Beyond the Ratings: Exploring Duolingo's Perceived Usefulness Among Language Learners

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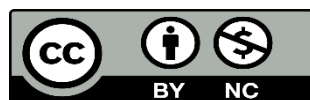[2]M.A. Student in TEFL, Razi University, Kermanshah, Iran. atousamirzapour@gmail.com

Abstract

Despite the surge in popularity of language learning apps like Duolingo, a significant research gap exists in understanding their pedagogical effectiveness from the user's viewpoint. This study addresses this gap by employing a two-phased qualitative method to investigate how learners perceive Duolingo's pedagogical effectiveness. The first phase involved thematic analysis of 268 user comments collected systematically from app stores to identify recurring themes. In the second phase, semi-structured interviews were conducted with nine Iranian EFL learners who used Duolingo as a supplementary tool for eight weeks to gain in-depth contextualized insights. MAXQDA software was used for thematic analysis to uncover patterns and insights from the data. The results reveal that while Duolingo is appreciated for its engaging gamified approach, it is criticized for its excessive focus on gamification, insufficient explicit grammar instruction, and unrealistic language content. The study further suggests that Duolingo is best used as a supplementary tool to traditional learning methods, underlining the need for additional resources to support comprehensive language learning. The findings emphasize the importance of critically evaluating language learning apps to ensure they meet educational needs, offering valuable guidance for learners, educators, and app developers.

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Introduction

In language learning, the widespread adoption of mobile devices and the incorporation of gamification elements have significantly transformed the educational landscape (Burston, 2013; Zhang & Hasim, 2023). Among the plethora of language learning applications, Duolingo stands out as a prominent exemplar of gamification in language learning, garnering widespread attention for its engaging and interactive approach to learning, which leverages game design elements to enhance learner engagement and motivation (Bader et al., 2022; Boudadi & Gutiérrez-Colón, 2020; Loewen et al., 2020; Zhang & Hasim, 2023). The app's gamified features, such as point systems, badges, and leaderboards, have been touted as practical tools for promoting learner autonomy, self-directed learning, and overall language proficiency (Zhang & Hasim, 2023). However, despite its popularity, there remains a need to investigate how language learners perceive the effectiveness of Duolingo for their learning goals (e.g., fluency and vocabulary acquisition). The present study addresses this gap by exploring user perceptions and experiences through a qualitative approach. It aims to comprehensively understand Duolingo's perceived pedagogical effectiveness from the user's perspective, contributing to the ongoing discourse on gamification and its impact on language learning outcomes.

Literature Review

Mobile-Assisted Language Learning (MALL)

The field of Mobile Assisted Language Learning (MALL) has witnessed substantial growth, driven by the growing potential of smartphones to facilitate language learning (Chen et al., 2020; Kukulska-Hulme & Viberg, 2018; Loewen et al., 2020; Sato et al., 2020). Scholars have underscored the pedagogical affordances of smartphones, which are increasingly ubiquitous in modern society (Burston, 2013, 2015; Gimeno-Sanz et al., 2020; Rassaei, 2020; Sato et al., 2020). Empirical research has consistently demonstrated the effectiveness of integrating smartphones into language learning environments (Burston, 2013, 2015; Gimeno-Sanz et al., 2020; Rassaei, 2020; Sato et al., 2020). Studies have shown improvements in various language skills, including oral communication, written expression, reading comprehension, listening comprehension, vocabulary development, grammatical accuracy, and pronunciation. A comprehensive systematic review by Chen et al. (2020) further supports this notion, concluding that mobile device integration in language learning yields more effective outcomes than traditional pedagogical approaches. The growing body of MALL literature explores diverse facets, encompassing trends, challenges, opportunities, learner perspectives, experiences, motivational factors, and the influence of mobile applications on both language learning

and teaching practices (Kukulska-Hulme & Viberg, 2018; Loewen et al., 2020; Sato et al., 2020). Conducting an extensive review of research from 2008 to 2018, Chen et al. (2020) analyzed journal articles, conference proceedings, and doctoral dissertations. They found that mobile learning supports greater learner autonomy, enabling users to overcome time and location constraints via smartphones. Loewen et al. (2020) investigated the impact of the popular language learning app Duolingo on Turkish language learners within the framework of MALL. Employing a mixed-methods approach, their study revealed a positive correlation between time spent using the app and improvement in language proficiency. Participants demonstrated increased engagement and favorable perceptions of Duolingo, highlighting the potential of such platforms to enhance learner motivation. While research on MALL is steadily expanding, evaluating mobile-learning resources in language education remains an evolving and complex field.

