

Students' Digital Trajectories in Improving Communicative Competence through Mobile-Assisted Language Learning: A Meta-Synthesis

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DOI: <https://doi.org/10.47772/IJRISS.2025.91100537>

Received: 04 December 2025; Accepted: 11 December 2025; Published: 23 December 2025

ABSTRACT

Mobile-Assisted Language Learning (MALL) has emerged as a transformative pathway in developing learners' communicative competence, particularly in digitally-mediated learning environments. This meta-synthesis explores students' digital learning trajectories by integrating evidence from thirteen peer-reviewed studies published between 2020 and 2025. Anchored on sociocultural and interactionist perspectives, the review examines how mobile applications such as Duolingo, HelloTalk, WhatsApp, WeChat, Busuu, and custom MALL platforms shape linguistic, pragmatic, intercultural, and strategic competence. Findings reveal three overarching themes: (1) Digital Interaction as Communicative Accelerator, showing that authentic, real-time exchanges through chat, voice, and video tools enhance fluency, lexical richness, and pragmatic appropriateness; (2) Mobile-Mediated Feedback as Adaptive Scaffolding, where multimodal feedback (text, emojis, audio corrections) supports self-monitoring and reduces language anxiety; and (3) Learner Agency and Mobility, demonstrating that flexible, on-the-go learning promotes autonomy and sustained engagement across varied sociolinguistic contexts. Across studies, MALL is shown to strengthen intercultural competence by enabling cross-cultural interactions and to improve pragmatic awareness through exposure to authentic discourse patterns. However, challenges remain, including digital distractions, uneven access, and the need for teacher guidance in curating meaningful mobile tasks. Overall, this meta-synthesis concludes that students' digital trajectories within MALL environments significantly contribute to communicative competence, provided that mobile tools are pedagogically aligned and used within socially interactive learning ecosystems.

Keywords: Mobile-Assisted Language Learning, Communicative Competence, Digital Trajectories, Intercultural Communication, Meta-Synthesis

INTRODUCTION

The global shift toward digital education has accelerated the integration of mobile technologies into language learning. Mobile-Assisted Language Learning (MALL) has redefined how learners acquire, practice, and apply linguistic knowledge by embedding learning within authentic, mobile-mediated contexts. Unlike traditional language classrooms that confine learners within physical spaces, MALL enables dynamic and continuous engagement, allowing students to interact, collaborate, and construct meaning in diverse sociocultural environments (Lai and Bower, 2020; Guo, Jeyaraj, and Razali, 2024). This pervasive accessibility transforms how learners navigate linguistic input, feedback, and intercultural exchange, thus reshaping communicative competence as both a cognitive and sociocultural construct (Çiftçi and Savaş, 2021; Viberg and Grönlund, 2021).

Globally, countries such as Japan, South Korea, China, and Taiwan have become frontrunners in adopting MALL to advance digital and linguistic literacy to students. Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) has promoted mobile learning ecosystems that emphasize communicative and collaborative English learning, particularly through applications such as Duolingo, HelloTalk, and LINE-integrated study groups. In South Korea, the government's Digital Literacy Project integrates mobile technologies in language education to foster bilingual proficiency and intercultural awareness, aligning with its "Smart Education" initiative. Similarly, Taiwan's National Development Council has supported the development of MALL-based English learning apps to improve learners' communicative competence, especially in rural and multilingual communities (Yang, 2025). Meanwhile, in China, MALL platforms like iTalki and WeChat-based mini-programs have been widely used to promote intercultural dialogue and adaptive learning, allowing learners to practice English and other foreign languages through peer-to-peer exchanges that transcend geographical boundaries. These international cases underscore a shared recognition that digital learning technologies can democratize access to linguistic and cultural knowledge, a vision consistent with the United Nations' Sustainable Development Goal 4 (SDG 4)– Quality Education, which emphasizes inclusive, equitable, and lifelong learning opportunities for all.

Contextualized within the Philippine educational landscape, MALL has gradually gained traction as an alternative mode of language learning, particularly in higher education institutions and in multilingual communities. The Commission on Higher Education (CHED) and the Department of Education (DepEd) have both acknowledged the role of digital platforms in enhancing language proficiency, promoting learner autonomy, and extending educational access to geographically isolated and disadvantaged learners. In a nation marked by linguistic diversity and infrastructural inequalities, mobile learning becomes not merely a technological adaptation but a pedagogical necessity, bridging the digital divide and promoting linguistic inclusivity. Filipino learners increasingly engage with mobile-based platforms like Duolingo and use this tool to practice English and regional languages in real-time intercultural exchanges.

