

The Incorporation of Mobile-Assisted Language Learning in Improving Undergraduates English Listening Achievement

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Abstract

This study investigates students' listening achievement, which refers to the ability to understand, summarize, and infer key details from a speaker's words, accent, grammar, and vocabulary. The objective of the study is fourfold: 1) Explore factors influencing undergraduates' English listening achievement, 2) develop MALL to enhance listening achievement, 3) implement MALL into listening instruction, and 4) assess students' satisfaction with MALL in improving their listening achievement. Using a mixed-methods approach, the study combined both quantitative and qualitative data. The sample consisted of 80 freshmen majoring in English from Suan Sunandha Rajabhat University, selected through cluster sampling and divided into two groups: the experimental group using MALL and the control group using traditional methods. Data were collected through pre- and post-tests to compare results between the groups, a 5-point Likert scale questionnaire to explore problems affecting their listening achievement and satisfaction, and semi-structured interviews to gain insights into the factors influencing their listening achievement and their perspectives on MALL. Descriptive and inferential statistics, such as mean, standard deviation, frequency, percentage, and t-tests to compare group outcomes, were used to look at quantitative data. Qualitative data were analyzed thematically to identify key themes related to the students' experiences and perceptions of MALL's effectiveness in enhancing their listening achievement. The results showed that internal problems, like not knowing enough about the language (mean rating 4.71), and external problems, like the length of the listening materials (mean rating 4.70) and the physical environment (mean rating 4.60), had a big effect on how well students did in listening. MALL significantly improved the experimental group's listening skills, with a mean score of 35.20, compared to 30.00 in the control group. The students reported high satisfaction with MALL's accessibility and flexibility, although some technical difficulties, such as app crashes and buffering, were noted. However, these issues were manageable and did not significantly affect the overall experience.

Keywords: English, Listening Achievement, MALL, Undergraduate

Introduction

In Thailand, English is taught as a foreign language through a framework known as Teaching English as a Foreign Language (TEFL). The country places a significant emphasis on English education, beginning from a young age. As per the Basic Education Core Curriculum 2008, English is a compulsory subject for students from primary school (Grades 1–6) to higher education (Grades 7–12), and it remains mandatory at the tertiary level. Undergraduate students are required to complete 12 credits, or four subjects, of English to obtain their degrees, as outlined in the 2002–2006 developmental plan for tertiary education (Darasawang, 2007, pp. 192-193). Despite this early and ongoing exposure to English, Thai students still struggle with proficiency, particularly in listening. Listening, a crucial receptive skill, is foundational for the development of other language skills. Research indicates that listening is the first language skill humans acquire, beginning at birth as babies start to distinguish sounds and become sensitive to language (Bangor University, 2022). It is also the primary skill acquired before other language abilities are developed (Wahyuni, 2020, p. 58). However, many Thai students face challenges in listening comprehension. Suwannasit (2018) examined English as a Foreign Language (EFL) learners' listening problems and found that there were three causes of listening problems faced by EFL learners (*ibid.*, pp. 346-348). Firstly, the learner factor includes issues such as inadequate linguistic knowledge, limited working memory, low motivation, and attention failure. Secondly, the input factor involves difficulties with the listening texts themselves, such as fast speech rates, unfamiliar vocabulary, and lengthy inputs. Lastly, the teaching and learning factor refers to a lack of exposure to real-life English usage and extracurricular activities that can enhance listening skills. Thai students, for instance, have faced difficulties due to insufficient practice and limited opportunities to engage in authentic English communication, even with media exposure (Jayawasu, 1988 as cited in Bennui, 2007; Boonyakarn as cited in Bennui, 2007). These factors collectively contribute to the listening challenges faced by EFL learners. Quite similarly, Goh (2000), as cited in Hamouda (2013), offered a comprehensive definition of listening problems, encompassing both internal and external characteristics that hinder text comprehension. These challenges extend to real-life processing problems directly linked to cognitive procedures occurring at various stages of listening comprehension.

