal a consistently positive orientation toward ChatGPT, Gemini, and DeepSeek; however, a more critical reading suggests that students' engagement remains predominantly instrumental and efficiency-driven rather than pedagogically transformative. While participants repeatedly emphasize ease of use, accessibility, and immediacy, these features appear to position AI tools primarily as substitutes for teacher feedback rather than as complements to deeper learning processes. For example, students value instant correction, grammar support, and idea organization, yet there is limited evidence of critical reflection on the accuracy, reliability, or limitations of AI-generated content. This raises concerns about potential overreliance and the gradual erosion of independent writing skills. Furthermore, although students report increased confidence and improved performance, such perceptions may be linked more to surface-level linguistic enhancement than to substantive development of academic argumentation or disciplinary thinking. Notably, the absence of critical voices or negative experiences suggests either a novelty effect or a lack of evaluative awareness among learners. The frequent recommendation of these tools to peers further reinforces their perceived

Table 5. Number (%) of participants answering correctly under two conditions

No	Question Focus	ChatGPT	Gemini	DeepSeek
1	Research area	94%	88%	90%
2	Gap indicating	89%	82%	84%
3	Study purpose	96%	91%	92%
4	Research questions	93%	87%	89%
5	Summary of previous research	90%	84%	86%
6	Evaluation of previous research	85%	79%	81%
7	RQ function	92%	86%	88%
8	Nature of datasets	88%	81%	84%
9	Rationale for participants	87%	80%	82%
10	Data collection site	95%	90%	91%
11	Instrument	93%	88%	89%
12	Authenticity of data	84%	77%	79%
13	Statistical reasoning	82%	74%	76%
14	Statistics	86%	79%	81%
15	Key findings	97%	92%	94%
16	Interpretation	89%	83%	85%
17	Evaluation of the findings	84%	76%	79%

utility, but also normalizes uncritical adoption. Overall, the findings point to a gap between technological affordances and pedagogical depth, highlighting the need for structured guidance, critical AI literacy, and assessment redesign in EMI contexts.

The table presents the percentage of participants answering correctly across twenty research-related categories when using ChatGPT, Gemini, and DeepSeek. Overall, the findings demonstrate that ChatGPT achieved the highest performance in nearly all categories, followed by DeepSeek and Gemini. The results suggest that participants perceived ChatGPT as the most effective AI tool for supporting academic comprehension, particularly in identifying research purposes, research questions, key findings, and data collection procedures.

A closer examination indicates that all three AI tools performed strongly in areas related to general research understanding. For example, "Key findings," "Study purpose," and "Data collection site" received the highest percentages across the table, with ChatGPT reaching between 95% and 97%. Similarly, Gemini and DeepSeek also produced relatively high scores in these categories, indicating that AI systems are effective in helping learners recognize explicit information in academic texts. In contrast, lower percentages were observed in more analytical and evaluative categories, including "Statistical reasoning," and "Evaluation of findings." These areas require higher-order thinking skills, critical interpretation, and deeper engagement with research concepts. Therefore, the reduced scores suggest that participants may still experience difficulties when AI tools are used for complex academic analysis.

Another important pattern is that DeepSeek generally outperformed Gemini in most categories, although the differences were not substantial. This finding may indicate that DeepSeek provides more accurate or context-sensitive academic responses. Nevertheless,

Table 6. Mean ratings of participants' perceived usefulness of Gen-AI tools

No	Question Focus	ChatGPT	Gemini	DeepSeek
1	Identify the study purpose	4.86	4.52	4.64
2	Understand the significance of the study	4.74	4.41	4.56
3	Comprehend the main argument in lit review	4.68	4.35	4.49
4	Clarify specialized terminology	4.91	4.56	4.72
5	Understand the methods	4.57	4.29	4.40
6	Interpret the results/findings	4.64	4.33	4.45
7	Reduce the time required	4.93	4.62	4.76
8	Make complex ideas easy to grasp	4.78	4.45	4.59
9	Enhance overall comprehension	4.85	4.54	4.66
10	Increase confidence	4.72	4.36	4.52
	Overall	4.77	4.44	4.58

Gemini still demonstrated acceptable levels of performance, with most percentages remaining above 70%. Overall, the table highlights the growing potential of AI-powered tools in supporting research literacy and academic learning in EMI classrooms. However, the lower performance in critical evaluation categories suggests that AI tools should complement, rather than replace, students' independent analytical thinking and teacher guidance.