Recent research suggests that learners perceive MALL not merely as a digital supplement but as a transformative learning space for identity formation, agency, and intercultural dialogue. Viberg and Grönlund (2021) demonstrate that mobile interactions allow learners to perform and experiment with new communicative identities, while Çiftçi and Savaş (2021) reveal how message exchanges in MALL environments foster pragmatic awareness and negotiation of meaning. Similarly, Yang (2025) found that HelloTalk's intercultural affordances enable users to participate in authentic global communication, leading to heightened intercultural sensitivity and sociolinguistic competence. Collectively, these studies highlight that communicative competence in digital spaces is shaped by sociocultural participation as much as by linguistic knowledge.

Together, these processes reveal how MALL reconfigures communicative competence into a fluid, multimodal construct shaped by both linguistic skill and digital agency (Mootoosamy & Aryadoust, 2024; Yang, 2025). Nevertheless, the field of MALL research remains fragmented. While many studies report positive outcomes in learner motivation, vocabulary retention, and fluency (Garzón, Pavón, & Baldiris, 2023; Pool, 2022), fewer synthesize how MALL holistically mediates all components of communicative competence. Some focus narrowly on specific features, such as gamification or feedback systems, while others emphasize affective or motivational dimensions without integrating sociolinguistic and discourse perspectives (Khaisang & Sukavatee, 2023). The lack of theoretical synthesis limits the understanding of how mobile platforms collectively shape the communicative development of the students, at large.

Therefore, there is a critical need for an integrative framework that consolidates these findings into a cohesive model of communicative competence in mobile contexts (Mootoosamy & Aryadoust, 2024). Anchored on this need, this meta-synthesis aims to theorize the digital trajectories of communicative competence as manifested in Mobile-Assisted Language Learning. It consolidates qualitative and mixed-method studies published between 2020 and 2025 to identify pedagogical affordances, learner transformations, and intercultural dynamics that emerge from mobile-mediated language learning. By analyzing how technological, cognitive, and sociocultural factors intersect, this study seeks to provide educators, policymakers, and curriculum designers with evidence-based insights to optimize MALL for communicative competence development.

In doing so, it bridges fragmented findings into a unified understanding of how mobile learning redefines communication in the 21st century. The notion of digital trajectories captures these processes: learning does not follow a universal sequence but emerges from fluid, context-dependent engagements with mobile platforms. Such trajectories are shaped by gamification, immediacy of feedback, learner agency, and intercultural affordances, as well as by issues of access, digital literacy, and motivation (Lai & Bower, 2020). Yet, despite a growing body of literature, what remains absent is a meta-synthesis that systematically consolidates these findings into an integrated account of how mobile applications mediate the multiple dimensions of communicative competence. This study addresses that gap by synthesizing qualitative evidence (2020–2025) to synthesize the digital trajectories of communicative competence in MALL.

Research Objective

This meta-synthesis sought to synthesize the digital trajectories of communicative competence in MALL by theorizing existing studies that examine how mobile-mediated environments enhance students' communicative competence.

REVIEW OF RELATED LITERATURE

Communicative competence, originally articulated by Hymes (1972) and further systematized by Canale and Swain (1980), encompasses the integrated dimensions of grammatical, sociolinguistic, discourse, and strategic competence. Within the mobile-mediated learning environment, each of these components is dynamically transformed through technology-driven interaction. Grammatical competence is reinforced through gamified drills, adaptive quizzes, and instantaneous corrective feedback, allowing learners to internalize linguistic structures in engaging and repetitive cycles. Sociolinguistic competence emerges as learners engage in authentic cross-cultural communication through mobile chat applications and peer-to-peer exchanges that expose them to diverse registers, idiomatic expressions, and sociocultural nuances. Discourse competence is strengthened through multimodal communication tasks such as collaborative storytelling, vlog creation, and video-based exchanges that demand coherence, cohesion, and contextual sensitivity across multiple modes of expression. Finally, strategic competence is cultivated through learners' adaptive use of digital features such as emojis, voice notes, translation aids, and self-correction tools that facilitate negotiation of meaning and repair of breakdowns in communication.