Gamification

Studies have consistently shown that gamification benefits learners of English as a foreign language (EFL), highlighting its positive impact on motivation and engagement. Research by Zhang and Hasim (2023) demonstrated that gamification creates a more interactive learning experience, increasing engagement, motivation, and enjoyment for ESL learners. Furthermore, the potential of adaptive gamification in e-learning, based on students' learning styles, has been proposed to enhance motivation and reduce drop-out rates (Hassan et al., 2019). Phuong (2020) discovered that incorporating gamified activities effectively reduced anxiety levels while enhancing grammar performance among EFL learners. The integration of game elements seemed to mitigate the stress and pressure commonly experienced with traditional language learning approaches. Moreover, the interactive dynamics of gamified tasks and the immediate feedback and ample practice opportunities offered by game-based activities appeared to facilitate more profound comprehension and longer retention of grammar concepts. Similarly, Hassan et al. (2023) emphasized that gamification enhanced EFL learners' motivation by incorporating challenging and motivating elements into traditional learning. Furthermore, gamification techniques have enhanced various skills, such as writing and speaking fluency (Marin-Pacurucu & Argudo-Garzón, 2022). Studies have also indicated the effectiveness of gamification in enhancing vocabulary knowledge and listening comprehension among EFL learners (Abdeen & Albiladi, 2021; Khaled, 2021). Many studies have explored students' perceptions of gamification in education with mixed results. Torres-Gastelú (2022) found that while students generally accepted gamification, it did not significantly improve their academic performance. Similarly, Pham (2021) reported that while students perceived gamification as enhancing engagement and motivation, its impact on learning effectiveness was unclear. In contrast, Devendren (2022) found positive perceptions of gamification, with students reporting increased effectiveness, motivation, and engagement. However, Nyazi (2023) noted a significant

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difference in perceptions between students in different colleges, suggesting the need for further investigation into the factors influencing these perceptions.

Duolingo

A range of studies have explored the use of Duolingo in language learning with mixed results. Astarilla (2018) found that university students in Indonesia had a positive perception of the app despite some drawbacks, such as unnatural sentences and repeated questions. Similarly, Yana (2021) reported that students in Indonesia viewed Duolingo as a helpful and motivating tool but noted its excessive use of color and word repetition. However, Santi (2023) highlighted a lack of research on the app's effectiveness in improving language skills, particularly in English learning. Research has shown that Duolingo can have a positive impact on EFL students' vocabulary acquisition and provide a platform for improving listening skills and intrinsic motivation for learning English (Buenaño et al., 2023; Faradisa et al., 2022; Sukarya et al., 2022; Zeng & Fisher, 2023). Duolingo has been noted to offer opportunities for EFL learners to learn out of class, which can complement traditional classroom instruction (Richards, 2015). While Duolingo is relevant and beneficial for beginner to intermediate-level language learners, it may have limitations for more advanced learners due to its preference for direct translation methods, which can lead to ambiguity in translation results (Ritonga et al., 2022). Moreover, studies have indicated that Duolingo's effectiveness in developing learners' productive skills, such as speaking and writing, may require further evaluation (Jiang et al., 2021). Furthermore, some drawbacks of using Duolingo include a lack of reading and speaking content and advertisements that may disrupt the learning experience. Due to the contradictory findings reported in the literature, further research is needed to determine if the results hold in different contexts.

