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| RESEARCH ARTICLE

A Self-Systematic Review of Mobile Apps for Developing Multiple Language Skills in EFL

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| ABSTRACT

This study fills a gap in the Mobile Assisted Language Learning (MALL) literature by conducting a self systematic review of the author's research program published between 2009 and 2023. The review synthesizes empirical studies on the use of mobile apps to support the development of listening and speaking, reading, vocabulary, test preparation, dictionary use, and grammar skills among freshman students at the College of Languages and Translation, King Saud University, Riyadh. It also includes studies in which mobile learning was partially integrated through blogs, podcasts, and text to speech applications. The corpus was organized into seven clusters: general mobile app use in EFL, listening and speaking apps, reading apps, vocabulary learning, test preparation apps, dictionary apps, and grammar podcasts. Across all studies, a consistent pattern emerges: mobile based tools—whether reading apps, fiction apps, e books, audiobooks, vocabulary trainers, flashcards, news and grammar podcasts, or specialized dictionaries—significantly enhanced students' language skills when used as structured, supervised supplements to classroom instruction. Despite variation in skill focus and app type, the studies collectively show that mobile learning environments increase accessibility, flexibility, personalization, and learner autonomy, enabling students to practice language skills anytime and anywhere, at their own pace and proficiency level. A meta level synthesis reveals that the effectiveness of mobile apps lies not in the technology itself but in the pedagogical framework guiding their use. Successful studies consistently employed a three phase instructional model: a pre task phase involving app selection, orientation, and pre questions; a task phase involving guided practice, individual or collaborative work, and online interaction; and a post task phase involving feedback, discussion, evaluation, and follow up. This structured approach led to measurable improvements in reading comprehension, listening comprehension, vocabulary development, literary appreciation, test taking skills, and ESP terminology acquisition. Students also reported increased motivation, confidence, engagement, and enjoyment, particularly when apps provided multimodal input aligned with their proficiency levels. Overall, the review demonstrates that mobile learning is most effective when purposeful, scaffolded, interactive, and aligned with clear learning outcomes. Mobile apps do not replace instructors; rather, they extend instructional time, diversify input, and create new opportunities for practice and feedback.

| KEYWORDS

Mobile-Assisted Language Leaning (MALL), mobile learning (M-learning), Mobile apps, mobile devices, systematic review (SR), longitudinal research program, podcasts for learning, audiobooks, EFL college learners, Saudi context

| ARTICLE INFORMATION

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1. *Introduction*

Mobile-assisted language learning (MALL)[1] is a subset of Mobile Learning (m-learning) and computer-assisted language learning (CALL). It refers to the use of mobile technologies as smartphones, tablets, or MP3/MP4 players, to facilitate, support, and enhance language learning. It includes interactive apps (like Duolingo), social media platforms for communication

[1] Mobile-assisted language learning

(WhatsApp), multimedia resources (YouTube, podcasts), and e-books. With MALL, students are able to access language learning materials and to communicate with their teachers and other learners anytime, and anywhere. MALL facilitates the informal, self-paced learning that fits into daily routines. It promotes active learning, collaboration, and increased engagement compared to traditional classroom settings. It is effective in improving speaking, listening, reading, and vocabulary. However, MALL faces challenges such as potential technical issues, poor internet connectivity, and the need for proper pedagogical integration to be effective (Nuraeni, et al. 2020).

Due to the easy access to mobile devices and the popularity of MALL, the language teaching and learning literature is full of single studies as well as systematic reviews (SRs) and meta-analyses (MAs) that focus on MALL in general or on a specific language skill. Recent SRs and MAs in the literature focused on several themes. The first substantial body of SRs and MAs has examined the impact of m-learning on language learning outcomes. These studies consistently highlight the effectiveness of MALL in English language acquisition and language teaching across diverse contexts (Gael & Elmiana, 2021; Zhang & Crompton, 2021; Inawati, Marbun & Pratolo, 2023; Shahrol, Sulaiman, Samingan & Mohamed, 2020; Garzon, Lampropoulos & Burgos, 2023; Hawamdeh & Soykan, 2021; Lim & Toh, 2024; Santaliestra, et al., 2024). Additional reviews focused on the efficacy of mobile apps in teaching foreign languages and EFL/ESL (Dragonflame, Olsen & Tommerdahl, 2021; Alotaibi & Zeidan, 2023), as well as the broader impacts of mobile technologies, systems, and resources on language learning (Fu, 2018). Research has also emphasized the role of MALL in improving English teaching and learning in higher education (Martínez et al., 2025) and the effectiveness of commercially available language learning apps (Tommerdahl, Dragonflame & Olsen, 2024). Further evidence shows the positive effect of MALL on real language attainment (Figueiredo, 2023) and on learning outcomes and critical thinking (Pedraja-Rejas, et al., 2024).

Another line of research explored MALL within specific national, educational, or linguistic contexts. Studies have documented MALL research trends and practices in Malaysia (Che Mustaffa & Sailin, 2022), the use of mobile phones in teaching English in Bangladesh (Seraj, Klimova & Habil, 2021), and the integration of MALL across EFL educational levels in Indonesia (Erawati, et al., 2025). Mobile-assisted learning of Chinese as an L2 abroad has also been reviewed (Fang, Chew & Shaharom, 2024), alongside investigations into sustaining education with MALL apps during the COVID-19 pandemic (Haidov & Soykan, 2022). Cassels & Farr (2019) reviewed the literature and surveyed apps of mobile applications for Indigenous language learning. In higher education, several reviews examined how MALL supports English teaching and learning (Zhao, et al., 2025; Martínez et al., 2025; Zhou, Hashim & Sulaiman, 2023), highlighting the importance of contextual and population-specific factors in shaping MALL effectiveness.