Traditionally, there have been misconceptions about teaching listening, with many viewing it as a passive, one-way, and individual process (Brown & Lee, 2015, p. 319). Teachers often believe that listening is acquired unconsciously, is equivalent to reading comprehension, and that listening and speaking should be taught separately. However, Brown and Lee argue that listening is an active process, involving several

strategies. They explain that listening comprehension includes recognizing auditory sounds, understanding the purpose of the speech, activating schemas, assigning literal and intended meanings, managing short- and long-term memory demands, and retaining essential information (ibid.). They also suggest various tasks and activities teachers can use to enhance listening skills, such as reactive tasks (focusing on surface structure), intensive tasks (focusing on language components), responsive tasks (eliciting a response), selective tasks (scanning for specific information), extensive tasks (aiming for global understanding), and interactive tasks (encouraging active learner participation through discussion, debate, or role-playing in pairs/groups) (ibid., pp. 328-330). Additionally, Suwannasit (2018, p. 350) points out that teachers should also train students in active listening techniques, such as asking for clarification and making inferences, to enhance comprehension and memory (ibid.). This process of mastering active listening strategies is what is referred to as “listening achievement.” By achieving listening achievement, students will be able to develop the ability to understand, summarize, and infer key details from a speaker’s words, accent, grammar, and vocabulary, ultimately improving their overall comprehension and communication skills.

In today’s digital era, many educators have developed innovative strategies to address EFL learning challenges among students. Various technologies have been employed, including Mobile-Assisted Language Learning (MALL), Augmented Reality (AR), mobile apps, mobile game-based learning, and online teaching methods such as hybrid courses, blended learning, and hybrid-flexible (HyFlex) instruction. Among these, MALL is utilized to improve language acquisition. Unlike traditional listening teaching in which students typically engage with listening materials in a classroom setting using fixed resources like audio recordings, CDs, or textbooks, MALL offers advantages such as flexibility, mobility, and access to diverse learning materials through the use of smartphones and mobile devices, allowing students to engage in language learning anytime and anywhere. This approach aligns with the needs of modern students, who are increasingly digital natives, often carrying smartphones and using social media platforms for various purposes (Moreno & Vermeulen, 2015, p. 1339). In the past decade, there has been a significant increase in research on the effectiveness of MALL in EFL listening classrooms, with over 80,000 apps available, about 30,000 of which focus on language learning, especially English. MALL addresses several challenges faced by EFL learners in developing listening skills, offering benefits such as ownership, mobility, and technology convergence (Kukulska-Hulme, 2009, pp. 160-161). Mobile devices, now essential tools for language learners, provide easy access to a variety of resources and applications. MALL also eliminates time and space constraints, allowing learners to study

anytime and anywhere, while transforming language learning through multimedia environments.

However, while MALL is currently used in teaching in Thailand, it is primarily integrated into broader areas such as speaking (e.g., Dorji & Sakulwongs, 2024; Zhang, 2021; Phetsut & Waemusa, 2022). Therefore, there is a need for research into the integration of MALL into listening instruction to build more knowledge and improve language education in Thailand. Suan Sunandha Rajabhat University (SSRU)'s one tactic amidst the digital era is to develop a learning management system, foster learning innovation, and promote administrative work to meet international standards. To aid the undergraduates in acquiring the rudiments of language, the university offers an English listening and speaking course, and one of the criteria for the student-centered learning management is preparing the students for the use of ICTs through e-learning. The expected outcomes of the course are, in terms of numerical analysis skill, communication, and information technology usage, 1) that enrollees can apply technology to their study and enhance their English by themselves based on their preference, 2) that they can use technology in researching and managing information suitably, 3) that they can make presentations by using modern technology, and 4) that they are able to integrate using social networks into exchanging knowledge. According to the course report of the first semester of the academic year 2020, Suwanajote (2020) highlighted that undergraduates' understanding of the lessons varied based on their prior background, while simultaneously pointing out some limitations, i.e., inadequate learning resources and unstable internet connection on the campus, that affected the undergraduates' learning achievement. Suwanajote, therefore, recommended a revision to the lesson plan for the following semester, which included adding English in real-life contexts, promoting self-learning, aka learner autonomy, surveying undergraduates' needs and preferences, and adding more platforms for their self-learning. As self-learning is a keyword mentioned, MALL may, therefore, be one of the platforms and an answer to the improvement of undergraduates' learning achievement, thanks to its main advantages in terms of mobility and flexibility.

