THE ROLE OF MOBILE APPS IN IMPROVING EFL LEARNERS' VOCABULARY

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Annotation. *Mobile applications are increasingly important tools in English as a Foreign Language (EFL) learning. Vocabulary acquisition is essential, yet learners often struggle to retain new words. This study examines the effectiveness of mobile apps in improving EFL learners' vocabulary. Thirty EFL learners participated in a two-week pre-test/post-test study using Quizlet and Memrise. Vocabulary knowledge was measured before and after the intervention, and a short questionnaire assessed learners' attitudes toward mobile-assisted learning. Results showed a significant increase in vocabulary scores, and most participants reported positive experiences, highlighting motivation and engagement. In conclusion, mobile applications effectively support vocabulary acquisition, and integrating them into language teaching can enhance learning outcomes in EFL contexts.*

Key words: *Mobile applications, vocabulary acquisition, EFL learners, mobile-assisted learning, vocabulary retention, language learning, educational technology.*

In recent years, mobile applications have become widely used tools in English as a Foreign Language (EFL) learning. Many learners prefer using mobile apps because they offer flexibility, accessibility, and interactive practice. Among the different skills in language learning, vocabulary acquisition plays a particularly important role. Without sufficient vocabulary, learners cannot understand texts, express ideas, or communicate effectively in English. Therefore, finding effective ways to help learners improve their vocabulary is essential. Despite having access to various learning resources, many EFL learners still struggle to remember new words and retain vocabulary over time. Traditional methods such as memorizing word lists or writing definitions often do not provide enough repetition or meaningful practice. As a result, learners quickly forget newly learned words, which negatively affects their language progress. Although numerous studies have investigated the use of mobile applications in language learning, their specific impact on vocabulary retention among EFL learners has not been fully examined. While previous research shows that mobile apps can increase motivation and provide interactive learning opportunities, there is still limited evidence on how effectively these tools support long-term vocabulary memory.

The purpose of this study is to explore the effectiveness of mobile applications in improving vocabulary acquisition and retention among EFL learners. The study focuses on how apps such as Quizlet and Memrise can influence learners' vocabulary performance and their attitudes toward mobile-assisted learning.

This research aims to answer the following questions:

1. To what extent do mobile applications improve vocabulary retention among EFL learners?

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2. What are learners' attitudes toward using mobile applications for vocabulary learning?

This study is significant because it provides practical insights for teachers, learners, and curriculum designers. The findings may help educators integrate mobile tools into vocabulary instruction more effectively and offer learners engaging, flexible, and efficient methods for improving their vocabulary skills.

1. Vocabulary Learning in Second Language Acquisition (Schmitt, 2000)

Vocabulary is widely acknowledged as a core element of second language acquisition, and its mastery directly influences learners' ability to understand and produce language. Schmitt (2000) states that vocabulary learning is an incremental process that requires continuous exposure, repetition, and meaningful use. According to his framework, learners acquire vocabulary through a combination of cognitive strategies (such as memorization, repetition, and guessing from context) and social strategies (interaction, cooperation, and feedback). Schmitt emphasizes that vocabulary retention depends on the depth of word knowledge, including meaning, form, pronunciation, collocations, and grammatical behavior. Schmitt also argues that traditional classroom instruction often provides limited opportunities for repeated encounters with new words, which leads to weak retention. Therefore, learners benefit from tools and environments that increase the frequency and quality of exposure. This theoretical perspective supports the use of digital technologies—particularly mobile applications — that provide personalized, repeated, and spaced review sequences essential for long-term memory consolidation.

2. Principles of Effective Vocabulary Instruction (Nation, 2013)

Nation (2013) outlines key principles necessary for effective vocabulary instruction. He identifies three essential types of vocabulary learning: (1) learning from meaning-focused input, (2) learning from language-focused instruction, and (3) fluency development. For words to be retained, learners must encounter them multiple times across different contexts. Nation highlights the importance of spaced repetition, retrieval practice, and deliberate vocabulary exercises. Moreover, Nation argues that vocabulary learning is only effective when it is planned and supported systematically. Learners need opportunities to notice new words, retrieve them repeatedly, and use them in meaningful tasks. He also notes that independent learning tools—such as flashcards, word lists, and digital platforms—can significantly enhance vocabulary growth by making practice more accessible and frequent. These principles directly align with the core functions of mobile apps like Quizlet and Memrise, which are designed around spaced repetition algorithms and learner autonomy.

