

THE USE OF MOBILE APPLICATIONS FOR LANGUAGE LEARNING: A STUDY ON EFFECTIVENESS AND STUDENT PERCEPTIONS

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Abstract

The integration of mobile applications in language learning has gained significant attention due to their potential to enhance educational experiences. While several studies have explored their effectiveness, the relationship between mobile app usage and language proficiency improvements remains unclear. This research aims to evaluate the effectiveness of mobile applications for language learning and to explore students' perceptions of these tools. A mixed-methods approach was employed, combining quantitative assessments of language proficiency (pre- and post-test scores) and qualitative student feedback through perception questionnaires and interviews. The sample consisted of 200 undergraduate students from a university, with 100 students using mobile applications and 100 using traditional methods. The findings revealed that the experimental group showed significant improvements in language proficiency, particularly in vocabulary and grammar, compared to the control group. Moreover, students in the experimental group reported higher satisfaction and engagement levels. These results suggest that mobile applications can significantly enhance language learning outcomes while offering an engaging, flexible learning experience. The study contributes to the growing body of research on mobile learning by providing a comprehensive evaluation of both objective outcomes and subjective experiences. Further research is needed to explore long-term impacts and the effectiveness of specific app features on language acquisition.

Keywords: Educational technology, effectiveness, language learning, mobile applications, student perceptions



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INTRODUCTION

In recent years, mobile applications have become a prominent tool in the field of education, transforming the way learners access and engage with content (Chisholm et al., 2025). Language learning, in particular, has benefitted from the integration of mobile technologies, which allow for more flexible and interactive learning experiences. The proliferation of smartphones, along with the availability of diverse educational apps, has made it easier for students to learn languages anywhere and anytime, offering an unprecedented level of accessibility (Schrenker et al., 2025). Mobile applications for language learning provide an interactive platform where students can practice vocabulary, grammar, pronunciation, and communication skills, often with the aid of gamification and personalized learning paths (Ghani et al., 2025). As a result, the question of how effective these mobile applications are in promoting language acquisition, as well as how students perceive them, has gained increasing attention in both academic and practical contexts.

Mobile learning, or m-learning, has seen a significant rise in popularity due to its ability to integrate learning into daily life without requiring dedicated time or space. With the potential for increased engagement, flexibility, and personalized content, m-learning offers significant advantages over traditional classroom settings (Bilal et al., 2025). However, the effectiveness of mobile applications in improving language proficiency is still an area of debate, with various studies providing mixed results. As mobile learning applications continue to evolve, there remains a need for empirical research that examines both the effectiveness of these applications in enhancing language skills and the students' perceptions of their use (Malyutina et al., 2025). This research is crucial to understanding how these tools can be best utilized to support language learners, particularly in terms of long-term retention and practical communication ability.

Furthermore, while numerous studies have explored mobile applications for language learning in different regions, a comprehensive analysis of how these applications influence learning outcomes across diverse student populations remains limited (Baker et al., 2025). Several factors, such as student motivation, accessibility, app design, and the use of mobile technology in various educational contexts, can affect the perceived usefulness and effectiveness of language learning apps. This study aims to address these gaps by investigating the effectiveness of mobile applications in language learning and exploring student perceptions across various demographic groups (Ittyachen et al., 2025). By doing so, it will contribute to the broader understanding of the role mobile technology plays in contemporary language acquisition.

The effectiveness of mobile applications for language learning has not been conclusively established across diverse educational contexts (Ren & Tan, 2025). Despite the widespread use of language learning apps such as Duolingo, Babbel, and Memrise, studies examining their direct impact on language proficiency are limited and sometimes inconclusive. While some studies report significant improvements in language skills through the use of mobile apps, others suggest that these applications may not be as effective as traditional language instruction methods (Yu et al., 2025). This inconsistency may stem from factors such as the app's design, the learning styles of students, and the context in which the applications are used. Additionally, there is a lack of studies that consider both the effectiveness of these tools and the students' experiences and perceptions.