Methods

Design

This study employed a qualitative approach to investigate users' perceived usefulness of Duolingo as a language learning application. The research was conducted in two distinct phases. The first phase involved collecting and analyzing 268 pedagogically relevant user comments retrieved from app stores. A systematic sampling method was used to ensure a representative selection of comments. The data were coded and analyzed using thematic analysis to identify recurring themes and patterns in user feedback. The study's second phase focused on conducting semi-structured interviews with Iranian EFL learners with a more specific focus on gaining deeper insights into their experiences with Duolingo. The interviews were analyzed using thematic analysis to explore nuanced perceptions and contextual factors influencing the app's effectiveness. Both phases of the study were

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designed to complement each other, with the broad analysis of online feedback providing a foundation for the more in-depth, context-specific insights gained from the interviews.

Participants

The study utilized a convenience sampling method to recruit nine young adult Iranian EFL learners (five males and four females) from two intact classroom groups at the Razi Language Center, where the researchers also served as instructors. The participants, aged 18 to 23, volunteered from a larger pool of 26 language learners to participate in interview sessions. To establish a baseline for their linguistic abilities, the DIALANG test was administered, confirming that all participants were at the intermediate (B1) proficiency level. Since the participants' first language, Duolingo did not support Persian, English was used as the medium of instruction. Therefore, participants were required to select an "Intermediate English" course within the app to access the learning materials, ensuring appropriate content difficulty for their proficiency level.

Data Collection Procedure

In the first data collection phase, user comments, shared from April 20th to May 20th, 2024, were systematically collected from Google Play and the App Store. A purposive sampling technique (Ary et al., 2019; Dornyei, 2007) was utilized to select comments that specifically addressed the pedagogical usefulness of Duolingo. To capture a wide range of user experiences, comments were chosen from the entire rating spectrum, ranging from 1 star (low rating) to 5 stars (high rating). Additionally, only comments posted within the specified one-month period were included to ensure that the most recent user sentiment was reflected. Relevance remained a top priority, with only those comments directly addressing Duolingo's educational value being retained, while those discussing technical glitches or unrelated topics were omitted. Furthermore, comments displaying conspicuous bias (i.e., either excessively positive or negative) suggestive of potential manipulation or lack of authenticity in the feedback were also excluded from upholding data integrity. The resulting dataset comprised 268 comments deemed suitable for subsequent analysis. Ethical considerations were minimal as all comments were publicly available, and there was no direct interaction with users. This approach ensured that the collected data were representative and reliable, allowing for a robust analysis of Duolingo's pedagogical effectiveness.

Data Analysis

Following the completion of each data collection phase, collected data underwent thematic analysis using MAXQDA R20 software to explore the perceived pedagogical effectiveness of Duolingo. Both authors conducted initial coding to categorize the texts based on emerging themes, with codes assigned to text segments reflecting various

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aspects of Duolingo's usefulness in language learning. Through iterative coding cycles, recurring patterns and insights were identified. Both authors independently coded a subset of texts to guarantee inter-code reliability, resolving discrepancies through discussion and refining the coding scheme. Final themes from both data sources underwent cross-verification to ensure coherence and consistency among the sources. The analysis yielded a detailed understanding of Duolingo's perceived pedagogical effectiveness, shedding light on its strengths and areas for improvement.

Results and Discussion

The thematic analysis of user comments and EFL learners' insights on Duolingo revealed several vital themes highlighting the app's perceived strengths and limitations in enhancing language learning. The following paragraphs will explore these themes in more detail.

