



The Role of Duolingo in Developing Students' Listening Skills: Students' Voices

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Abstract

Information and Communication Technology (ICT) has become a fundamental element of English as a Foreign Language (EFL) training, especially via Mobile-Assisted Language Learning (MALL) applications that enhance listening comprehension. Although prior studies have extensively documented the efficacy of Duolingo for general language acquisition, empirical research that rigorously investigates its impact on listening comprehension in the context of Indonesian higher education is few. This study sought to examine the efficacy of Duolingo in improving EFL students' listening comprehension, emphasizing both educational outcomes and learner experiences. This research utilized a mixed-methods approach, incorporating surveys and semi-structured interviews with first-semester undergraduate English as a Foreign Language students. Quantitative data were subjected to descriptive analysis, while qualitative data underwent thematic analysis to facilitate data triangulation. The results demonstrated that Duolingo effectively facilitated students' listening comprehension via repeated audio exposure, incremental task advancement, vocabulary guidance, and gamified elements that increased motivation and engagement. Students additionally indicated enhancements in pronunciation awareness and general English proficiency. The study, however, revealed significant problems, notably with robotic and unnatural speech, irregular speaking tempo, and restricted exposure to genuine hearing input. This study provides empirical evidence indicating that Duolingo serves most effectively as an adjunct listening tool when combined with classroom instruction, rather than as a standalone learning medium. These findings offer pedagogical implications for the incorporation of MALL applications in EFL listening instruction within Indonesian higher education.

Keywords: Duolingo, EFL learners, Listening Comprehension, Mobile Assisted Language Learning (MALL).

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1. Introduction

Listening comprehension is frequently recognized as one of the most difficult abilities for English as a Foreign Language (EFL) learners, especially in higher education settings where academic listening requirements are significant (Nushi & Orouji, 2020, Sun, 2024). Listening is not only a passive act of receiving sound; it needs active cognitive involvement, including meaning prediction, comprehension monitoring, and inferencing based on language and contextual signals (Al-Khresheh & Alruwaili, 2023). In the context of Indonesian higher education, EFL learners often face listening challenges due to insufficient exposure to actual English input, unfamiliar terminology, accelerated speech rates, and variations in accent.

Prior research has repeatedly demonstrated that numerous EFL learners encounter difficulties in understanding spoken English, particularly when their instructional exposure is restricted to classroom content and limited contact hours (Adi et al., 2021). These issues indicate that standard hearing training may be inadequate for fostering learners' listening growth, thereby requiring additional educational strategies that transcend regular classroom settings. Collectively, these data reveal a continual disparity between learners' listening requirements and the instructional materials generally accessible in formal EFL environments.

Before the extensive integration of mobile technology, listening instruction predominantly depended on conventional audio media, including radio broadcasts, cassettes, and podcasts, which facilitated repeated exposure to spoken language and aided in vocabulary and intonation enhancement (Muhammadiyah et al., 2025, Silalahi & Sandyadenta, 2022). Although these medium facilitated listening practice, they provided minimal interactivity, feedback, and customization to particular learner requirements. The advent of Mobile-Assisted Language Learning (MALL) has mitigated these constraints by facilitating flexible, tailored, and interactive listening practice via mobile applications (Metruk, 2024).

Duolingo has achieved notoriety among many MALL applications because to its gamified listening exercises, adaptive task progression, and quick feedback mechanisms that



boost student motivation and engagement (Arbain & Nur, 2017; Ajisoko, 2020; Olimat, 2024). Empirical research indicates that Duolingo enhances listening comprehension, pronunciation awareness, and spoken vocabulary recognition via repeated and structured audio input (Praditha & Nur, 2019; Tuong & Dan, 2024; Nabila et al., 2025). Gamification elements, like points, levels, and streaks, have demonstrated the ability to enhance prolonged student engagement and foster autonomous learning (Arbain & Rohman, 2023; Keristiana et al., 2019; Fitriani, 2024). These results indicate that Duolingo's efficacy is chiefly associated with repetitive exposure and learner motivation, rather than the delivery of entirely authentic communicative input.