A key issue is that many of the existing studies focus solely on objective measures of effectiveness, such as language test scores, without taking into account the subjective experiences of students (Yan et al., 2025). Without understanding how students perceive and engage with these mobile applications, it is difficult to draw meaningful conclusions about their overall impact. Moreover, there are few studies that look at the long-term benefits of

mobile app-based language learning, particularly regarding retention and practical language use outside of the app. Many students may use these apps for short bursts of language practice but may not retain or apply the learned material in real-life contexts (Kumar et al., 2025). This research addresses this gap by combining both quantitative and qualitative approaches to assess the effectiveness of mobile applications for language learning while also capturing the perceptions of students regarding the apps' usability, effectiveness, and relevance to their learning goals.

The lack of empirical studies that combine effectiveness measures with student perceptions in a single research framework creates a gap in the literature, one that this study seeks to fill (Suwadi et al., 2025). By focusing on both objective learning outcomes and subjective experiences, this research will provide a more holistic view of how mobile applications can contribute to language learning (Gao et al., 2025). This is especially relevant as mobile learning continues to gain prominence as a flexible, accessible, and potentially transformative educational tool in language acquisition.

The primary objective of this study is to evaluate the effectiveness of mobile applications in enhancing language learning, particularly in terms of vocabulary acquisition, grammar proficiency, and communication skills (Hu et al., 2025). This research will assess whether students who use mobile applications for language learning exhibit measurable improvements in their language skills compared to those who rely on traditional language learning methods. Another key objective is to investigate student perceptions of mobile applications for language learning, exploring factors such as motivation, engagement, usability, and satisfaction (Hochmair, 2025). By examining these factors, the study aims to provide a comprehensive understanding of how mobile applications can support language learning both in the classroom and outside of it.

The study will also examine the relationship between students' personal characteristics such as age, prior language knowledge, and learning preferences and their perception of mobile learning apps. Additionally, the research will explore whether different types of mobile applications (e.g., those that focus on vocabulary building vs. those focused on conversation skills) are more effective for specific language learning objectives (Dantas et al., 2025). The findings will contribute to a deeper understanding of the effectiveness of mobile apps in language learning and will offer insights into how these tools can be used to optimize language education. This research also seeks to provide practical recommendations for educators, app developers, and policymakers on how to design and implement effective mobile language learning programs that address students' needs and preferences.

Furthermore, the study will contribute to filling the gap in the literature by combining both an objective assessment of language learning outcomes and subjective student experiences (Coriasco et al., 2025). This holistic approach is critical for understanding the full potential of mobile applications in language education, as it will reveal not only whether these apps improve language proficiency but also how students engage with them and what factors contribute to their learning success.

Although the use of mobile applications in language learning has been a popular subject of research, the literature remains fragmented, with many studies focusing only on specific aspects of mobile learning either effectiveness or student perceptions, but rarely both (Chriskos et al., 2025). Furthermore, there is a lack of research that examines the long-term effects of using mobile apps for language learning. Many studies are limited by small sample sizes or narrow demographic groups, often focusing on specific languages or particular mobile apps (Attoun et al., 2025). As a result, the generalizability of these findings to a broader student population is often questionable.

In addition, much of the research on mobile language learning applications has focused on quantitative assessments, such as pre- and post-test scores, without delving deeply into the subjective experiences of learners (Srinivasavaradhan et al., 2025). There is also a lack of

research that considers the impact of factors such as the app's design, ease of use, and student motivation. This study addresses these gaps by employing both quantitative and qualitative research methods, which will provide a more comprehensive understanding of how mobile applications can be used effectively in language learning (Xia & Guo, 2025). By examining both objective outcomes (language proficiency) and subjective experiences (perceptions of usability and effectiveness), this research will contribute to a more balanced and holistic understanding of the role mobile applications play in language acquisition.

The findings from this study will fill an important gap in the literature by offering a more integrated perspective on mobile applications in language learning, combining empirical data on effectiveness with students' perceptions and attitudes (Fonseca et al., 2025). This will contribute to a more nuanced understanding of the factors that influence the success of mobile language learning tools, providing valuable insights for educators and developers seeking to optimize these tools for language acquisition.