Gamified Learning Experience

A recurring theme among user comments is appreciating Duolingo's gamified learning approach. Many users find the app engaging, fun, and addictive due to its game-like elements, such as earning XP points, competing on leaderboards, and maintaining streaks. These features are often praised for making language learning enjoyable and motivating users to return daily. As many users highlighted in their comments, the gamification elements employed in the app transform the often-tedious task of language learning into a fun and dynamic experience. One participant highlighted, "I think earning points and unlocking new levels make the learning process feel like a fun challenge rather than a chore. It motivates me to keep practicing because seeing my progress and earning rewards is exciting." Research also indicates that gamification elements in language learning apps like Duolingo can enhance user engagement and motivation by making learning more enjoyable and rewarding. (Huynh et al., 2018; Silva et al., 2015). However, several users frequently criticized the app's heavy focus on gamification elements. They argued that this overemphasis detracts from genuine language learning and makes the app feel "more like a game than a serious educational tool." This aligns with the findings of Mogavi et al. (2022), who highlighted the negative consequences of overusing gamification elements in language learning. Moreover, the heart system within the freemium model is also viewed as a point of contention. Many users feel that this system "hinders continuous learning," as it limits practice sessions and forces users to either pay for unlimited hearts or stop practicing after a certain number of mistakes. Users view This push towards monetization negatively and feel it undermines the app's educational value. This is also highlighted in the work of Seaborn and Fels (2015), where they acknowledge that punitive systems like lives or hearts can demotivate users by increasing anxiety and reducing perceived control over learning.

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Content Quality

Many users praised the app's effective lesson structure, which starts with essential words and gradually advances to more complex sentences and topics throughout the units. Despite this, a few users mentioned that the lessons sometimes feel overly repetitive, featuring the same combination of tasks. Additionally, users expressed dissatisfaction with the excessive focus on tasks in each lesson. One user claimed, "It's so repetitive; my phone keyboard has learned to suggest all the answers because I type them so much!" Moreover, several comments pointed out that the lessons often seem disjointed, as new lessons are not well integrated with what has been previously covered. As highlighted in the comment, "I have found it difficult to remember old words because they are not integrated regularly into new lessons," this lack of reinforcement makes it challenging for users to retain previously learned words. A few comments complained about the new progression path implemented in recent updates, highlighting the lack of options in choosing what content to learn or review. One user commented, "The new pathway does not allow a person to learn in their way; it is like being stuck in school again." Furthermore, similar to what Wiyati and Amelia (2022) reported, users often described the content presented in lessons as ineffective, unrealistic, or unlikely to be encountered in real-life conversations. One user noted, "The choice of vocabulary to teach is very hit or miss. They spend an inordinate amount of time teaching you nearly useless words like 'ghost' instead of expanding the food and verb options." This lack of real-world relevance diminishes the app's effectiveness as a language-learning tool.

Insufficient Grammar Explanation

Moreover, many users expressed frustration with Duolingo's lack of comprehensive grammar explanations. Echoing Wiyati and Amelia (2022), user reviews indicated that the app relies heavily on repetitive tasks without adequately explaining the underlying grammatical rules. This approach can leave learners feeling like they are memorizing rather than understanding the language. This is highlighted in reviews where users report difficulty understanding the grammatical differences between words or phrases in tasks. They feel they are being "thrown into" lessons without proper context or explanations of grammatical structures, making it difficult to grasp concepts such as verb conjugation. This leads learners to seek external resources for a better understanding of grammar. Thus, the lack of in-depth grammar instruction is seen as a significant gap, making Duolingo more "suitable for building vocabulary and basic language practice rather than comprehensive language learning." However, it is essential to note that comments from EFL learners did not show the same concerns about grammar instruction. This discrepancy might be attributed to the fact that these participants used Duolingo as a supplementary tool alongside their formal coursework, which provided ample grammar and vocabulary instruction throughout the semester.

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Task Quality

Regarding task quality, many learners appreciated the variety of tasks employed in lessons. As highlighted in users' comments, the diverse range of exercises enables effective engagement with new input material, reinforcing their understanding and retention (Shortt et al., 2021). Several participants also commented on the usefulness of different tasks, particularly for learning new vocabulary. One of the participants commented, "I liked that the lessons used a mix of activities, like filling in the blanks, listening exercises, and matching games. It helped keep things interesting and made learning new vocabulary more fun." However, not all types of tasks were considered valid. For instance, many users noted that the translation tasks often lack context, making it challenging to grasp the intended meaning of the sentences in the target language. These tasks frequently focus on word-for-word translations, which can lead to inaccuracies, especially when dealing with idioms and colloquial expressions. In contrast to the results reported by Kazu and Kuvvetli (2022) and Syafrizal et al. (2022), there is also noticeable dissatisfaction with the speaking tasks, where users are prompted to speak into the microphone and the system evaluates only their pronunciation. These exercises are typically limited to short phrases or sentences and do not allow users to engage in extended, natural conversations.