3. Mobile-Assisted Language Learning (MALL) and Learner Engagement (Stockwell, 2010)

With global advancements in mobile technology, researchers have increasingly examined its potential for language learning. Stockwell (2010) investigated learners' use of mobile phones for completing vocabulary activities and found that mobile-based learning increases flexibility and accessibility. However, Stockwell also notes that the usability of mobile tasks plays a crucial role: if tasks are too long, inconvenient, or poorly designed, learners may prefer computer-based alternatives. Despite these challenges, Stockwell's findings highlight the motivational benefits of mobile learning. Students often feel more engaged when tasks are short, interactive, and accessible anywhere. Mobile tasks allow learners to use small pockets of time efficiently—such as

commuting or waiting periods—making vocabulary review more consistent. Stockwell concludes that mobile vocabulary learning is effective when tasks are carefully designed to suit mobile use and do not overwhelm learners.

4. Effectiveness of Vocabulary Learning Through Mobile Apps (Burston, 2015)

Burston (2015), through an extensive review of Mobile-Assisted Language Learning (MALL) research from 1994 to 2012, found that mobile applications significantly enhance language learning outcomes when they are used consistently over time. His analysis shows that short, frequent, and focused activities are the most effective for vocabulary retention.

Burston also reports that mobile technology offers unique advantages:

- personalized learning pace,
- immediate feedback,
- multimodal input (audio, images, text),
- increased learner autonomy,
- high levels of engagement and motivation.

However, Burston notes that many studies focus on general language improvement, and fewer provide detailed analysis of vocabulary retention. This gap reinforces the need for studies that specifically examine how mobile apps affect learners' ability to remember and recall vocabulary over time. Overall, the literature demonstrates that vocabulary acquisition requires repeated exposure, meaningful practice, and systematic review (Schmitt, 2000; Nation, 2013). Mobile-assisted learning provides a flexible and motivating environment that supports these needs (Stockwell, 2010; Burston, 2015). Yet, research focusing specifically on vocabulary retention through mobile apps in EFL contexts remains limited. This study aims to address this gap by examining how two mobile applications—Quizlet and Memrise—affect EFL learners' vocabulary learning outcomes.

Methodology.

Participants. The participants of this study were thirty undergraduate students enrolled in an English as a Foreign Language (EFL) course at a local university. The participants were aged between 18 and 22 years, with an approximately equal distribution of male and female students. All participants were classified as intermediate-level learners based on their previous academic records and a placement test administered at the beginning of the semester. None of the participants had prior extensive experience using mobile applications specifically designed for vocabulary learning, ensuring that the study measured the impact of the intervention rather than prior familiarity.

Instruments. Several instruments were employed to collect both quantitative and qualitative data. First, a vocabulary test was designed to assess learners' vocabulary knowledge before and after the intervention. The pre-test consisted of 50 target words commonly used in EFL contexts, while the post-test included the same words to measure retention. Second, two widely-used mobile applications, Quizlet and Memrise, were selected as learning tools. Both apps provide interactive exercises, spaced repetition, and multimodal input, which aligns with the theoretical principles of vocabulary acquisition outlined by Schmitt (2000) and Nation (2013). Finally, a short questionnaire was administered at the end of the study to collect learners' attitudes and perceptions regarding mobile-assisted vocabulary learning. The questionnaire included both closed-

ended items, rated on a Likert scale, and open-ended questions allowing participants to provide qualitative feedback about their learning experiences.

Procedure. The study was conducted over a period of two weeks. Initially, participants completed the pre-test to determine their baseline vocabulary knowledge. After the pre-test, learners were introduced to the mobile applications, and brief training sessions were held to ensure they could navigate the apps independently. Participants were instructed to spend approximately 20 minutes per day engaging with the vocabulary exercises on Quizlet and Memrise. The activities included flashcard reviews, multiple-choice quizzes, and listening exercises, all designed to promote repeated exposure and active engagement with the target vocabulary. At the end of the two-week period, participants completed the post-test, which included the same vocabulary items as the pre-test, to assess improvements and retention. Immediately following the post-test, learners filled out the questionnaire, providing insights into their motivation, satisfaction, and perceived usefulness of the mobile-assisted learning activities. This combination of pre-test/post-test and survey data allowed for a comprehensive evaluation of both the cognitive and affective dimensions of vocabulary learning.

Data analysis. Quantitative data from the pre-test and post-test were analyzed using paired-sample t-tests to determine whether the mobile application intervention led to a statistically significant improvement in vocabulary retention. Descriptive statistics, including mean scores and standard deviations, were calculated to provide an overview of learners' performance. Qualitative data from the questionnaire were analyzed using thematic analysis, identifying common themes related to learner engagement, motivation, and perceived benefits of using mobile apps. By combining quantitative and qualitative analyses, the study offers a robust understanding of how mobile-assisted vocabulary learning affects both learners' knowledge and attitudes.

Ethical Considerations. Participants were informed about the purpose of the study and assured that their participation was voluntary. Informed consent was obtained, and confidentiality was maintained throughout the research process. The study adhered to ethical guidelines commonly applied in educational research, ensuring that data were collected responsibly and participants' rights were protected.