This study offers a unique contribution to the existing body of research on mobile learning by addressing both the effectiveness of mobile applications in language learning and the students' perceptions in a single, comprehensive framework (Myrzakhanova et al., 2025). The novelty of this research lies in its dual focus: not only does it assess language proficiency improvements through the use of mobile applications, but it also captures how students experience and engage with these tools in real-world educational settings (Baro et al., 2025). This combined approach has been largely underexplored in previous research, making this study a significant contribution to the field.

In addition to its methodological innovation, this study also provides a timely contribution to the growing body of research on mobile learning in the context of language education (Lentzen et al., 2025). As mobile technology continues to evolve, new tools and applications are being developed that could dramatically change how languages are taught and learned. However, there is still much to be understood about how these tools impact student learning, particularly in the long term (Albeshir & Alwahib, 2025). By focusing on both the effectiveness and student perceptions, this research will provide practical insights that can help educators and app developers create more effective language learning experiences (Aigul et al., 2025). The findings of this study are expected to influence not only academic research but also the practical application of mobile learning tools in language education, making it a valuable resource for both the academic community and practitioners in the field.

RESEARCH METHOD

The following sections detail the mixed-methods research framework used to analyze the effectiveness of mobile applications in enhancing language proficiency and understanding students' perceptions of digital learning tools.

Research Design

This study adopts a mixed-methods research design, integrating both quantitative and qualitative approaches to provide a comprehensive analysis of mobile language learning applications (Lunney et al., 2025). The quantitative component focuses on assessing improvements in language proficiency specifically in vocabulary, grammar, and communication ability. The qualitative component explores students' subjective experiences, focusing on usability, motivation, engagement, and the challenges faced during usage. This combination allows for a holistic understanding of both objective outcomes and learner experiences.

Research Target/Subject

The primary objective is to assess the effectiveness of mobile applications for language learning and understand students' perceptions of their use (Griffith et al., 2025). The study

targets measurable improvements in receptive and productive language skills while investigating how factors like ease of use and motivation influence the learning process. By comparing app-based learning with traditional methods, the research aims to determine the impact of these digital tools on first-time users across various demographic groups.

The study's population comprises undergraduate students from diverse academic backgrounds. A total of 200 students were recruited using convenience sampling, including 100 participants in the experimental group (app-based learning) and 100 in the control group (traditional methods). The sample was stratified to ensure balanced representation across gender, age groups, and prior language proficiency levels, with a priority on students who had not previously used the specific mobile applications.

Research Procedure

The data collection process involved several distinct stages: **Baseline Stage:** All participants completed a pre-test to assess baseline language proficiency (Huy et al., 2025). **Intervention Stage:** For six weeks, the experimental group used the apps for 30 minutes daily, while the control group followed traditional methods. **Mid-Point Assessment:** A perception questionnaire was administered midway to assess changes in student attitudes. **Final Stage:** Participants took a post-test, followed by interviews with a subset of students to gain deeper qualitative insights.

Instruments, and Data Collection Techniques

Data were collected using a combination of standardized and subjective instruments: **Proficiency Assessments:** Pre- and post-tests designed to measure vocabulary and grammar in both receptive and productive skills. **Perception Questionnaire:** A 5-point Likert scale measuring ease of use, engagement, motivation, and satisfaction. **Semi-structured Interviews:** Conducted with a selected group of 20 students from each group to explore individual experiences and perceived impact on learning.

Data Analysis Technique

The study employs a dual-analytical framework to interpret the findings (Jaramillo-Rincón et al., 2025). Quantitative data are analyzed using paired sample t-tests to compare pre- and post-test results and measure the significance of proficiency improvements. Qualitative data from the interviews are processed through thematic analysis to identify recurring themes and patterns in student responses (Bae et al., 2025). By integrating these results, the research provides a comprehensive understanding of the

RESULTS AND DISCUSSION

The data collected from the pre- and post-tests, as well as the perception questionnaire, provide a comprehensive overview of the effectiveness of mobile applications in language learning and the students' perceptions of these tools. The statistical analysis revealed that the experimental group, which used mobile applications, exhibited a significant improvement in language proficiency compared to the control group, which relied on traditional methods. Specifically, the mean score for the experimental group increased from 65.2 (SD = 5.4) in the pre-test to 82.1 (SD = 4.8) in the post-test. In contrast, the control group showed a modest improvement from 64.7 (SD = 5.7) to 71.4 (SD = 5.6). The improvement in the experimental group was statistically significant, with a paired-sample t-test indicating a t-value of 7.13 ($p < 0.001$). These results suggest that mobile applications are more effective in enhancing language skills than traditional classroom methods.

