Empirical Insights into Mobile-Assisted ESL Learning: A Systematic Review

Lu Qiao, Beijing Jingbei Vocational College

Abstract

This review synthesizes empirical research from 2008 to 2025 on mobile-assisted ESL/EFL learning in higher education. Analyzing 65 studies across Asia, the Middle East, Southeast Asia, Europe, and North America, it highlights the impact of app-based interventions on vocabulary, speaking, reading, writing, and learner engagement. Features such as gamification, personalized learning, multimodal input, and immediate feedback were found to enhance learning outcomes. Despite overall positive effects, many studies relied on short-term interventions with small samples, and moderating factors like learner proficiency or app design remain underexplored. The findings underscore the potential of mobile applications for learner-centered language education and call for rigorous, theory-driven research on long-term and adaptive learning strategies.

Keywords: Mobile-assisted language learning; ESL/EFL; Higher education; App-based learning; Learner engagement; Gamification

1. Introduction

The rapid proliferation of mobile applications (apps) has transformed the landscape of language learning, particularly for learners of English as a Second Language (ESL). Over the past decade, mobile apps have increasingly been adopted as instructional tools due to their accessibility, interactive features, and capacity for individualized learning (Stockwell & Hubbard, 2013; Godwin-Jones, 2018). Unlike traditional classroom instruction or computer-based language learning, apps offer microlearning opportunities, immediate feedback, and gamified experiences, which can enhance learners' motivation, engagement, and skill acquisition (Kukulska-Hulme, 2020).

Despite the growing adoption of app-based learning, the effectiveness of these interventions on ESL learning outcomes has not been systematically synthesized. Existing reviews often focus narrowly on a single skill domain, such as vocabulary (Li & Hegelheimer, 2013) or reading comprehension (Lan et al., 2020), leaving gaps in understanding the broader impact across multiple language skills and affective outcomes. Moreover, little attention has been paid to moderating factors such as learner characteristics, app design features, or learning contexts, which may influence effectiveness.

This systematic review aims to address these gaps by synthesizing empirical evidence from 2008 to 2025 on app-based ESL/EFL learning in higher education. The review specifically addresses the following research questions:

- What are the characteristics of empirical studies on app-based ESL/EFL learning, including study design, target skills, and geographic distribution of participating higher education institutions?
- How are these studies indexed, and which publishers and journals disseminate research on app-based ESL/EFL learning, reflecting the scholarly visibility and academic impact of this field?
- What are the main research areas and thematic trends in mobile-assisted ESL/EFL learning, including

targeted language skills, learner- and teacher-related factors, psychological constructs, and technological approaches?

2. Method

2.1. Review Design & Search Strategy

This systematic review was conducted following the PRISMA 2020 guidelines (Page et al., 2021). The aim was to identify, select, and synthesize empirical studies examining app-based interventions for ESL learners and their impact on learning outcomes. The review focused on peer-reviewed empirical research published between 2020 and 2025.

A comprehensive literature search was conducted in five databases: ERIC and ProQuest Education. The search period was limited to articles published between 2020 and 2025. The final Boolean search string was: ("English as a Second Language" OR "ESL" OR "EFL" OR "second language learning") AND ("app-based" OR "mobile app" OR "language learning app" OR "learning app" OR "educational app" OR "smartphone app" OR "mobile application") AND (learning OR instruction OR teaching) AND (outcome OR achievement OR performance OR proficiency OR motivation OR engagement OR vocabulary OR speaking OR writing OR reading).

2.2. Inclusion and Exclusion Criteria

Studies were included if they examined ESL/EFL learners of any age using app-based interventions and reported at least one measurable cognitive or affective learning outcome. Both quantitative, qualitative, and mixed-methods empirical designs were considered. Only articles published in English in peer-reviewed journals were included. Studies were excluded if they were theoretical papers, book chapters, conference proceedings, involved non-mobile interventions, or did not report relevant language learning outcomes.

2.3. Data Extraction, Quality Appraisal, and Synthesis

Data were extracted using a structured template, recording information on authors, publication year, country, sample characteristics, intervention type, targeted skill domains, study design, duration, and methodological quality. A narrative synthesis approach was then employed, grouping studies by app type (e.g., gamified, vocabulary-focused, speaking, writing) and targeted language skills. Key findings, effect directions, and methodological features were summarized to provide a comprehensive overview of current evidence in app-based ESL/EFL learning.

