

Unlocking L2 Mastery: Mobile-Assisted Vocabulary and Grammar Learning among EFL Undergraduates

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Abstract: As the demand for the implementation of mobile-assisted learning (MALL) in education is increasing, various research and studies have been conducted to examine the effectiveness of MALL on Second Language Acquisition (SLA) within different university settings. In various higher education contexts, MALL has proved its effectiveness in enhancing various linguistic skills, including grammar and vocabulary, while showing an increase in students' motivation, autonomy, and engagement. However, research on MALL's effectiveness and implementation in Egypt is limited. The main objective of this annotative bibliography is to explore how MALL effectively enhances university students' vocabulary and grammar skills and fills the gap regarding its implementation in Egypt by examining studies from different countries, such as Saudi Arabia, Iran, Vietnam, and other international contexts. These studies used various methods to collect quantitative and qualitative data, including ANOVA, quasi-experimental design, semi-structured interviews, surveys, etc. Studies revealed that MALL is a highly significant tool as it helps students build richer vocabulary, enhance grammar skills, and retain language forms more effectively over time. In addition, they feel more motivated, engaged, and autonomous while learning. The findings also suggested that the digital literacy gap and insufficient teacher training remain challenges; further research should explore practical solutions to enhance MALL integration to maximise its educational impact.

Keywords: Mobile-assisted language learning, MALL, vocabulary, grammar, second language acquisition, SLA.

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Introduction

In an era where digital devices have become indispensable tools for learning and communication, language acquisition is no longer confined to the boundaries of the classroom. The rapid integration of Mobile-Assisted Language Learning (MALL) has revolutionised Second Language Acquisition (SLA), allowing learners to engage in authentic, interactive, and autonomous language learning. As generations, such as Generation Z and Alpha learners, are raised in a digital era, it is crucial to understand this rising trend in higher education and the evolving ways they acquire language. Notably, a recent study across Latin American countries found that 98.4% of university students owned a mobile phone and 88.2% used it for academic

purposes, emphasising how new pedagogical approaches and digital competence are needed to meet evolving linguistic communicative needs (Valencia-Arias et al., 2024). Furthermore, in Egypt, research has not fully addressed the efficiency of MALL when implemented at the university level and its contribution to advancing students' linguistic competence, such as vocabulary and grammar skills. Moreover, MALL implementation in Egyptian universities is crucial because it has proven to boost students' linguistic skills and to enhance their vocabulary learning, engagement, and motivation through interactive technology-driven activities (Khalil, 2023). Although some universities have applied MALL in Egypt, its potential implementation in Egyptian universities remains under-investigated and calls for further research on the topic

(Helwa, 2017). This annotated bibliography aims to answer the central question of whether MALL effectively enhances university students' vocabulary and grammar skills and fills the gap regarding its implementation in Egypt. It examines nine recent empirical studies conducted between 2020 and 2025 across various higher education settings, which were conducted by qualified scholars, including academic researchers and professors, to synthesise evidence of effectiveness, evaluate pedagogical practices, and identify emerging trends and challenges in integrating MALL into L2 learning.

Ghorbani, N., & Ebadi, S. (2020). Exploring learners' grammatical development in mobile assisted language learning. *Cogent Education*, 7(1). <https://doi.org/10.1080/2331186x.2019.1704599>

This study examined how MALL, specifically Telegram, affects EFL university students' grammatical accuracy at Razi University, using instructor feedback and Telegram as a supplementary teaching tool. The study involved 30 female students, who participated in a three-month Telegram-based immersion program, accompanied by 10 students in the control group (CG) for comparison. They were assessed using the English Dialang test, with the experimental group (EG) receiving instructor feedback and the CG receiving only peer feedback. Quantitative data from pre- and post-tests was analysed using paired-sample t-tests in SPSS, while qualitative data was gathered via semi-structured interviews. Results demonstrated that EG had fewer grammar errors with a lower mean score ($M = 2.11$) than the CG ($M = 2.56$), confirming the effectiveness of the approach. Furthermore, the thematic analysis of the interview showed that 93% of participants felt the method enhanced their grammar, and around 94% perceived its clear advantage to reduce grammar errors. Moreover, a systematic review analysed the trends and outcomes of MALL in teaching grammar from a diverse range of recent studies, showing that mobile applications such as Duolingo, Anki, and Telegram were associated with positive effects on students' grammar achievement and helped maintain their motivation toward language learning (Muslimah et al., 2025). The study's limitations, such as the small, all-female sample and the short program duration, may affect the generalisability of results; however, the study remains insightful as it shows evidence of how MALL help advance learners' grammar skills when combined with guided feedback and strongly supports the main purpose of this research by highlighting MALL's effectiveness.