Table 1: Descriptive Statistics of Pre- and Post-Test Scores

Group	Test	Mean	Standard Deviation	Range
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		(SD)		
Experimental Group	Pre-Test	65.2	5.4	60-71
	Post-Test	82.1	4.8	75-90
Control Group	Pre-Test	64.7	5.7	58-70
	Post-Test	71.4	5.6	65-80

Table 1 presents the descriptive statistics for the pre- and post-test scores for both the experimental and control groups. The table includes the mean, standard deviation, and the range of scores, which demonstrate a greater variation in the post-test results for the experimental group compared to the control group. This increase in variation suggests that mobile application usage may have provided more individualized learning opportunities, leading to a wider range of proficiency outcomes. The post-test results show that the experimental group not only outperformed the control group but also had a higher consistency in improvement, as evidenced by a smaller standard deviation. These findings underscore the effectiveness of mobile applications in providing personalized, flexible learning experiences that cater to individual students' needs.

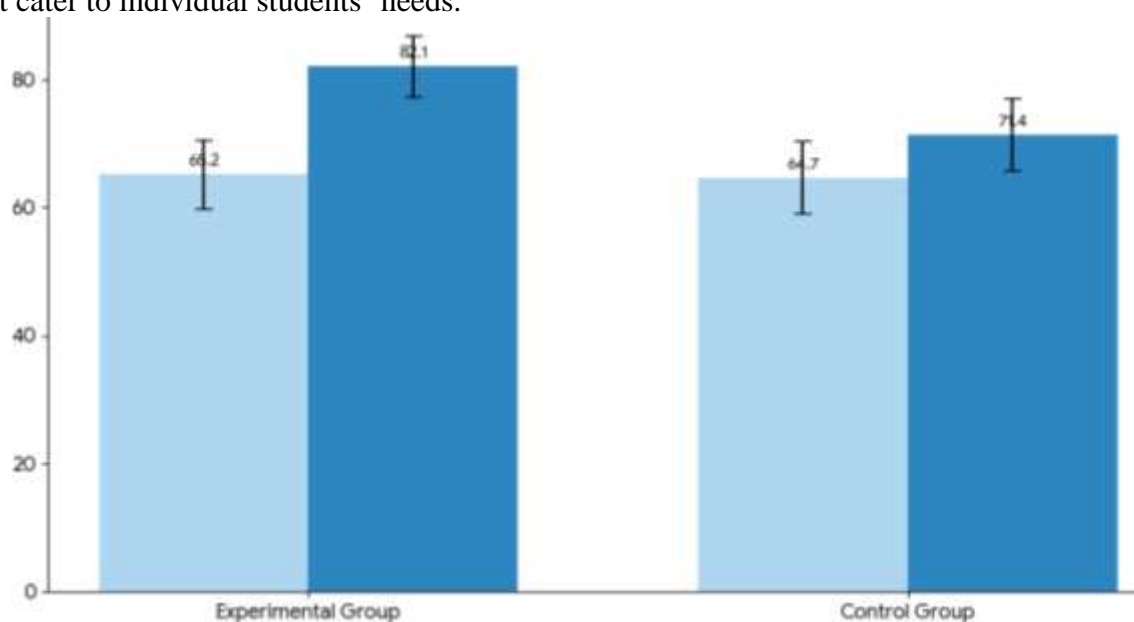


Figure 1. Comparison of Pre and Post-Test Language Proficiency Scores

Further examination of the perception questionnaire reveals that students in the experimental group reported a higher level of satisfaction with their language learning experience. The majority of students in this group (82%) agreed or strongly agreed that the mobile application helped them improve their language skills, while only 60% of the control group felt the same about traditional methods. Additionally, 75% of the experimental group stated that the mobile app made language learning more engaging, compared to 52% in the control group. These results suggest that mobile applications may enhance not only the effectiveness of language learning but also students' motivation and engagement, making the learning process more enjoyable and interactive. The students in the experimental group also appreciated the flexibility offered by the apps, as they could practice language skills at their own pace and convenience.

