

AI-Driven Mobile Learning in Enhancing Learners' Speaking Confidence in EFL Context

Rangga Mauluddino Putra¹, Mukhlisin Rasuki², Indri Astutik³

¹Universitas Muhammadiyah Jember, Indonesia

²Universitas Muhammadiyah Jember, Indonesia

³Universitas Muhammadiyah Jember, Indonesia

ranggamauluddinoputra@gmail.com; muhlisin@unmuhjember.ac.id; indri@unmuhjember.ac.id

INFO ARTIKEL	ABSTRAK
<p><i>Article History:</i> Received: September 28, 2025 Revised: October 27, 2025 Approved: December 19, 2025 Available Online: January 1, 2026</p>	Artikel ini mengeksplorasi efektivitas Duolingo sebagai platform pembelajaran bahasa berbasis kecerdasan buatan (AI) yang dibantu perangkat seluler dalam meningkatkan kepercayaan diri berbicara bahasa Inggris di kalangan pembelajar bahasa Inggris sebagai bahasa asing (EFL). Dengan menggunakan metode riset pustaka, studi ini mensintesis temuan dari artikel-artikel yang telah ditinjau oleh rekan sejawat yang diterbitkan antara tahun 2020 dan 2025. Tinjauan ini mengidentifikasi mekanisme melalui Duolingo dalam meningkatkan kepercayaan diri, termasuk motivasi berbasis gamifikasi, latihan berbicara dengan tekanan rendah, dan umpan balik pengucapan yang didorong oleh AI. Analisis lebih lanjut menyoroti kekuatan pedagogis, keterbatasan, dan faktor kontekstual yang memengaruhi persepsi pembelajar. Studi ini menyimpulkan bahwa Duolingo memiliki potensi yang konsisten untuk meningkatkan kepercayaan diri berbicara pembelajar, terutama ketika digunakan sebagai alat tambahan dalam lingkungan pembelajaran yang didukung teknologi.
<p><i>Keywords:</i> <i>Speaking Confidence</i> <i>EFL Learners</i> <i>Duolingo</i> <i>Mobile-Assisted Language Learning (MALL)</i></p>	<p>ABSTRACT</p> <p><i>This article explores the effectiveness of Duolingo as an Artificial Intelligence (AI) based mobile-assisted language learning in improving English speaking confidence among English as a foreign language (EFL) learner. Using a library research method, this study synthesizes findings from peer-reviewed articles published between 2020 and 2025. The review identifies mechanism through Duolingo in enhances confidence, including gamification-based motivation, reduced-pressure speaking practice, and AI-driven pronunciation feedback. The analysis further highlights pedagogical strengths, limitations, and contextual factors that influence learner perceptions. The study concludes that Duolingo has consistent potential to enhance learners' speaking confidence, particularly when used as a supplementary tool in technology-enhanced learning environments.</i></p>

©2026, Rangga Mauluddino Putra, Mukhlisin Rasuki, Indri Astutik
This is an open access article under CC BY-SA license



1. Introduction

Education where the current generation of young people are growing up in the digital age, which is accompanied by the increasing use of interactive technology and game algorithms that are more attractive to students. This has certainly triggered many changes in learning media. Faced with competing forms of digital entertainment, traditional learning methods are often unable to compete and fail to engage students in the learning process, resulting in a lack of motivation and direct student engagement in the learning process.

Findings from recent studies reinforce this view. Sari & Sulistyo (2022) states that the limitations of conventional instructional models where are characterized by an emphasizes on teacher-centered delivery, a lack of opportunities for practice, and speaking tasks that are subject to social pressures, have given rise to a growing interrogation of their capacity to adequately address the physocological and affective dimensions of oral proficiency.

As seen in classroom challenges, Amalia (2020) states that lack of flexibility in learning exercises, lack of confidence, and fear of negative judgement remain even among students with adequate linguistic knowledge, it makes clear about problem in speaking ability are not simply due to students' lack of language proficiency, but because there are other obstacles that arise from the way learning is designed and implemented.

With technological advances that have changed the paradigm of foreign language education, there has been a transition from traditional classroom teaching methods to a more flexible, interactive, and digitally supported learning environment, which adds media with access and nuances that can aid language learning. In Amalia's (2020) study, "mobile-assisted language learning" (MALL) was first introduced by Chinnery (2006), where mobile devices are used as tools to support language learning. Aratusa (2022) states that Mobile-based Assisted Language Learning tools (MALL) are becoming increasingly relevant, especially that application that integrating the principles of artificial intelligence and gamification.