Research Objectives

1. To investigate problems affecting the undergraduates' listening achievement
2. To develop Mobile-Assisted Language Learning for improving the undergraduates' listening achievement
3. To implement Mobile-Assisted Language Learning into the pedagogical approach for teaching listening
4. To evaluate the undergraduates' satisfaction with Mobile-Assisted Language Learning in improving their listening achievement

Research Methodology

This study employed mixed-method research, combining quantitative and qualitative approaches, to examine the development of MALL for improving the listening achievement of SSRU English-majored undergraduates. It used a quasi-experimental design to compare the students' English listening achievements before and after the incorporation of MALL in teaching listening. The researcher uploaded MALL resources, including audio-visual listening practice videos extracted from YouTube and podcasts, on the course website, enabling the experimental group to autonomously access and study each learning unit. In contrast, the control group continued with traditional teaching methods with fixed resources, such as audio recordings, CDs, and textbooks.

1. Data collection

The population of this study consisted of 80 freshmen majoring in English at the Faculty of Humanities and Social Sciences, Suan Sunandha Rajabhat University. The sample was selected using cluster sampling, which divided the students into two groups: the experimental group (40 students) and the control group (40 students). A questionnaire, divided into close-ended and open-ended sections, was used to collect quantitative data about problems influencing their listening achievement. The close-ended section, in particular, was a 5-point Likert scale questionnaire, adapted from Xuyen (2020). To assess the two groups' listening performance, pre- and post-tests were administered. Each test consisted of 40 multiple-choice items, with 10 items dedicated to each of the following domains based on Bloom's taxonomy: knowledge, comprehension, application, and analysis. The tests were evaluated for content validity (IOC), difficulty level, discrimination power, and reliability. The reliability of the pre-test was assessed using Cronbach's Alpha, which yielded a score of 0.871, indicating strong reliability. Similarly, the post-test reliability was evaluated using Cronbach's Alpha, resulting in a score of 0.854, reflecting strong reliability. To evaluate the students' satisfaction with MALL, a 5-point Likert scale questionnaire was also used. Regarding qualitative data on further reasoning for rating listening problems, the open-ended section was used to collect responses. Additionally, semi-structured interviews were conducted to gain further insights into the students' satisfaction with their MALL experience.

2. Data analysis

The data were analyzed using both quantitative and qualitative methods. Descriptive statistics, such as mean, standard deviation, frequency, and percentage, were applied to summarize the pre- and post-test results and satisfaction levels. Inferential statistics, including *t*-tests, were used to compare the listening achievements between

the experimental and control groups. Qualitative data from the semi-structured interviews were analyzed thematically to identify key themes and trends related to the students' experiences and the perceived effectiveness of MALL in enhancing their listening achievements.