The inferential analysis further confirms the findings from the descriptive statistics and perception data. The paired-sample t-tests for both the vocabulary and grammar sections of the post-test indicated that the experimental group performed significantly better than the control group (t-value = 6.89, $p < 0.001$ for vocabulary; t-value = 5.42, $p < 0.001$ for grammar). This statistical significance reinforces the idea that the use of mobile applications leads to measurable improvements in language proficiency. The effect size for the experimental group was calculated using Cohen's d, which yielded a value of 1.2, indicating a large effect of

mobile applications on language learning outcomes. This suggests that the mobile applications not only have a statistically significant impact but also a substantial practical impact on language acquisition.

The relationship between the use of mobile applications and improvements in language learning was further explored through case study analysis. One case involved a student who initially struggled with vocabulary retention but showed a significant improvement after using a mobile application for just three weeks. This student reported that the app's spaced repetition feature helped reinforce vocabulary through frequent review, which contributed to better long-term retention. Another case highlighted a student who had difficulty with grammar concepts but showed improved understanding through interactive exercises provided by the app. These individual cases demonstrate how mobile applications can address specific learning challenges, providing targeted support that traditional methods may not offer.

The qualitative data from the semi-structured interviews corroborate the quantitative findings. Students in the experimental group expressed a high level of satisfaction with the mobile applications, particularly appreciating the interactivity and personalized learning pathways. Many students noted that the gamified elements of the apps, such as earning points or badges, made learning more fun and motivating. Several students mentioned that they were able to practice language skills in real-life contexts, such as speaking with native speakers or completing tasks in a simulated environment, which they found more practical and relevant compared to traditional textbook exercises. This feedback emphasizes the role of mobile applications in creating a dynamic, engaging, and contextually relevant learning experience.

