

**APPLYING DEEPSEEK AS A TOOL TO SUPPORT SPEAKING SKILLS
DEVELOPMENT FOR ENGLISH LANGUAGE MAJORS AT HANOI
METROPOLITAN UNIVERSITY**

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ARTICLE INFO	ABSTRACT
<i>Received:</i> 06/01/2026	This study investigates the effectiveness of DeepSeek, a large language model, as an intelligent tutoring system to enhance speaking skills among English Language majors at Hanoi Metropolitan University. Addressing persistent challenges in oral proficiency development — particularly limited personalised practice opportunities and immediate feedback in traditional classroom settings — the research employs a mixed-methods approach combining quasi-experimental design with qualitative data collection. Eight second-year students were divided into experimental and control groups for an eight-week intervention. The experimental group engaged in structured speaking practice with DeepSeek, using its interactive dialogue, pronunciation analysis, and impromptu topic simulation features. To measure progress in fluency, accuracy, pronunciation, and coherence, pre-tests and post-tests were given. These tests used standardized IELTS Speaking rubrics. Supplementary qualitative data, derived from semi-structured interviews and learner journals, offered perspectives on students' perceptions, motivation, and encountered difficulties. The findings indicate that the experimental group demonstrated statistically significant enhancements in overall speaking competence, with an average score increase of 13.1%, in contrast to the control group's 4.5% improvement. Qualitative data highlighted DeepSeek's role as a low-stress learning environment, which encouraged learner independence and provided readily available feedback. Consequently, the research suggests that incorporating DeepSeek as an additional resource can significantly improve formal instruction and accelerate the acquisition of speaking proficiency among English Language majors.
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<i>Learner Autonomy.</i>	

1. INTRODUCTION

English as a medium of academic and professional communication has gained prominence alongside increasing globalisation, raising demand for internationally recognised

language qualifications such as IELTS. For students majoring in English Language at Vietnamese universities, developing good speaking skills is a crucial requirement. However, classroom practices in Vietnam often reveal a persistent problem: despite a lot of time spent on practice, many students, including those studying English Language at Hanoi Metropolitan University (HMU), still struggle to speak English fluently and confidently.

Common difficulties include communication anxiety, imprecise pronunciation, slow oral reflexes, and a lack of regular practice opportunities with immediate feedback. Traditional teaching methods often prioritize grammar and vocabulary, which can overshadow the communicative fluency, naturalness, and quick thinking skills that are important in IELTS speaking tests (Tu & Du, 2024).

DeepSeek and similar large language models (LLMs) offer a potentially valuable solution to these challenges. These models support ongoing, interactive conversations, which furnish learners with immediate feedback on elements like pronunciation, intonation, and expression, thus fostering practice within a customized, low-pressure environment. Nevertheless, there exists a paucity of research that methodically assesses the efficacy of DeepSeek in enhancing speaking proficiency, especially within academic environments and specifically for IELTS preparation in Vietnam.

This study evaluates how well DeepSeek, a supplementary tool, helps improve the speaking skills of English Language undergraduates at Hanoi Metropolitan University. The research is based on three main questions:

- (1) How can DeepSeek be improved to better support the development of students' English speaking skills?
- (2) What are the main speaking difficulties students face and how do they use other AI tools to help them?
- (3) What are the advantages and limitations of DeepSeek compared to other AI tools commonly used for foreign language speaking practice?

The findings aim to provide empirical evidence, propose a suitable integration model, and contribute to the renewal of language teaching and learning practice in Vietnam.

2. RELATED WORKS

2.1. International Research Overview

The incorporation of artificial intelligence (AI) into language instruction and acquisition has emerged as a prominent area of scholarly inquiry, especially concerning the enhancement of communicative proficiency in English (Gutiérrez, 2023). Studies suggest that AI can facilitate personalized, interactive learning environments and assist in overcoming both psychological and technical obstacles encountered during speaking exercises (Madhavi et al., 2023). AI-driven speech recognition technology (AI-SRT) is a highly researched application within this area.

Dennis (2024) illustrates that AI-SRT systems employ machine learning algorithms to evaluate and furnish immediate feedback on pronunciation, intonation, and fluency, thereby yielding significant advancements in the speaking performance of EFL learners. Madhavi et al.

