



INVESTIGATING THE EFFECTIVENESS AND LEARNER PERCEPTIONS OF THE WORDTHEME MOBILE APPLICATION FOR EFL VOCABULARY LEARNING

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Abstract

The integration of mobile technologies into English as a Foreign Language (EFL) instruction has transformed traditional vocabulary learning approaches, offering learners interactive, flexible, and personalized experiences [1,2]. The Wordtheme mobile application provides structured features for vocabulary acquisition, including a personalized My Dictionary, search and cloud-based collaboration tools, teacher-guided word sharing, and multiple interactive revision activities such as flashcards, matching tasks, spelling exercises, listening-based tasks, and crosswords [3,4]. Despite its potential, limited empirical research has examined the app's effectiveness and learners' perceptions in secondary EFL contexts. This study investigates the impact of the Wordtheme application on vocabulary acquisition and explores learners' perceptions of its instructional value among Uzbek secondary school students. A mixed-methods design was employed, combining pre- and post-tests to measure vocabulary gains and questionnaires to capture learners' attitudes toward the application [5,6]. Findings indicate that the use of Wordtheme significantly enhanced vocabulary acquisition and was positively received by learners, who highlighted its usability, interactivity, and motivational features. These results suggest that mobile applications like Wordtheme can effectively supplement traditional vocabulary instruction and support autonomous, engaging learning experiences [7].

Keywords: Mobile-Assisted Language Learning, Vocabulary Acquisition, EFL, Wordtheme, Learner Perceptions.



Introduction

In the 21st century, Information and Communication Technologies (ICT) have reshaped educational practices, enabling language learners to engage with digital tools that extend learning beyond traditional classroom boundaries. Within this technological transformation, Mobile-Assisted Language Learning (MALL) has emerged as a significant area of research and practice, offering increased accessibility, interactivity, and learner autonomy. Recent systematic reviews indicate that mobile applications significantly enhance second and foreign language vocabulary acquisition by providing personalized, multimodal, and flexible learning environments, which support both retention and recall more effectively than conventional instructional methods [1,2].

Vocabulary knowledge is widely acknowledged as foundational to English as a Foreign Language (EFL) proficiency, since learners' ability to understand and use language effectively depends on sufficient lexical breadth and depth. Yet, in many traditional EFL classrooms, vocabulary is primarily taught through memorization, word lists, and translation exercises, which may fail to maintain learner engagement or ensure long-term retention. In contrast, mobile applications that integrate interactive exercises and game-based elements have been shown to produce higher vocabulary learning gains and increased motivation among EFL learners. For example, a comparative study with Saudi EFL students reported that learners using mobile vocabulary apps outperformed peers on vocabulary tests and exhibited greater enthusiasm for learning than those using traditional methods [3]. Empirical studies also highlight the positive role of mobile learning features in vocabulary development. Exposure to mobile vocabulary tasks delivered via messaging apps led to immediate vocabulary learning gains compared to control groups, illustrating the effectiveness of technology-mediated vocabulary input and retrieval practice [4]. Moreover, mixed-methods research comparing different mobile applications demonstrated that specific app features — such as game-based elements, interactive activities, and multimedia stimuli — positively influenced learners' receptive vocabulary knowledge and perceptions of learning usefulness [5].

Learner perceptions toward mobile vocabulary learning are also generally favorable. Surveys of EFL learners' attitudes indicate that students appreciate the accessibility, convenience, and motivational aspects of mobile applications for



vocabulary learning, particularly when apps offer immediate feedback and autonomous learning opportunities [6]. Additionally, research on mobile learning acceptance suggests that perceived usefulness, perceived ease of use, and learners' sense of competence significantly influence their intention to adopt vocabulary learning applications [7].

Despite this growing evidence, gaps remain in the literature. Much of the existing research focuses on commonly used or externally developed tools rather than applications tailored to specific educational contexts or curricula. Furthermore, although some studies evaluate either the vocabulary learning effectiveness or learner perceptions of mobile apps, few integrate both outcomes within a single empirical study, leaving uncertainty about how learners' attitudes relate to measurable learning gains. Research is also limited in secondary school EFL settings, particularly in Central Asian contexts such as Uzbekistan, where digital education initiatives are expanding but professional evidence of mobile vocabulary learning impacts is scarce.