In this study, researcher chose Duolingo as an application that offers easy access flexibility, assessments that can reduce negative assessments through the application of artificial intelligence (AI) technology, and micro-learning tasks combined with gamification. Numerous research has examined the use of gamification and mobile-assisted language learning (MALL) in improving linguistic achievement and learner motivation. There is notable specific role of AI-driven mobile applications in enhancing learners' speaking confidence within English as a Foreign Language (EFL) context, particularly at the secondary school level has received relatively limited attention. According to the predominant academic discourse on this subject, the measurement of language learning outcomes, including vocabulary and grammar proficiency, holds significant weight. However, the affective aspects of speaking, such as confidence, reduced anxiety, and psychological safety, receive relatively little attention in research. The present study addresses this gap by offering a literature-based analysis of Duolingo where this application analysis combines empirical findings on the role of artificial intelligence (AI)-supported features, including automated feedback, micro-learning structures, and low-pressure practice spaces integrated with game elements, in promoting the development of speaking confidence among English as a foreign language (EFL) learners at the high school level.

This approach is believed to not only improve linguistic accuracy but also strengthen learners' confidence through repeated speaking practice with low pressure. Despite the increasing popularity of gamification in education, this theoretical and empirical foundation serves as a crucial point of support for the investigation of Duolingo's potential to enhance speaking confidence in the context of learning English as a foreign language (EFL). This analysis contributes to the ongoing discussion of how AI-supported mobile learning environments can effectively overcome the affective and pedagogical limitations that continue to challenge the development of speaking confidence. By addressing this gap, this study aims to provide practical insights from the results of applying gamification learning strategies to the learners' perspective. The category of learners that this study focuses on is high school students in grades 10 to 12.

2. Method

The study conducted searches on academic databases like Crossref, Google Scholar, JSTOR, and Publish or Perish. Keywords used included 'gamification', 'Duolingo', 'Mobile-Assisted Language Learning'. Article were selected based on peer-review status and relevance to EFL gamification. A thematic analysis synthesize insight into platform effectiveness, applicability, and challenges. This comprehensive process ensures valid and actionable findings.

this study employs a library research method, analyzing 15 peer reviewed articles published between 2020 untill 2025. The articles were selected based on relevance to gamification in EFL context, particularly focusing on learners' perspectives. Data extraction focused on identifying the features, implementation, and outcomes of Duolingo. Thematic analysis was conducted to synthesize findings and provide insights into their applicability and challenges. The analysis involved extracting data on how the tools were implemented, their features, and the outcomes reported by previous studies. This study will conduct searches resource in various academic database and search engines such as Google Scholar, JSTOR, and Publish or Perish by using keywords such as gamification, Duolingo, EFL learners after the relevant information have been collected, researcher need to select resources with peer-review process or the resources must from trusted sources, after resources selected researcher identify important findings by explore it in depth analysis, by using this method the study aims to provide insights into the tools' such as effectiveness and applicability from Duolingo in enhancing sepaking confidence in EFL context. It is hope that this article can provide a valuable scientific contribution to further understanding the use of Duolingo as Mobile-Assisted Language Learning approaches and its impact on (EFL) learners speaking confidence.

3. Result and Discussion

Results

This section presents the findings of the study by systematically analyzing the features, impact, and outcomes associated with the use of Duolingo as medium in enhancing Learners' speaking confidence. The results aim to highlight how these platforms enhance (EFL) learner's confidence in speaking context.

Duolingo as tools in Enhancing Students' Speaking Confidence

1. AI-Driven Feedback and Pronunciation Accuracy

Several studies such as Pradana et al. (2023) have highlighted the crucial role of Duolingo's speech recognition system in facilitating the development of pronunciation and confidence among learners in the context of EFL learners. Wijaya (2024) satates that the platform's artificial intelligence (AI)-based feedback mechanism allows learners to receive instant corrective responses whenever they make pronunciation errors, giving them opportunity to adjust without the pressure of being judged by teacher or peers. The provision of instan feedback has been shown to increase confidence and create a supportive environment for learners who may be hesitant to participate directly in oral activities in a traditional classroom setting. Further research shows that repeated exposure to AI-supported pronunciation tasks increases learners' phonological awereness, helping them pronounce English sounds more accurately and confidently (Hernandijaya, 2020). The implementation of non-judgemental feedback system creates a safe environment, encouraging learners to participate in new speech, which in turn reduces the anxiety typically associated with oral performance.