(2023) report that students using AI and ICT tools outperform those following conventional instruction on speaking assessments. Research also suggests AI can help learners manage affective barriers such as anxiety and low confidence.

The scope of their investigation was expanded to encompass social interaction Zou et al. (2023). The study's findings indicated that using social media interactions in AI-assisted language learning platforms could potentially improve speaking skills. These results suggest that providing objective feedback from AI, along with opportunities for social practice, can work together effectively.

2.2. Domestic Research Overview

Recent Vietnamese research shows a clear trend toward examining the potential of AI and chatbots for improving English language skills. Nguyen et al. (2025), studying students at the National Economics University, reports positive attitudes toward AI-based writing tools including ChatGPT, Grammarly, and Writefull, which showed a substantial influence on students' expression and content organisation. At Hanoi Open University, AI tools were evaluated positively for improving reading comprehension and encouraging active learning habits (Van, 2025).

While there is general agreement about AI's role in English language development, most studies focus on internationally recognised LLMs. ChatGPT has been associated with improvements in speaking (Wang, 2025), Gemini with grammar consolidation (Din et al., 2025), ELSA Speak with pronunciation accuracy (Permatasari & Lubis, 2024), and Talkpal.AI with fluency and intelligibility (Hidayatullah, 2024).

2.3. Research Gap

Although many studies have evaluated how learners perceive and use widely used AI tools, a notable gap remains. Specifically, no research has examined DeepSeek as a tool for improving speaking skills, either internationally or within the country. In Vietnam, this discrepancy is particularly evident. Existing scholarship predominantly examines learner perspectives on artificial intelligence in a broad sense, and there is a paucity of academic investigation into DeepSeek's application within English language instruction. This research endeavors to fill this void, offering both a theoretical framework and empirical support for a learning model that incorporates DeepSeek.

3. PROPOSED METHODOLOGY

3.1. Research Design

This investigation employs a mixed-methods approach, specifically a sequential explanatory design, which integrates quantitative and qualitative methodologies to thoroughly assess DeepSeek's efficacy in fostering English speaking proficiency. This particular design was chosen due to its ability to furnish both statistical data and a more profound understanding of the learner's perspective (Creswell & Clark, 2017).

3.2. Participants

The study was conducted at Hanoi Metropolitan University from June to December 2025. Participants were English Language majors from the first to the fourth year. The quantitative phase surveyed 113 students, of whom 97 (85.8%) were enrolled at HMU. The experimental comparison involved 8 second-year students at B1 level or above, divided equally into an experimental group (using DeepSeek) and a control group (using conventional methods).

3.3. Data Collection Instruments

Three main instruments were used to collect data in the research. An online survey was created, using the Theory of Planned Behavior (Ajzen, 1991) and the Technology Acceptance Model (Davis, 1989) as its theoretical basis. The survey used established scales to assess attitudes, subjective norms, perceived behavioral control, and the perceived usefulness and ease of use of DeepSeek. In addition, the survey collected data on students' current speaking abilities, the challenges they faced, and their self-confidence. Following this, speaking evaluations, administered both before and after the intervention, were designed using the IELTS Speaking assessment criteria. These criteria encompass four primary dimensions: Fluency and Coherence, Lexical Resource, Grammatical Range and Accuracy, and Pronunciation. To ensure the assessments' reliability, they were administered by instructors who held IELTS examiner certification. Following this, we conducted semi-structured interviews with ten students. The goal was to gather detailed qualitative data about their experiences, perceptions, and suggestions for improving DeepSeek. Interview questions focused on impressions of the learning method, areas of greatest progress, difficulties encountered, and recommendations for refinement.

3.4. Experimental Procedure

The intervention lasted 8 weeks with a clearly structured protocol.

Week 1 - Preparation and pre-test. The students began the study by signing participation agreements. Next, they took the pre-test speaking assessment. Finally, they were given instructional materials tailored to their specific groups.