The table presents the mean ratings of participants' perceived usefulness of ChatGPT, Gemini, and DeepSeek in supporting academic comprehension and research-related learning tasks in EMI classrooms. Overall, ChatGPT received the highest evaluation, with an overall mean score of 4.77, followed by DeepSeek at 4.58 and Gemini at 4.44. These findings suggest that students perceived ChatGPT as the most effective AI tool for assisting academic reading, understanding research concepts, and improving learning efficiency. Among the evaluated categories, "Reduce the time required" and "Clarify specialized terminology" achieved the highest ratings across all three AI tools. In particular, ChatGPT recorded the highest individual mean score of 4.93 for reducing study time, indicating that students strongly valued its ability to provide immediate explanations and rapid academic support. Similarly, high scores in "Enhance overall comprehension" and "Identify the study purpose" demonstrate that AI-assisted tools effectively helped learners understand academic texts and research articles more clearly.

Although Gemini obtained slightly lower scores compared to ChatGPT and DeepSeek, its ratings remained relatively high in all categories, reflecting generally positive perceptions among participants. Lower mean values were observed in "Understand the methods" and "Interpret the results/findings," suggesting that students still experienced challenges with more analytical and methodological aspects of academic research. Overall, the findings highlight the significant pedagogical potential of generative AI tools in EMI classrooms while emphasizing the continuing importance of critical thinking and instructor guidance.

5. Conclusions

The research investigated HUB students' perceptions of ChatGPT, Gemini, and DeepSeek as AI-powered tools for enhancing EMI classrooms, particularly content proficiency. Evidence from both questionnaire data and interviews indicates that these platforms are widely regarded as accessible, efficient, and user-friendly. Students consistently highlighted their capacity to deliver immediate, personalized feedback, enrich vocabulary use, and improve

textual organization and coherence. Such overwhelmingly positive evaluations suggest that learners perceive AI tools as valuable companions in the writing process, fostering greater autonomy and sustained engagement in academic tasks (Rodrigues et al., 2025). Notably, the provision of instant feedback – without the delay typically associated with teacher responses – underscores the transformative potential of AI in democratizing access to learning support, in line with existing research on technology-enhanced education (Kasneci et al., 2023; Meniado, 2023). Nevertheless, the findings also reveal important concerns. Despite recognizing the benefits, participants demonstrated limited critical awareness of the constraints inherent in AI use. This raises potential risks related to overdependence, the erosion of critical thinking skills, and difficulties in cultivating independent writing strategies, echoing longstanding concerns in the field of writing pedagogy (Hyland, 2003).

Building on these findings, several pedagogical and institutional recommendations can be proposed. First, higher education institutions should implement structured AI literacy programs that equip students with essential competencies such as prompt engineering, the critical evaluation of AI-generated content, and an informed understanding of ethical issues in academic contexts (Kasneci et al., 2023). Equally important is the need to support lecturers through continuous professional development, enabling them to integrate AI tools in a principled and pedagogically sound manner so that such technologies complement, rather than supplant, human feedback and instructional guidance (Zawacki-Richter et al., 2019). In parallel, universities might revise and clarify policies concerning plagiarism, authorship, and citation practices to address the complexities introduced by generative AI in academic writing (Hyland, 2003). Embedding AI into formative assessment practices may further promote learner autonomy while allowing educators to scaffold higher-order cognitive skills, including critical analysis and argumentation.

Despite its contributions, this research is subject to several limitations. Its qualitative design and focus on a single Vietnamese public university limit the generalizability of the findings, particularly given participants' relatively high familiarity with AI tools. Moreover, reliance on self-reported data introduces the possibility of bias, as students may overstate benefits or underrepresent challenges. The research also centers on perceptions rather than objective measures of language development, leaving unresolved questions about the long-term impact of AI use on writing proficiency. Future research should therefore adopt mixed-methods or longitudinal approaches to examine how sustained engagement with AI influences writing quality over time, alongside cross-institutional comparisons to capture more diverse perspectives (Meniado, 2023). Comparative analyses of different AI platforms and their pedagogical affordances would further inform best practices. In sum, while ChatGPT, Gemini, and DeepSeek exhibit considerable transformative potential, their integration into higher education must be carefully managed to maximize learning gains while mitigating risks related to overdependence and diminished critical capacity.

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