Al-Ahdal, A. A. M. H., & Alharbi, M. A. (2021). MALL in Collaborative learning as a vocabulary-enhancing tool for EFL learners: A study across two Universities in Saudi Arabia. *Sage Open*, 11(1). <https://doi.org/10.1177/2158244021999062>

The authors examined MALL's effectiveness on vocabulary acquisition among 160 sophomore students at

Majmaah University and Qassim University over three months, highlighting the need to replace traditional memorisation-based instruction with MALL to enhance students' vocabulary retention. The experimental group (EG) used mobile devices to complete six types of collaborative vocabulary tasks based on the university's Level 2 vocabulary test inside and outside class, through videos and interactive exercises. In contrast, the CG continued traditional teacher-centred instruction with printed materials and word-list memorisation. Pre- and post-tests were analysed with descriptive statistics and ANOVA showing no pre-test differences ($p = .071$). The EG showed significant post-test improvement ($p = 0.1$) while the CG showed no improvement. Moreover, vocabulary test scores of the EG increased from 20 in the pre-test to above 20 in the post-test, while CG scores slightly declined. Furthermore, students demonstrated higher motivation, 97% more attendance, active peer collaboration, and increased autonomy. Additionally, a meta-analysis was conducted showing how MALL increasingly enhanced students' performance in various subjects, with a moderate effect size ($g = 0.52$), particularly in language-related tasks due to increased engagement and flexibility (Sung et al., 2016). Despite some limitations, such as a small sample size, which may limit the applicability of the results, the authors are expert researchers in EFL education, and their study presents useful insights into the role of MALL in collaborative vocabulary learning.

Van, T. N., & Thanh, H. N. T. (2021). The impacts of mobile-assisted language learning (MALL) on freshmen's vocabulary acquisition and their perspectives. *Proceedings of the 18th International Conference of the Asia Association of Computer-Assisted Language Learning (AsiaCALL 2021)* (pp. 127-134). Atlantis Press. <https://doi.org/10.2991/assehr.k.211224.027>

This study investigated the impact of MALL on students' vocabulary acquisition and their attitudes toward mobile-based learning at the University of Thanh Dong, demonstrating it as a valuable tool to support vocabulary acquisition. The study involved 26 freshmen, who participated in an eight-week intervention, using their mobile devices to complete vocabulary activities from the Cambridge A2 Key list by marking words as YES/NS/NO and providing the meaning in English or Vietnamese. It employed a pre-test, an immediate post-test, and a delayed post-test, supported by Horst's vocabulary checklist analysed using descriptive statistics and paired-sample t-tests. The students' attitude was measured through a validated Likert-scale questionnaire and semi-structured interviews. Findings demonstrated significant improvement in their vocabulary scores, increasing by 39.11 points from 59.46 on the pre-test to 98.57 on the immediate post-test and maintaining 89.11 on the delayed post-test. Moreover, students had a positive attitude toward MALL with overall

mean ratings of 4.28 for cognitive, 4.43 for affective, and 4.11 for future-behaviour items. Further study by Fageeh (2013) found that MALL significantly enhanced university students' vocabulary acquisition and learners' engagement compared to traditional methods. Results demonstrated that the control group outperformed on post-test scores ($M = 83.22$ vs. 61.06) and reported higher motivation for vocabulary learning and mobile devices usage. Although the study included a small sample size, a short intervention, and technical difficulties, it provides practical recommendations for integrating MALL in education settings, emphasising that instructors and students need guidance and training to optimise its use.

Paris, T. N. S. T., Manap, N. A., Abas, H., & Ling, L. M. (2021). Mobile-assisted language learning (MALL) in language learning. *Journal of ASIAN Behavioural Studies*, 6(19), 61-73. <https://doi.org/10.21834/jabs.v6i19.391>

The researchers examined the efficacy of the digital board game "Throw Back Time" (TBT) using MALL in enhancing grammar knowledge among 48 students at Universiti Teknologi MARA. Participants were asked to access a practice mode, where they reviewed notes, formulas, and quizzes on grammatical tenses and aspects, and then played the board game to apply grammar rules in varied contexts through 664 quiz questions designed according to variation theory. The quantitative results of the questionnaire showed that 91.5% of students agreed that TBT was easy to use and would use it in the future, 100% reported that they could become more skillful using it and that it improved their grammar knowledge; moreover, 85.1% agreed that it helped them retain grammar rules. Furthermore, qualitative data from semi-structured interviews revealed that students found the game engaging and helped them compare, contrast, and generalise grammatical tenses by giving them immediate feedback, which enhanced their learning and confidence. Further study by Baleghizadeh and Oladrostam (2010) demonstrated that the experimental group ($M=16.6$) outperformed the control group ($M=13.3$) on grammatical accuracy, suggesting that students who used their mobile devices to record their voices to check their linguistic output through MALL activities had improved their grammatical accuracy more effectively than the students who did not use their mobile devices. Despite some limitations, such as a small sample size and technical constraints, the study highlights MALL's potential as a flexible and personalised tool for grammar learning, offering practical examples on how educators can integrate MALL into teaching strategies effectively.

