


Duolingo and Speaking Skills: Bridging the Gap to Personalized Learning for English Majors at Hanoi University of Industry

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ABSTRACT

Keywords: Duolingo, speaking skill, personalized learning, English language teaching

The use of artificial intelligence (AI) in education has experienced a boom among both teachers and learners in recent years, particularly in the field of English teaching and learning. This study explores how Duolingo has the potential to bridge the gap between traditional language instruction and individualized learning experiences - speaking skills in particular - for English-major students at Hanoi University of Industry. Thanks to the functions of these tools, students could receive instant feedback, tailored pronunciation practice, and interactive conversation simulations. The study focuses on the advantages of AI in enhancing fluency, accuracy, and confidence, using a mixed-method approach, including questionnaires and interviews, to evaluate the effectiveness of this AI-powered tool. The application of AI in the development of English language teaching presents promising opportunities and offers suggestions for future prospects in teaching speaking skills.

Introduction

The integration of artificial intelligence (AI) into language education has seen a boom this decade, offering transformative potential for personalized learning and automated assessment (Ulfa, 2023). Among the four core English skills, speaking remains one of the most challenging to master due to the need to practice microskills such as pronunciation, stress, intonation, and appropriate expressions (Yusifli, 2018). While traditional classroom-based language instruction often struggles to provide tailored speaking practice for large groups of learners, AI-powered applications, such as Duolingo, have emerged as accessible platforms that offer interactive, adaptive speaking exercises (Loewen et al., 2020). Although the increasing use of AI in language learning has become a trend, research on its role in improving speaking competence, particularly among English majors in Vietnamese tertiary institutions, remains limited.

The urge to fill in this gap is remarkable, as speaking is considered a foundational skill for academic success and professional development, especially for English majors expected to meet both local and international communication standards (Richards, 2015). Moreover,

understanding the extent to which AI can improve speaking fluency, accuracy, and confidence is important for both language educators and curriculum designers (Warschauer & Liaw, 2019).

This study, therefore, investigates how the Duolingo application can bridge the gap between conventional classroom instruction and personalized learning by offering English-major students at Hanoi University of Industry speaking practice that supports the development of fluency, accuracy, pronunciation, and confidence in speaking. A mixed-methods approach, including questionnaires and interviews, is used to evaluate students' perceptions of the application's effectiveness.

Literature review

English-speaking skills and their importance for university-level students

English is now the number one lingua franca and is used across various industries, including tourism, commerce, and education (Khan et al., 2016). Among the four skills (reading, listening, speaking, and writing), speaking has been cited as one of the most essential skills that every student, especially those at university level and above, should master (Zainal & Yunus, 2021). People who know a language are considered "speakers" of said language, as though speaking encompasses other aspects of that language as well (Khan et al., 2016).

Since globalization, most industries conduct business in English, and the need to help students speak the language fluently is of paramount importance if they want to compete in the global labor market (Paneerselvam et al., 2019). As reported by Zainal et al. (2021), students with better English-speaking skills will gain an edge in the job search over those with problems with their English.

Not only career prospects, but English-speaking skills are also vital for a student's academic success. In various subjects, students are required to deliver an oral presentation, and a good pace with few to no grammatical errors can showcase a high level of English competency (Azlina & Kashinathan, 2021). Furthermore, speaking English fluently can boost students' self-esteem, help them voice their opinions, exchange ideas, and share their thoughts confidently (Zainal et al., 2021).

Challenges faced by ESL learners in learning English speaking skills

Many ESL students, despite learning English for over ten years - from elementary schools to university - still find the subject a challenging one. They excel at grammar tasks, yet when it comes to productive skills - in this case, speaking - they struggle. There are a number of factors contributing to this trend.

First is the fear of making mistakes. Schwarz (2015), as cited in Andriani et al (2024), reported that psychological factors, like shyness, anxiety, and fear of errors, can hinder students' progress and speaking performance. Januariza and Hendriani (2016) revealed that students are hesitant to speak English in classrooms because they either fear making verbal mistakes or being on the receiving end of negative assessment from their peers or their teachers. Sultana and Jamin (2021) added that ESL students perform poorly in speaking because they are not as familiar with the language as native speakers and have few opportunities to practice. When they are anxious about speaking English in front of others, their brains cannot process the language properly (Clark, 2020, as cited in Sultana et al., 2021).