This methodology provides a clear and systematic framework for investigating the impact of mobile applications on vocabulary acquisition and retention among EFL learners. By combining pre-test/post-test measures, mobile-assisted learning activities, and learner feedback through questionnaires, the study captures both measurable outcomes and learners' experiences. The design aligns with the theoretical principles discussed in the Literature Review and supports the research objective of examining how mobile applications, such as Quizlet and Memrise, enhance vocabulary learning outcomes in EFL contexts.

Reaults.

Quantitative findings. The quantitative analysis of the study focused on measuring changes in participants' vocabulary knowledge before and after the mobile-assisted learning intervention. The pre-test results indicated that participants' vocabulary knowledge was moderate, with an overall mean score of 28.7 out of 50 (SD = 4.21), reflecting their intermediate proficiency level as expected from the placement assessment. These baseline scores confirmed that participants had a comparable starting point in terms of vocabulary knowledge, which is crucial for evaluating the effectiveness of the intervention.

After two weeks of engagement with the Quizlet and Memrise applications, the post-test scores demonstrated a notable improvement in learners' vocabulary retention. The overall mean score increased to 39.2 out of 50 (SD = 3.78), indicating an average gain of 10.5 points. A paired-sample t-test was conducted to determine whether this increase was statistically significant. The analysis revealed a significant difference between pre-test and post-test scores, $t(29) = 12.64$, $p < 0.001$, suggesting that the mobile-assisted intervention had a positive effect on vocabulary acquisition. These results confirm that consistent daily practice with mobile applications can enhance learners' retention of target vocabulary in a relatively short period. Furthermore, item-level analysis indicated that certain types of vocabulary items, such as adjectives and phrasal verbs, were retained more effectively compared to nouns and abstract terms. This finding aligns with the theoretical insights provided in the Literature Review, which emphasized the importance of multimodal exposure and repeated retrieval in vocabulary learning (Schmitt, 2000; Nation, 2013). The interactive features of Quizlet and Memorise, including flashcards, listening exercises, and immediate feedback, likely contributed to this enhanced retention by engaging learners cognitively and affectively.

Qualitative findings. In addition to quantitative gains, the study explored participants' attitudes and perceptions regarding mobile-assisted vocabulary learning through a post-intervention questionnaire. Thematic analysis of the open-ended responses revealed several key themes. Firstly, learners reported increased motivation and enjoyment in vocabulary learning. Many participants highlighted that the gamified elements of the applications, such as points, levels, and time-based challenges, made the learning process engaging and less monotonous compared to traditional methods. One participant stated, "I liked practicing words on my phone because it felt like a game, and I wanted to beat my previous score every day." This indicates that mobile-assisted learning can foster intrinsic motivation and active participation, which are crucial for long-term language development. Secondly, participants emphasized convenience and flexibility as major benefits. Being able to practice anywhere and anytime allowed learners to incorporate vocabulary exercises into their daily routines without the constraints of classroom schedules. This flexibility was noted by several participants as a significant factor in sustaining consistent engagement throughout the two-week intervention. Thirdly, some participants reported minor challenges, such as occasional technical difficulties or the distraction potential of using mobile devices. However, these issues did not substantially hinder learning outcomes, as most participants adapted to the applications quickly and maintained regular practice.

Integration of quantitative and qualitative data. The results demonstrate that mobile-assisted vocabulary learning not only improves measurable outcomes but also positively influences learners' attitudes and engagement. Quantitative findings confirmed statistically significant gains in vocabulary knowledge, while qualitative data highlighted enhanced motivation, satisfaction, and the perceived usefulness of the learning tools. This integration of data supports the argument made in the Literature Review that mobile applications can serve as effective supplementary tools for vocabulary acquisition in EFL contexts.

In summary, the findings indicate that a short-term, structured engagement with mobile applications such as Quizlet and Memrise significantly enhances both vocabulary retention and learner motivation. The combined evidence from pre-test/post-test scores and questionnaire responses provides a comprehensive understanding of the

cognitive and affective benefits of mobile-assisted vocabulary learning. These results offer strong empirical support for the continued integration of mobile technology in EFL instruction and suggest directions for further research, including long-term studies and the exploration of additional app-based interventions.

Discussion.

The primary aim of this study was to investigate the impact of mobile applications, specifically Quizlet and Memrise, on vocabulary acquisition among intermediate-level EFL learners. The findings of the study clearly indicate that mobile-assisted learning can significantly enhance both learners' vocabulary retention and their motivation to engage in language learning activities.