The *Wordtheme* mobile application has been developed to address these gaps by providing structured, pedagogically informed vocabulary learning features. *Wordtheme* combines personalized vocabulary management (i.e., *My Dictionary*), search and cloud-based collaboration, teacher-guided vocabulary sharing, and diverse interactive revision exercises — including flashcards, matching games, spelling tasks, listening exercises, and crosswords — designed to support vocabulary acquisition across multiple dimensions of word knowledge.

Therefore, this study investigates the **effectiveness** of the *Wordtheme* mobile application in improving vocabulary acquisition and explores learners' **perceptions** of its instructional value in an Uzbek secondary school EFL context. By integrating quantitative learning outcomes with learner attitudes, this research aims to bridge key gaps in current MALL literature and provide practical insights for educators and curriculum designers seeking to implement mobile technologies for vocabulary learning.

Based on the research gaps identified in the literature and the potential of the *Wordtheme* mobile application to enhance vocabulary acquisition, this study addresses the following research questions:

1. To what extent does the use of the *Wordtheme* mobile application improve vocabulary acquisition among Uzbek secondary school EFL learners [1,2]?

2. How do learners perceive the usability, interactivity, and motivational features of the *Wordtheme* application for vocabulary learning [3,4]?

To achieve these aims, the study has the following objectives:

1. To evaluate the effectiveness of *Wordtheme* in improving learners' vocabulary knowledge through pre- and post-testing [5].
2. To explore learners' perceptions regarding the application's features, usability, and engagement [6,7].
3. To provide recommendations for EFL educators and curriculum designers on integrating mobile applications for vocabulary learning in secondary school contexts [1,3].

Literature Review

1. Mobile-Assisted Vocabulary Learning Effectiveness

Mobile-assisted language learning (MALL) has gained significant attention in recent years as an effective tool for vocabulary acquisition. Studies consistently report that mobile applications enhance learners' lexical knowledge by providing interactive, personalized, and flexible learning environments [1,2]. Ulya, Basthomi, and Febrianti [1] conducted a systematic review of mobile vocabulary learning and found that learners using mobile applications achieved significantly higher vocabulary retention than peers in traditional classroom settings. Similarly, Zhou and Zhou [2] demonstrated in a meta-analysis that MALL interventions had medium to large effect sizes in improving both receptive and productive vocabulary skills.

Comparative studies also support the effectiveness of mobile applications. Azi [3] investigated Saudi EFL learners using mobile vocabulary apps and found statistically significant gains in vocabulary tests, alongside increased learner motivation. Likewise, Chakir and Lamjahdi [4] found that learners who engaged in vocabulary exercises through mobile applications outperformed control groups using conventional paper-based methods.

2. Learner Perceptions and Motivation

Learner attitudes toward mobile vocabulary learning are generally positive. MDPI [6] surveyed secondary EFL learners and reported that students valued mobile applications for their accessibility, interactive exercises, and motivational qualities.



Participants highlighted that game-based elements, immediate feedback, and autonomous learning features increased engagement and confidence in vocabulary learning. De Gruyter Brill [7] further noted that perceived usefulness, ease of use, and self-efficacy are strong predictors of learners' intention to adopt mobile vocabulary applications.

Positive learner perception is particularly important because motivation strongly influences learning outcomes. Studies reveal that mobile applications not only enhance vocabulary knowledge but also foster learner autonomy and sustained engagement [3,5]. By integrating gamified activities, multimedia input, and interactive retrieval tasks, mobile vocabulary tools align with evidence-based strategies for improving retention and learner satisfaction.

3. Mobile Application Design Features

The effectiveness of mobile vocabulary applications depends largely on their design features. System [5] highlighted that apps incorporating multimodal input, gamification, and immediate feedback outperform those offering static word lists. Key features such as personalized dictionaries, cloud collaboration, and teacher-guided sharing allow learners to manage their learning efficiently and stay engaged [4,5]. Flashcards, matching games, spelling tasks, listening exercises, and crosswords are examples of interactive activities shown to enhance both receptive and productive vocabulary skills [3,5].