The second reason is mother tongue interference. For ESL students, their environments outside the classroom rarely encourage them to speak English (Ork et al., 2024). With the exception of

during English lessons, students will mainly converse in their first language. Furthermore, even when they practice speaking English, students often translate what they want to convey in their mother tongue into English in their head first, leading to awkward phrasing and expression (Terenin et al., 2020). Zainal (2021) found that university students are more likely to use English incorrectly because they are more familiar with how their native language works, and that students occasionally unconsciously switch back to their mother tongue while attempting to communicate in English. Ban et al (2023) concluded that in the instances where English is not the first or second language, students' environment is one of the leading drivers for their lack of speaking proficiency.

The third reason is the lack of confidence. Gan (2012) mentioned that students struggled with pronouncing certain words and sound clusters. They also made articulation errors, had trouble sticking to one pronunciation style (American or British), and had not perfected their intonation. Ork et al (2024) stated that students would lose confidence when they see their speaking partner does not understand them, or vice versa. In such cases, they would rather remain silent than continue conversing. This is in line with Wahidah's (2016) reasoning, in which one of the problems English learners face is finding it challenging to get their meanings across or understand the conversation

The fourth reason is the lack of motivation. Motivation is a key element in a student's learning process and profoundly influences their academic performance (Dautkalieva & Ormanova, 2020). Thus, it is important to take note of students' possible reluctance to communicate in English, as their level of motivation can indicate how willing they are to speak the language. Khan et al (2021), as cited in Zainal et al (2024), said many learners have a low level of interest in producing grammatically and linguistically accurate utterances. This may stem from various factors, including boredom, uninspired teaching methods, failure to see the immediate relevance of using English in their daily lives, and learning objectives (Nunan, 1999). In other words, students may feel demotivated to engage with the lesson if the instructions are dull.

The fifth reason is the lack of practice. Students rarely have the chance to hear and use English in their everyday life (Krashen, 1985, as cited in Fadhilah et al., 2024). Gan (2012) further supported this in his research, highlighting that many students thought there weren't enough opportunities for all of them to practice speaking in class due to the sheer number of students in one classroom, and that speaking activities mainly involved presentations. In a similar study, Jayanetti (2022) concluded that although not a main factor, the lack of time and opportunities to practice speaking certainly affects their speaking performance. Additionally, as Ork et al (2024) pointed out, the lack of input. such as vocabulary, also relates to the lack of practice. Since students lack the vocabulary to express their opinions, it is difficult for them to speak the language.

Innovative approaches for teaching speaking skills

Acknowledging such difficulties while teaching speaking for EFL learners, educators worldwide have come up with more creative teaching methods, particularly incorporating technology into conventional classrooms. The use of information technology (IT) in education has long been common, but it has experienced a significant surge as of late (Lachhwani, 2022). From online platforms, digital learning content to online assessment tools, schools are gradually going digital to encourage students to engage with learning materials in a more interactive and flexible way (White et al., 2023).

In Vietnam, higher education institutions are seeking to integrate technology into curricula to meet the evolving needs of 21st-century learners (Vu, 2022). According to Nino (2015), mobile

applications are believed to facilitate learner autonomy, motivation as well as social interactions, particularly in language classroom settings. Similarly, incorporating the Technological Pedagogical Content Knowledge (TPACK) framework into teaching has been reported to help teachers combine pedagogical strategies with technology-based activities, supporting the optimal use of technology as a learning assistant rather than a distraction (Le & Nguyen, 2020). Undoubtedly, these innovations have paved the way for more advanced applications in the long run, especially the utilization of artificial intelligence (AI) in personalized learning.