3. Result

The findings of this systematic review are organized to provide a comprehensive overview of the current landscape of mobile-assisted ESL/EFL learning in higher education. The results are presented in three main dimensions: (1) study characteristics and geographic distribution, highlighting the institutional affiliations, regional patterns, and publication trends; (2) indexing, publisher information, and academic visibility, reflecting the scholarly impact and dissemination of the included studies; and (3) research areas and thematic trends, capturing the disciplinary focus, pedagogical targets, learner- and teacher-related factors, and technological innovations in mobile-assisted language learning. Together, these analyses offer a detailed picture of how MALL

research has evolved over time, where it is being conducted, and the key topics, skills, and theoretical perspectives that dominate the field.

3.1. Study Characteristics and Geographic Distribution

Across the 65 studies included in this review, authors were affiliated with a diverse range of higher education institutions across Asia, the Middle East, and Europe, reflecting global interest in app-based ESL/EFL learning in tertiary education. A substantial portion of studies originated from East Asia, particularly Taiwan region, Hong Kong region, and mainland China, with notable contributions from Taiwan Normal University, Chengchi University, Central University, Asia University (Taiwan Region), Hong Kong Polytechnic University, Hong Kong Metropolitan University, Lingnan University, Education University of Hong Kong, as well as Beijing Language and Culture University, Xi'an Jiaotong University, Shandong Xiehe University, and Capital Normal University. These studies frequently focused on mobile-assisted vocabulary learning, speaking practice, and app-supported blended courses.

Another major cluster emerged from the Middle East, including Iran, Saudi Arabia, and Oman. Iranian universities—such as Islamic Azad University, Shahid Beheshti University, Razi University, and University of Zanjan—contributed multiple empirical studies on app-based vocabulary, grammar, and writing instruction, while Saudi Arabian universities—including King Abdulaziz University, Al Baha University, and Qassim University—produced research emphasizing learner motivation, mobile-assisted reading, and digital learning readiness. Additionally, Southeast Asian institutions, such as Universiti Teknologi Malaysia, Universiti Malaya, Ganesha University of Education, Prince Songkla University, Mahidol University, and Saigon University, investigated app-based learning in large university classes, often emphasizing localized app design, vocabulary development, and student engagement. Although fewer in number, contributions from Europe and North America—including Leiden University (Netherlands), University of Hradec Králové (Czech Republic), and Michigan State University (United States)—highlight cross-national collaborations and technology-enhanced language learning research integrating app-based platforms, AI-supported feedback, or computer-assisted pronunciation tools.

The publication timeline of these studies spans from 2008 to 2025, showing a gradual increase over time. After the first study in 2008, publications appeared sporadically until 2015–2017, followed by a noticeable growth from 2016 onwards, peaking in 2020 (7 publications) and 2022 (8 publications). Recent years, particularly 2024 and 2025, show sustained activity (4 and 6 publications, respectively), reflecting the growing academic interest and expanding relevance of mobile-assisted language learning research in higher education.

3.2. Indexing, Publisher, and Academic Visibility

The academic visibility and impact of the included studies were assessed through their indexing status in major Web of Science (WoS) databases. The majority of studies were indexed in high-impact citation databases such as the Social Science Citation Index (SSCI, n = 31), indicating rigorous peer review and recognition in leading social science journals. Additionally, 22 studies appeared in the Emerging Sources Citation Index (ESCI), reflecting emerging or newly established journals gaining scholarly attention. Ten studies were indexed in the Arts & Humanities Citation Index (A&HCI), often alongside SSCI, highlighting interdisciplinary connections between social sciences and humanities, while six studies were found in the Science Citation Index Expanded (SCI-EXPANDED), showing intersections with scientific and technological research.

The included studies were published across a broad range of academic publishers. Major international publishers—Routledge (Taylor & Francis, n = 11) and Springer (including Springer Heidelberg, n = 9)—accounted for the largest share, reflecting the field's dissemination through reputable academic outlets. Other prominent publishers included SAGE Publications (n = 5), Wiley (n = 4), MDPI (n = 4), and the Arab World

English Journal (n = 4), indicating the complementary role of both traditional subscription-based and emerging open-access platforms. A longer tail of specialized or regional publishers—such as university presses and domain-specific associations—further underscores the disciplinary diversity and global reach of app-based ESL/EFL learning research.

3.3. Research Areas and Thematic Trends

An analysis of the 65 included studies reveals that mobile-assisted ESL/EFL research in higher education is inherently interdisciplinary. The majority of studies were classified under Education & Educational Research (n = 40), confirming the primary focus on learning, instruction, and pedagogical development. Linguistics was the second most common category (n = 17), often combined with education, highlighting connections to language learning, second language acquisition, and technology-enhanced language education. Other multidisciplinary research areas include Social Sciences – Other Topics (n = 7), Psychology (n = 4), Science & Technology – Other Topics (n = 4), and Computer Science (n = 2), with smaller representations in Environmental Sciences & Ecology, Engineering, Telecommunications, and Mathematics. This distribution demonstrates the field's diverse methodological approaches and theoretical foundations across education, linguistics, psychology, and technology.