Li, Y., & Hafner, C. A. (2022). Mobile-assisted vocabulary learning: Investigating receptive and productive vocabulary knowledge of Chinese EFL learners. *ReCALL*, 34(1), 66–80. <https://doi.org/10.1017/S0958344021000161>

This paper aimed to address the gap in MALL research by examining whether mobile-based word cards are more effective than traditional paper word cards in supporting receptive and productive vocabulary knowledge. The study used a quasi-experimental design, where 85 Chinese university students were assigned to a mobile app group ($n=46$) and a paper word cards group ($n=39$). Participants completed a pre-test assessment form of meaning recognition (receptive knowledge) and collocational production (productive knowledge). Over five consecutive days, the mobile app group studied 10 target words per day using the Zhimi app, which provided audio definitions, collocations, and recall exercises with spaced repetition. In contrast, the paper word cards group studied the words using identical flashcards in 25-minute daily sessions. Post-tests highlighted that the mobile group achieved higher gains than the paper word cards group ($M=41.13$ vs. 31.90) and outperformed them in both receptive ($M=18.48$ vs. 14.36) and productive knowledge ($M=22.65$ vs. 17.54). Moreover, qualitative interviews showed that mobile app participants had higher motivation, increased accessibility, and interest in learning vocabulary. Supporting this claim, Xodabande & Boroughani (2023) examined how mobile-assisted focus on form affects Iranian EFL students' academic vocabulary learning, demonstrating that the mobile-assisted FonFs group outperformed the control group in the post-tests, with significant gains in receptive ($\eta^2 = 0.20$), productive ($\eta^2 = 0.148$), and contextual vocabulary use ($\eta^2 = 0.125$). Despite the study's limitations, such as a small sample, short duration, and limited qualitative data, it supports this research, showing that MALL effectively enhances vocabulary acquisition and recommends future studies to examine its long-term retention.

Koleini, N., Boroughani, T., Eslami, Z. R., & Xodabande, I. (2024). Exploring the impacts of mobile-assisted learning on university students' technical vocabulary knowledge. *International Journal of Educational Research Open*, 7. <https://doi.org/10.1016/j.ijedro.2024.100344>

The study examined the impact of MALL on students' mastery of technical vocabulary learning using digital flashcards (DFs) with 80 Iranian university students. Their vocabulary knowledge was assessed using the Vocabulary Knowledge Scale (VKS) pre-tests for over a 16-week semester. Moreover, the experimental group ($n=50$) spent 10 weeks learning 100 technical psychology terms using the Anki app for 15 minutes daily, while the control group used paper-based flashcards (PFs). They took a post-test and a delayed post-test six weeks later to measure long-term retention. Quantitative data from VKS tests were analysed using a mixed-design ANOVA to compare vocabulary results between groups. Post-test results demonstrated that the DFs had a higher mean VKS score ($M= 153.76$ vs. 150.70); in addition, the delayed post-test results showed

that the DFs participants had a stronger long-term retention ($M = 243.90$ vs. 216.80), indicating the powerful impact of DFs. Moreover, Stockwell (2016) noted that although mobile devices for vocabulary acquisition had similar retention rates to desktop platforms, shorter sessions were associated with higher completion rates on phones, emphasising how Japanese EFL learners enjoyed the use of mobile phones for convenience despite screen size issues. On the whole, the study included limitations, such as its reliance on self-reported VKS scores, which could introduce subjectivity and response biases; however, the study provided valuable insights to enhance and sustain vocabulary acquisition through digital flashcards, supporting the use of MALL in this research.

Mohammadi, M., Valizadeh, M., Jalal, P. Z., & Xodabande, I. (2024). University students' academic vocabulary development through mobile-assisted learning: Exploring the impacts on receptive and productive knowledge. *Heliyon*, 10(7). <https://doi.org/10.1016/j.heliyon.2024.e28103>

The authors explored the impact of MALL using digital flashcards (DFs) to enhance the academic receptive and productive vocabulary of 86 Iranian EFL university students over a five-week intervention. Students' vocabulary knowledge was measured using receptive (multiple choice) and productive (translation and forced elicitation) tests based on 100 target academic words. The study used a quantitative comparison design to measure both receptive and productive vocabulary knowledge using pre- and post-tests across three groups: 34 students used DFs, 27 used paper flashcards, and 25 formed the control group using word lists. Additionally, the data was analysed using mixed between-within subjects ANOVA, examining the effect of the learning conditions on vocabulary knowledge over time. Results showed that participants using DFs significantly outperformed other groups in both receptive (mean = 20.32 vs. 14.93 and 11.28) and productive vocabulary (mean = 12.85 vs. 7.56 and 6.76). Moreover, the post-hoc test verified that DFs led to greater gains than the other groups. A further study found that mobile-assisted vocabulary learning using digital flashcards led to a higher score than traditional flashcards, with post-test scores ($\eta^2 = 0.240$; Partial $\eta^2 = 0.407$), highlighting MALL's effectiveness in developing receptive and productive written knowledge of technical vocabulary in addition to enhancing students' long-term retention (Koleini et al., 2024). Furthermore, although the study sample was relatively small, it is still reliable and provides significant contributions to the motivational and pedagogical implications of using digital tools in educational contexts.