With the rapid development of technology, AI has clearly offered a more dynamic and responsive approach to education, particularly in improving speaking skills. English language proficiency might be enhanced via AI features such as speech recognition, adaptive feedback systems, and interactive speaking environments. In the Vietnamese context, while the emergence of AI-based applications has become a recent trend, these apps are likely to offer significant potential for individualized learning and to tailor to each student's specific needs (Ta & Nguyen, 2024). Moreover, AI is increasingly demonstrating its value in language learning through its ability to continuously monitor learners' progress and respond to their queries (Nurjanah et al., 2024). AI chatbots can modify speaking prompts, provide pronunciation feedback, and tailor speaking practice activities based on learners' performance (Vy & Pham, 2024). Such tools have been confirmed to have a positive impact on learners' confidence and fluency by creating an environment where they can freely practice with low stakes (Golonka et al., 2014).

Application of Duolingo in learning speaking skills

An AI application that is gaining popularity in education is Duolingo, which is considered effective in assisting EFL students practice speaking skills (Pusparini et al., 2025). Since its first introduction in 2011, this application has proved to become a globally language learning platform, achieving its position as top-tier AI-powered tool for interactive learning (Qiao & Zhao, 2023). The ubiquity of Duolingo application is remarkable because of its effortlessness and effectiveness in improving English communication skills. As stated by Munday (2016), Duolingo contains numerous features that assist learners in executing different exercises and therefore broaden their knowledge of various topics in a more comfortable manner. Moreover, it constitutes a wide range of practices ranging from low to highest level of English proficiency, which is suitable for English self-paced learners. They are exposed to text, audio, and visual materials that are translated into the target language. The company's ambition is to become a global communication website that is not only enjoyable but also accessible to everyone (Jaskova, 2014). As it may be evident, this application has been downloaded to more than 800 million users in 2023, and is among the top 4 most popular choices on the Play Store with more than 11 million good reviews (Business of apps, 2023).

It is evident that the overall effectiveness of Duolingo observed in several studies is attributable to some major factors that help boost speaking proficiency. The first obvious advantage of Duolingo compared to other online applications is its enormous library of speaking exercises in the learning curriculum. These assignments are believed to assist users in diving into daily conversations with real-time stimuli, requiring them to answer prompts as well as questions in their target language. As a result, these interactions serve as a cornerstone in improving speaking fluency together with articulating their thoughts more easily (Qiao & Zhao, 2023). Another noteworthy feature of Duolingo is its system of instant feedback, which supports better learners' self-reflection. As learners respond to prompts, an AI-generated chatbot immediately evaluates aspects of their speaking skills, including pronunciation, fluency, lexical resources,

and grammatical accuracy. Consequently, language learners are likely to receive individualized feedback tailored to their needs, enabling immediate refinements and progress in their speaking skills (Kessler, 2023).

To lend credence to Duolingo's merits, some sources highlight its contributions to improving key facets of speaking skills. Vesselinov and Grego (2012) demonstrated that app users showed greater improvements in fluency in a semester of college language courses. Similarly, Loewen et al. (2020) noted that while Duolingo's primary focus is on vocabulary and grammar, learners reported significant gains in speaking confidence. Moreover, Munday (2016) emphasized that Duolingo's gamified features had contributed to learner motivation and engagement, thereby indirectly enhancing oral fluency by promoting consistent practice.

However, there is a research gap in investigating Duolingo's effectiveness for English majors in Vietnam's higher education context. To fill this gap, this study aimed to examine the effectiveness of Duolingo in terms of fluency, accuracy, and confidence.

Research question:

To fulfill the purpose of the study, the survey sought to answer the following research questions:

1. To what extent does Duolingo help narrow the gap between conventional language teaching and personalized learning in developing English-speaking skills for English majors at Hanoi University of Industry?
2. How does Duolingo assist English-major students at Hanoi University of Industry in improving speaking skills in terms of fluency, accuracy, pronunciation, and confidence?

Methods

Research design

This study used a quantitative approach, specifically a questionnaire, to investigate the effectiveness of Duolingo for practicing speaking skills compared with traditional instruction in classroom settings. This approach is chosen because the collected data can be readily obtained and expressed as numbers, thereby contributing to the empirical foundation of this article.

Additionally, a qualitative interview was adopted in this study. According to Akyıldız & Ahmed (2021), the main purpose of an interview is to examine the attitudes, behaviors, concerns, and preferences of a group of residents. This approach aligned well with the study objectives, as it enabled exploration of preferences and attitudes across a diverse population, providing a detailed snapshot of the topic at a given time.