Supplementary Nature of Duolingo

Despite the criticisms, users acknowledged that Duolingo has positively impacted their language learning journey. Some users reported significant improvements in their ability to understand and, although imperfectly, converse in their target language. This is reflected in the work of Loewen et al. (2019), who found a moderate correlation between the amount of time spent on Duolingo and learning gains. EFL learners also shared similar views, appreciating the app's various exercises and engaging gamified methods, which keep them motivated and make learning enjoyable. Nevertheless, there is a consensus that Duolingo should not be seen as the sole resource for language learning. An examination of user comments and insights from EFL learners revealed that Duolingo is widely regarded as a valuable supplementary tool for language learning rather than a standalone solution. Many users find the app effective when combined with other learning methods, such as immersion, conversations, and exposure to the target language through media. One user highlights this perspective by stating, "It is a good starting point, but it will not get you an intricate understanding of a language. To do that, I recommend finding additional resources". This sentiment is echoed by others who find Duolingo helpful in building vocabulary and improving pronunciation but insufficient for mastering grammar and sentence structure. Students' comments further illustrate the supplementary nature of Duolingo. They believe the app can effectively complement their classroom learning, keeping them engaged with language practice outside formal settings. This aligns with

research suggesting that technology-based tools are most effective when integrated into a broader language-learning program (Shortt et al., 2021).

Conclusion

This study investigated the perceived efficacy of Duolingo as a language learning tool for diverse learners. The study identified five key themes illuminating the platform's strengths and weaknesses by analyzing user comments and conducting interviews with Iranian EFL learners. First, users appreciated the app's gamified learning experience for its engaging and motivating elements. However, some criticized its overemphasis on gamification elements, which can harm meaningful learning. Second, the lesson structure was praised for its progression from primary to complex material, but issues such as repetitiveness, disjointed content, and unrealistic sentences were also noted. Furthermore, a significant concern was the lack of comprehensive grammar explanations, which forced users to seek external resources. However, this concern was less prominent among EFL learners using Duolingo as a supplementary tool. Moreover, Task variety was generally appreciated, but translation tasks often were deemed to lack context, and speaking tasks were limited in scope. Lastly, while Duolingo's engaging methods were considered adequate for language learning, it was widely regarded as a valuable supplementary tool rather than a standalone solution. Considering the study's limitations, it is essential to interpret the findings cautiously. The use of convenience sampling and the small sample size of nine interview participants limits the generalizability of the results to the broader population of Duolingo users, as they may not fully capture the diverse experiences of all language learners. Additionally, the focus on Iranian EFL learners restricts the applicability of the findings to different cultural contexts, as cultural influences play a significant role in language learning. Future research should consider these limitations and strive for more representative sampling, inclusion of diverse cultural contexts, and longitudinal approaches to better understand Duolingo's effectiveness in language learning. A mixed-methods approach could delve deeper into the efficacy of gamified language learning apps, exploring variances between perceived usefulness and actual language development to yield a more comprehensive understanding. Furthermore, a comparative analysis of popular language learning applications focusing on recent updates and developments would offer valuable insights into the evolving landscape of language learning technology.

The study's findings have significant implications for language learning practices. Firstly, Duolingo should be viewed primarily as a supplementary tool rather than a replacement for traditional classroom instruction, as it cannot fully address the complexities of language learning. Self-learners should consider augmenting their study with external resources such as textbooks, language exchange programs, or additional online courses to enhance their overall learning experience when using such applications. Moreover, educators must remain vigilant in monitoring updates and developments in

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language learning apps, as the commercial interests of founding companies can influence app features and content, potentially compromising their pedagogical effectiveness. Therefore, educators must evaluate these applications to ensure they meet educational standards critically. Lastly, app developers should strive to balance gamified elements with meaningful learning experiences. This involves developing high-quality, contextually relevant content that aligns with language learning objectives and promotes effective skill development.