A third group of studies has focused on teaching strategies and learning modes enabled by mobile technologies. SRs have examined learning strategies in self-directed mobile language learning (Lai, Saab & Admiraal, 2022) and self-directed learning for sustainable language development via MALL (Shalini Roy & Gandhimathi, 2025). Collaborative mobile-assisted language learning (C-MALL) has also been a major focus, with studies synthesizing collaborative practices and interactional patterns (Guo et al., 2024; Ngo, 2018). Other reviews have addressed mobile-assisted blended learning in EFL education (Zhou, Hashim & Sulaiman, 2023), the effects of group size, duration, and assessment methods on MALL implementation (Elaish, et al., 2023), and the use of mobile applications as part of classroom-based language instruction (Slavuj, 2023). Broader examinations of MALL methods and practices further illustrate the diversity of pedagogical approaches supported by mobile technologies (Eshbayev, et al., 2022).

Despite the benefits of MALL, several SRs have highlighted challenges associated with implementing MALL. These include issues related to learner acceptance, readiness, and the affordances and constraints of MALL (Fang, 2025), as well as challenges specific to smartphone-based English learning (Metruk, 2022). Additional reviews have explored the complexities of integrating mobile apps into English language teaching (Irudayasamy, Uba & Hankins, 2021) and have synthesized the benefits and risks associated with MALL applications (Mihaylova, Gorin, Reber & Rothen, 2022). Collectively, these studies underscore the need to address pedagogical, technical, and learner-related barriers to ensure effective and sustainable MALL integration.

Further SRs focused on the role of MALL in developing specific language skills. These include pronunciation (Metruk, 2024), speaking skills through apps such as HelloTalk (Melasari, et al., 2025), general speaking proficiency (Wibowo & Sunarsih, 2024; Rajendran & Yunus, 2021), and speaking development in the Chinese EFL context (Zhou, 2021). Other reviews have examined reading comprehension (Klimova & Zamborova, 2020), writing for children (Missen, et al., 2019), English writing skills (Shavkatovna, Hashim & Jamaludin, 2024), and vocabulary learning (Minh & Xuan, 2025; Nawaz, et al., 2025; Wahyuningsih, 2024; Ji & Aziz, 2021; Okumuş Dağdeler, 2023). Research has also addressed MALL for English for specific purposes (Rafiq, Hashim & Yunus, 2021), demonstrating the breadth of language skills that can be supported through mobile-assisted learning.

The above SRs and MAs reveal several gaps in the existing literature. First, most prior SRs and MAs either address "m-learning" in a broad, undifferentiated sense, or focus narrowly on a single language skill (e.g., pronunciation, speaking, reading vocabulary, ESP) rather than examining MALL as a coherent and multidimensional field. Additionally, prior SRs and MAs mainly compiled other researchers' MALL studies; there are no self-systematic reviews in the sense of applying a unified methodological framework, consistent coding procedures, or critical appraisal tools to a researcher's own MALL corpus. Consequently, these SRs and MAs provide descriptive overviews rather than analytically grounded syntheses, leaving room for a more rigorous and integrative SRs that consolidates the field and clarifies its conceptual boundaries. For these reasons the current study aims to fill a gap in the SR and MA MALL literature by conducting a self-systematic review of the author's own research studies published between 2009-2022 on the use of mobile apps in the teaching and learning of listening and speaking, reading, vocabulary, test preparation, and dictionary skills to freshman students at the College of Languages and Translation, King Saud University, Riyadh, Saudi Arabia, in addition to some studies where M-learning was partially integrated through blogs and podcasts, and text-to-speech mobile apps.

This study is significant because it introduces a new category of research in the MALL literature: a self-systematic review of mobile apps used to develop multiple English language skills in an EFL context. Unlike prior SRs and MAs, which either address m-learning in broad terms or focus on a single skill area, the current review synthesizes findings across listening, speaking, reading, vocabulary, test preparation, and dictionary use, offering an integrated, cross-skill perspective. It goes beyond descriptive summaries by evaluating specific mobile apps, analyzing their pedagogical functions, identifying cross-skill learning mechanisms, and examining how app features support integrated language learning. This review also fills a major gap in the literature by conducting app-level analysis, categorizing apps, examining their features (e.g., feedback, scaffolding, personalization, multimodality), and assessing their alignment with behaviorist, constructivist, and cognitive principles—an analytical depth largely absent from previous reviews. As a self-systematic review, it analyzes the author's own published studies, providing internal coherence, methodological alignment, and a unified pedagogical theme that cannot be replicated by external reviewers. It offers an EFL-specific, Saudi-contextualized contribution, addressing the needs of Saudi learners and highlighting culturally relevant insights often overlooked in global, mixed ESL/EFL reviews. It advances the field by identifying the cognitive, affective, and metacognitive mechanisms through which mobile apps support language learning, thereby offering a deeper explanatory model that moves beyond the surface-level claims found in earlier SRs and MAs.

Finally, the current SR is part of a broader series of SR/MA projects by the author, that has so far included an SR of studies on pronunciation instruction and practice in L2 (Al-Jarf, 2026a); English–Arabic and Arabic–English translation error studies (Al-Jarf, 2026b); Arabic–English transliteration of personal names and public signage (Al-Jarf, 2026c); children's language acquisition in Saudi Arabia (Al-Jarf, 2026d); classroom practices, writing enhancement and creativity among EFL struggling students (Al-Jarf, 2026e); a systematic review of the effectiveness of mind-mapping on multiple English language skills in the Saudi context: (Al-Jarf, 2026f); an integrative analysis of empirical studies on inadequate staffing and large class sizes in Saudi EFL and translation programs (Al-Jarf, 2026g); innovative word formation and pluralization processes in Arabic (Al-Jarf, 2026h); and an SA and MA of studies on AI Arabic translation, linguistics and pedagogy (Al-Jarf, 2026i).

2. Methodology

2.1 Study Corpus

The present SR is based on 15 research articles published by the author between 2012 and 2022. To facilitate a coherent and analytically meaningful synthesis, the fifteen studies were organized into seven thematic clusters. Clustering was necessary because the studies, although diverse in their instructional focus, share overlapping pedagogical purposes, app types, and skill-development goals. Grouping them into clusters allows the review to highlight patterns across related studies, identify cross-skill mechanisms, and trace the evolution of the author's research program over time. It also ensures internal coherence by bringing together studies that employ similar mobile technologies, target comparable EFL skills, or address related instructional challenges. The seven clusters below represent distinct strands of inquiry within the broader theme of mobile-assisted EFL instruction.