Population and samples

The study employed convenience sampling; therefore, the sample size was relatively small ($n = 24$). The participants were English major students at Hanoi University of Industry. They are familiar with Duolingo's features and have experience using Duolingo. The majority of students are in their second year, and their level of proficiency is estimated to be at B1 level according to The Common European Framework of Reference for Languages (CEFR). They were given permission to use Duolingo to aid their studies for one semester (lasting 10 weeks).

Although the sample size is limited, the experimental design remains appropriate because it allows systematic comparisons under controlled conditions, which support the investigation of the research questions.

Research method

The questionnaire is adapted from the Botero and Questier framework (2016), as their study also focuses on analyzing students' perceptions of Duolingo. The participants responded to the survey on Google Form. The questionnaire contained items measured on a Likert scale, with 1 representing totally disagree and 5 representing totally agree.

From the 24 respondents, 8 randomly selected students were selected to participate in the interview to further elaborate on their insights into the application of Duolingo.

A 5-point Likert scale was used in the survey because it is easy for participants to understand, provides sufficient variation to measure attitudes, and includes a neutral midpoint for uncertain responses. For the qualitative phase, interview participants were selected using purposeful sampling informed by the survey findings to capture contrasting perspectives (e.g., students with more positive, neutral, and less positive perceptions). Eight participants were invited because interviews aim to obtain depth rather than large numbers, and this sample size was feasible for transcription and thematic analysis while still allowing recurring themes to emerge. Individual interviews were used to protect participants' privacy and minimize conformity effects, thereby furthering the study's goal of explaining interview patterns in more detail.

Data collection & analysis

Questionnaire

Table 1.

Students' perception of the gap between conventional language teaching and personalized learning of English speaking skills when using Duolingo

	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. I would like Duolingo speaking activities to be integrated as a component of independent learning (work done outside the classroom)	0	0	7	7	10
2. I can see a connection between the speaking skills I practice on Duolingo and the speaking tasks taught by my language teachers	0	0	4	16	4
3. I think Duolingo provides an organized learning path for developing English speaking skills (e.g., pronunciation, fluency, speaking confidence)	0	3	5	8	8
4. Duolingo encourages me to practice speaking beyond what is taught in the language classroom	0	0	12	4	8

5. I would like Duolingo speaking practice to be integrated into classroom lessons	0	0	13	8	3
6. Duolingo allows me to practice speaking English at my own pace (e.g., repeating pronunciation and speaking tasks), unlike traditional classroom lessons.	0	5	0	5	14
7. Using Duolingo has significantly improved my English speaking skills compared to classroom learning.	0	6	4	4	10
8. Duolingo provides speaking practice that complements or fills the gaps left by classroom instruction.	0	4	9	7	4
9. The speaking tasks on Duolingo are more personalized to my needs than those in classroom lessons.	0	6	2	7	9

Looking first at item 1, 70.8% (17/24) of students agreed or totally agreed that Duolingo should be incorporated as an independent learning factor, while 83.3% (20/24) of item 2 participants perceived a connection between Duolingo and classroom content, indicating a correlation between the two. Additionally, Duolingo's organization (Item 3) recorded 66.7% (16/24) positive answers, while 12.5% disagreed.

Concerning Item 4, it showed that only half of the interviewees (12/24) felt that Duolingo encouraged them to explore beyond classroom content, while the other half were neutral or less convinced. Item 5 also showed a similar pattern: only 45.8% (11/24) supported using Duolingo in class, and 54.2% were neutral.

Another interesting feature is that the majority of students (19/24) in Item 6 agreed that Duolingo enabled speaking practice at their own pace, reflecting the improved flexibility compared to conventional classrooms. Likewise, item 7 showed that 58.3% (14/24) of people believed Duolingo enhanced their speaking skills more than classroom learning, while 25% (6/24) disagreed. Item 8 revealed that almost half of the participants (11/24) found Duolingo's speaking tasks complementary to classroom gaps, whereas 37.5% remained neutral.

Finally, in Item 9, 66.7% (16/24) felt Duolingo provided more individualized speaking tasks than traditional classroom lessons, with less than 10% (2/24) neutral and a quarter (6/24) disagreeing.