2. Impact on Learners' Speaking Confidence and anxiety reduction

A review of literature reveals a persistent challenge in fostering effective oral participation in face-to-face learning environments, particularly in the context of English as a foreign language (EFL). Pradana et al. (2023) reported that technology-

based learning metaverses can provide learners with a more comfortable environment for practicing speaking, as Mobile-Assisted Language Learning helps students eliminate the social pressure that exists in classroom interactions. A recurrent theme in the extant literature concerning the efficacy of Duolingo involves the anxiety reduction system, where learners are permitted to repeat exercises without the concern of negative assessments. This enhancement in psychological safety fosters an increase in their propensity to engage in verbal communication and enables them to assume greater risks in the production of spoken language. Researchers in this context suggest that consistent practice in this low-pressure environment can contribute to gradual increase in speaking confidence and in a broader scope. Furthermore, the implementation of an AI-based progress system by Duolingo has been shown to support learners in building confidence (Al-hakmani, 2025). This system enables learners to practice tasks until they reach a level of comfort and accuracy. These benefits have been shown to directly enhance learners' readiness to engage in real-world communication scenarios.

3. Gamification and Sustained Motivation for Speaking Practice

Highlighting the importance of Duolingo's Gamification features, such as XP points, streaks, crowns, and achievement badges in maintaining learners' motivation to practice speaking tasks continuously. Research indicates that elements in Duolingo encourage the potential to increase the effectiveness of these activities in promoting consistent speaking practice as compared to classroom environments with limited opportunities for direct engagement (Mahbub et al., 2020). As indicated by the findings of several studies, including those by Aratusa (2022), Amalia (2020), and Al-hakmani (2025), learners reported experiencing increased enthusiasm and engagement when attempting to sustain a streak or unlock a new level. This phenomenon served to reinforce established learning patterns. This sustained motivation contributes to the development of confidence in speaking by increasing exposure and repetition. But even there are several features from Duolingo give paradigm motivational by using scores or crowns as gamification assessment, some researchers such as Al-hakmani (2025) have expressed concern that excessive emphasize on rewards may potentially distract learners from engaging in meaningful communication and the accumulation of points. When employed judiciously, gamification can foster sustained engagement and favorably impact the cultivation of speaking skills.

4. Micro-Learning, Repetition, and Fluency Development

Duolingo micro-learning structure also plays an important role in improving language fluency and building students' confidence in speaking. The platform organizes learning materials into short, manageable tasks that can be completed quickly, making it easy for students with limited time to practice consistently (Andini & Salmiah, 2024). These tasks, which include phrase repetition, sentence construction, and pronunciation exercises, provide repeated exposure to language patterns in various contexts, thereby supporting the internalization of linguistic structures. Research has shown that repeated practice in a structured environment supports the development of automation in learners, thereby reducing the cognitive load when speaking and improving oral fluency (Apoko et al., 2023). For language learners who do not have the opportunity to practice speaking individually in class, Duolingo offers continuous access to support the development of fluency. This, in turn, increases confidence in speaking.

5. Learners' Perceptions of Convenience, Accessibility, and Autonomy

A comprehensive review of the existing literature shows a consistent positive perception among learners regarding the accessibility and convenience of Duolingo. The mobile-based nature of the platform offered by Duolingo allows learners to

practice speaking at their own pace and in various locations, thus offering a flexible learning tool for individuals in an EFL context where exposure to English is limited (Ferdyan & Halim, 2024). Learners often express that Duolingo helps them establish productive learning routines and provides independence in designing their speaking exercises. This independence boosts confidence, as learners can control the pace, frequency, and content of their practice sessions without external constraints. The ability to monitor progress, repeat difficult tasks, and engage in personalized practice has been shown to strengthen learners' belief in their speaking abilities, thereby enhancing their confidence in oral performance.

6. Potential Limitations of Duolingo in Developing Speaking Confidence

It is acknowledged that Duolingo possesses certain advantages; however, the existing literature identifies several limitations in its capacity to facilitate the development of speaking confidence in its users. A significant concern relates to the fact that AI-driven pronunciation evaluation is predominantly focused on segmental characteristics, such as individual sounds. In contrast, elements of speech that are organized around larger units, such as intonation, rhythm, and the natural flow of speech, receive inadequate attention (Hermaningsih, 2021). This suggests that while learners may develop confidence in controlled app environments, they may still encounter difficulties during spontaneous communication. Another limitation involves the absence of authentic interaction, with learners potentially encountering difficulties in transferring app-based speaking confidence to real-life context (Anjani & Rahman, 2024). These limitations indicate that Duolingo should be employed as a supplementary tool in conjunction with human-led speaking activities to ensure the maximization of its benefits.