Weeks 2 through 7 constituted the intervention phase. The experimental group, consisting of four students, participated in DeepSeek for four weekly sessions, each lasting between 30 and 45 minutes. During these sessions, they completed exercises that included pronunciation drills, discussions centered on specific topics, grammatical error correction, and simulations of IELTS question responses. Conversely, the control group, which also included four students, employed traditional pedagogical approaches. These included TED Talks, self-recorded speaking exercises, peer practice facilitated through Zoom, and vocabulary acquisition via flashcards, all at a similar frequency.

Week 8 - Wrap-up and evaluation. After the speaking assessment, students participated in individual interviews. They also completed a satisfaction survey and provided feedback on potential improvements.

3.5. Data Analysis

Quantitative data were analyzed using SPSS 26.0, incorporating descriptive statistics such as frequencies, percentages, means, and standard deviations, in addition to paired-sample t-tests to evaluate the disparities in pre- and post-test scores between the two participant groups.

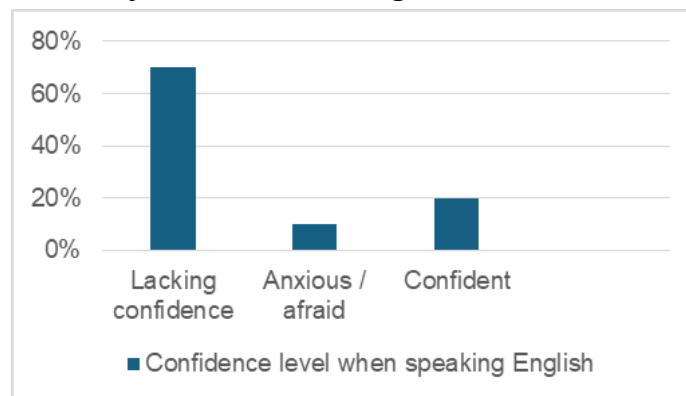
Simultaneously, the qualitative data obtained from the interviews underwent thematic coding, a methodology intended to identify recurring patterns and salient themes relevant to the learners' experiences. The qualitative findings were then compared with the quantitative data to provide a more complete understanding.

4. RESEARCH RESULTS

4.1. Current Status of Students' Speaking Skills

The survey data, derived from 113 students, reveals significant trends concerning English speaking proficiency at HMU. A mere 34.8% of the student cohort (39 out of 112) possessed international language certifications, including IELTS, TOEIC, VSTEP, or TOEFL; conversely, 65.2% (73 out of 112) did not. This finding suggests that a relatively small percentage of students are achieving the anticipated language exit benchmarks.

Table 1.1. Self-reported confidence levels in English communication among HMU students



Regarding confidence in oral English, 70% of students reported feeling unconfident. In addition, 10% expressed anxiety or fear about speaking in front of others, while only 20% considered themselves confident communicators. The primary challenges encountered encompassed restricted vocabulary, the most frequently reported impediment, alongside grammatical inaccuracies, indistinct pronunciation, and difficulties in idea generation stemming from a lack of English-language cognitive frameworks. Furthermore, students cited a lack of fluency, attributable to both apprehension regarding errors and insufficient practical application in authentic contexts. To enhance their speaking proficiency, students employed a variety of strategies: practicing in front of a mirror, collaborating with tutors or peers, participating in pronunciation courses, broadening their topic-specific vocabulary, viewing instructional content on platforms like YouTube, TikTok, and Coursera, and utilizing AI applications such as ChatGPT, Gemini, or ELSA. However, only a small number of students reported using these tools effectively.