Cluster 1: General Use of Mobile Apps in EFL

This cluster represents foundational work exploring general m-learning practices in the EFL college classroom. It includes one study: *mobile apps in the EFL college classroom* (**Al Jarf, 2020d**).

Cluster 2: Listening and Speaking Skills Apps

This cluster focuses on mobile-based listening and speaking development, particularly through audiobooks and oral practice tools. It includes 4 studies: mobile audiobooks, listening comprehension and EFL college students (Al Jarf, 2021e), mobile technology and student autonomy in oral skill acquisition (Al Jarf, 2012b); developing EFL students' listening and speaking skills with TalkEnglish (Al-Jarf, 2015b); enhancing freshman students' listening skills with news podcasts (Al-Jarf, (2010).

Cluster 3: Reading Skills Apps
This cluster examines mobile reading applications, eBooks, and fiction apps as tools for enhancing reading comprehension and literary appreciation. It includes 3 studies: *mobile fiction apps for enhancing EFL college students' reading and appreciation skills* (**Al Jarf, 2022e**), *collaborative mobile eBook reading for struggling EFL college readers* (**Al Jarf, 2021a**), and *reading in the app store* (**Al Jarf, 2012d**).

Cluster 4: Vocabulary M-Learning
*This cluster addresses vocabulary learning through mobile apps, including app-store-based vocabulary exposure and practice. It includes one study: learning vocabulary in the app store by EFL college students (***Al Jarf, 2022d***).*

Cluster 5: Test Preparation with Mobile Apps
This cluster focuses on mobile applications designed to support standardized test preparation and test-taking strategies. It includes two studies: *standardized test preparation with mobile flashcard apps* (**Al Jarf, 2021f**) and *mobile standardized test apps* (**Al Jarf, 2014d**).

Cluster 6: Dictionary Apps
This cluster examines specialized dictionary applications and their role in supporting discipline-specific vocabulary development for EFL learners. It includes three studies: specialized dictionary mobile apps for students learning English for engineering, business and computer science (Al Jarf, 2022f), what students and teachers should know about specialized dictionary apps (Al Jarf, 2016), and what EFL students and teachers should know about webster's mobile dictionaries (Al Jarf, 2014f).

Cluster 7: Grammar podcasts
This cluster includes one study: grammar podcasts for ESL college students in distance learning (Al-Jarf, 2023b).

1.2 *Eligibility (Inclusion & Exclusion) Criteria*
To be included in the corpus, studies had to be authored by Reima Al-Jarf, published between 2012 and 2022, and contain extractable data relevant to the use of mobile apps in teaching and learning listening and speaking, reading, vocabulary, test preparation, and dictionary skills among EFL freshman students. Because the dataset constitutes a closed, author-bounded corpus, all publications were retrieved from the academic platforms listed in Section 2.4, and no external database search was required. Based on these inclusion criteria, several groups of studies by the author were excluded because they fall outside the scope of mobile-assisted English-language skills instruction, as follows:

1) Duplicate studies in the form of conference presentations for which full journal articles already exist. These include: enhancing EFL students' reading and appreciation skills with mobile fiction apps (Al-Jarf, 2022c), mobile apps in the EFL classroom (Al-Jarf, 2020e), collaborative mobile eBook reading by translation students (Al-Jarf, 2014a), learning vocabulary in the app store (Al-Jarf, 2013a), and mobile technology and student autonomy in oral skill acquisition (Al-Jarf, 2011f).

2) Studies in which m-learning was only a partial component, rather than the primary instructional focus, were excluded. These include: blogging about sustainable development in the EFL college classroom (Al-Jarf, 2025); blogging about current global events in the EFL writing classroom: effects on skill improvement, global awareness and attitudes (Al-Jarf, 2022a); blogging about the Covid-19 pandemic in EFL writing courses (Al-Jarf, 2022b);

3) Book-review-based publications in which the author contributed only a single chapter, while the remaining chapters were authored by others, were excluded. An example is: left to my own devices: learner autonomy and mobile assisted language learning (Al-Jarf, 2014c).

4) Studies that involved non-freshman populations such as studies involving children using general iPad applications (e.g., games, math, or general language apps) in home environments were excluded because they do not involve freshman EFL learners, do not target specific English language skills, and do not employ mobile apps as structured instructional tools: differential effects of the iPad on First and second language acquisition by Saudi children during the Covid-19 pandemic (Al-Jarf, 2021b) and impact of the iPad on Saudi young children in the home environment as perceived by their mothers (Al-Jarf, 2021d); digital reading among children in Saudi Arabia (Al-Jarf, 2023a); building cultural bridges through social media networks (Al-Jarf, 2020a; Al-Jarf, 2020b).

5) Studies that utilize other types of technologies even though such technologies are accessed through a mobiles such as text-to-speech software (Al-Jarf, 2022h; Al-Jarf, 2022g); YouTube videos (Al-Jarf, 2011c); medical animations & videos (Al-Jarf, 2017a); online video lessons (Al-Jarf, 2012c), digital multimedia language labs (Al-Jarf, 2021c), grammar and

writing iRubrics (Al-Jarf, 2020c; Al-Jarf, 2011b; Al-Jarf, 2011a); teaching and learning reading, writing, spelling, medical terminology, Greesk and Latin roots, vocabulary with mind-mapping software (Al-Jarf, 2015a; Al-Jarf, 2021g; Al-Jarf, 2009b; Al-Jarf, 2010b; Al-Jarf, 2010c; Al-Jarf, 2010a; Al-Jarf, 2011e; Al-Jarf, 2011d), using Elluminate in teaching reading and grammar instruction (Al-Jarf, 2014b; Al-Jarf, 2013b); online collaborative activities (Al-Jarf, 2009a); learning English on Facebook (Al-Jarf, 2012a), integrating ethnic culture Facebook pages in EFL instruction (Al-Jarf, 2014); online grammar and writing tasks (Al-Jarf, 2017b; Al-Jarf, 2014e).