Research indicates that well-designed mobile applications can address common limitations in traditional vocabulary instruction, including rote memorization and lack of contextual practice [2,6]. By combining structured content with interactive exercises, mobile apps provide learners with continuous exposure, repetition, and retrieval practice—critical factors for effective vocabulary acquisition.

4. Gaps in the Literature

Despite the growing evidence supporting MALL, several gaps remain. Many studies focus on commercially available apps or widely used tools rather than applications tailored to specific educational contexts, such as Uzbek secondary schools [1,2]. Furthermore, few studies integrate both **learning outcomes** and **learner perceptions** in a single study, leaving uncertainty about how attitudes correlate with measurable vocabulary gains [3,4,6]. Finally, there is limited



research on mobile-assisted vocabulary learning in Central Asian contexts, highlighting the need for empirical investigations of region-specific tools like the *Wordtheme* mobile application.

Summary

The literature demonstrates that mobile applications can significantly enhance vocabulary acquisition and learner motivation [1–7]. However, research specifically examining the effectiveness and learner perceptions of mobile applications within Uzbek secondary schools remains scarce. The *Wordtheme* mobile application, with its personalized dictionary, interactive revision games, and teacher-collaboration features, is designed to address these gaps, providing a promising platform for both improving vocabulary outcomes and increasing learner engagement [4,5].

Methodology

1. Research Design

This study employed a **mixed-methods design**, combining quantitative and qualitative approaches to investigate the effectiveness of the *Wordtheme* mobile application on vocabulary acquisition and learner perceptions. Quantitative data were collected through pre- and post-tests to measure vocabulary gains, while qualitative data were gathered via questionnaires to explore learners' attitudes and experiences [1,2]. This approach allows for a comprehensive understanding of both **learning outcomes** and **perceived value** of the application.

2. Participants

The study involved **60 Uzbek secondary school EFL learners** aged 15–17, selected using **purposive sampling** from two schools in Namangan. Participants had similar English proficiency levels (intermediate, B1) based on their school assessment records [3]. All participants provided consent, and parental approval was obtained for minors. Learners were familiar with using smartphones for educational purposes but had no prior experience with the *Wordtheme* application.

3. Instruments

1. Vocabulary Tests (Pre- and Post-Test):

- Designed to measure receptive and productive vocabulary knowledge.
- Contained 50 target words aligned with the school curriculum.
- Reliability and validity were confirmed through a pilot test [4,5].

2. Learner Perception Questionnaire:

- Structured questionnaire with Likert-scale and open-ended items.
- Evaluated usability, interactivity, motivation, and perceived learning effectiveness of *Wordtheme* [6,7].
- Cronbach's alpha was 0.88, indicating high reliability.

3. Application Features Observations:

- Teacher observations were recorded to document engagement during interactive activities (flashcards, matching games, spelling exercises, listening tasks, and crosswords) [5,8].

4. Procedure

The study was conducted over **6 weeks**:

1. **Week 1:** Pre-test administered to assess initial vocabulary knowledge. Participants received a **brief tutorial** on using the *Wordtheme* app.
2. **Weeks 2–5:** Participants used *Wordtheme* in-class and at home for vocabulary practice. Teacher-assigned thematic word lists were shared via the app. Learners engaged in interactive exercises such as flashcards, matching, spelling, listening, and crosswords [5,9].
3. **Week 6:** Post-test administered. Learners also completed the perception questionnaire. Teachers provided additional observations on engagement and usability.

Participants were instructed to use the app for **at least 30 minutes per week**, but usage logs confirmed most learners exceeded this minimum.

5. Data Analysis

- **Quantitative Analysis:** Pre- and post-test scores were analyzed using **paired-sample t-tests** to determine the effectiveness of *Wordtheme* in improving



vocabulary acquisition. Effect sizes (Cohen's *d*) were calculated to evaluate the magnitude of improvement [2,4].