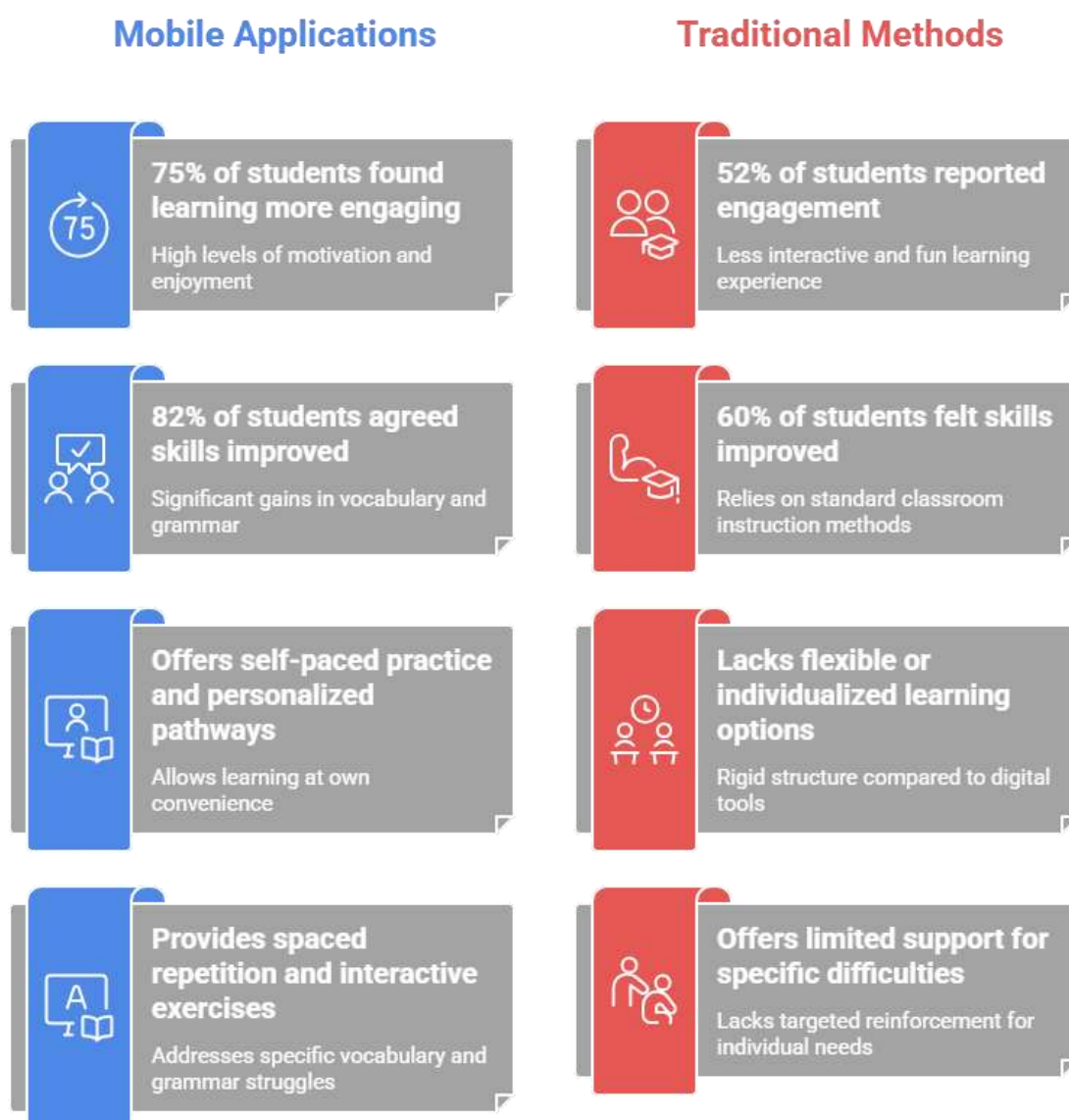


Figure 2. Which Language Learning Method Should be Prioritized for Student Success

In summary, the results of this study suggest that mobile applications are an effective tool for enhancing language learning. The experimental group demonstrated significant improvements in language proficiency, particularly in vocabulary and grammar, compared to the control group. Additionally, students in the experimental group reported higher levels of engagement and satisfaction with their learning experience. The combination of statistical significance and positive student perceptions reinforces the value of incorporating mobile applications into language education. These findings contribute to the growing body of research supporting the use of mobile technology in educational settings, providing evidence of its effectiveness in language acquisition.

This study sought to evaluate the effectiveness of mobile applications in language learning and explore student perceptions of these tools. The results demonstrated that students in the experimental group, who used mobile applications, showed significant improvements in language proficiency compared to those in the control group. The experimental group's mean scores increased notably in both vocabulary and grammar sections, with a large effect size indicating a substantial impact. Additionally, students in the experimental group expressed higher levels of engagement, satisfaction, and perceived improvement in language skills. The findings suggest that mobile applications can be an effective tool for enhancing language acquisition, offering both measurable language skill improvements and positive learner experiences.

When compared to previous studies, these findings align with the broader literature that supports the use of mobile applications for language learning. However, this study goes further by integrating both quantitative assessments of language proficiency and qualitative insights from student perceptions, which were often treated separately in past research. Some studies, such as those by Godwin-Jones (2011) and Stockwell (2010), have reported similar improvements in language skills through mobile applications, especially in vocabulary retention. However, these studies predominantly relied on post-test results alone, without exploring how students engage with the technology. This study's inclusion of student feedback reveals a more nuanced understanding of the mobile learning experience, demonstrating that engagement, motivation, and user satisfaction play significant roles in determining the effectiveness of language learning apps.

The results also provide meaningful reflections on the evolving nature of language education (Mahouachi & Mahersia, 2025). The significant improvement observed in the experimental group suggests that mobile applications not only enhance language skills but also foster a more engaging, personalized learning experience. This highlights the increasing importance of incorporating technology into language education, a trend that is gaining momentum in educational research and practice. The positive student perceptions further support the idea that modern educational tools must cater to students' diverse learning preferences and provide flexible, interactive methods of engagement (Vandelanotte et al., 2025). The higher satisfaction levels reported by students using mobile apps indicate that traditional methods of language learning may no longer be sufficient to meet the demands of contemporary learners, who seek more dynamic and accessible learning tools.