Declarations

Availability of data and materials

Data sharing does not apply to this article as no datasets were generated or analyzed during the current study.

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References

Abdeen, F., & Albiladi, W. (2021). Gamification and technology-based learning: Uncovering the potential of using games in language teaching and learning. *Journal of Studies in Education*, *11*(2), 62. https://doi.org/10.5296/jse.v11i2.18339

Ary, D., Jacobs, L. C., Sorensen, C. K., & Walker, D. (2019*). Introduction to research in education* (10th ed.). Cengage.

Astarilla, L. (2018). University Students' Perception Towards the Use of Duolingo Application in Learning English. *In CelSciTech-UMRI 2018 Conference Proceedings* (Vol. 3, Sep. 2018). STMIK-AMIK Riau, Pekanbaru, Riau, Indonesia.

Bader, M., Cloarec, M., Goumy, M., & Hussein, D. (2022). The advantages and limits of gamification mechanisms: A Duolingo case study. Retrieved from https://comtechp7.hypotheses.org/files/2022/09/The-Advantages-and-Limits-of-Gamification-Mechanisms-A-Duolingo-Case-Study.pdf

Boudadi, N. A., & Gutiérrez-Colón, M. (2020). Effect of gamification on students' motivation and learning achievement in Second Language Acquisition within higher education: A literature review 2011-2019. *The EUROCALL Review*, *28*(1), 57.

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Mohammad Javad Ghasemi, Atousa Mirzapour Kouhdasht, Beyond the Ratings: Exploring Duolingo's Perceived Usefulness Among Language Learners

Buenaño, C., Trujillo, E., Pazmiño, S., & Carvajal, S. (2023). Fostering English vocabulary learning through gamification strategy: A preliminary study. *Concienciadigital*, *6*(1.4), 60-78 .

Burston, J. (2013). Mobile assisted language learning: A review of the research. *Computer Assisted Language Learning*, *26*(4), 303–321.

Burston, J. (2013). Mobile assisted language learning: A review of the research. *Computer Assisted Language Learning*, *26*(4), 303–321.

Burston, J. (2015). *Mobile assisted language learning: Concepts, research, and practice*. Routledge.

Chen, G., Wang, F., & Li, X. (2020). Mobile assisted language learning: A systematic review of research from 2008 to 2018. *Computer Assisted Language Learning*, *33*(3), 219-242.

Devendren, A., & Nasri, N. B. M. (n.d.). Systematic Review: Students' Perceptions of the Use of Gamification. *International Journal of Academic Research in Business and Social Sciences*, *12*(8), 14268. https://doi.org/10.6007/ijarbss/v12-i8/14268

Dornyei, Z. (2007). *Research methods in applied linguistics*. Oxford University Press.

Faradisa, L., Afrila, I., Faroh, I., & Choirunnisa, G. (2022). The use of Duolingo to assist EFL students of Prof. KH. Saifuddin Zuhri State Islamic University in learning vocabulary. *Conference on English Language Teaching*, *2*, 14-25. https://doi.org/10.24090/celti.v2.29

Gimeno-Sanz, A., Martinez-Fernandez, M., & Hernandez-Castro, J. L. (2020). Towards a new educational paradigm: Mobile-assisted language learning in higher education. *Computer Assisted Language Learning*, *33*(2), 165-186.