4.2. AI Use Patterns in English Learning

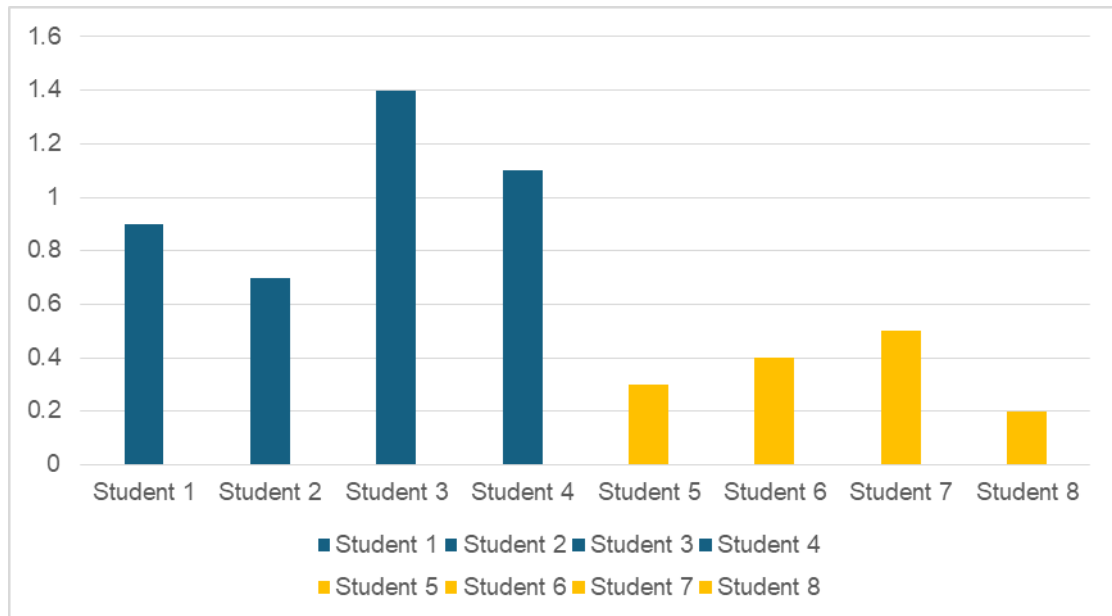
Survey data reveal a significant prevalence of AI tools among students; specifically, 80% reported consistent utilization of ChatGPT and Gemini for the purpose of generating ideas pertinent to speaking assignments or for the practice of oral language skills. 18% were familiar with and used applications such as ELSA Speak, QuillBot, and other English learning chatbots.

Only 2% of students selected DeepSeek as their preferred tool for speaking practice, indicating that DeepSeek remains largely unknown among this student population.

4.3. Experimental Results

4.3.1. Comparison of Progress Between Groups

Table 1.2. Score gains from pre-test to post-test for Group A — student 1 to student 4 (DeepSeek) and Group B - student 5 - student 8 (conventional) — scored on a 10-point scale

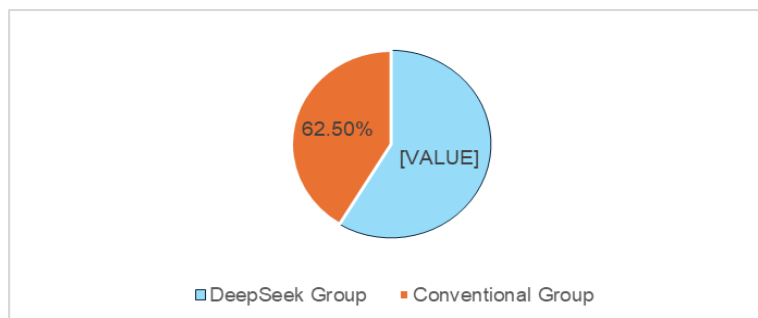


Pre- and post-test results show a clear difference between the experimental and control groups. The DeepSeek group (Group A) achieved a mean score gain of 1.025 points (equivalent to 13.1%), considerably higher than the conventional group (Group B) at 0.35 points (equivalent to 4.5%).

In Group A: Student 1 gained 0.9 points (10.5%), Student 2 gained 0.7 points (8.3%), Student 3 gained 1.4 points (18.9%), and Student 4 gained 1.1 points (14.6%). In Group B: Student 5 gained 0.3 points (3.8%), Student 6 gained 0.4 points (5.3%), Student 7 gained 0.5 points (6.5%), and Student 8 gained 0.2 points (2.4%).

4.3.2. Satisfaction Levels

Table 1.3. Student satisfaction with the two learning methods



The DeepSeek group reported substantially higher satisfaction, with a mean satisfaction rate of 88.75% (ranging from 85–92%), compared to the conventional group at 62.5% (ranging

from 55–70%). All students in Group A expressed a desire to continue using DeepSeek (although some requested adjustments), while Group B was more divided, with 2 out of 4 students not wishing to continue with their current method.