The responses indicate a firm belief that Duolingo contributes positively to various facets of speaking skills, particularly fluency, accuracy, and confidence.

Regarding item 1, almost all students (21/24) agreed or strongly agreed that Duolingo enables them to be independent learners in language acquisition, suggesting that autonomy is a key feature of this online platform. An overwhelming number of respondents (19/24) agreed with item 2 that they could enhance their fluency with Duolingo, with 70.8% (17/24) totally agreeing.

Table 2.

Students' perception of the improvement in English speaking skills regarding fluency, accuracy, and confidence when using Duolingo

	Totally disagree	Disagree	Neutral	Agree	Totally agree
1. Duolingo allows me to be independent in language learning	0	0	3	7	14
2. I think I can improve my fluency with Duolingo	0	0	5	2	17
3. I think that I can improve my speaking accuracy with Duolingo	0	0	5	8	11
4. I think that I can improve my confidence with Duolingo	0	0	6	10	8
5. I like the exercises proposed by Duolingo	0	0	11	7	6
6. I feel more confident in my English speaking abilities after using both Duolingo and classroom learning.	0	0	8	7	9

Turning to item 3, regarding speaking accuracy, almost 80% of pupils (19/24) also responded positively, indicating broad agreement that Duolingo contributed to English precision in use. Furthermore, the confidence factor (Item 4) was selected by 75% (18/24) of respondents, making it one of the most popular choices in the survey.

Item 5, which asked about the quality of exercises, received slightly less enthusiastic results. Merely 54.2% (13/24) agreed or totally agreed, while the remaining half (11/24) stayed neutral.

Finally, around 70% of the surveyed individuals (16/24) reported gaining more confidence in their English-speaking abilities after using both Duolingo and classroom learning, suggesting that a blended approach is effective in the long run.

Interview

To supplement the quantitative questionnaire, eight English majors were randomly selected for qualitative interviews.

Regarding pronunciation, almost all participants reported that Duolingo had a significant positive effect in general. To be specific, several students emphasized they had seen improvements in their pronunciation thanks to repetition features, word exposure, and clear feedback on phonetic articulation. One student highlighted developing a better grasp of the International Phonetic Alphabet (IPA), while others demonstrated that they can take advantage of practicing without fear of judgment by others. It is likely that these insights have reinforced the quantitative finding where 75% of survey participants *agreed or totally agreed* that Duolingo improved their speaking accuracy and pronunciation.

Fluency, on the other hand, received more mixed responses. While a few interviewees appreciated the regular speaking practice, others found Duolingo had some drawbacks due to

limited response time and a lack of open-ended interaction. This aligns with survey item 6 in Table 2, where only 62.5% of students felt confident in their fluency. The qualitative data thereby support the notion that while Duolingo improves accuracy and speaking comfort, it may not adequately build spontaneous fluency.

Accuracy and grammar correction were also frequently mentioned, as most students agreed that Duolingo's immediate ability to detect minor pronunciation errors and grammatical mistakes was a strong advantage. Many described the AI-generated feedback as “detailed,” “instant,” and “helpful in showing even the smallest mistakes.” This supports the 75% agreement rate in Table 2, Item 4, where students acknowledged Duolingo's role in boosting their speaking confidence.

When comparing Duolingo with traditional classroom settings, the candidates seemed to express a clear distinction between the two approaches. Duolingo was praised for its personalized, repetitive, and self-paced practice; however, the classroom was preferable for social interaction, contextualized language use, and opportunities for spontaneous speaking. While around 70% of survey respondents believed that Duolingo tasks were better tailored to their personal needs, the interviews clarified that this feature may be useful for fundamental skills to some extent, but is insufficient for well-rounded speaking proficiency.