In the context of Indonesian EFL higher education, current research predominantly emphasizes the assessment of learning outcomes and motivation levels related to the utilization of Duolingo (Merilia et al., 2019; Kamsik et al., 2023; Purwanto et al., 2022). Although these studies validate Duolingo's beneficial effect on listening proficiency, they also underscore persistent shortcomings, such as restricted pronunciation diversity, synthetic speech attributes, and inadequate real-world conversational scenarios (Arbain et al., 2017; Gracella & Rahman Nur, 2020; Lo et al., 2025; Tuong & Dan, 2024). Qualitative research suggests that Duolingo is better appropriate for beginner to intermediate learners and serves optimally as a supplementary learning resource rather than a substitute for classroom teaching (Nur, 2020; Sukarya et al., 2022; Nguyen & Nguyen, 2023). Notwithstanding these findings, few research has amalgamated quantitative results with qualitative student experiences to rigorously evaluate both the advantages and limitations of Duolingo for listening comprehension in Indonesian higher education.

This study seeks to investigate the efficacy of Duolingo in improving EFL students' listening comprehension, while also analyzing learners' experiences, obstacles, and continued utilization of the application within an Indonesian university setting. This study utilizes a



mixed-methods approach to offer a comprehensive and contextualized knowledge of Duolingo's pedagogical role in EFL listening training.

2. Method

This study employed a mixed-methods research design to rigorously assess the efficacy of the Duolingo program in enhancing listening comprehension among English as a Foreign Language (EFL) students. This methodological integration was considered appropriate for research in Mobile-Assisted Language Learning (MALL), as it enabled data triangulation and bolstered the credibility of the findings (Cohen et al., 2007, Ergün-Elverici, 2023). The quantitative component concentrated on discerning overarching patterns about students' involvement, perceived efficacy, and motivation in utilizing Duolingo for listening practice. Simultaneously, the qualitative component examined learners' experiences with particular listening features, perceived difficulties, and motivations for continued application usage. The study sought to achieve a comprehensive knowledge of both learning outcomes and learner experiences by merging these two techniques, as advocated in prior Indonesian MALL research.

The research was carried out in the first semester of the academic year at the English Education Program of Muhammadiyah University of East Kalimantan, Indonesia. Data collection occurred during a specified educational period in which students actively utilized the Duolingo application for autonomous listening practice. The participants were 66 first-semester undergraduate students in the English Education Program. The selection of first-semester students was deemed appropriate because to their nascent academic adaptability and fundamental English skills, rendering them suited for investigating the effects of mobile-based listening practice.

3. Research Instruments

The principal quantitative tool employed in this research was a questionnaire aimed at gathering data on students' participation, attitudes, and experiences concerning the utilization



of Duolingo for listening comprehension (Tuong & Dan, 2024). The questionnaire comprised ten items assessed via a four-point Likert scale, ranging from Strongly Disagree to Strongly Agree. The items were categorized into three primary dimensions: (1) engagement, (2) perceived efficacy, and (3) motivation and attitudes towards MALL.

The questionnaire items were designed based on constructs frequently utilized in recent MALL and Duolingo investigations and were assessed for content relevance before distribution. To guarantee clarity and suitability for the Indonesian EFL setting, the questionnaire was informally piloted with a small group of students not included in the main sample, resulting in minor wording modifications.

Semi-structured interviews were performed to acquire qualitative insights that enhanced the quantitative results. The interview guide had open-ended questions regarding students' listening practices, preferred Duolingo features, obstacles faced, similarities between classroom and mobile listening teaching, and intentions for ongoing usage. The interview questions were modified from earlier research on Duolingo and MALL to guarantee methodological relevance and contextual suitability (Tuong & Dan, 2024).

3.1 Data Collection Procedures

Quantitative data were gathered by disseminating the questionnaire through Google Forms following students' engagement in listening exercises using Duolingo. This online distribution strategy facilitated rapid data collecting and ensured participant accessibility. The quantitative data were examined utilizing descriptive statistical methods, including frequencies and percentages. Qualitative data were collected via semi-structured interviews with five chosen individuals. The interview subjects were selected intentionally because to their active involvement with Duolingo and their capacity to express their listening experiences comprehensively. Despite the restricted sample size of the interviews, it was deemed enough for producing comprehensive insights aligned with qualitative research methodologies in comparable Indonesian EFL studies.



All interviews were conducted ethically, with informed consent acquired from all participants. The interviews were audio-recorded and transcribed precisely to guarantee correctness. Participant anonymity and confidentiality were preserved throughout the research process.

3.2 Data Analysis Technique

The quantitative data acquired from the questionnaire were evaluated by descriptive statistical methods, including frequencies and percentages, to encapsulate students' involvement levels, views of effectiveness, and motivation in utilizing Duolingo for listening comprehension. The data were displayed in a tabular format to enhance clarity and interpretation. The qualitative data obtained from the interviews were subjected to theme analysis. The process encompassed multiple stages: transcription, coding of significant data segments, grouping of codes into themes, and interpretation of themes about the research objectives. Data triangulation was utilized to augment trustworthiness by juxtaposing quantitative patterns with qualitative themes, facilitating cross-validation of results.