4.4. Qualitative Interview Results

4.4.1. DeepSeek Group

Interview analysis shows that Group A students expressed strongly positive views, describing DeepSeek as an "intelligent virtual tutor," "advisory roadmap provider," or "organised resource repository." Students emphasised its personalised and systematic nature: "It is like having a teacher who draws the path for you — you just walk it, rather than finding your way in the dark." Key strengths identified included: clear, personalised learning pathways; provision of high-band academic vocabulary and structures; detailed diagnostic error analysis; systematic guidance for self-analysing recordings; and unrestricted 24/7 availability.

The main difficulty reported was the absence of real-time audio feedback and human interaction: "I do not know whether my intonation is correct. The AI only gives theoretical guidance — it cannot actually hear me." Students also noted that the method demands high self-discipline and effective prompt-design skills.

Students offered several ideas for enhancements. They proposed incorporating audio uploads to facilitate initial AI analysis. They also suggested adding social features to encourage peer learning and the sharing of successful prompts. They also suggested building an automated dashboard to track progress. Finally, they requested a library of sample prompts to assist new users.

4.4.2. Conventional Methods Group

Group B students expressed neutral to mildly positive views, describing their method as "self-reliant," "familiar," but "vague." They valued its flexibility: "I can watch entertainment videos and study at the same time, without being constrained." However, they reported a lack of direction: "After studying, I do not know whether I have improved or remained at the same level."

The most prominent difficulty for Group B was the absence of expert feedback and structural guidance: "My study partner and I are both non-experts. We may both be making the same mistake without realising it." Maintaining motivation and knowing where to begin also emerged as challenges: "The hardest part is keeping motivated and not knowing where to start. There is a large amount of material online, and it is difficult to know which is suitable."

Suggestions from Group B included: combining practice with pronunciation scoring apps such as ELSA Speak, finding a community or mentor with a shared learning pathway, and adopting a more systematic self-evaluation approach using simple rubrics.

4.5. Discussion

4.5.1. DeepSeek's Effectiveness in Improving Speaking Proficiency

The results indicate that DeepSeek is more effective than conventional methods in improving English speaking skills in this specific group. The difference in progress between the two groups, 13.1% compared to 4.5%, is statistically and educationally significant. This finding

is consistent with Madhavi et al.'s (2023) investigation into AI tools and their impact on speaking enhancement, while also providing empirical support for DeepSeek's effectiveness within a Vietnamese setting. Three mechanisms may explain DeepSeek's effectiveness. First, it provides structured and personalised practice, in line with principles of adaptive learning (Gevorgyan, 2024). Students received a clear pathway, level-appropriate exercises, and immediate feedback that allowed them to adjust and improve continuously. Second, DeepSeek creates a safe practice environment that tends to reduce speaking anxiety, a common affective barrier in foreign language learning (Godwin-Jones, 2022; Derakhshan, 2023). Students felt comfortable experimenting, making errors, and self-correcting without the risk of social judgment. Third, its capacity for detailed error analysis and diagnostic explanation helps students identify specific weaknesses and strategies for improvement, supporting metacognitive awareness, an important factor in language development (Benson, 2013).

4.5.2. DeepSeek's Contribution to Fostering Learner Autonomy

Qualitative data suggest that DeepSeek significantly contributes to the cultivation of learner autonomy. According to Self-Determination Theory (Deci & Ryan, 1985), using DeepSeek seems to satisfy three basic psychological needs: autonomy, competence, and relatedness. Student autonomy is cultivated through the provision of subject selection, self-paced learning, and individualized scheduling. Competence is enhanced by the availability of readily accessible indicators of progress, including immediate feedback and the ability to track advancement over time. While AI interaction cannot entirely replace human communication, it does facilitate a sense of collaborative practice, thus alleviating the isolation often associated with independent study. This has practical relevance for higher education, where the capacity for self-directed, lifelong learning is increasingly important. DeepSeek could prove useful beyond immediate assistance; it might also help cultivate long-lasting autonomous learning habits and strategies.