Findings & Discussions

Analysis of Table 1 reveals that the majority of participants perceive Duolingo as a valuable supplement to conventional classroom instruction, as it provides personalized learning experiences. Many students agreed that Duolingo should be integrated as an independent learning tool outside the classroom, reflecting an increasing preference for self-paced, autonomous learning environments. A strong majority also acknowledged a meaningful relevance between the learning content that Duolingo organizes and classroom instruction, suggesting that students see AI tools (in this case, Duolingo specifically) not as replacements, but as extensions that reinforce formal lessons. Furthermore, most of them appreciated Duolingo's ability to help them practice speaking at their own pace, which is difficult to achieve given the time constraints in traditional classrooms. Another interesting observation is that, while participants generally support the platform's complementary role, fewer supported its integration *into* the classroom, suggesting a rather unified belief that AI tools are best used as external supports rather than central components of formal education.

Table 2 presents compelling evidence that Duolingo contributes positively to the development of English-speaking skills among university students who participated in the study. A significant number of surveyors agreed that Duolingo helps them become more proactive in language learning — a key advantage of AI-driven tools. The report showed generally favorable improvements in participants' speaking-related aspects, specifically fluency and accuracy, two foundational elements of oral communication. Furthermore, participants' speaking confidence is also reported to have improved. That said, responses to Duolingo's exercises indicate a need to increase the number and variety of practice tasks to better engage users.

These results imply that Duolingo can effectively bridge gaps in traditional language instruction by offering personalized, autonomous speaking practice that allows flexible pacing, repeated practice, and immediate feedback on individual errors. However, the participants' hesitant attitudes toward full classroom integration emphasize the importance of not overexploiting AI tools; they should be used only as supplements in formal, higher education settings.

The findings support the study's premise that Duolingo can play a transformative role in enhancing speaking fluency, accuracy, and confidence (Qiao & Zhao, 2023; Vesselinov & Grego, 2012; Loewen et al., 2020). Pronunciation improvement was frequently mentioned and may contribute to higher confidence and smoother fluency. It also proves that AI-powered platforms like Duolingo can personalize the learning experience in ways that conventional classrooms may not fully achieve, such as providing students with a less stressful, less time-sensitive environment to practice speaking and improve vital speaking sub-skills like fluency and accuracy.

The interview findings reaffirm the survey data: Duolingo is widely appreciated for improving students' speaking skills, with pronunciation as the skill interviewees see the most pronounced growth in, followed by fluency and accuracy. However, it is not seen as a full replacement for classroom interaction. Participants' answers reveal that Duolingo's instant feedback is sometimes only partially accurate, but they still appreciate the app pointing out grammar and vocabulary mistakes. Furthermore, some interviewees elaborated that they still prefer studying in a real classroom, face-to-face with their teachers and peers, as they deem feedback from a real person is still more effective. Together, the survey and interview results suggest that AI tools like Duolingo can effectively bridge gaps in conventional instruction, but are most impactful when used as a complement rather than a substitute for face-to-face speaking practice.

Conclusion

This study has demonstrated how Duolingo, an AI-powered application, can assist English-major students at Hanoi University of Industry in practicing speaking skills, gain with terms in fluency, accuracy, and confidence compared to traditional classroom-based pedagogies. The exploited methodologies, questionnaires, and interviews have shown promising results in students' perceptions of the application's effectiveness, thereby facilitating their self-paced learning through instant feedback and automated instructions.

There are some ways for schools to integrate Duolingo into traditional classrooms. The first prominent measure is to integrate AI-powered tools, such as Duolingo, into formal curricula to provide students with consistent, tailored speaking practice that complements in-class instruction (Munday, 2016). Teacher training is equally crucial to ensure that educators can guide students in using these technologies purposefully. Moreover, incorporating structured feedback systems in which instructors monitor learners' AI-generated progress can ensure that personalized learning remains pedagogically grounded (Loewen et al., 2020). Finally, combining AI practice with interactive peer activities fosters authentic communication, addressing areas where technology alone may fall short (Warschauer & Liaw, 2019). These strategies collectively offer a balanced pathway for advancing English-major students' speaking competence.

However, this study has some limitations, owing to its small sample size with only 24 participants. The use of a small convenience sample may limit generalizability and statistical power; thus, findings from this study should be interpreted as preliminary evidence. Further studies could be conducted on a larger scale to demonstrate its validity, and the integration of Duolingo into the formal curriculum could also be explored. It is essential to view these tools as complementary to, rather than replacements for, conventional classroom teaching.

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Biodata

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