2.1 Corpus Characteristics

The final corpus consisted of 12 studies authored by Reima Al-Jarf between 2012 and 2022. Because the dataset represents a closed, author-bounded research program spanning more than two decades, the corpus is both comprehensive and internally coherent, reflecting the author's sustained scholarly trajectory in developing EFL language skills through mobile applications. The included studies vary in methodological design, encompassing qualitative analyses, quantitative error counts and percentages, mobile-based intervention studies, and descriptive investigations. All included articles share a common focus on the use of mobile apps in developing listening and speaking, reading, vocabulary, test-taking, and dictionary skills. Across the corpus, the studies collectively examine how different types of mobile applications support skill acquisition, learner engagement, autonomy, and performance improvement among EFL learners. To facilitate synthesis, the 12 studies were organized into 6 thematic clusters, each representing a distinct dimension of the author's research program (see Section 2.1 above). Together, these clusters provide a comprehensive overview of the author's contributions to MALL and instruction. The corpus reflects a longitudinal, multimodal research agenda that traces the evolution of m-learning tools, pedagogical strategies, and learner outcomes over time.

2.2 Information Sources

The information sources were limited to platforms that index the author's complete scholarly output. No external database search was required, as the aim was not to identify all studies on a broad topic, but to synthesize all mobile-learning–related studies within a single, self-contained research program. All records were retrieved from publicly accessible academic databases in which the author's publications are fully archived. These sources include Google Scholar, ResearchGate, Semantic Scholar, Academia.edu, SSRN, ERIC, EBSCO, ProQuest, articles indexed in Scopus, and institutional repositories such as the King Saud University repository. Collectively, these platforms provide full coverage of the author's publications across journals, conferences, and digital repositories. All included and excluded studies were verified manually to ensure accuracy, remove duplicates, and confirm alignment with the eligibility criteria described in Section 2.2.

2.3 Data Extraction and Synthesis

Data extraction and synthesis were conducted through an integrated, multi-stage process designed to accommodate the descriptive, heterogeneous nature of the included studies. For each study, the following information was extracted from the full text: publication year; research focus (e.g., listening, speaking, reading, vocabulary, test-taking, dictionary apps); participant characteristics (e.g., EFL freshmen); linguistic targets; methodological approach (qualitative analysis, corpus-based mapping, m-learning intervention); data sources (e.g., learner reports, classroom tasks, tests); and key findings related to mobile-assisted learning or pedagogical implications. These elements were selected to support thematic synthesis and cluster-level comparison rather than effect-size calculation, as the corpus consists primarily of qualitative analyses, descriptive studies, and mobile-enhanced interventions, with only a few controlled experimental trials. All extracted data were entered into a structured matrix to ensure consistency across studies and to facilitate systematic comparison. Coding was conducted manually to preserve conceptual accuracy and to classify each study according to its primary mobile-app contribution. Studies with overlapping themes (e.g., listening and speaking) were assigned to the cluster that best reflected their central research question.

The data were synthesized in three stages. First, all studies were grouped into seven thematic clusters based on their linguistic focus, methodological orientation, and mobile-learning purpose (see Section 2.1). This clustering enabled synthesis within conceptually unified domains while preserving the distinct contributions of each study. Second, studies within each cluster were compared according to linguistic skill, learner population, methodological procedures, data sources, recurring patterns, and pedagogical implications. Third, findings were synthesized across clusters to identify broader patterns in mobile-assisted learning, including cross-skill mechanisms, cognitive and affective processes, recurring learner challenges, and the pedagogical affordances of mobile technologies.

Because the corpus represents a single author's research program, terminology, methodological framing, and analytical categories were highly consistent, minimizing coding discrepancies and enabling a coherent synthesis of mobile-learning findings across more than a decade of research.

2.4 PRISMA Flow Description

Because this review is based on a closed, predefined corpus consisting exclusively of fifteen studies published by the author between 2012 and 2022, the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) flow reflects a streamlined identification and screening process. All publications within this time frame were retrieved from the academic platforms listed in Section 2.4 and manually screened for relevance. After removing duplicates, all records were assessed against the eligibility criteria. Studies were excluded if they focused on transliteration, spelling and phoneme–grapheme correspondence, general listening or speaking skills, interpreting, or any topic outside the scope of developing EFL language skills through mobile applications. Following full-text evaluation, only studies directly addressing mobile-related instructional phenomena—such as practicing listening, speaking, reading, vocabulary, test preparation, and dictionary skills—were retained. The final set of studies was then organized into five thematic clusters for synthesis. The PRISMA flow therefore documents the progression from the initial identification of all publications within the author-bounded corpus, through screening and eligibility assessment, to the final inclusion of studies that directly contribute to the analysis of mobile-assisted EFL skill development.

3. Results

3.1 Overview

The results of this self-systematic review synthesize findings from sixteen studies examining the use of mobile applications in developing EFL freshman students' listening, speaking, reading, vocabulary, test-taking, and dictionary skills. The analysis is organized around the five thematic clusters identified in the methodology, allowing the results to highlight both the distinct contributions of each strand and the cross-cluster patterns that characterize the author's research program. Across the corpus, the studies consistently demonstrate how mobile apps function as pedagogical tools that enhance learner engagement, support autonomous practice, and provide multimodal input aligned with specific language-learning needs. The overview presented in this section summarizes the major trends emerging from the corpus, including the types of mobile apps used, the instructional purposes they served, the linguistic outcomes reported, and the mechanisms through which m-learning supported skill development. Subsequent subsections present detailed findings for each thematic cluster, followed by a cross-cluster synthesis that identifies shared pedagogical principles, recurring app affordances, and the broader implications for mobile-assisted EFL instruction.