Quantitative analysis. The results of the pre-test and post-test revealed a statistically significant improvement in vocabulary scores following a two-week intervention. The mean score increased from 28.7 to 39.2, with a paired-sample t-test confirming that the difference was highly significant ($p < 0.001$). This finding suggests that short-term, structured exposure to mobile-assisted learning activities can produce measurable gains in vocabulary knowledge. The enhanced retention observed in certain categories of vocabulary, such as adjectives and phrasal verbs, is consistent with the theoretical framework outlined in the Literature Review. According to Schmitt (2000) and Nation (2013), repeated exposure, retrieval practice, and multimodal input are critical factors in effective vocabulary acquisition. The interactive exercises provided by the mobile applications, including flashcards, quizzes, and listening tasks, appear to have facilitated these cognitive processes, leading to improved learning outcomes.

Qualitative analysis. The thematic analysis of the questionnaire responses provided additional insight into learners' affective experiences. Participants reported increased motivation and enjoyment, highlighting the gamified elements and immediate feedback mechanisms in the applications. Such findings are consistent with previous research demonstrating that motivation plays a crucial role in language learning, particularly when learners have opportunities for self-directed practice in engaging formats. Moreover, learners emphasized the convenience and flexibility offered by mobile applications, which allowed them to practice independently and integrate vocabulary exercises into their daily routines. Although a few participants reported minor technical difficulties or potential distractions, these issues did not significantly impede learning. This suggests that mobile-assisted learning can be both effective and practical for EFL students.

Integration with previous literature. The findings of this study corroborate earlier studies on mobile-assisted language learning, which have highlighted the benefits of technology-enhanced vocabulary instruction. For instance, previous research has emphasized that mobile applications promote repeated exposure, contextualized practice, and active engagement, all of which are essential for long-term vocabulary retention. The current study extends these insights by providing empirical evidence from an EFL context, confirming that even short-term interventions can lead to significant gains. Additionally, the observed increase in learner motivation aligns with the motivational theories discussed in the Literature Review, emphasizing the interplay between cognitive and affective dimensions in language learning.

Limitations and recommendations. Despite the positive outcomes, certain limitations should be acknowledged. The study was conducted over a relatively short period of two weeks, which limits the ability to assess long-term retention of vocabulary.

Furthermore, the sample size was relatively small and limited to a single EFL classroom, which may restrict the generalizability of the findings. Only two mobile applications were used, and future research could explore additional tools or compare different types of app-based interventions. Longitudinal studies with larger and more diverse samples would provide further insights into the sustained impact of mobile-assisted vocabulary learning.

In conclusion, this study demonstrates that mobile applications such as Quizlet and Memrise can significantly enhance vocabulary acquisition and learner motivation in EFL contexts. The combination of quantitative and qualitative evidence underscores the dual benefits of cognitive gains and increased engagement. The findings support the integration of mobile technology into EFL instruction and suggest that thoughtfully designed mobile-assisted interventions can serve as effective supplements to traditional classroom-based teaching. Overall, the study contributes to the growing body of research on mobile-assisted language learning and offers practical implications for educators seeking to foster vocabulary growth in a motivating and flexible manner.

Conclusion.

This study investigated the effectiveness of mobile applications, specifically Quizlet and Memrise, in enhancing vocabulary acquisition and retention among intermediate-level EFL learners. The findings indicate that mobile-assisted learning significantly improves both cognitive and affective aspects of language learning. Quantitative results demonstrated a substantial increase in vocabulary scores, with the post-test mean significantly higher than the pre-test mean. This confirms that structured, short-term engagement with interactive, multimodal exercises can effectively enhance learners' retention of target vocabulary. The improvements in specific word categories, such as adjectives and phrasal verbs, highlight the role of repeated exposure, retrieval practice, and multimodal input in consolidating vocabulary knowledge.

Qualitative analysis further revealed that learners experienced increased motivation, engagement, and satisfaction during the intervention. Participants emphasized the convenience and flexibility of mobile applications, which allowed them to practice independently and integrate learning into their daily routines. Gamified elements and immediate feedback were reported to enhance enjoyment and sustained participation, supporting the notion that mobile-assisted learning can address both cognitive and motivational needs simultaneously.

While the study provides strong evidence for the positive impact of mobile applications on EFL vocabulary learning, certain limitations should be acknowledged. The short duration of the intervention and the small, homogeneous sample restrict the generalizability of the findings. Future research could examine long-term effects, compare different mobile tools, and explore diverse learner populations to provide more comprehensive insights.

In conclusion, this study demonstrates that mobile applications are effective supplementary tools for vocabulary acquisition in EFL contexts. Their integration into language teaching can not only improve vocabulary retention but also foster learner motivation and autonomy. These findings offer practical implications for educators seeking to implement flexible, engaging, and evidence-based strategies in vocabulary instruction.

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