Discussions

The findings indicate that Duolingo enhances speaking confidence through a combination of AI-driven feedback, reduced social pressure, and sustained opportunities for low-risk verbal practice. Pradana et al. (2023) noted that Duolingo's speech recognition system enables learners to receive instant and non-judgmental corrective feedback, allowing them to adjust their pronunciation without fear of teacher or peer evaluation. This finding aligns with the observations of wijaya (2024) and hernandijaya (2022) who have previously noted that repeated tasks that involve the use of AI to support pronunciation can effectively reinforce phonological awareness. The implementation of such tasks in educational settings has been shown to foster a psychologically safe environment, an aspect that is often lacking in traditional classroom settings. This finding serves to substantiate the hypothesis that the facilitation of evaluative tension, as opposed to linguistic enhancement specifically, is a pivotal element for the enhancement of speaking confidence.

Research indicates that the Duolingo program assists in reducing speaking anxiety by enabling learners to repeat exercises without experiencing negative self-judgment. This approach helps to overcome the affective barriers frequently encountered in English as a foreign language (EFL) speaking activities. As emphasized by Pradana et al. (2023) and Al-hakmani (2025), mobile-based learning allows learners to practice until they achieve comfort and accuracy, which gradually improves their readiness for real communication. Findings from the present study contribute to the argument that confidence in language acquisition arises from continuous, pressure-free interaction with language forms, rather than from isolated speaking tasks in the classroom.

The incorporation of gamification elements within Duolingo's features has been demonstrated to play a significant motivational role in this context. Features such as XP points, streaks, crowns, and achievement badges that are identified in Results and supported by Mahbub et al. (2020), Aratusa (2022), amalia (2020), and Al-hakmani (2025) encourage consistent speaking practice, reinforcing the habit formation that is crucial for confidence growth. It is important to note that concerns about the potential to achieve confidence in speaking may be hindered by reward features, where it can obscure meaningful communicative engagement. The suggestion at this point is that gamification should be balanced with pedagogical objectives.

It has been demonstrated that the capacity to engage in regular, effectively managed exercises has the effect of reducing cognitive load during the process of speech output, thus enabling learners to articulate themselves with greater fluency and confidence. This is of particular value in the context of learning English as a foreign language (EFL), where opportunities to speak in class are limited. The micro-learning approach employed by Duolingo has been demonstrated to facilitate language skill development through the provision of concise, repetitive tasks that encourage automation (Andini & Salmiah, 2024; Apoko et al., 2023).

Studies such as Ferdyan & Halim (2024) show that the platform's flexible, mobile-based design allows learners to manage their practice routines independently, strengthening their sense of control and confidence. Features that enable progress monitoring and task repetition further reinforce learners' belief in their speaking abilities, consistent with self-efficacy.

Despite these strengths, the literature identifies important limitations based on learners' perspectives where there is about Duolingo's AI evaluation primarily focuses on segmental features and does not adequately address intonation, rhythm, and speech flow (Hermaningsih, 2021). The absence of authentic interaction, as noted by anjani & rahman (2024), suggests that confidence developed within the app may not fully transfer to spontaneous communication. These limitations highlight the optimal utilization of Duolingo as supplementary tool, providing support rather than a replacement for speaking activities designed to cultivate pragmatic and interactive competence.

4. Conclusion

In conclusion, gamification platforms such as Duolingo offer innovative solutions for enhancing learners' speaking confidence in EFL context. Educators should consider the unique features of the tools provided by Duolingo when addressing challenges such as the limitations of conventional learning methods. Future research should explore longitudinal impacts and the integration of gamification in diverse educational settings.

5. References

Andini, J., & Salmiah, M. (2024). The effect of Duolingo on eighth-grade student's vocabulary mastery. *Indonesian EFL Journal*, 10(2), 247-254. <https://doi.org/10.25134/ieflj.v10i2.10089>

Aratusa, Z. C. (2022). Students' Perceptions on the Use of Mobile-Assisted Language Learning (MALL) in Learning Pronunciation. *International Journal of Current Science Research and Review*, 05(07). <https://doi.org/10.47191/ijcsrr/v5-i7-50>

Astuti, W. (2025). Analyzing Students' Perspective on Duolingo Application for English Daily Learning. *Journal of Language, Literature, and Teaching*, 7(1), 17-25. <https://doi.org/10.35529/jllte.v7i1.17-25>

Apoko, T. W., Dunggio, A. A., & Chong, S. L. (2023). The Students' Perceptions on The Use of Mobile-Assisted Language Learning Through Duolingo in Improving Vocabulary Mastery at The Tertiary Level. *English Review: Journal of English Education*, 11(1), 17–26. <https://doi.org/10.25134/erjee.v1i1.7069>