Research Results

1. Problems affecting the undergraduates' listening achievement

The quantitative data gathered through the 5-point Likert scale ratings were analyzed to assess the students' responses to various internal and external problems affecting their listening achievement. The scale ranged from 1 (strongly disagree) to 5 (strongly agree), with the mean scores classified as follows: 4.51-5.00 indicating strong agreement, 3.51-4.50 as agreement, 2.51-3.50 as neutral, 1.51-2.50 as disagreement, and 1.00-1.50 as strongly disagree. As for the internal problem, the data analysis showed that the students strongly agreed with the internal problems affecting their listening achievement, with an average agreement score of 4.56 and a standard deviation of 0.58, indicating consistent responses. Among these internal issues, limited linguistic knowledge stood out as the most significant problem, receiving a mean rating of 4.71 and a standard deviation of 0.51. Moreover, the findings were enriched by the data gathered from the students' answers to open-ended questions, where they highlighted limited linguistic proficiency, particularly in grammar and vocabulary, as the primary challenges affecting their listening comprehension. Many students expressed that insufficient grammar knowledge hindered their understanding of sentence structures, while a lack of vocabulary, especially specialized or cultural terms, made it difficult to grasp the meaning of listening texts. These issues, combined with preconceived worries and the complexity of the language, contributed to difficulties in focusing and comprehending spoken messages. Regarding the external problems, which were divided into input and environment areas, the analysis of external problems revealed that the students strongly agreed with the challenges related to input, with an average mean rating of 4.59 and a standard deviation of 0.57. Among these, the length of the listening input was identified as the most significant issue, with a mean rating of 4.70 and a standard deviation of 0.58. The students' responses from the open-ended questionnaire also supported the findings. They highlighted the duration of listening input as a significant challenge affecting their listening abilities. They noted that long listening sessions could lead to fatigue, decreased focus, and difficulty retaining information. Some students expressed that prolonged listening tasks caused them to lose concentration and become disengaged, especially when the content was difficult or overwhelming. Conversely, shorter listening materials

were seen as insufficient for providing exposure to different accents and speech patterns, limiting their ability to adapt. Many students suggested that breaking lengthy tasks into smaller parts would help maintain focus, reduce boredom, and enhance motivation to improve listening skills. Regarding environmental factors, the students also expressed strong agreement, reflected by an average mean rating of 4.54 and a standard deviation of 0.58. Within this category, the physical environment emerged as the primary concern, receiving a mean rating of 4.60 and a standard deviation of 0.59. The findings were further supported by the insights provided by the students in their responses in the open-ended questionnaire. They emphasized that the physical environment played a significant role in affecting their listening abilities. Factors such as noise, poor acoustics, and distractions in the surroundings were cited as major hindrances. For example, echoing sounds in small rooms, background noise from conversations or traffic, and external disruptions like construction made it difficult for students to concentrate and understand the listening material. They expressed frustration with these environmental challenges, suggesting that a quieter, more focused space with better acoustics would help improve their listening comprehension and overall learning experience.

2. Development and implementation of MALL in teaching listening

This section combines the second and third research objectives, which aim to assess the effectiveness of MALL in enhancing the students' listening achievement. In the development of MALL, it was made available on the course website, allowing the experimental group to independently access and study each learning unit, while the control group continued with conventional teaching methods without MALL. Both groups took a pre-test to assess their initial performance, and after completing the course, they were given a post-test to compare their listening achievements.

Table 1 Group statistics

Group	Number	Mean	Std. Deviation	Std. Error Mean
Control group	40	30.000	4.6630	.7373
Experimental group	40	35.200	2.2441	.3548

Table 1 presents the performance of the two groups. The control group, consisting of 40 students, had a mean score of 30.000, with a standard deviation of 4.6630. The experimental group, which used MALL, had a mean score of 35.200 and a lower standard deviation of 2.2441. These results indicated that the experimental group scored 5.2 points higher on average and showed less score variance, suggesting more consistent performance.

Table 2 Post-test results for control (G1) and experimental (G2) groups by domain

Domain	G1 (Mean)	G1 (Std. Deviation)	G1 (Std. Error Mean)	G2 (Mean)	G2 (Std. Deviation)	G2 (Std. Error Mean)
Knowledge	7.5	1.2	.38	8.2	1.1	.35
Comprehension	7.3	1.1	.34	8.9	1.0	.32
Application	7.8	1.0	.32	9.3	0.9	.29
Analysis	7.4	1.1	.35	8.8	1.0	.31

