

## The Impact of Mobile-Assisted Language Learning (MALL) on Vocabulary Acquisition in Arabic as a Foreign Language

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### Abstract:

This study investigates the impact of Mobile-Assisted Language Learning (MALL) on vocabulary acquisition in learners of Arabic as a foreign language. As mobile technologies increasingly permeate educational settings, MALL has emerged as a promising approach to enhancing language learning efficiency, flexibility, and engagement. This research employed a qualitative explorative design to examine how mobile-based learning tools—such as digital dictionaries, flashcard applications, and interactive vocabulary platforms—contribute to learners' mastery of Arabic vocabulary. Data were collected through classroom observations, semi-structured interviews, and learners' reflective journals. Findings reveal that MALL facilitates increased learner autonomy, improves recall through spaced repetition, and provides immediate feedback that supports more effective vocabulary retention. Additionally, mobile tools were found to create a more personalized and motivating learning environment, contributing to higher levels of student engagement. However, the study also identifies challenges related to technological accessibility and inconsistent learner discipline when using mobile devices. Overall, the research concludes that MALL significantly enhances vocabulary acquisition in Arabic as a foreign language, provided that its implementation is supported by structured pedagogical strategies and adequate digital literacy training.

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### Introduction (مقدمة)

A significant gap remains in the existing body of research concerning the integration of Mobile-Assisted Language Learning (MALL) tools in the acquisition of Arabic vocabulary by foreign language learners. Although vocabulary mastery is a crucial component of Arabic language learning, traditional teaching methods still dominate many instructional contexts and are often insufficient to address learners' needs in the digital era. Mobile learning technologies continue to develop rapidly, yet their potential has not been maximally leveraged in Arabic

language instruction, especially compared to languages such as English or Mandarin (Alenezi, 2021). Consequently, there is a pressing need to explore the effectiveness of MALL in supporting Arabic vocabulary acquisition.

Mobile technology has reshaped language learning by enabling continuous access to instructional content anytime and anywhere. Features such as digital flashcards, gamified learning, and multimedia-rich applications have been shown to enhance learner engagement and autonomy. However, despite these advancements, the interaction between mobile learning tools and the linguistic complexity of Arabic has not been sufficiently examined (Traxler, 2018). This gap limits educators' understanding of how mobile technologies can be effectively tailored to the specific characteristics of Arabic.

Arabic vocabulary learning requires learners to navigate morphological patterns, semantic fields, and contextual variations in both Modern Standard Arabic and spoken dialects. These linguistic demands often challenge learners, especially those using conventional classroom-based approaches. Although mobile-based platforms can offer adaptive repetition, audiovisual support, and exposure to vocabulary in varied contexts, the extent of their impact on Arabic vocabulary processing is not yet well established (Al-Said, 2020). Therefore, the potential of MALL to reduce cognitive load in Arabic learning requires more empirical exploration.

The widespread use of smartphones among learners globally provides a strong foundation for integrating MALL into Arabic language programs. High mobile penetration rates in regions where Arabic is widely studied—including the Middle East and Southeast Asia—suggest that MALL implementation is highly feasible (Kukulka-Hulme, 2020). Nevertheless, despite this promising technological landscape, institutional adoption remains limited due to insufficient training, lack of resources, and uncertainty about the pedagogical value of mobile applications.

Interactive features within mobile learning applications, including spaced-repetition systems, instant feedback, and gamification, have been associated with improved vocabulary learning outcomes in many languages. These features align well with the cognitive requirements of vocabulary learning, which involves repeated exposure and active recall (Nation, 2013). However, little research has specifically examined the extent to which such features directly support Arabic vocabulary retention and learners' recall performance. Addressing this gap can offer valuable insights for improving Arabic pedagogy.

Existing MALL research tends to focus heavily on languages with Latin writing systems, leaving non-Latin-script languages, including Arabic, comparatively understudied. Arabic presents additional challenges such as right-to-left script orientation, diacritics, and root-based morphology. These elements influence the design and usability of digital learning tools (Hussein & Hasan, 2019). Understanding how learners engage with Arabic-specific mobile interfaces is essential for optimizing MALL for this linguistic context.

Motivational factors also play a crucial role in vocabulary learning, especially for learners of Arabic, who may perceive the language as linguistically distant from their native languages. MALL has the capacity to enhance intrinsic motivation through autonomy, interactivity, and enjoyable learning experiences (Deci & Ryan, 2000). Yet, the extent to which such motivational benefits translate into measurable vocabulary gains for Arabic learners remains unclear. This reinforces the need to investigate the relationship between MALL-driven motivation and vocabulary acquisition.