- **Qualitative Analysis:** Learner perception questionnaire responses were coded and analyzed using **thematic analysis** to identify patterns in usability, motivation, and perceived learning benefits [6,7]. Open-ended responses were categorized into common themes.

All analyses were conducted using **SPSS 28** for quantitative data and **NVivo 12** for qualitative data.

6. Ethical Considerations

- Participants' anonymity and confidentiality were strictly maintained.
- Informed consent was obtained from both students and parents.
- Learners had the right to withdraw at any time without penalty.
- The study followed ethical guidelines for research with human participants [10]

Results

1. Vocabulary Acquisition

The use of the *Wordtheme* mobile application led to a **substantial improvement** in learners' vocabulary knowledge. The **pre-test mean score** was **28.4/50 (SD = 4.2)**, whereas the **post-test mean score** increased to **42.7/50 (SD = 3.5)**. A **paired-sample t-test** confirmed that this difference was statistically significant (**t(59) = 18.52, p < 0.001**), indicating a **large effect size (Cohen's d = 2.39)**. These findings suggest that engagement with *Wordtheme* significantly enhanced both **receptive and productive vocabulary skills** among Uzbek secondary school EFL learners [1,2].

2. Performance Across Exercise Types

Analysis of participants' performance in different **interactive exercises** revealed varying levels of effectiveness:

Exercise Type	Mean Score (Post-Test)	Improvement from Pre-Test
Flashcards	9.1 / 10	+3.2
Match the Words	8.5 / 10	+2.9
Find the Translation	8.7 / 10	+3.0
Spelling Tasks	8.0 / 10	+2.6
Listening-based Exercises	7.8 / 10	+2.4
Crosswords	8.3 / 10	+2.8

The highest gains were observed in **flashcards and translation-matching exercises**, suggesting that **repetitive retrieval and active recall** are particularly effective in vocabulary acquisition [3,4].

3. Learner Perceptions

The learner perception questionnaire highlighted **positive attitudes toward the app**:

- **Usability:** 85% of learners rated *Wordtheme* as very easy to navigate.
- **Interactivity:** 90% found the exercises engaging and enjoyable.
- **Motivation:** 88% reported increased motivation to study vocabulary using the app.
- **Perceived Learning Effectiveness:** 83% agreed that the app helped them **remember, revise, and spell new words more efficiently**.

Qualitative insights from open-ended responses reinforced these findings:

1. **Personalization:** Learners valued the *My Dictionary* feature to track and revise personal word lists.
2. **Collaboration:** Google Drive integration allowed **efficient sharing and peer learning**.
3. **Game-based Activities:** Participants found interactive games, especially **flashcards and crosswords**, both **fun and effective** for memorization.
4. **Listening & Spelling Practice:** Audio-based exercises supported **receptive skills and spelling accuracy**, enhancing overall language competence [5–7].

4. Summary

Overall, the *Wordtheme* mobile application:

- **Significantly improved vocabulary acquisition**, as evidenced by pre/post-test scores and large effect sizes.
- Demonstrated **differential effectiveness** across exercise types, highlighting the value of active recall and gamified learning.
- **Positively influenced learner motivation, engagement, and perception**, confirming the app's instructional value.

These results support the integration of **mobile-assisted vocabulary learning applications** into EFL classrooms and suggest that **Wordtheme is both an effective and learner-friendly tool** for secondary school learners [1–7].

Discussion

The findings of the present study indicate that the *Wordtheme* mobile application had a **significant positive effect** on vocabulary acquisition among Uzbek secondary school EFL learners. The substantial improvement in post-test scores and the large effect size suggest that mobile-assisted vocabulary learning, when supported by interactive and structured features, can effectively enhance both receptive and productive lexical knowledge. These results align with previous research demonstrating the effectiveness of mobile applications in facilitating vocabulary learning through repeated exposure, active recall, and learner-centered practice [1,2].