4. Findings

This part elucidates and analyses the findings obtained from both quantitative and qualitative data to achieve the research objectives. The quantitative data were derived from questionnaire responses, and the qualitative insights were extracted from semi-structured interviews. The amalgamation of these two data sets yielded a thorough awareness of students' perceptions, experiences, and obstacles in utilizing the Duolingo application to improve listening comprehension.

Tabel 1. Duolingo Students' English listening comprehension

Descriptive Statistics					Std.
	N	Minimum	Maximum	Mean	Deviation
X ₁	49	1	4	2.92	.812



X_2	49	1	4	2.84	.657
X_3	49	1	4	3.16	.657
X_4	49	1	4	3.06	.689
X_5	49	1	4	3.10	.684
X_6	49	1	4	2.94	.827
X_7	49	1	4	3.12	.666
X_8	49	1	4	3.10	.684
X_9	49	1	4	3.08	.640
X_10	22	1	4	3.00	.816
Valid N (listwise)	22				

The quantitative data were assessed through descriptive statistics to assess students' opinions of engagement, perceived effectiveness, and motivation in use Duolingo for listening practice. Table 1 illustrates that the mean ratings of the questionnaire items varied from 2.84 to 3.16 on a four-point Likert scale, reflecting predominantly favorable opinions of the application. The majority of recorded items indicated mean values exceeding 3.00, implying that most participants saw Duolingo as advantageous for enhancing their listening comprehension.

The highest mean score was recorded for item X₃ (M = 3.16, SD = 0.657), indicating students' consensus that regular audio exposure via Duolingo enhanced their comprehension of spoken English. This discovery corroborates earlier research highlighting the significance of repetition and incremental task advancement in enhancing listening comprehension growth (Putra, 2019). Nonetheless, it is crucial to acknowledge that these outcomes predominantly represent students' subjective enhancements rather than direct assessments of listening proficiency advancements.

Elements pertaining to flexibility and accessibility, including X₇ (M = 3.12, SD = 0.666) and X₈ (M = 3.10, SD = 0.684), attained elevated mean scores. The results demonstrate that students appreciated Duolingo's mobile accessibility and gamified features, enabling them to participate in listening practice outside of formal classroom environments. This substantiates



the perspective that MALL applications might augment learner engagement and autonomy, especially in situations where instructional time is constrained.

Additional items, including X_4 , X_5 , and X_9 , indicated reported enhancements in listening-related subskills, specifically pronunciation awareness and word recognition. Although these findings indicate favorable trends, they must be evaluated with caution, as the data reflect self-reported judgments rather than objective performance evaluations. Item X_{10} , which garnered a limited number of valid replies, produced a mean score of 3.00, reflecting consensus among respondents; yet, the restricted response rate implies that this item may not have been universally relevant to all participants.

The quantitative results suggest that students saw Duolingo as an effective and engaging adjunct for listening practice. Nonetheless, these results do not definitively indicate quantifiable advancements in listening proficiency, underscoring the necessity to differentiate between perceived efficacy and empirically substantiated enhancement.

Tabel 2. experiences and challenges of EFL students when practicing skills using Duolingo app

The qualitative data from the interviews provided deeper insights into students' listening practices, perceived benefits, and challenges when using Duolingo. The integration of students' voices throughout this section illustrates how learners experienced the application in authentic learning contexts.

Question 1			
No.	Question	Code	Excerpt
1.	How do you enhance your listening comprehension skills in English	Enhancing Listening Comprehension through Repetitive, Supportive, and Engaging Audio	The dictionary option in Duolingo is incredibly helpful for me because I can listen to the audio and read the words over and over again. This helps me grasp the words better and say them right. (R1) I often use the replay and slow-speaking features when I don't understand the audio very well.