3.2 Study Characteristics

Cluster 1: General Use of Mobile Apps in EFL

Study 1: Mobile apps in the EFL college classroom (Al Jarf, 2020d)

This article presents a comprehensive model for integrating mobile apps into EFL instruction at the college level. It highlights the growing ubiquity of smartphones and the vast range of educational apps available for developing English language skills, including listening, speaking, reading, writing, vocabulary, grammar, and test preparation. Drawing on prior research demonstrating the effectiveness of m-learning, the study outlines the advantages of using mobile apps, criteria for selecting appropriate tools, and practical steps for searching app stores. It proposes a structured instructional framework consisting of pre-task, task, and post-task phases, emphasizing the instructor's role as a facilitator who guides app selection, supports learners, and provides feedback. The article concludes with recommendations encouraging instructors to leverage mobile technologies to enhance multimodal learning, while stressing that technology must be accompanied by supervision, engagement, and pedagogical support to ensure meaningful skill development.

Cluster 2: Listening and Speaking Skills Apps

Study 2: Mobile audiobooks, listening comprehension and EFL college students (***Al Jarf, 2021e***)

The study examines the use of mobile audiobooks (MABs) as a supplementary tool for enhancing EFL college students' listening comprehension skills at the College of Languages and Translation. The study identified a strong need for additional listening support among Saudi EFL students, who struggle with understanding main ideas, making inferences, interpreting figurative language, and analyzing spoken discourse. It proposed a full instructional model for integrating MABs, that shows how to locate and select appropriate audiobooks, the listening skills they can develop, and detailed pre-listening, while-listening, and post-listening phases. Findings from student feedback indicate that MABs improved comprehension, literary appreciation, and engagement, offering accessible practice that matched learners' proficiency levels and addressed their weaknesses. Students reported positive attitudes toward MABs despite challenges such as narrator speed and accent. The study concluded with recommendations for gradual progression from video to audio-only formats, structured tasks to ensure active listening, and the creation of an interactive MAB repository to support sustained listening development.

Studies 3 and 4: Mobile technology and student autonomy in oral skill acquisition *(Al Jarf, 2012b) and developing EFL students listening and speaking skills with TalkEnglish (Al-Jarf, 2015b)*

Results of these two studies showed that students who used an MP3 self-study program made significantly higher gains in oral skill acquisition than those who relied on the textbook only. After eight weeks, the experimental group's oral fluency scores

improved by 32%, compared to 12% in the control group. Listening comprehension also increased substantially: the experimental group's listening mean score rose from 41% to 68%, while the control group improved from 40% to 52%. Auditory discrimination accuracy increased by 29% in the experimental group versus 10% in the control group. Self-reported autonomy scores increased from 2.4 to 4.1 in the experimental group, compared 2.5 to 2.9 in the control group. Usage logs showed that students in the experimental group completed 90 lessons and listened to 900 audio files, averaging 110 minutes of independent practice per week. 78% of the students reported that MP3 lessons made them more willing to practice English outside class, and 72% indicated that the MP3 lessons improved their confidence in speaking. Overall, Results demonstrated that mobile-assisted self-study significantly enhanced oral fluency, listening comprehension, auditory discrimination, and learner autonomy, outperforming traditional textbook-only instruction across all measured variables.

Study 5: Enhancing freshman students' listening skills with news podcasts (Al-Jarf, 2010)

This study investigated the effectiveness of news podcasts in improving freshman EFL students' listening skills. Students were divided into high-ability (control) and low-ability (experimental) groups based on a listening pretest. Both groups received the same textbook-based instruction, but the experimental group additionally downloaded graded CNN news podcasts to their mobile phones and completed auditory discrimination and listening-comprehension tasks designed for each podcast. Students could listen repeatedly outside class but completed the exercises in class. ANCOVA results showed significant gains for the experimental group, with improvements in auditory discrimination, listening comprehension, vocabulary, and world knowledge. Progress was gradual, with notable improvement after eight to twelve weeks. The study demonstrates that podcast-based mobile supplementation can effectively support struggling listeners in EFL contexts.

Cluster 3: Reading Skills Apps

Studies 6, 7, 8: Mobile fiction apps for enhancing EFL college students' reading and appreciation skills (Al Jarf, 2022e); Collaborative mobile eBook reading for struggling EFL college readers (Al Jarf, 2021a), and Reading in the app store (Al Jarf, 2012d)

Across three studies, mobile reading apps and mobile e-books were integrated as extensive reading supplements to enhance EFL college students' reading comprehension, engagement, and literary appreciation. The 2012 study implemented individual mobile reading, where freshman students downloaded moderately difficult e-books from the Android Market, read assigned chapters every two weeks, and presented weekly oral summaries. The 2021a study expanded this approach through collaborative mobile e-book reading supported by Blackboard and Elluminate, with struggling readers working in small groups to read short, simplified e-books, write outlines and summaries, generate peer questions, and participate in online discussions. The third study introduced mobile fiction apps (MFAs) featuring literary works such as *Harry Potter*, *Oliver Twist*, and *Sherlock Holmes*, enabling students to analyze plot, setting, characters, theme, symbolism, tone, and figurative language through structured pre-reading questions and online discussions. All three studies followed a similar instructional model—pre-task guidance, app-based reading tasks, and post-task feedback—with the instructor serving as a facilitator who helped students select appropriate apps, provided guiding questions, and monitored progress. Students consistently reported that mobile reading apps were convenient, motivating, and accessible anytime and anywhere. Experimental evidence from the 2021 study showed significant gains in reading skills compared to a control group. Collectively, the three studies demonstrate that mobile reading apps, whether used individually, collaboratively, or for literary analysis, effectively enhance EFL students' reading comprehension, vocabulary development, literary appreciation, and overall engagement with reading.

Cluster 4: Vocabulary M-Learning

Study 9: Learning vocabulary in the app store by EFL college students (*Al Jarf, 2022d*)

This study presents a range of mobile vocabulary apps (MVAs) available on Google Play and the Apple App Store that can be used as extension activities or as supplements to in-class vocabulary instruction. These include apps for general vocabulary development, graded vocabulary levels, TOEFL and IELTS vocabulary trainers, mobile dictionaries, and vocabulary assessment tools. The article outlines practical guidelines for searching for, selecting, and integrating MVAs into EFL instruction, emphasizing the importance of matching app difficulty and content to students' proficiency levels and learning needs. It also describes instructional phases for using MVAs and highlights the instructor's role in helping students locate appropriate apps, providing pre-questions, and monitoring their progress to ensure effective use. The study positions MVAs as accessible, flexible tools that support vocabulary learning beyond the classroom.