Alqarni, A. (2024). Effect of Mobile Assisted Learning on English Language Vocabulary and Grammar: The Saudi Arabian Context as a Case Study. *Arab World English Journal*, 10, 246–265. <https://ssrn.com/abstract=4918089>

This study examined the impact of MALL on the English vocabulary and grammar acquisition of university students at King Abdulaziz University. The authors highlighted the effectiveness of MALL on learners' vocabulary and grammar acquisition. The study used a pre-test and post-test quasi-experimental design on 29 diploma students. Students completed a four-week mobile-based intervention, using the Blackboard platform to access e-content of the Life series published by National Geographic to complete the post-test after the intervention period. The findings revealed that students' post-test scores in vocabulary improved compared to pre-test scores (e.g., 13 to 17 or 15 to 19), demonstrating that mobile-assisted learning positively influences vocabulary acquisition. Although their grammar scores were static (e.g., 11 to 11 or 16 to 16), the author stated that students were still motivated, engaged, and had flexible, self-directed learning during the intervention. Furthermore, Plonsky and Ziegler (2016) synthesised CALL research and proved that it had a positive effect on SLA outcomes ($d = 0.46$ overall). Their analysis also included MALL studies, focusing on vocabulary and grammar learning. Additionally, their research demonstrated that second language learners' improvement was consistent across studies, and they highlighted the importance of further research on this topic to avoid publication bias and ensure more reliable results. However, the study's lack of robust analyses using ANOVA, a non-random selection of participants, a small sample size, and a sample consisting entirely of male participants reduced the study's strength and generalisability. Overall, the study highlights the potential of MALL to support students' vocabulary development and strengthen their desire to continue learning.

Ifitikhar, N. (2025). Mobile-assisted language learning (MALL): Revolutionizing second language acquisition. *Journal of Applied Linguistics and TESOL (JALT)*, 8(1), 1038-1045. <https://jalt.com.pk/index.php/jalt/article/view/424>

This study explored the role of MALL in improving SLA, focusing on its effectiveness and challenges compared to traditional language learning methods. A sample of 150-200 students and instructors was randomly chosen to complete surveys and interviews about language learning tasks. Quantitative data was collected through structured surveys and analysed using SPSS to evaluate language learning outcomes, while qualitative data was examined using thematic analyses of interview transcripts and observational notes. Findings showed that 82% of participants enhanced their vocabulary retention and other linguistic skills. Additionally, students using MALL applications, such as Duolingo, Memrise, and Rosetta Stone, had 15% higher scores on the vocabulary retention test. They also engaged more frequently in language practice, 1.5 hours per week, compared to traditional learners, 45 minutes per week, demonstrating higher exposure to the L2 outside

of classrooms and higher motivation. In addition, another study reported positive student attitudes toward MALL in acquiring a second language, especially in individualistic societies, such as Swedish and South African students, who valued mobility and interactivity, with mean scores of 4 out of 5 (Viberg & Grönlund, 2013). The study highlighted various limitations and challenges, such as the need for structured pedagogical strategies and teacher training to overcome the challenges of digital inequality. Overall, the research offers valuable insights into optimising MALL for effective SLA, while emphasising the importance of further research to enhance its effectiveness across diverse contexts.

In conclusion, the studies provided offer a compelling answer to the proposed central question by showing that MALL consistently proves to be a powerful approach for enhancing vocabulary and grammar competence among learners. In addition, it shows how MALL can be implemented in Egypt to help students acquire a second language effectively. Tools, including digital flashcards, messaging apps and interactive learning platforms, help learners build richer vocabulary, enhance grammar skills, and retain language forms more effectively over time. Across a wider range of studies, scholars in the field have agreed that these digital environments align naturally with the new generation of students, who feel more motivated, engaged, and autonomous compared to older generations. While the digital literacy gap and insufficient teacher training remain challenges, further research should explore practical solutions to enhance MALL implementation and discover more emerging trends, such as AI integration. On the whole, MALL is not only a useful tool, but it also emerges as a catalyst, calling for thoughtful integration and strong teacher support to maximise its educational impact.

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