More precisely, the post-test was administered to both the control and experimental groups, with 40 items covering four domains: knowledge, comprehension, application, and analysis, with 10 items dedicated to each domain. The mean score for the control group was 30.000, while the experimental group achieved a mean score of 35.200. In comparison to the control group, the experimental group outperformed in every domain tested. In the knowledge domain, the experimental group scored higher with a mean of 8.2 compared to the control group's mean of 7.5. For comprehension, the experimental group had a mean score of 8.9, surpassing the control group's mean of 7.3. In application, the experimental group achieved a mean score of 9.3, while the control group's mean score was 7.8. Finally, in the analysis domain, the experimental group also had a higher mean of 8.8 compared to the control group's mean of 7.4. Overall, the findings highlight the positive impact of the MALL-based listening teaching on all domains of the students' listening achievement.

Figure 1 Independent samples test

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
				F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
		Lower	Upper							
		Score	Equal variances assumed	13.493	.000	-6.355	78	.000	-5.2000	.8182
Equal variances not assumed				-6.355	56.145	.000	-5.2000	.8182	-6.8390	-3.5610

Figure 1 compares the performance of the experimental group and the control. A *t*-test reveals a *t*-value of 6.355 and a *p*-value of 0.000, indicating a statistically significant difference in favor of the experimental group. This suggests that MALL led to better listening achievement compared to traditional methods. The confidence interval of -6.2890 to -3.5710 further confirmed that the experimental group outperformed the control group.

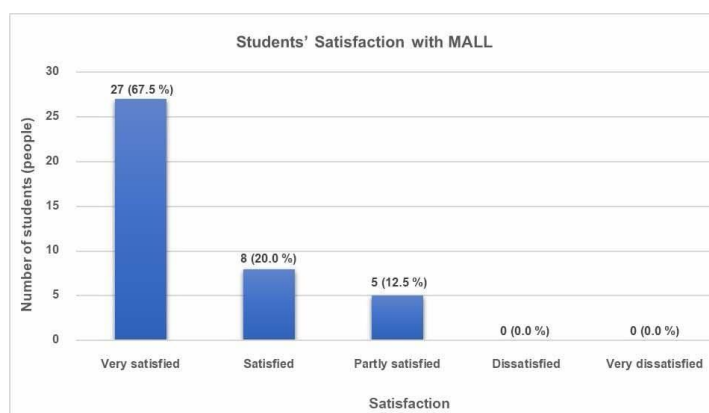
1. Students' satisfaction with MALL

A 5-point Likert scale survey was used to assess the students' satisfaction with MALL, with response options ranging from "very dissatisfied" to "very satisfied." Scores between 4.50 and 5.00 indicated very high satisfaction, 3.50 to 4.49 indicated satisfaction, 2.50 to 3.49 indicated partial satisfaction, 1.50 to 2.49 indicated dissatisfaction, and 1.00 to 1.49 indicated very low satisfaction. The results are presented in the tables and figures below.

Table 3 Overview of students' satisfaction with MALL

Very satisfied	Satisfied	Partly satisfied	Dissatisfied	Very dissatisfied	Mean	S.D.	%	Interpretation
27	8	5	-	-	4.55	0.71	91	Very satisfied

Figure 2 Overview of students' satisfaction with MALL



A survey of 40 students who participated in MALL for English listening showed very high satisfaction, with an overall mean score of 4.55, placing it in the "Very Satisfied" category. This indicates that the majority of students had a positive experience with the MALL approach to teaching. The low standard deviation of 0.71 highlights that the satisfaction levels were consistent across the students, suggesting that the majority shared similar views. Notably, 91% of students reported being very satisfied, which emphasizes the success of integrating MALL into the curriculum. These findings demonstrate that MALL not only enhanced listening skills but also provided a highly engaging and effective learning experience.

Along with the quantitative data above, qualitative responses were also gathered to better understand the factors influencing the students' satisfaction ratings

and to offer a fuller perspective on their experiences with MALL. To obtain this insight, the semi-structured interviews were conducted following the survey, and the interview questions were structured around five main topics, which are 1) general experience, 2) effectiveness, 3) challenges, 4) learning preferences, and 5) suggestions for improvement.