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work? A literature review of empirical studies on gamification. https://doi.org/10.1109/hicss.2014.377

Hassan, M., Emam, H., & Sayed, F. (2023). Using gamification to enhance sixth grade pupils' motivation. *Scientific Journal of the Faculty of Education, University of Wadi El-Gedid*, *15*(44), 226-239. https://doi.org/10.21608/sjsw.2023.288031

Hassan, M., Habiba, U., Majeed, F., & Shoaib, M. (2019). Adaptive gamification in e-learning based on students' learning styles. *Interactive Learning Environments*. https://doi.org/10.1080/10494820.2019.1588745

Ho, J. (2019). Discursive representations of domestic helpers in cyberspace. *Discourse Studies*, *22*(1), 48–63. https://doi.org/10.1177/1461445619887539

Huynh, D., Zuo, L., & Iida, H. (2018). An Assessment of Game Elements in Language-Learning Platform Duolingo. *2018 4th International Conference on Computer and Information Sciences (ICCOINS)*, 1-4. https://doi.org/10.1109/ICCOINS.2018.8510568.

Mohammad Javad Ghasemi, Atousa Mirzapour Kouhdasht, Beyond the Ratings: Exploring Duolingo's Perceived Usefulness Among Language Learners

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Irwit Santi, L., Hilal, A., & Rismiyanto (2023). Review of Duolingo Application in Learning English. *Channing: Journal of English Language Education and Literature*.

Jiang, X., Rollinson, J., Plonsky, L., Gustafson, E., & Pająk, B. (2021). Evaluating the reading and listening outcomes of beginning-level Duolingo courses. *Foreign Language Annals*, *54*(4), 974-1002. https://doi.org/10.1111/flan.12600

Kazu, I. Y., & Kuvvetli, M. (2022). Improve speaking skills with Duolingo's mobile game-based language learning. *Asian Journal of Education and Training*, *10*(1). https://doi.org/10.20448/edu.v10i1.5488

Khaled, A. E. (2021). The impact of using gamification on developing English language speaking skills among preparatory school students. *Journal of Scientific Research in Education*, *22*(1), 388-405. https://doi.org/10.21608/jsre.2021.54341.1236

Kukulska-Hulme, A., & Viberg, O. (2018). *Mobile learning: Transforming education*. Routledge.

Loewen, S., Crowther, D., Isbell, D., Kim, K., Maloney, J., Miller, Z., & Rawal, H. (2019). Mobile-assisted language learning: A Duolingo case study. *ReCALL*, *31*, 293 - 311. https://doi.org/10.1017/S0958344019000065.

Loewen, S., Smith, P., & Jones, R. (2020). Duolingo as a mobile assisted language learning tool: A mixed-methods study of Turkish language learners. *Computer Assisted Language Learning*, *33*(4), 317-338.

Loewen, S., Smith, P., & Jones, R. (2020). Duolingo as a mobile assisted language learning tool: A mixed-methods study of Turkish language learners. *Computer Assisted Language Learning*, *33*(4), 317-338 .

Marin-Pacurucu, B., & Argudo-Garzón, A. (2022). Gamification strategies and speaking fluency in EFL elementary students. *Iustitia Socialis*, *7*(1), 77. https://doi.org/10.35381/racji.v7i1.1702

Mila, H., & Mahbub, M. (2022). An alternative board game to promote EFL learners' grammatical skill. *Enjourme (English Journal of Merdeka)*, *7*(1), 78-87. https://doi.org/10.26905/enjourme.v7i1.7043

Mogavi, R., Guo, B., Zhang, Y., Haq, E., Hui, P., & Ma, X. (2022). When Gamification Spoils Your Learning: A Qualitative Case Study of Gamification Misuse in a Language-Learning App. Proceedings of the Ninth ACM Conference on Learning @ Scale. https://doi.org/10.1145/3491140.3528274.