4.5.3. Constraints of DeepSeek and the Imperative for an Integrated Methodology

A significant constraint inherent in this investigation is DeepSeek's incapacity to directly process audio data. Consequently, it is unable to evaluate a learner's authentic pronunciation or intonation patterns derived from spoken language. This particular limitation corroborates Kramsch's (2014) assertion regarding the inherent challenges faced by AI tools in achieving precise evaluations of specific communicative elements.

Interview data from both groups reinforce this finding. Students in neither group considered their method fully adequate on its own. They proposed combining AI use — for building foundations, structuring a learning pathway, and accessing resources — with real interactive speaking practice and dedicated pronunciation applications. The observed agreement across different groups proposes that this limitation has real-world importance, not just a theoretical one. This finding also aligns with current views on blended learning in language teaching, as shown by Wang et al. (2025).

4.5.4. Implications for Teaching Practice

The study offers several practical suggestions for English speaking instruction in Vietnam. DeepSeek may be integrated as a supplementary tool within language programmes, particularly for out-of-class practice and preparation for standardised tests such as IELTS. Instructors need guidance on how to help students use AI tools effectively, including prompt design skills and self-assessment strategies. Institutions may benefit from building a digital learning ecosystem that combines AI tools with conventional approaches, creating a more varied and responsive learning environment.

5. CONCLUSION AND FUTURE DEVELOPMENT

5.1. Conclusions

The results suggest that employing DeepSeek as a structured self-study instrument yields superior outcomes in English speaking proficiency for English Language majors relative to conventional approaches. The experimental group showed a 13.1% improvement in their average score, which was about three times greater than the control group's 4.5% increase. In addition, the experimental group reported significantly higher satisfaction levels, with 88.75% expressing satisfaction compared to 62.5% in the control group. The primary conclusions are as follows. Initially, DeepSeek demonstrates efficacy in delivering a personalized, lucid, and organized learning trajectory, thereby fostering increased student confidence in self-directed study. Secondly, the tool cultivates a secure practice environment, which typically mitigates speaking anxiety and encourages learner autonomy by fulfilling the fundamental psychological needs of autonomy, competence, and relatedness. Thirdly, its ability to provide detailed error analysis and immediate feedback facilitates students' identification of weaknesses and their subsequent remediation. A significant limitation of DeepSeek is its lack of direct audio analysis, which requires it to work with specialized pronunciation tools and involve real people. These findings suggest that integrating DeepSeek strategically as a supplementary tool in language curricula is a pedagogically sound approach. It supports student autonomy in out-of-class learning and complements formal instruction, which may accelerate speaking skill development for English Language majors.

5.2. Future Study

Besides the limitations, the study's findings suggest several areas for future research. Adding speech recognition to DeepSeek would enhance its capabilities. This would allow for the direct assessment of learners' pronunciation, intonation, and speech rate by analyzing audio recordings. Furthermore, a valuable feature would be an automated progress-tracking dashboard. The proposed dashboard would visually represent progress in IELTS Speaking criteria over time. Pedagogically, the creation of comprehensive instructional resources for educators is essential, encompassing the integration of DeepSeek into pedagogical practices, the design of activities, strategies for student guidance, and methods of assessment. Furthermore, a categorized repository of sample prompts, organized by proficiency level, subject matter, and specific learning objectives, would facilitate more effective student engagement with the tool from the beginning.

In terms of research, future studies could expand the sample size and lengthen the intervention period — for example, to six months or one full academic year — to examine longer-term effects. Comparative investigations assessing DeepSeek's performance relative to other AI applications, including ChatGPT and Gemini, within speaking scenarios would be beneficial. Furthermore, research exploring DeepSeek's effects on additional language competencies — writing, reading, and listening — and the influence of individual factors, such as motivation, learning preferences, and initial proficiency, on the tool's efficacy also merits consideration.

Regarding policy implications, it is advisable that HMU and comparable institutions contemplate integrating DeepSeek into their endorsed learning resources, facilitate training programs for both educators and learners on optimal utilization, and formulate infrastructure support policies to guarantee equitable accessibility. This study contributes to filling the research gap on DeepSeek's application in English speaking development in Vietnam, and points to a systematic and effective approach to AI integration in foreign language teaching. Given the continued development of AI technology, its potential applications in language education are substantial and merit ongoing, rigorous investigation.

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