1. General experience There were three questions that address the students' general experience with MALL for language learning: 1) How would you describe your overall experience using mobile devices for language learning?, 2) In what ways did MALL help you improve your language skills compared to traditional learning methods?, and 3) What did you enjoy most about using mobile devices for listening practice? Overall, the students generally had a positive experience using mobile devices for language learning, appreciating the flexibility to learn anytime and anywhere, as well as the interactive nature of mobile apps. MALL helped them improve their language skills by offering more opportunities for independent listening practice, with a variety of materials, including different accents and real-life conversations, which enhanced their listening abilities. The students particularly enjoyed the ability to practice at their own pace, access diverse content, and repeat exercises until they fully understood the material, making the learning process more engaging and effective compared to traditional methods. They also appreciated the option to pause and resume their listening, which helped reduce cognitive load and allowed them to focus on specific parts of the audio, something not possible in traditional methods where listening is often continuous and unbroken.

2. Effectiveness There were two questions asked in this section: 1) How effective do you think mobile learning was in improving your listening skills? and 2) Can you give specific examples of how mobile learning helped you improve your listening skills? Overall, the students generally found MALL highly effective in improving their listening skills. They appreciated the flexibility to practice at their own pace and access a wide variety of listening materials. The ability to hear different accents and speaking speeds, combined with the interactive exercises, made the learning experience more dynamic and beneficial compared to traditional methods. For example, some students noted that replaying audio lessons improved comprehension, while others preferred using apps with short clips and YouTube videos with native speakers for practice. Additionally, exercises focusing on details like dates and numbers helped enhance listening attention. Audiovisual elements in MALL, such as videos and multimedia content, also helped them remember vocabulary more effectively by associating words with visuals. Overall, students found MALL to be an engaging and effective way to improve listening skills.

3. Challenges There were two questions related to technical difficulties experienced by the students when using mobile apps for learning: 1) Did you experience any technical difficulties when using mobile apps for learning? and 2) How did these difficulties affect your experience? Overall, the students reported issues such as app crashes, freezing, buffering due to poor internet connections, and difficulties with app navigation or updates. These problems caused interruptions, frustration, and made it harder to concentrate, but students were able to resume their learning once the issues were fixed, though the overall experience was slightly affected.

4. Learning preferences The questions asked in this section are “Did you prefer learning through MALL over other methods? Why or why not?” Generally, the students preferred MALL over traditional learning methods due to its flexibility, convenience, and variety. Some students appreciated the flexibility of practicing anytime and anywhere, emphasizing how the interactive features of mobile apps allowed them to learn at their own pace. Others valued the accessibility and variety of resources, which kept the learning experience engaging. Additionally, some students highlighted the ability to repeat exercises as needed, allowing for personalized learning and faster progress compared to traditional methods. They also appreciated the ability to choose their own listening environment, which helped them avoid the constraints of traditional classroom settings, where physical space and external disruptions often interfered with their learning experience.

5. Suggestions for improvement There were two questions asked in this section: 1) What improvements would you suggest for mobile learning tools or apps used for language learning? and 2) Do you recommend MALL apps to other students who want to learn English on their smartphones? Overall, the students provided several suggestions for improving the MALL experience, emphasizing the need for more user-friendly apps, offline functionality, and clearer audio quality. They also recommended incorporating interactive features like quizzes or games and offering more diverse content to expose learners to different accents and real-world conversations. Despite these suggestions for improvement, most students expressed a strong preference for MALL apps, praising their flexibility, convenience, and the variety of content available. Most students, therefore, felt that MALL apps were an effective tool for language learning, especially for improving listening comprehension, and would recommend them to others.