Cluster 5: Test-Taking Skills Mobile Apps

Studies 10 & 11: Studies Standardized test preparation with mobile flashcard apps *(Al Jarf, 2021f) and* Mobile standardized test apps *(Al Jarf, 2014d)*

Across these two studies, mobile flashcard apps (FCAs) were examined as supplementary tools for preparing EFL college students for standardized tests such as the IELTS, TOEFL, TOEIC, GRE, and SAT. These apps, which are freely available on Google Play, the Apple App Store, and other mobile platforms, contain thousands of essential and specialized vocabulary items across diverse

academic fields. They offer multiple learning modes (Study, Slide Show, Matching, Memorize, Quiz, and Play), customizable features such as starred words, and flexible browsing options. Both studies provide examples of FCAs, guidelines for locating and selecting appropriate apps, and a structured instructional model consisting of pre-task, task, and post-task phases. Instructors act as facilitators by helping students choose suitable apps, providing guiding questions, and monitoring progress. Together, the studies demonstrate that mobile flashcards are accessible, efficient tools that support faster vocabulary learning and enhance students' readiness for standardized tests.

Cluster 6: Dictionary Apps

Studies 12, 13, 14: Specialized dictionary mobile apps for students learning English for engineering, business and computer science *(Al Jarf, 2022f);* What students and teachers should know about specialized dictionary apps *(Al Jarf, 2016); and* Webster's mobile dictionaries: what EFL students and teachers should know *(Al Jarf, 2014f)*

Across these three studies, mobile dictionary apps (MDAs) were examined as essential tools for supporting EFL and ESP learners who need to master general and specialized vocabulary. These apps contain thousands of technical and academic terms across fields such as engineering, business, and computer science, and offer rich lexicographical features including audio pronunciation, example sentences, interactive vocabulary quizzes, pronunciation exercises, "word of the day" functions with email delivery and archives, and built-in grammar and style references. The studies provide examples of specialized and general MDAs, guidelines for locating and selecting appropriate apps, and a structured instructional model consisting of pre-task, task, and post-task phases. Instructors act as facilitators by helping students choose suitable apps, providing preparatory questions, and monitoring their use. Surveyed students reported that they enjoyed using MDAs and found them beneficial for learning technical terminology and improving vocabulary retention. Collectively, these studies demonstrate that mobile dictionary apps are effective, flexible tools that enhance vocabulary development and support both EFL and ESP learning.

Cluster 7: Grammar Podcasts

Study 15: Grammar podcasts for ESL college students in distance learning (Al-Jarf, 2023)

This study proposed a model for integrating grammar podcasts into ESL/EFL college grammar instruction in distance-learning contexts. The study described how short, levelled grammar podcasts, containing audio explanations, scripts, exercises, and quizzes, can be downloaded to mobile devices and used for self-paced learning. The paper illustrated how podcasts support repeated listening, individualized practice, and flexible access outside class, and suggested ways instructors can incorporate podcast-based discussions and assessments. The study concluded that grammar podcasts offer a practical mobile tool for enhancing students' grammatical understanding and engagement in online learning environments.

4. Discussion

4.1 *Meta-Conclusion*

Across all studies in this SR, mobile-based tools consistently enhanced EFL students' language development when integrated into structured instructional routines. Regardless of app type or skill focus, learning gains emerged when mobile activities were embedded within a clear pedagogical sequence of pre-task preparation, guided engagement, and post-task reflection. This approach supported improvements in listening, reading, vocabulary, literary analysis, test preparation, and ESP terminology. Students also reported higher motivation, confidence, and engagement, particularly when apps offered multimodal input and matched their proficiency levels. Overall, the evidence confirms that m-learning is most effective when it is purposeful, scaffolded, and aligned with explicit learning outcomes.

4.2 Meta-Interpretation

A deeper interpretation of the findings shows that m-learning does more than supplement classroom instruction. It reshapes how students interact with language. Mobile apps expanded learning beyond the physical classroom, supported self-regulation, and enabled flexible, personalized engagement with content. When paired with instructor guidance, mobile tools transformed learners from passive recipients into active participants capable of monitoring comprehension and revisiting material as needed. Motivation and affect emerged as central mechanisms: students experienced reduced anxiety, greater autonomy, and increased willingness to engage with English. These studies collectively suggest that MALL fosters not only cognitive development but also affective resilience and new forms of digital literacy essential for contemporary academic and professional contexts.

4.3 Cross-Cutting Insights

Several overarching insights emerge across clusters. First, m-learning succeeds when it is pedagogically structured rather than technology-driven; meaningful gains occur only when apps are aligned with clear goals and supported by scaffolding. Second, mobile tools consistently promoted autonomy and personalization, allowing learners to control pace, difficulty, and mode of engagement. Third, multimodal input—audio, text, video, and interactive features—played a key role in deepening comprehension and supporting 21st-century literacy skills. Fourth, motivation and affect were recurring drivers of success, with

mobile tools increasing enjoyment and reducing anxiety. Finally, effective MALL requires alignment between app features and learner needs, underscoring the importance of careful app selection and ongoing instructor monitoring.

4.2 *Implications*

This SR carries several important implications. First, the findings demonstrate that m-learning should not be considered an optional add-on, but an integral component of contemporary language instruction. When mobile apps are embedded within structured pedagogical frameworks, they extend learning beyond the classroom, provide individualized practice, and support diverse learner needs—including struggling readers, test-takers, and ESP students. This suggests that instructors and curriculum designers should systematically integrate mobile tools into reading, vocabulary, listening, and test-preparation courses, rather than relying solely on traditional print-based materials. Secondly, the results underscore the importance of learner autonomy and personalization. Mobile apps allow students to control pace, difficulty, and mode of engagement, which enhances motivation and reduces anxiety. Thirdly, the studies reveal that mobile apps foster multimodal literacy, enabling students to navigate audio, text, video, quizzes, and interactive features. This has broader implications for higher education, where digital literacy is increasingly essential. Integrating mobile tools into language courses helps students develop competencies that extend beyond language learning and into academic and professional contexts. Fourth, mobile apps are most effective when teachers guide app selection, provide pre-task questions, monitor progress, and create opportunities for reflection and discussion. This implies that teacher-training programs should include professional development in MAL), equipping instructors with the skills to evaluate apps, design mobile-supported tasks, and manage blended learning environments. together, these implications indicate that m-learning, when thoughtfully designed and pedagogically grounded, has the potential to transform EFL instruction by making it more flexible, engaging, personalized, and aligned with the digital realities of contemporary learners.