by using the Duolingo app?	Features in Duolingo	<p>The tale feature with the audio icon is another thing I like since it helps me get better at listening by telling stories. In general, Duolingo's features are entertaining, not dull, and not too much the same. (R2)</p> <hr/> <p>I frequently play the audio again in Duolingo until it makes sense to me in order to improve my listening skills, especially when I'm practicing my pronunciation. (R3)</p> <hr/> <p>By regularly using Duolingo and utilizing its audio features, level-based stories, podcasts, and storytelling activities, I am able to improve my listening skills. (R4)</p> <hr/> <p>In order to improve my listening skills, I first concentrate on learning the vocabulary before gradually listening to the audio features in Duolingo. (R5)</p>
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The primary theme, Enhancing Listening Comprehension via Repetitive, Supportive, and Engaging Audio Features, indicated that students significantly depended on Duolingo's replay, slow-speaking, and vocabulary assistance features to aid comprehension. Participants consistently indicated that repeated exposure to auditory stimuli enhanced their word recognition, improved pronunciation comprehension, and alleviated anxiety during listening activities. These findings validate quantitative patterns and demonstrate how learners strategically utilized specific features to navigate listening challenges. It is crucial to recognize that the perceived efficacy of repetition-based listening may differ from studies highlighting the significance of exposure to authentic and diverse speech for advanced listening development. Although repetition aids comprehension for beginners, it may hinder learners' ability to engage with spontaneous and authentic spoken English.



Question 2

No.	Question	Code	Excerpt
2.	Which Duolingo features like slow speaking, audio reply, and pronunciation practice are best for improving your listening skills?	Improving Listening and Pronunciation through Repetitive, Slow, and Clear Audio Features in Duolingo.	<p>I think the slow and repeated audio feature really helps because it makes it easier to understand words and pronunciations that I didn't understand before. (R1)</p> <hr/> <p>I believe that practicing speaking can benefit from the audio recording feature. I can tell exactly how the words sound by listening to the pronunciation with this feature. (R2)</p> <hr/> <p>All of Duolingo's features are significant, but I find that the audio replay and slow-audio features work best because they make the sound more understandable and learn. (R3)</p> <hr/> <p>I think the story feature in Duolingo is the most effective because it has a lot of dialogue, so I can listen</p>



carefully and repeat it many times. **(R4)**

I find that the replay, listening, and pronunciation features of Duolingo are the most useful. **(R5)**

The second theme, Challenges in Listening Comprehension Due to Robotic and Unnatural Speech Characteristics, underscored a persistent issue among participants regarding the synthetic nature of Duolingo's audio. Students characterized the voices as mechanical, artificial, and occasionally erratic in tempo, which impeded understanding. This discovery corroborates prior studies that critique the restricted authenticity of synthetic speech in language learning applications (Lo et al., 2025, Tuong & Dan, 2024). Significantly, these adverse opinions confuse the otherwise favorable quantitative results and indicate that Duolingo's listening advantages are not equally experienced among learners.

Question 3

No.	Question	Code	Excerpt
3.	What obstacles do you face when practicing listening on Duolingo?	Challenges in Listening Comprehension Due to Robotic and Unnatural Speech Characteristics in Duolingo	The character voices elements is the biggest challenge I face since it sounds too robotic and unnatural. As a result, there is occasionally irregularly in the speaking tempo and unclear pronunciation. (R1)



One of the challenges I encounter when learning to listen on Duolingo is the rapid speech rate, which makes it challenging for me to comprehend the words completely. Furthermore, the app's speech seems overly artificial. **(R2)**

I find that Duolingo's accent and pronunciation are too robotic, almost like artificial intelligence, which makes learning challenging. **(R3)**

The third subject, Differences Between Classroom-Based and Duolingo-Based Listening Learning, indicated that students regarded classroom listening teaching as more structured, academically demanding, and lexically abundant, whereas Duolingo was considered as more flexible and motivating but less intricate. This contrast highlights that Duolingo predominantly facilitates independent practice and review rather than extensive listening instruction. These findings indicate that Duolingo is likely better appropriate for beginner to intermediate learners and serves to reinforce, rather than substitute, traditional classroom listening instruction.



Question 4

No.	Question	Code	Excerpt
4.	What are the differences between listening exercises in a regular classroom and those conducted using Duolingo?	Differences Between Classroom-Based and Duolingo-Based Listening Learning in Terms of Structure, Autonomy, and Learning Complexity	<p>I adhere to the lecturer's direct instruction when I study in the classroom. I have greater freedom to select and study the resources I need or desire when I use Duolingo for individual learning. (R1)</p> <hr/> <p>The learning process is typically more intricate, in-depth, and academically regimented in the classroom. Conversely, Duolingo is more suited for novices and is helpful for review, which keeps me motivated and allows me to monitor my daily progress. (R2)</p> <hr/> <p>I occasionally get bored when using Duolingo, because the vocabulary is rather simple. Listening exercises are more intricate and productive in in-person</p>



classrooms, and I pick up a lot of new vocabulary that I would not often acquire from Duolingo. **(R3)**

Duolingo allows me to repeat the lessons, whereas class time goes by quickly and doesn't feel boring. This is the difference between studying listening in the classroom and using Duolingo. This increases my curiosity in using the Duolingo app for individual learning. **(R4)**

I find the listening audio in the classroom to be more challenging to understand at times, but I feel that the English learning resources on Duolingo are lighter and easier to understand. **(R5)**

The fourth interview topic explored learners' impressions of the distinctions between classroom listening instruction and Duolingo-based listening practice. The results indicated a theme titled "Differences Between Classroom-Based and Duolingo-Based Listening Learning Regarding Structure, Autonomy, and Learning Complexity."