Nurhisyam, R., Usman, S., Agussatriana, A., & Rofiqoh, R. (n.d.). University students' perception in learning vocabulary through Duolingo. *e-Journal of ELTS*. https://doi.org/10.22487/elts.v10i3.3189

Nyazi, A. K. (2023). Students' Perceptions of a Gamification in Higher Education. *Journal of Educational and Psychological Sciences*, *3*(8), 23. https://doi.org/10.26389/ajsrp.y030823

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Mohammad Javad Ghasemi, Atousa Mirzapour Kouhdasht, Beyond the Ratings: Exploring Duolingo's Perceived Usefulness Among Language Learners

Pham, A. T. V., & Nguyen, L. D. (2021). Students' Perceptions of Gamification: A Case Study in Business Courses at an Institution of Higher Education. *In _2021 3rd International Conference on Modern Educational Technology* (pp. 1-6). Association for Computing Machinery. https://doi.org/10.1145/3468978.3468998

Phuong, T. (2020). Gamified learning: Are Vietnamese EFL learners ready yet? *International Journal of Emerging Technologies in Learning (IJET)*, *15*(24), 242. https://doi.org/10.3991/ijet.v15i24.16667

Rassaei, M. (2020). The use of mobile applications in language learning: A review of the literature. *Computer Assisted Language Learning*, *33*(1), 5-26.

Richards, J. (2015). The changing face of language learning: Learning beyond the classroom. *RELC Journal*, *46*(1), 5-22. https://doi.org/10.1177/0033688214561621

Ritonga, M., Febriani, S., Kustati, M., Khaef, E., Ritonga, A., & Yasmar, R. (2022). Duolingo: An Arabic speaking skills' learning platform for andragogy education. *Education Research International*, 1-9. https://doi.org/10.1155/2022/7090752

Sato, M., Watanabe, Y., & Shibata, T. (2020). Mobile assisted language learning in Japan: A survey of current trends and challenges. *Computer Assisted Language Learning*, *33*(5), 403-421.

Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. *International Journal of human-computer studies*, *74*, 14-31. https://doi.org/10.1016/j.ijhcs.2014.09.006

Shortt, M., Tilak, S., Kuznetcova, I., Martens, B., & Akinkuolie, B. (2021). Gamification in mobile-assisted language learning: a systematic review of Duolingo literature from public release of 2012 to early 2020. *Computer Assisted Language Learning, 36*(3), 517–554. https://doi.org/10.1080/09588221.2021.1933540

Silva, J., Oliveira, E., & Barbosa, G. (2015). Characterizing gamification strategies in educational mobile applications: a case study of duolingo. https://doi.org/10.1145/3148456.3148482.

Sukarya, D., Kamil, A., & Utami, P. (2022). The students' experiences in implementing Duolingo-assisted listening learning. *Jiip - Jurnal Ilmiah Ilmu Pendidikan*, *5*(10), 3941-3946. https://doi.org/10.54371/jiip.v5i10.972

Syafrizal, S., Cahyaningrum, N., & Syamsun, T. R. (2022). Duo Lingo application for teaching speaking skills class: Students' perception of speech ability. *International Database Engineering and Applications Symposium*. https://doi.org/10.24256/ideas.v10i1.2881

Torres-Gastelú, C. A., Olguin-Barrera, A., & Angulo-Armenta, J. (2022). Perception of young university students on the acceptance of gamification in the learning process. *In _2022 XII International Conference on Virtual Campus (JICV)* (pp. 1-6). IEEE. https://doi.org/10.1109/JICV56113.2022.9934320

Wiyati, R., & Amelia, S. (2022). STUDENTS' REFLECTION TOWARD LEARNING VOCABULARY USING DUOLINGO APPLICATION. *JELA (Journal of English Language Teaching, Literature and Applied Linguistics)*, *4*(1), 75-90. https://doi.org/10.37742/jela.v4i1.75

Yana, D. (2021). Applying Duolingo as English Learning Media: How do Students Perceive it? *INTERNATIONAL JOURNAL OF LANGUAGE PEDAGOGY.*

Zeng, C., & Fisher, L. (2023). Opening the "black box": How out-of-class use of Duolingo impacts Chinese junior high school students' intrinsic motivation for English. *ECNU Review of Education*, *7*(2), 283-307. https://doi.org/10.1177/20965311231171606

Zhang, S., & Hasim, Z. (2023). Gamification in EFL/ESL instruction: A systematic review of empirical research. *Frontiers in Psychology*, *13.* https://doi.org/10.3389/fpsyg.2022.1030790.

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