Ahmed, A. A. A., Hassan, I., Pallathadka, H., Keezhatta, M. S., Noorman Haryadi, R., Al Mashhadani, Z. I., Yahya Attwan, L., & Rohi, A. (2022). MALL and EFL Learners' Speaking: Impacts of Duolingo and WhatsApp Applications on Speaking Accuracy and Fluency. *Education Research International*, 2022, 1–10. <https://doi.org/10.1155/2022/6716474>

ALHakmani, F. (2025). Students' Perception on Using Duolingo to Boost EFL Students' Motivation in Speaking Skills. *East Journal of Human Science*, 1(5), 143–153. <https://doi.org/10.63496/ejhs.vol1.iss5.159>

Chinnery, G. M. (2006). Going to the MALL: Mobile Assisted Language Learning. *Language Learning & Technology*, 10(1), 9–16. <https://doi.org/10.64152/10125/44040>

Darsih, E., & Asikin, N. A. (2020). Mobile Assisted Language Learning: Efl Learners' Perceptions Toward The Use of Mobile Applications in Learning English. *English Review: Journal of English Education*, 8(2), 19. <https://doi.org/10.25134/erjee.v8i2.2999>

Gusti Ferdyan, & Abdul Halim. (2024). User Perceptions and Experiences: A Study on Duolingo's Role as an Interactive Learning Media. *Mimbar Kampus: Jurnal Pendidikan Dan Agama Islam*, 23(2). <https://doi.org/10.47467/mk.v23i2.3791>

Hentasmaka, D., & Pradana, A. P. (2023). Investigating Indonesian EFL Learners' Extramural English. *English Language Education Journal (ELEJ)*, 2(1), 1–15. <https://doi.org/10.36928/elej.v2i1.1654>

Herminingsih, D. I. (2021). Exploring The Preservice Teachers'perception Toward the Use of Duolingo in Teaching Vocabulary to Young Learners. *Jurnal Bahasa Lingua Scientia*, 13(1), 41–64. <https://doi.org/10.21274/ls.2021.13.1.41-64>

Hernadjaya, N. S. (2020). The Use of Duolingo Application to Enhance English Vocabulary of Junior High School. *RETAIN: Journal of Research in English Language Teaching*, 8(2). Retrieved from <https://ejournal.unesa.ac.id/index.php/retain/article/view/33055>

Ila Amalia. (2020). The Application of Mobile Assisted Language Learning (Mall) In Teaching Pronunciation. *Ijlecr - International Journal of Language Education and Culture Review*, 6(2), 194–203. <https://doi.org/10.21009/ijlecr.062.20>

Khomariyah, Y., & Ekowijayanto, M. (2025). Duolingo As a Digital Tool for Enhancing English as a Foreign Language (EFL) Speaking Proficiency at Zain Academy. *RIGGS: Journal of Artificial Intelligence and Digital Business*, 4(2), 6482–6492. <https://doi.org/10.31004/riggs.v4i2.1670>

Mahbub, Moh. A., Romsi, A., Bulqiyah, S., & Firdaus, I. A. (2020). Infusing A Gamification Mechanism Through Duolingo for English Speaking Proficiency: Perceptions of The Indonesian Efl Instructor and Students. *Konstruktivisme: Jurnal Pendidikan Dan Pembelajaran*, 12(1), 69–80. <https://doi.org/10.35457/konstruk.v12i1.894>

Pradana, M., & Elisa, H. P. (2023). Metaverse in education: A systematic literature review. *Cogent Social Sciences*, 9(2). <https://doi.org/10.1080/23311886.2023.2252656>

Sari, N., & Sulistyo, T. (2022). EFL TEACHERS' PERSPECTIVES ON MOBILE-ASSISTED LANGUAGE LEARNING (MALL) RESOURCES FOR VOCATIONAL HIGH SCHOOL STUDENTS. *Journey: Journal of English Language and Pedagogy*, 5(1), 80–90. <https://doi.org/10.33503/journey.v5i1.524>

Tiara Anjani, D., & Rahman, A. (2024). Efektivitas Penggunaan Aplikasi Duolingo Sebagai Media Pembelajaran Berbasis Game Edukasi dalam Meningkatkan Penguasaan Kosakata Bahasa Arab di Maitreechit Wittayathan School. *Journal on Teacher Education*, 5(3), 280–287.
<https://doi.org/10.31004/jote.v5i3.26981>

wijaya, kristian. (2024). The Role of Duolingo Application in Broadening Indonesian EFL Learners' Vocabulary Knowledge. *Journal of Education of English as a Foreign Language*, 7(2), 180–194.
<https://doi.org/10.21776/ub.educafl.2024.007.02.05>