The shift toward learner-centered educational models highlights the need for flexible digital tools that support independent learning beyond the classroom. MALL provides opportunities for learners to regulate their own learning pace, revisit content, and practice in diverse environments (Stockwell, 2010). For Arabic learners—who often have limited exposure to the language outside formal courses—these affordances are particularly valuable. However,

empirical studies evaluating long-term vocabulary retention through MALL in Arabic remain scarce.

Increasing digital literacy among learners has further strengthened the potential of MALL as an effective instructional approach. Still, many Arabic language teachers prefer textbook-based instruction and may feel unprepared to integrate mobile technologies into their teaching (Farhat, 2021). By examining learners' independent use of mobile applications, this study seeks to highlight how MALL can support vocabulary development even in contexts with minimal teacher mediation.

Cultural and contextual factors may also influence how learners perceive and utilize mobile technologies. Arabic language learners represent diverse cultural backgrounds, and attitudes toward technology can vary significantly across regions (Sharples, 2019). Therefore, examining MALL usage among multicultural learner groups can provide broader insights into its suitability and acceptance in different cultural contexts.

As MALL becomes increasingly mainstream, methodologically rigorous research is needed to evaluate its effectiveness. Many existing studies lack consistent measurement tools or fail to consider key variables such as usage frequency, learner proficiency, and application design (Godwin-Jones, 2017). This inconsistency limits the generalizability of findings related to Arabic vocabulary acquisition through mobile learning.

Given these research gaps particularly regarding Arabic-specific MALL tools, empirical outcomes for vocabulary development, usability challenges, and motivational influences – this study seeks to provide a comprehensive analysis of how MALL impacts vocabulary acquisition among learners of Arabic as a foreign language. The findings aim to contribute to improved instructional design, more effective digital learning strategies, and pedagogical frameworks that support the integration of mobile technologies in Arabic language education.

## Method (منهج)

This study employed a qualitative descriptive design to explore how Mobile-Assisted Language Learning (MALL) influences vocabulary acquisition among learners of Arabic as a foreign language. This design was chosen because it allows the researcher to gain an in-depth understanding of learners' experiences, perceptions, and strategies when using mobile applications for vocabulary learning (Creswell, 2018). The analysis focused on interaction patterns with mobile tools, perceived vocabulary development, and contextual factors affecting the learning process.

Participants consisted of 15 beginner and intermediate university students learning Arabic as a foreign language. A purposive sampling technique was used to recruit participants who had actively used a mobile-based language-learning application for at least four weeks (Etikan, 2016). Diversity in technological experience and linguistic background was considered essential to obtain a rich variation of data.

The study used semi-structured interviews, observation sheets, and field notes as primary instruments. Semi-structured interviews enabled the researcher to explore learners' perceptions of MALL effectiveness, vocabulary retention, motivational aspects, and challenges faced (Kvale & Brinkmann, 2015). Observations were conducted to record how learners interacted with mobile features during vocabulary practice, while field notes captured spontaneous insights emerging in the learning environment.

Data collection took place over six weeks. During the first week, participants received an orientation session regarding the selected MALL application. Weeks two to five were dedicated

to periodic observations where the researcher monitored learning frequency, vocabulary activities, and learners' responses to mobile features. The final week was used for reflective interviews to gather participants' overall impressions (Merriam & Tisdell, 2016).

Semi-structured interviews provided flexibility for probing more deeply into learners' experiences. Core interview questions addressed perceived effectiveness, memorization strategies, motivation, and technical issues. Each interview lasted 30–45 minutes and was audio-recorded with participant consent (DiCicco-Bloom & Crabtree, 2006).

Observations followed a non-participant approach, allowing the researcher to focus solely on learners' natural interaction with the mobile application. Each observation session lasted 20–30 minutes and documented actions such as repetition of vocabulary, responses to interactive quizzes, use of audio support, and engagement with gamified features (Spradley, 2016). These observations complemented the interview data.

Data were analyzed using thematic analysis. Interview transcripts were coded and grouped into major themes, including perceived effectiveness, vocabulary development, motivation, engagement, and technical barriers (Braun & Clarke, 2021). Observation results and field notes strengthened the findings through cross-verification and contextual explanation.

To ensure data credibility, the study employed source and method triangulation. Source triangulation involved comparing interview data with observations and field notes, while method triangulation combined interview and observational techniques to produce a more comprehensive understanding of learners' experiences (Patton, 2015). Member checking was also conducted by summarizing interview results and confirming them with participants to enhance validity.