Thematic analysis of article titles further clarifies the focus areas within these research domains. Vocabulary learning remains the most frequently investigated skill, with studies examining gamified apps, idiom learning, and phrasal verb acquisition. Speaking proficiency is also a major theme, including mobile-assisted project-based learning, social networking-mediated tasks, pronunciation training, and speaking anxiety reduction. Learner-related psychological constructs—such as motivation, engagement, self-regulation, flow, anxiety, and willingness to communicate—appear prominently, reflecting the integration of educational psychology in Mobile-Assisted Language Learning research.

Another key theme involves learner perceptions, readiness, technology acceptance, and attitudes toward mobile learning, frequently analyzed using models such as the Technology Acceptance Model (TAM), Integrative Model of Behavior Prediction, Push–Pull–Mooring (PPM), and self-regulation theories. Teacher-related factors, including attitudes, support, and pre-service teacher perceptions, also feature in the literature, indicating growing interest in integrating Mobile-Assisted Language Learning into teacher education and institutional practices.

Finally, technological diversification is evident, with studies exploring gamified apps, mobile metaverse environments, intelligent personalized learning systems, speech-to-text tools, and AI-driven platforms like Google Assistant. Collectively, the research shows a shift from early descriptive studies toward targeted, theory-informed, and skill-specific investigations, emphasizing vocabulary acquisition, speaking skills, learner psychology, technology acceptance, and emerging intelligent technologies.

4. Conclusion

This systematic review synthesized empirical evidence published between 2014 and 2025 on the impact of mobile-assisted applications on ESL/EFL learning outcomes. Across 65 studies, the findings collectively demonstrate that mobile apps have become an influential component of technology-enhanced language learning, offering flexible, accessible, and engaging opportunities for learners across diverse educational settings. The review reveals consistent positive effects of app-based learning on a wide range of outcomes, including vocabulary acquisition, reading and writing development, speaking practice, and learner motivation and engagement. These benefits are attributed to features such as multimodal input, gamification, personalization, and opportunities for repeated exposure and practice—characteristics that make mobile apps particularly effective for

supporting autonomous and situated learning.

The analysis also highlights clear trends in research growth, with a marked increase in publications after 2020, reflecting the expanding global adoption of mobile learning tools and the growing scholarly interest in their pedagogical potential. Furthermore, the geographic distribution of studies—dominated by East Asia, the Middle East, and Southeast Asia—illustrates both the regional demand for English language proficiency and the rapid integration of educational technologies within higher education systems in these areas. The diversity of indexing sources and publishers further indicates that the field is interdisciplinary, situated at the intersection of education, linguistics, psychology, and technology studies.

Despite the overall positive findings, the review identifies several areas requiring further investigation. Many studies relied on short-term interventions with small samples, limiting the generalizability and long-term applicability of their results. Additionally, relatively few studies systematically examined moderating factors such as learner proficiency level, learning context, or specific app design features, leaving important gaps in understanding how and why certain interventions are more effective than others. Methodological limitations—such as insufficient reporting of intervention fidelity, lack of control groups, and reliance on self-reported outcomes—also suggest the need for more rigorous research designs.

Overall, this review underscores the pedagogical value of mobile-assisted language learning apps while calling for more comprehensive, theory-driven, and methodologically robust research. Future studies should explore long-term learning trajectories, cross-context comparisons, and the role of adaptive and AI-enhanced app features to better understand the mechanisms through which mobile applications influence ESL/EFL learning. As mobile technologies continue to evolve, their potential to transform language learning will expand correspondingly, making it imperative for researchers, educators, and developers to collaborate in designing evidence-based, learner-centered mobile learning environments.

Reference

Godwin-Jones, R. (2018). Chasing the butterfly effect: Informal language learning online as a complex system. Language Learning & Technology, 22(2), 8–27.

Kukulska-Hulme, A., & Lee, H. (2020). Intelligent assistants in language learning: An analysis of features and limitations.

Lan, Y. J. (2020). Immersion into virtual reality for language learning. In B. H. Ross (Ed.), Psychology of learning and motivation (Vol. 72, pp. 1–26). Academic Press.

Li, Z., & Hegelheimer, V. (2013). Mobile-assisted grammar exercises: Effects on self-editing in L2 writing.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. BMJ, 372, n71.

Stockwell, G., & Hubbard, P. (2013). Some emerging principles for mobile-assisted language learning. The International Research Foundation for English Language Education, 1–15.

Author Biography

Lu Qiao: Master degree, assistant professor at Beijing Jingbei Vocational College. Her research interests include English Literature and poetry anthology.