MALL: Enhancing Students' Communicative Competence

In their foundational qualitative synthesis, Lai and Bower (2020) articulate how mobile technologies mediate language learning by fostering learner autonomy and adaptability. Drawing from interview data, self-reports, and observational studies, they found that learners valued the flexibility and immediacy MALL offers, properties that empower students to engage in their own temporal and spatial setting, transforming the language learning journey into a significantly more learner-directed, contextually responsive process.

Building on that, Çiftçi and Savaş (2021) provide rich phenomenological insights into how peer interactions via MALL platforms facilitate pragmatic awareness and meaning negotiation. Through interviews and dialogue analysis, they expose how learners use mobile-mediated text exchanges to request clarification, adjust register, and co-construct meaning, a communicative competence in action enabled by the affordances of MALL.

Further expanding the qualitative landscape, Viberg and Grönlund (2021) trace how MALL fosters digital identity construction and learner agency. Their thematic synthesis of learners' narratives reveals that mobile environments offer safe, low-stakes spaces for students to explore different communicative styles, experiment with tone, and even curate how they present themselves as language users.

Most recently, Yang (2025) conducted a large-scale qualitative synthesis focusing on HelloTalk. Her findings highlight that learners navigate intercultural communicative exchanges with heightened pragmatic awareness, negotiating not just language but cultural norms, politeness strategies, and conversational conventions with peers across borders. These dynamics collectively advance both sociolinguistic and strategic competence.

Challenges in Using MALL Tools

Despite these enriching affordances, qualitative studies underscore several persistent challenges that users encounter in MALL environments. Lai and Bower (2020) synthesize reports of digital overload and motivation loss; learners sometimes feel inundated by notifications and app gamification, leading to fatigue and diminished engagement over time.

Meanwhile, Çiftçi and Savaş (2021) note that mobile-mediated pragmatics can sometimes backfire; learners occasionally misinterpret tone or intent via text, leading to miscommunication or social awkwardness in peer exchanges.

Yang (2025) also highlights sociocultural friction: some learners hesitate to engage deeply in intercultural exchanges due to uncertainty about appropriate language, fear of offending others, or perceptions of cultural mismatch, an obstacle to developing deeper communicative competence.

Beyond these concerns, more recent global studies show pressing challenges in digital spaces and technology-driven learning environments. One critical issue identified is cognitive overload. Deep processing is compromised, and fragmented attention occurs when learners constantly juggle and switch between multiple applications and social platforms. Research shows that even the mere use of smartphones causes surface-level learning behaviors and lessens cognitive capacity (Chen & Yan, 2016; Ward et al., 2017; Upshaw et al., 2022).

The integration of AI-driven Mobile Assisted Language Learning tools provides immediate linguistic support and personalized feedback, but authenticity, overreliance, and privacy are issues that remain to be looked at. Though AI can improve fluency and engagement, scholars caution that if it is used without appropriate guidance, it may inadvertently limit learners' self-regulation and critical thinking skills (Kasneci et al., 2023; Meyer et al., 2023).

Inclusivity and equity also remain a crucial aspect in the implementation of MALL. Access to reliable internet, updated devices, and digital literacy determines who benefits most from mobile-assisted instruction.

Learning Triumphs

Nevertheless, students creatively navigate these challenges and often emerge transformed. Lai & Bower (2020) describe how learners deploy self-regulation strategies, such as curating when and how to engage with mobile tasks and adjusting notification settings to mitigate overload. Çiftçi & Savaş (2021) find evidence of pragmatic adaptation, where students refine their strategies to clarify meaning, rephrasing, using emoticons, or code-switching when misunderstandings arise. Learners effectively learn how to strategically manage miscommunication, thereby fortifying their strategic competence.

On identity and agency, Viberg & Grönlund (2021) document how learners leverage MALL to rehearse new communicative selves, such as adopting different registers or experimenting with humor, freeing the learner from classroom inhibition. These affordances allow students to re-envision themselves as confident communicators in digital spaces.

Moreover, Yang (2025) highlights learner transformation through intercultural resilience. Despite initial hesitations, learners develop sophistication in managing cross-cultural dialogue, modulating their language to accommodate cultural expectations, employing politeness strategies, and creatively bridging cultural differences. Over time, they grow more comfortable with intercultural negotiations, exemplifying profound gains in sociolinguistic and strategic competence.