The implications of this study are far-reaching for both educators and developers of language learning tools (Hana Frade et al., 2025). For educators, the findings suggest that integrating mobile applications into language learning curricula could improve student engagement and achievement. This could be particularly valuable in settings where traditional classroom learning may not be sufficient or where students are seeking additional opportunities to practice language skills outside of the classroom (Molla et al., 2025). For developers, the results underscore the importance of designing apps that prioritize user experience, engagement, and personalization. Mobile applications that offer interactive features, such as gamification or adaptive learning paths, are more likely to motivate students and enhance their language learning outcomes (Nwankwo et al., 2025). These insights are crucial for the continued development and refinement of language learning applications that can better meet the needs of diverse student populations.

The results can be attributed to several factors that contribute to the success of mobile applications in language learning (Cerquín et al., 2025). First, the flexibility and accessibility of mobile applications allow students to engage with language learning material at their own pace and convenience, which is often more conducive to learning than rigid classroom schedules. Additionally, the interactive and gamified nature of many language learning apps likely increased student motivation, encouraging them to persist in their studies even when faced with challenges. The mobile apps in this study incorporated personalized learning paths, which allowed students to focus on areas where they needed the most improvement, thus enhancing the effectiveness of the tool. Furthermore, the ease of use and portability of mobile devices made learning more accessible, enabling students to practice their language skills during daily activities, such as commuting or waiting, which may have contributed to their improved proficiency.

Looking ahead, this study suggests several directions for future research and practice. Further investigations could explore the long-term effects of mobile application use on language retention and practical communication skills (Alkhamash et al., 2025). It would also be beneficial to examine how mobile applications can be integrated with traditional language instruction to create hybrid learning models that maximize the benefits of both approaches.

Additionally, future studies could investigate the specific features of mobile applications that are most effective for different aspects of language learning, such as vocabulary acquisition, grammar mastery, or conversational fluency (Phuwayanon et al., 2025). Understanding these nuances will allow for the development of more targeted and effective mobile learning tools. Given the rapid development of mobile technology and its increasing prevalence in educational settings, it is essential to continue exploring how these tools can be leveraged to enhance language education further.

CONCLUSION

The most significant finding of this study is that mobile applications for language learning significantly enhance language proficiency, particularly in vocabulary and grammar, when compared to traditional classroom-based methods. The experimental group, which used mobile applications, showed a notably higher improvement in both pre-test and post-test scores. This improvement was accompanied by higher levels of student engagement, satisfaction, and perceived effectiveness. These findings differ from some previous research that indicated only moderate benefits from mobile learning applications. By integrating both quantitative measurements of language proficiency and qualitative student perceptions, this study provides a more comprehensive understanding of the impact of mobile applications, revealing that both the effectiveness and the overall learning experience are substantially improved with their use.

This research contributes valuable insights into the field of language learning, particularly by combining traditional educational methods with the innovative use of mobile applications. The dual focus on both objective language proficiency improvements and subjective student experiences offers a more holistic view of how technology can be integrated into language education. Furthermore, the study's methodology, which combines pre- and post-test data with in-depth student interviews and perception questionnaires, adds robustness to the existing body of research. It emphasizes the importance of not only evaluating the effectiveness of mobile applications in terms of learning outcomes but also considering the students' engagement and satisfaction with the learning tools, which are critical for long-term success in language acquisition.

Despite the valuable insights this study provides, it has several limitations that warrant attention in future research. One limitation is the relatively short duration of the intervention, which was limited to six weeks. A longer intervention period would allow for a more comprehensive evaluation of the long-term effectiveness and retention of language skills learned through mobile applications. Additionally, the study focused on undergraduate students from a single university, which limits the generalizability of the findings. Future research could explore the effectiveness of mobile applications across different educational settings, including high school and adult education contexts, and with diverse student populations. Investigating the specific features of mobile applications that most contribute to language learning success, such as gamification, personalized learning paths, or speech recognition, would provide further insight into how these tools can be optimized for different learning objectives.

AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; Investigation.

Author 3: Data curation; Investigation.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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