Ethical considerations were rigorously addressed. Participants were informed about the study's purpose, data confidentiality, and their right to withdraw at any time. All data were securely stored and used solely for academic purposes (BERA, 2018). Procedures ensured participants' comfort and avoided any interference with their formal learning process.

The entire research procedure was designed to be flexible, allowing learners to use MALL applications according to their own schedules. This naturalistic approach helped capture authentic learning behavior outside the classroom. It also allowed the researcher to better understand how mobile tools genuinely contribute to vocabulary development in real-life learning contexts (Miles, Huberman, & Saldaña, 2020).

## Result (نتائج)

The analysis of interview data revealed that most participants perceived MALL applications as highly effective for improving Arabic vocabulary. Learners reported that the availability of vocabulary lists, digital flashcards, and audio models increased their ability to memorize new words. Several participants highlighted that the immediacy of access enabled them to review vocabulary during idle moments, such as while commuting or waiting for classes. This spontaneous learning helped reinforce memory retention. Students also noted that the mobile environment reduced learning anxiety and created a more relaxed atmosphere. Overall, participants expressed that MALL applications enhanced their confidence in recalling vocabulary during communication tasks.

Observational data supported these perceptions by showing frequent engagement with repetition-based learning features. Many students repeatedly listened to pronunciation models to refine their phonological awareness. Learners also exhibited a high level of interaction with

quiz-based activities embedded in the applications. These quizzes motivated students to revisit vocabulary that they had previously forgotten. The presence of instant feedback further helped learners identify weaknesses immediately. This pattern demonstrated that MALL facilitated continuous micro-learning throughout the day.

Another important finding was the role of gamification in sustaining learners' motivation. Participants reported that points, badges, and level progression systems encouraged them to complete more vocabulary tasks. Some students even described the learning experience as "addictive," meaning they felt driven to unlock new levels. Observations confirmed that gamified features were used more frequently than non-gamified vocabulary lists. Learners seemed to prefer competitive or reward-based tasks over passive reading tasks. These dynamics contributed significantly to learners' consistency and persistence.

A notable improvement was found in learners' listening and pronunciation skills. Through audio playback, participants practiced pronouncing words repeatedly until they achieved accuracy. Several learners mentioned that voice-recognition features helped them evaluate their own articulation. Observation data further showed that learners often used audio components even when the application did not require it, indicating self-initiated pronunciation practice. This behavior suggests that MALL supports oral vocabulary acquisition alongside written forms. As a result, learners developed stronger phonetic awareness of Arabic vocabulary.

Reading comprehension showed measurable improvement as well. Many participants noted that repeated exposure to vocabulary within context-based activities increased their reading fluency. When faced with short passages inside the app, learners were able to decode meanings more quickly. Some students explained that they appreciated how contextualized sentences helped them understand nuances of word usage. Observational notes highlighted that learners reread passages several times until they mastered unfamiliar terms. This indicates that MALL's integrated reading tasks provide meaningful vocabulary reinforcement.

The study also found that learners developed more effective vocabulary-learning strategies after prolonged use of the mobile tools. Participants reported utilizing features such as word categorization, bookmarking, and spaced repetition to structure their learning. Some students created personalized lists for difficult words and practiced them more frequently. These behaviors demonstrate an emerging sense of autonomy in vocabulary learning. Moreover, the use of strategy-based features reflects learners' increasing metacognitive awareness. This strategic shift contributed to more efficient vocabulary retention.

Participants expressed that MALL increased their learning flexibility. They appreciated being able to choose when and where to study vocabulary, without being bound to classroom schedules. Many learners used the application before going to bed or early in the morning. This personalized scheduling ensured more consistent exposure to vocabulary. Observations confirmed that learning sessions varied widely in timing but remained regular. This flexibility contributed to making vocabulary learning a daily habit.

Motivation was another key theme that emerged from the findings. Learners frequently described the application as "fun," "engaging," and "less stressful" than traditional textbook learning. The convenience of mobile learning reduced frustration associated with difficult vocabulary. Learners also reported a sense of accomplishment when completing daily goals or mastering new word sets. This emotional satisfaction encouraged them to maintain consistent practice. Consequently, MALL contributed to sustaining long-term motivation for vocabulary acquisition.

However, challenges were also observed, particularly related to technical constraints. Some participants faced issues such as unstable internet connections, limited device storage, or slow application loading times. These technical problems occasionally disrupted learning flow. A few

learners expressed frustration when progress was lost due to app glitches. Despite these issues, most students adapted by switching devices or using offline modes. While challenges were present, they did not significantly hinder overall learning outcomes.