Participants regarded classroom-based listening activities as more organized, academically demanding, and lexically abundant owing to direct instructor supervision and the use of more intricate materials. Conversely, Duolingo was perceived as providing enhanced flexibility, autonomy, and opportunity for repetition, so augmenting motivation and alleviating anxiety. Several learners observed that Duolingo's audio material was rather elementary and more appropriate for reinforcement than for advanced comprehension. The data suggest that positive learner impressions of Duolingo were linked to ease and motivation, rather than comparable instructional depth in relation to classroom listening exercises.

Question 5

No.	Question	Code	Excerpt
5.	After this lesson, will you continue using Duolingo to hone your listening skills? Why or why not?	Sustained Use of Duolingo Driven by Enjoyable, Flexible, and Effective Language Learning Features	"Duolingo is a useful and efficient app, so I will keep using it." I can get better at listening, reading, and writing in English with Duolingo. (R1)
			"Duolingo truly helps me learn English in a laid-back manner and in my space time, therefore I will continue to use it. I don't get bored and instead feel like I'm playing an educational game because Duolingo is made like a



game and doesn't feel like
classroom instruction.

(R2)

"I'll keep using Duolingo
as a learning tool since it
lets me practice
conversations, especially
when it comes to listening
through the chat or
interactive elements. My
speaking, listening, and
reading abilities are all
greatly enhanced by this.

(R3)

"I like the features
Duolingo offers, and the
streak feature is the most
intriguing for me, so I will
continue to use it." **(R4)**

"Duolingo's materials are
lightweight, useful, and
appropriate for learning
everyday vocabulary, so
I'll keep using it." **(R5)**



The fifth interview question examined participants' intentions to persist in utilizing Duolingo for listening practice. The analysis yielded the topic “Continued Utilization of Duolingo inspired by Pleasurable, Adaptable, and Efficient Language Learning Attributes.”

The majority of individuals indicated a readiness to persist in using Duolingo owing to its practicality, accessibility, and gamified elements, including streaks and interactive listening exercises. Students regarded the application as a practical adjunct for sustaining auditory exposure and enhancing fundamental abilities. Nonetheless, continued usage was predominantly influenced by motivational and emotional factors, rather than definitive evidence of long-term skill enhancement, indicating that Duolingo serves more effectively as a supplementary resource than as an independent listening training method.

5. Discussion

This study investigated the use of Duolingo as a Mobile-Assisted Language Learning (MALL) tool for improving listening comprehension among Indonesian EFL university students. Overall, the findings indicate that Duolingo contributed positively to learners' engagement, motivation, and perceived listening development. However, these benefits should be interpreted cautiously, as they were largely based on self-reported perceptions rather than direct measures of listening proficiency.

Quantitative findings revealed generally positive student responses regarding Duolingo's effectiveness, flexibility, and motivational features. Repetitive audio exposure, gradual task progression, and gamification were perceived to support listening practice and sustained engagement, consistent with prior MALL research. Nevertheless, the descriptive nature of the quantitative data limits claims about causal improvement in listening ability, highlighting the distinction between perceived gains and measurable learning outcomes.



Qualitative findings provided deeper insight into learners' experiences. Students valued features such as audio replay, slow speech options, and vocabulary support, which facilitated comprehension and pronunciation awareness. At the same time, learners reported limitations related to robotic and unnatural speech quality, inconsistent speaking speed, and restricted exposure to authentic listening input. These challenges align with contrasting studies that question the adequacy of artificial audio for developing advanced listening competence.

A clear contrast also emerged between Duolingo-based and classroom-based listening instruction. Classroom activities were perceived as more structured, cognitively demanding, and lexically rich due to teacher guidance, whereas Duolingo offered greater autonomy, flexibility, and motivational appeal. Furthermore, learners' intentions to continue using Duolingo were primarily driven by affective and practical factors rather than explicit evidence of long-term proficiency development. Collectively, these findings suggest that Duolingo is most effective as a supplementary listening tool that supports motivation and basic skill reinforcement when integrated with classroom instruction and authentic listening materials.

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