Beyond these themes, Figueiredo (2023) presents a mixed-methods systematic review (including qualitative components) focused on immigrant learners using MALL. While emphasizing inclusion and the role of self-regulation in diverse socio-cultural contexts, the study underscores how learners experience tension between the anonymity-enabled safety of mobile tools and a lingering fear of marginalization—both a transformation and a challenge in their communicative journeys.

Furthermore, Alexiadou and Sougari (2025) analyze interaction-based mobile learning apps, offering a qualitative evaluation that examines the ways mobile platforms scaffold peer-to-peer interactive dialogues. Their findings highlight how thoughtfully designed apps can foreground socio-pragmatic development through structured interactive tasks.

METHODOLOGY

Search Strategy

Research articles were identified using Publish or Perish Software Version 8 (Harzing, 2023), which systematically retrieved relevant studies from reputable databases, including Crossref, Google Scholar, Semantic Scholar, OpenAlex, and Google Scholar Profiles. A combination of targeted keywords like "Mobile-Assisted Language Learning (MALL)," "Communicative Competence," "Digital Language Learning," "Web-Assisted Learning," "Language Applications," and "Independent Learning" was employed to capture a comprehensive range of literature.

Following Funa and Gabay (2025), these keywords were methodically input into the meta-search engine to ensure exhaustive coverage until all pertinent studies were located. This strategic approach guaranteed the inclusion of studies that aligned with the research focus. To maintain currency and relevance, only research articles published between 2021 and 2025 were considered, adhering to Chrastina's (2018) recommendation to utilize literature within a five-year range for contemporary validity. Moreover, all retrieved studies were critically appraised using the Critical Appraisal Skills Programme (CASP) checklist, and extracted data were systematically organized and presented through the PRISMA 2020 flow diagram for transparency and replicability.

Inclusion and Exclusion Criteria

The inclusion criteria centered on research that explored Mobile-Assisted Language Learning (MALL) and its role in developing communicative competence; utilized qualitative or mixed-method designs; was written in English; published between 2021 and 2025 in peer-reviewed journals; freely accessible; and met the standards of the CASP checklist (Ritchie & Lewis, 2021). For mixed-method studies, only the qualitative components were integrated into the synthesis, while quantitative data were excluded.

Conversely, studies were excluded if they had ambiguous findings, irrelevant abstracts, inaccessible full texts, paid-access restrictions, missing sources or citations, duplicated content, or were published before 2021.

Literature selection and appraisal were conducted systematically using the Critical Appraisal Skills Programme (CASP, 2022) checklist. Only studies scoring seven out of 10 (7/10) or higher were included, ensuring methodological rigor, trustworthiness, and relevance to the study's objectives.