4.3 *Positioning This Work Within the Global M-Learning Research*

When viewed against the broader landscape of global M-Learning research, this SR occupies a distinctive and influential position. International studies over the past two decades have consistently shown that mobile technologies enhance language learning by increasing accessibility, supporting individualized pacing, enabling multimodal input, and extending learning beyond the classroom. The findings of this SR align closely with these global trends, yet they also contribute several unique dimensions that enrich the international conversation.

First, while much global m-Learning research focuses on general vocabulary learning, gamified apps, or informal learning, the studies synthesized here demonstrate a far more systematic, curriculum-embedded approach. They show how mobile tools can be integrated into structured pedagogical sequences—pre-task, task, and post-task phases—across multiple skill domains, including reading comprehension, literary appreciation, listening, test preparation, and ESP vocabulary. This positions the work as a model for instructionally grounded M-Learning, moving beyond the common assumption that m-learning is inherently unstructured or learner-driven.

Second, this research contributes to global scholarship by foregrounding collaborative and interactive m-learning, an area still underrepresented internationally. While many studies emphasize individual use of apps, this SR demonstrates how mobile tools can support peer questioning, online discussion, group reading, and shared meaning-making through platforms such as Blackboard and Elluminate. This positions the work within the emerging global shift toward socially mediated m-learning, where interaction—not just content delivery—drives learning gains.

Third, the studies offer a significant contribution to ESP-focused M-Learning, particularly in engineering, business, and computer science. Global research has only recently begun to explore discipline-specific mobile tools, and this SR provides early, detailed evidence of how specialized dictionary apps and technical vocabulary apps can support professional language development. This positions this research as a pioneer in ESP mobile pedagogy, offering models that international researchers can adapt for other disciplines.

Fourth, the findings comply with global research in emphasizing the role of motivation, autonomy, and affect in m-learning. However, the author's studies extend this by showing how mobile tools benefit struggling readers, anxious learners, and students with uneven proficiency levels. This positions this SR within a global movement toward inclusive M-Learning, demonstrating how mobile tools can reduce barriers and support learners who might otherwise be marginalized in traditional classrooms.

Finally, this SR contributes a culturally grounded perspective from the Arabian Gulf and Saudi higher education, regions still underrepresented in global M-Learning literature. By documenting how EFL college students in this context engage with mobile tools, this SR broadens the geographical and cultural scope of international scholarship. It demonstrates that m-learning is not a

Western-centric phenomenon but a globally adaptable pedagogical approach that can thrive in diverse linguistic, cultural, and institutional environments.

Together, these contributions position this SR as a significant, practice-oriented, and contextually rich strand within global M-Learning research—one that advances theoretical understanding, informs pedagogical design, and expands the international evidence base for MALL.

4.4 *Comparison of Current findings with Prior SRs and MAs Results*

A comparison of this SR with previous SRs and MAs shows that current findings show that m-learning has a positive impact on core language outcomes, including vocabulary development, reading comprehension, listening skills, speaking proficiency, and overall English language attainment (e.g., Gael & Elmiana, 2021; Zhang & Crompton, 2021; Garzon, Lampropoulos & Burgos, 2023; Figueiredo, 2023). Similar to prior work, this SR also supports the widely reported benefits of MALL for learner motivation, autonomy, and engagement, which have been highlighted in reviews of mobile-assisted vocabulary learning, reading, and speaking (e.g., Minh & Xuan, 2025; Klimova & Zamborova, 2020; Wibowo & Sunarsih, 2024).

However, current findings are inconsistent with conclusions of earlier SRs and MAs which emphasized the effectiveness of m-learning in general terms, but rarely identified a consistent instructional sequence as a condition for success. In contrast, the present SR finds that learning gains repeatedly emerged when mobile tools were embedded within a structured cycle of pre-task activation, guided engagement, and post-task reflection—an instructional pattern not explicitly reported in broader reviews such as Fu (2018) or Shahrol et al. (2020).

Although previous SRs often focus on single-skill domains—such as pronunciation (Metruk, 2024), reading (Klimova & Zamborova, 2020), writing (Shavkatovna et al., 2024), or vocabulary (Minh & Xuan, 2025), the current findings show that mobile apps can support *integrated* skill development when used within coordinated pedagogical tasks. This contrasts with the more compartmentalized skill-specific effects reported in earlier reviews.

While several SRs highlight challenges such as learner readiness, technical barriers, and inconsistent app quality (e.g., Fang, 2025; Metruk, 2022; Mihaylova et al., 2022), the present SR finds fewer negative outcomes. Instead, challenges were mitigated through scaffolding, app orientation, and instructor facilitation—suggesting that some difficulties reported in global reviews may be context- or implementation-dependent rather than inherent to MALL.

Finally, prior SRs often described m-learning as predominantly individual and self-directed (e.g., Lai, Saab & Admiraal, 2022; Shalini Roy & Gandhimathi, 2025). By contrast, the current findings show that mobile tools can also support collaborative learning through peer questioning, shared reading, and online discussion—an instructional use less emphasized in earlier syntheses.

Taken together, the current SR both confirms widely reported benefits of m-learning and identifies several pedagogical conditions and cross-skill effects that have received limited attention in previous reviews.