Discussion

Regarding the effectiveness of MALL in enhancing students' listening achievement, the findings of this study align with previous research. Alzieni (2020)

emphasized that the portability, collaboration, and real-world learning experiences facilitated by mobile devices significantly improve students' listening abilities. Like the current study, Alzieni found that MALL outperformed traditional methods in promoting listening skills by providing more opportunities for critical thinking and engagement. Similarly, Athoillah (2022) found that students using the Talk English Application (TEA) showed significant improvements in listening, which mirrors the results of this study where the experimental group performed better than the control group. Both studies highlight the flexibility, interactivity, and real-life context provided by MALL, which contribute to better engagement and more stable learning outcomes. Additional studies, such as those by Salih (2019), Xu (2020), and Each and Suppasetseree (2021), also support these findings. Research in Thailand, such as the work by Khlaisang and Sukavatee (2019) and Klinjuy and Chakkaew (2022), further underscores the advantages of MALL in improving language skills, particularly listening. These studies emphasize the mobility, flexibility, and creative interactivity of mobile technology, allowing students to learn at their own pace and engage with diverse content. The consistent findings across these studies reinforce the conclusion that MALL significantly enhances listening skills by offering personalized, flexible, and engaging learning experiences. Furthermore, in addition to these studies' findings, this study also found that the students could remember vocabulary better with visuals from MALL, helping them score well on the test. They also appreciated the option to pause and resume their listening, which helped reduce cognitive load and allowed them to focus on specific parts of the audio—something not possible in traditional methods where listening is often continuous and unbroken. Additionally, the flexibility of MALL helped tackle the problem of the physical environment that disrupted their listening, as they could control the location of their listening activities.

In terms of satisfaction with MALL, previous studies consistently show positive attitudes from students. Thedpitak and Somphong (2021) found that Thai EFL learners had favorable views of using mobile applications for language learning, particularly for practicing listening skills. Additionally, Bhestari and Luthfiyyah (2021) highlighted that MALL empowered students to develop learning autonomy outside the classroom, further supporting the positive perceptions of MALL. Other studies, including those by Sorayyaei Azar and Nasiri (2014) and Guofang and Hiew (2024), also report similar findings of satisfaction with MALL. However, some challenges related to MALL use are discussed. Thedpitak and Somphong (2021) stressed the need for instructor guidance on effectively using mobile tools, while Lu (2023) pointed out that teachers play an essential role in supporting independent learning by providing guidance, feedback, and motivation. These

studies suggest that while MALL fosters autonomy, teachers remain crucial in offering support and resolving issues that students may face during their learning process.

Recommendation

The recommendations for MALL focus on three key areas. First, for implementation, mobile applications should be user-friendly, offer diverse content, and be accessible offline, particularly in areas with limited internet access. Teachers can use MALL to address common listening challenges, such as anxiety and low vocabulary, by providing students with the flexibility to practice at their own pace in a comfortable environment. For instance, MALL can reduce listening anxiety by allowing students to replay content as needed and gradually increase the difficulty of the material, helping them build confidence. Additionally, MALL tools with visual aids, interactive features, and vocabulary-building exercises can support students in overcoming vocabulary gaps, reinforcing retention through engaging, multimodal content. Teacher involvement remains essential for providing guidance, feedback, and support, and teachers should be trained to effectively use MALL tools to address these issues.

Second, future research should explore the long-term effectiveness of MALL, its potential for personalization, and its impact on different learner demographics. Specifically, future studies could focus on using MALL to improve listening skills within specific domains of Bloom's taxonomy, such as comprehension or application, to produce more targeted and measurable results. Additionally, future studies could investigate the potential of MALL to enhance other language skills, such as speaking or writing, by integrating various tools, apps, and activities that target multiple areas of language development. Including more diverse groups of students, such as those with different learning styles or language proficiency levels, could further enrich the findings and offer deeper insights into the benefits of MALL for diverse learners.

Finally, policies should ensure institutional support, including providing resources, infrastructure, and teacher training, while addressing equity and access to ensure that all students benefit from MALL.

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