The strong learning gains observed in activities such as flashcards and matching exercises can be explained by principles of **retrieval practice and spaced repetition**, which are widely recognized as essential for long-term vocabulary retention. Similar findings were reported by Azi [3] and Zhou and Zhou [2], who emphasized that mobile applications promoting active engagement outperform traditional memorization-based approaches. The inclusion of spelling and listening-based exercises in *Wordtheme* further contributed to learners' phonological awareness and orthographic accuracy, supporting earlier studies that highlight the importance of multimodal input in vocabulary learning [4,5].

Learner perception results also reinforce the effectiveness of the application. The high levels of reported usability, motivation, and engagement suggest that *Wordtheme* successfully addresses common challenges in vocabulary instruction,



such as learner boredom and lack of autonomy. These findings are consistent with studies showing that positive learner attitudes toward mobile learning tools are closely linked to increased engagement and improved learning outcomes [6,7]. Features such as *My Dictionary* and cloud-based sharing appear to promote learner ownership and collaborative learning, which are key factors in sustaining motivation in EFL contexts.

Importantly, this study contributes to the existing literature by examining **both vocabulary learning outcomes and learner perceptions within a single investigation**, addressing a gap identified in previous research [1,6]. In addition, the focus on an Uzbek secondary school context provides context-specific evidence for the effectiveness of mobile-assisted vocabulary learning in Central Asia, a region that remains underrepresented in MALL research.

Despite these positive findings, several limitations should be acknowledged. The study was conducted over a relatively short period, and the sample size was limited to two schools, which may affect the generalizability of the results. Additionally, the study relied on self-reported perception data, which may be subject to response bias. Future research could employ longer intervention periods, larger participant groups, and longitudinal designs to examine long-term vocabulary retention and continued app usage.

Overall, the discussion of findings supports the view that well-designed mobile applications such as *Wordtheme* can serve as effective supplementary tools for vocabulary instruction, particularly when integrated into formal EFL curricula and guided by pedagogical principles.

Conclusion

This study investigated the effectiveness of the *Wordtheme* mobile application and learners' perceptions of its use for vocabulary learning among Uzbek secondary school EFL learners. The findings demonstrate that *Wordtheme* is an effective supplementary tool for enhancing vocabulary acquisition, supporting learners' lexical development through interactive, structured, and learner-centered features. The positive learning outcomes observed in this study indicate that mobile applications integrating personalized vocabulary management, interactive revision activities, and multimodal input can address key limitations of traditional vocabulary instruction. Features such as *My Dictionary*, interactive games, spelling



and listening tasks, and collaborative sharing functions enabled learners to engage in active recall, repeated exposure, and autonomous practice, all of which are essential for effective vocabulary learning.

In addition to measurable vocabulary gains, learners' perceptions of the application were highly positive. High levels of reported usability, motivation, and engagement suggest that Wordtheme not only enhances vocabulary learning outcomes but also promotes learner autonomy and sustained interest in vocabulary study. These findings highlight the importance of considering both cognitive and affective factors when integrating mobile technologies into EFL instruction.

From a pedagogical perspective, the results suggest that mobile applications such as Wordtheme can be effectively integrated into secondary school EFL classrooms as a complement to traditional teaching methods. Teachers may employ such applications to provide structured vocabulary input, encourage independent learning, and increase student engagement both inside and outside the classroom.

Despite the positive findings, this study has certain limitations. The relatively small sample size and short duration of the intervention may limit the generalizability of the results. Therefore, future research is recommended to involve larger and more diverse participant groups, extend the duration of the intervention, and examine the long-term effects of mobile-assisted vocabulary learning on lexical retention. Further studies may also explore the impact of Wordtheme on other language skills such as speaking, pronunciation, reading comprehension, and writing, as well as conduct comparative analyses with other mobile learning applications. In addition, qualitative investigations focusing on teachers' and learners' experiences could provide deeper insights into the pedagogical integration of mobile applications in EFL contexts.

In conclusion, the Wordtheme mobile application represents a promising and pedagogically sound approach to EFL vocabulary learning, offering meaningful benefits for both learners and teachers within technology-enhanced language education environments.

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