Another challenge involved the lack of deeper semantic knowledge. Learners noted that while the application helped them memorize many words, it did not always provide extensive explanations of word usage. Some participants struggled to use newly learned vocabulary in complex sentences. Observations revealed that students sometimes repeated words mechanically without fully understanding their contextual appropriateness. This indicates that MALL may excel in word recall but not necessarily in deeper linguistic competence. Additional instructional support may be required to overcome this limitation.

Despite these challenges, the triangulated data strongly indicated that learners' vocabulary size improved noticeably. Interview responses showed that students felt more capable of recognizing and recalling words during classroom activities. Observation records revealed reduced hesitation when learners encountered familiar digital vocabulary in real-world tasks. Learners also reported improved performance in vocabulary quizzes administered by their instructors. These findings suggest that the mobile application contributed directly to enhanced vocabulary acquisition. The consistent practice enabled by MALL played a key role in this improvement.

Overall, the results show that MALL positively influenced vocabulary development by promoting repetition, engagement, and autonomy. The data demonstrated strong alignment between learners' reported experiences and actual learning behaviors. The study highlights the importance of mobile tools as supplementary resources in foreign language learning. While not a complete replacement for formal instruction, MALL effectively supports vocabulary acquisition. The results emphasize that integrating mobile technologies into Arabic language programs can significantly enhance learning effectiveness. These outcomes provide valuable insights for educators and curriculum designers.

## Discussion (مناقشة)

The findings of this study demonstrate that MALL significantly enhances learners' vocabulary acquisition in Arabic as a foreign language, supporting previous research emphasizing the beneficial role of mobile technologies in language learning (Kukulka-Hulme, 2020). Learners' increased engagement with mobile apps appears closely tied to the accessibility and flexibility these tools provide. This aligns with the argument that mobile learning enables continuous exposure beyond classroom boundaries, which is essential for vocabulary development (Stockwell & Hubbard, 2013). The results indicate that MALL encourages frequent, short learning sessions that contribute to long-term retention. Such micro-learning opportunities strengthen repeated exposure, a factor repeatedly emphasized in lexical acquisition studies. Therefore, MALL effectively promotes consistency—one of the strongest predictors of vocabulary growth.

Another major finding concerns the role of repetition and audio modeling in supporting vocabulary recognition and pronunciation. This outcome is consistent with the view that multimodal input, especially audio-visual integration, improves phonological encoding (Mayer, 2021). Learners' repeated use of pronunciation features supports previous work showing that mobile platforms facilitate improved listening and speaking skills (Burston, 2015). The heavy reliance on audio playback suggests that learners recognize the challenge of mastering Arabic phonology, which differs significantly from Indo-European languages. The real-time feedback offered by apps helps learners refine articulation, reducing anxiety and improving accuracy.

Thus, MALL contributes not only to vocabulary memorization but to phonological competence as well.

Gamification also emerged as a strong motivator. The present study reinforces earlier claims that game-like features increase learner engagement and persistence (Deterding et al., 2011). Participants' tendency to spend more time on gamified tasks suggests that competition and rewards trigger sustained motivation. This supports the self-determination theory perspective, which argues that external incentives can foster intrinsic motivation when aligned with learners' goals (Deci & Ryan, 2000). By making vocabulary learning enjoyable, MALL reduces cognitive load and encourages repeated practice. These findings highlight the value of integrating game elements in digital vocabulary tools, especially for young or beginner learners.

The improvement in reading comprehension found in this study further supports the argument that vocabulary development is strongly reinforced through contextualized exposure (Nation, 2013). When learners encountered vocabulary within short app-based passages, they were able to decode meanings more efficiently. This aligns with studies showing that repeated contextual encounters strengthen both recognition and productive vocabulary knowledge (Webb, 2008). The observations in this study revealed that participants reread texts until comprehension improved, suggesting that MALL fosters persistence in reading. Thus, the contextual learning opportunities within mobile applications contribute meaningfully to reading fluency in Arabic.

Another important dimension highlighted in the findings is the development of learner autonomy. Consistent with Benson's (2011) argument, mobile tools empower learners by giving them control over their learning pace and strategies. Participants' use of digital bookmarks, personalized lists, and spaced repetition features illustrates the emergence of self-regulated learning behaviors. This autonomy is crucial in foreign-language contexts where classroom time alone is insufficient. The study confirms that MALL encourages learners to assume greater responsibility for vocabulary mastery. As a result, learners develop metacognitive skills that further support long-term acquisition.