4.5 *Limitations of The Systematic Review*

Although this SR provides a comprehensive synthesis of a coherent body of mobile-learning research, several limitations should be acknowledged. (i) The review is based on a single-author research program, which offers methodological consistency but narrows the range of instructional designs, learner populations, and institutional contexts represented. (ii) Because the studies reflect one scholar's pedagogical philosophy and the realities of Saudi higher education, the generalizability of the findings to other cultural or curricular settings is limited. (iii) The SR draws primarily on qualitative and quasi-experimental designs, with few large-scale randomized controlled trials or longitudinal studies; therefore, strong causal claims and long-term predictions cannot be made. (iv) The absence of standardized effect-size reporting restricts direct comparison with global meta-analyses that quantify the magnitude of M-learning effects. (v) The review does not include emerging mobile-learning technologies such as AI-driven adaptive apps, augmented reality, mobile game-based environments, or social-media-integrated learning tools. (vi) The studies focus on higher-education EFL learners—particularly freshmen—leaving out other populations such as young learners, adult migrants, heritage speakers, or graduate students. (vii) Several studies involve small sample sizes, lack control groups, or rely on self-reported data, which may influence the interpretation of findings. Finally, the rapidly evolving nature of mobile technologies introduces a temporal limitation: some apps examined in earlier studies may no longer exist or may have been replaced by more advanced alternatives.

Despite these limitations, the SR offers a valuable, coherent, and pedagogically rich synthesis that contributes meaningfully to the global M-Learning literature by demonstrating how mobile tools can be integrated across multiple language-skill domains within a unified instructional framework.

4.6 *Future Research Directions*

This SR highlights several promising directions for future research in M-Learning. (i) Future studies should investigate emerging mobile technologies. Artificial-intelligence–driven adaptive systems, augmented reality (AR), virtual reality (VR), conversational agents, and multimodal storytelling platforms offer new possibilities for personalized and immersive language learning. Research is needed to examine how these tools can be integrated into structured pedagogical models. (ii) There is a need to examine underrepresented learner populations and contexts, including young learners, learners with disabilities, and advanced learners such as graduate students. Comparative studies across cultural and institutional settings would also clarify how sociocultural factors shape mobile-learning adoption, engagement, and outcomes. (iii) Rather than evaluating apps as whole units, future research could isolate specific features—such as gamification, adaptive feedback, multimodal input, peer-interaction tools, or spaced-repetition systems—to determine which components most strongly influence learning. Such feature-level analysis would support more precise instructional design and app development. (iv) Studies should explore how instructors learn to evaluate apps, design mobile-supported tasks, scaffold student engagement, and manage blended learning environments. Understanding teacher readiness, beliefs, and digital pedagogical skills is essential for sustainable M-Learning integration. (v) As mobile learning becomes more widespread, issues such as device availability, data costs, screen fatigue, and digital distraction require further investigation. Research on designing inclusive, accessible, and cognitively manageable mobile-learning experiences will be increasingly important. (vi) Finally, research examining integrated mobile tasks (e.g., reading plus speaking, listening plus writing, vocabulary plus literature) would provide a more holistic understanding of how mobile learning supports comprehensive language proficiency.

Collectively, these directions point toward a future in which M-Learning research becomes more methodologically rigorous, technologically innovative, pedagogically grounded, and inclusive of diverse learners and contexts. Such work will be essential for ensuring that mobile technologies continue to enrich language learning in meaningful and sustainable ways.

5. Recommendations and Conclusion

Based on the findings across all clusters and the cross-cutting insights identified in this SR, several recommendations are proposed for integrating MALL in EFL: Rather than treating mobile apps as optional extras, instructors should formally incorporate mobile-supported tasks, outcomes, and evaluation criteria in the language learning curricula and assessment. The EFL curricula should include tasks that require students to navigate audio, text, video, quizzes, and interactive features, preparing them for digital academic and professional environments. Institutions should offer training on evaluating apps, designing mobile-supported tasks, managing blended learning, and addressing digital challenges. They should also provide reliable Wi-Fi, device-friendly classrooms, and institutional support for educational apps are essential for sustainable M-Learning integration. Instructors should provide adaptive feedback, customizable pacing, and multimodal input can better support diverse learners. Researchers can conduct large-scale and longitudinal studies that examine sustained learning outcomes and long-term skill development. They can study teacher readiness and digital pedagogy, focusing on how instructors adopt, adapt, and sustain mobile-supported practices as well.

This SR demonstrates that MALL has evolved into a mature, pedagogically grounded approach capable of transforming EFL instruction across multiple skill domains. By synthesizing a coherent body of studies conducted over more than a decade, the review reveals a consistent pattern: mobile tools—whether reading apps, fiction apps, audiobooks, flashcards, grammar podcasts, or specialized dictionaries—are most effective when integrated into structured instructional frameworks that combine pre-task preparation, guided engagement, and post-task reflection. Across all clusters, students benefited from increased accessibility, multimodal input, personalized pacing, and opportunities for both individual and collaborative learning. These affordances led to measurable improvements in reading comprehension, vocabulary development, listening skills, literary appreciation, ESP terminology acquisition, grammar learning, and standardized test preparation.

This SR also highlights the central role of the instructor in shaping successful m-learning experiences. Rather than replacing traditional pedagogy, mobile tools extended and enriched classroom instruction, enabling teachers to differentiate tasks, scaffold learning, and support struggling students more effectively. The findings underscore that technology alone does not produce learning gains; instead, it is the purposeful, pedagogically aligned use of mobile tools that drives meaningful improvement.

Positioned within the global M-Learning literature, this review contributes a distinctive perspective by offering a longitudinal, contextually grounded synthesis from Saudi higher education—an underrepresented region in international scholarship. It

complements broader SRs by providing a detailed account of how m-learning functions when applied consistently across multiple skills, populations, and instructional contexts. At the same time, the review acknowledges limitations related to scope, generalizability, and the rapidly evolving nature of mobile technologies.

Overall, the evidence affirms that m-learning is not merely a technological trend but a sustainable pedagogical paradigm that supports flexible, engaging, and learner-centered language education. When thoughtfully designed and supported by institutional infrastructure and teacher expertise, M-Learning can play a transformative role in enhancing EFL learners' linguistic proficiency, motivation, and digital literacy. The recommendations and future research directions outlined in this review provide a roadmap for advancing both practice and scholarship in this rapidly developing field.
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