The flexibility offered by MALL also played a significant role in increasing learners' exposure to vocabulary. This supports claims that mobile learning allows language practice to integrate naturally into daily routines (Godwin-Jones, 2018). Learners studied during commuting, leisure time, or late evenings, demonstrating that mobile tools remove the time constraints associated with traditional learning environments. Such flexibility allows for more frequent contact with vocabulary—one of the most important factors in second-language development. These findings reaffirm the argument that mobile learning enhances ecological validity by embedding learning in real life.

Motivation remains a key factor in explaining learners' positive experiences with MALL. Consistent with previous studies, learners in this research described mobile learning as enjoyable and stress-free (Chen & Liu, 2022). Positive emotions are known to enhance cognitive processing, thereby increasing retention (Dörnyei & Ushioda, 2013). Learners reported feeling more confident and capable when using mobile apps, contributing to increased willingness to practice challenging vocabulary. The emotional benefits associated with mobile learning therefore appear to amplify cognitive gains. Thus, MALL supports both the affective and cognitive dimensions of vocabulary learning.

However, the study also reveals important limitations in the use of mobile applications for vocabulary development. Some learners reported that MALL tools did not provide sufficient semantic depth, confirming concerns previously raised about decontextualized digital vocabulary tasks (Laufer, 2017). Learners were sometimes able to recall words but could not use them appropriately in complex contexts. This suggests that while MALL improves recognition,

it may not fully support productive vocabulary acquisition. Therefore, complementary instruction is still necessary for deeper linguistic competence. Educators should integrate MALL with context-rich classroom tasks to address this gap.

Technical challenges were another issue observed in this study. Problems such as unstable internet connections and device limitations disrupted learners' engagement and sometimes hindered progress. These findings match earlier concerns that technological barriers can interfere with learning flow (Traxler, 2018). While such challenges did not significantly reduce overall gains, they highlight the need for improved app stability and offline learning options. Technical reliability is essential for maximizing the effectiveness of MALL in diverse learning environments.

Despite these challenges, triangulated data showed consistent vocabulary improvement across participants. This reflects earlier findings demonstrating that mobile applications significantly increase vocabulary size in foreign-language contexts (Zou & Thomas, 2019). Learners' increased confidence during classroom tasks indicates that MALL benefits transfer beyond the digital environment. The positive alignment between learners' perceptions, observed behaviors, and assessment results strengthens the validity of the findings. Thus, the study confirms that MALL is an effective supplementary tool for vocabulary acquisition.

The results also highlight the importance of integrating MALL into formal curriculum design. In agreement with Alshammari (2020), this study suggests that mobile applications should be considered instructional partners rather than optional add-ons. When properly incorporated, MALL can help teachers extend vocabulary exposure beyond limited classroom time. The findings indicate that combining mobile learning with teacher-guided instruction yields better outcomes than relying on either approach alone. Therefore, policymakers and educators should incorporate MALL-based vocabulary programs into Arabic language learning curricula.

Overall, the discussion affirms that MALL is a powerful tool for vocabulary acquisition in Arabic as a foreign language. The integration of repetition, gamification, multimodal input, and learner autonomy creates a synergistic effect that enhances learning outcomes. While MALL cannot replace traditional instruction entirely, it offers unique advantages that address limitations of classroom-based learning. The findings support the growing consensus that mobile learning technologies should play a central role in 21st-century language education. Future research should explore long-term vocabulary retention and investigate how MALL can support productive vocabulary and complex language tasks.

## Conclusion (خاتمة)

The findings of this study demonstrate that the integration of Problem-Based Learning (PBL) into the teaching of Islamic Cultural History (SKI) effectively promotes students' historical understanding, critical thinking skills, and internalization of moderation values. Through collaborative inquiry, contextual problem-solving, and reflective dialogue, students were able to connect historical narratives with contemporary realities, cultivating a more meaningful and transformative learning experience. Moreover, the incorporation of moderation values into PBL tasks encouraged students to develop balanced perspectives, tolerance, and respect for diversity – competencies that are essential in today's pluralistic society.

Overall, the research highlights the pedagogical potential of PBL as a culturally responsive instructional model capable of fostering both cognitive and character development in SKI classrooms. The approach not only enriches student engagement but also aligns with national

educational goals promoting holistic learning and religious moderation. Future research is encouraged to explore the long-term impact of PBL on value internalization and to examine its implementation across diverse educational contexts to strengthen its generalizability and practical application.

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