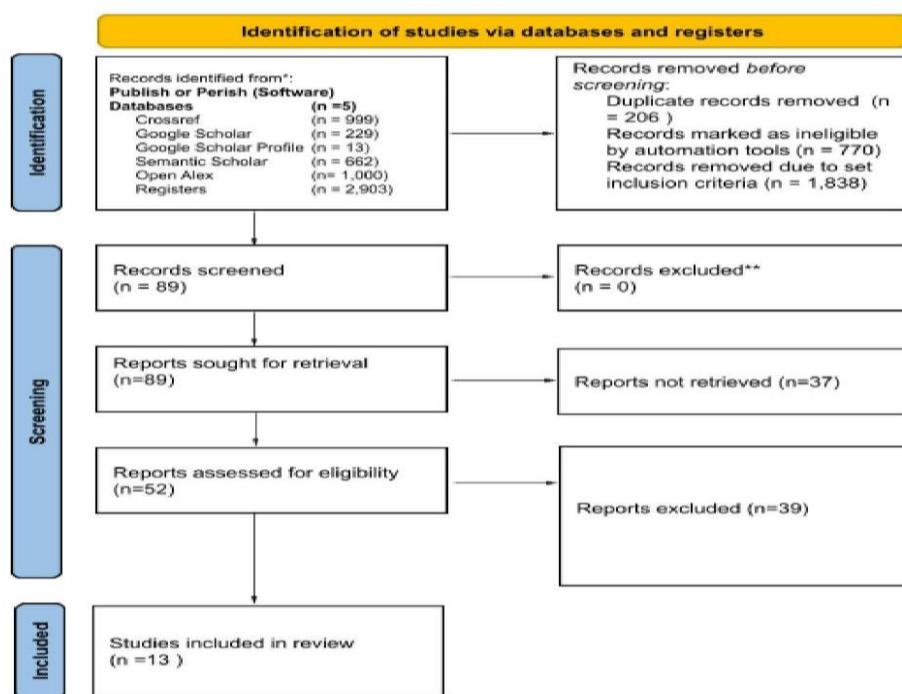
Characteristics of the Included Studies

A synthesized overview of the 13 studies selected for inclusion is presented in Table 1, adapted from the analytical framework of Funa and Gabay (2025). Each entry summarizes critical information such as authorship, publication year, research context, methodological design, mobile application or tool used, and principal findings. This structured presentation enables systematic comparison across studies, revealing emerging themes, consistent patterns, and notable research gaps that inform the evolving discourse on communicative competence in MALL.

Data Analysis

A thematic analysis (Clarke & Braun, 2013) was employed to synthesize findings across selected studies. The process involved: (a) familiarization with data, (b) coding of significant statements, (c) identification of recurring themes, (d) review and refinement of thematic categories, (d) defining and naming overarching themes, and (e) synthesizing interpretations.

This process generated a coherent account of the digital trajectories of communicative competence fostered by MALL, highlighting challenges, affordances, and learner transformations.



Source: Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.

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Figure 1. Screening process using the PRISMA 2020

Table 1. Studies included in the meta-synthesis

No.	Author/s and Date of Publication	Country/Context/Setting	Publication Type	Design	MALL Tool/App	Communicative Competence Focus	Salient Findings
S1	Pei Yang & Ziye Yang (2025)	China	Article	Qualitative	HelloTalk	1. Intercultural Competence 2. Pragmatic Competence	<ul style="list-style-type: none"> 1. Increased understanding of foreign cultures. 2. Enabled students to engage with individuals from diverse cultural backgrounds beyond typical classroom exposure. 3. Improved intercultural communication skills. 4. Fostered a deeper understanding of mutual respect in intercultural contexts. 5. Respond better and make communication smoother and more effective. 6. Intermittent communication difficulties. In the early stages of conversations, replies were often delayed or even missing. 7. Safety concerns were also expressed, especially by female participants. Some users showed inappropriate behavior, likely due to the anonymity of this platform.

S2	Van Hong Nguyen & Hong Thi Phuong Nguyen (2023)	Vietnam	Article	Qualitative	Duolingo	1. Grammatical Competence (particularly focusing on the integration of morphological, syntactic, and phonological accuracy)	<ul style="list-style-type: none"> 1. Students' attitudes were positive, thinking that it was interesting and motivating. 2. Provided a variety of exercises that fit learners of different levels. 3. Includes a large number of listening exercises and further vocabulary, grammar study activities ,and images to aid in the learning process. 4. Not enough to meet the needs of learners in improving their listening skills. 5. Teachers need to explore many other apps as well as other exercises to develop more types of students' listening activities. 6. Good software for learning a new language, but it can't be relied on at higher levels owing to the Direct Translation Method. Because students had to translate word for word, they were perplexed about the phrase structure. 7. Some terminology is taught through straight translation without visual pictures, and participants are unfamiliar with numerous words. 8. The application is only suitable for students with a basic and intermediate level of English. If the student's level is higher, the application is no longer suitable and can be boring because the vocabulary is only at an intermediate level. 9. The outstanding students also reported that the listening exercises with sentences and short passages in the app were no longer suitable for their level. 10. Simple to download and install, and has a tiny file size, is simple to use because it does not take up much space on a mobile phone.
S3	Aratusa et al. (2022)	Indonesia	Article	Mixed-method	Google Translate	1. Grammatical Competence (specifically its phonological component)	<ul style="list-style-type: none"> 1. Employed diverse techniques to enhance pronunciation, reflecting individual learning preferences. 2. Overcame difficulties by increasing exposure to English through watching videos and frequent listening practice. 3. Recognized that consistent practice and imitation lead to greater intelligibility and fluency. 4. Helpful, reliable, and accessible resources for autonomous learning. 5. Provides immediate, accurate audio feedback. 6. Some words are unavailable offline, requiring a stable connection.

							7. Their preference stems from the practicality, reliability, and portability of mobile apps compared to traditional resources.
S4	Zhao et al. (2022)	Iran	Article	Mixed-method	Telegram	1. Grammatical Competence 2. Sociolinguistic Competence 3. Discourse Competence 4. Strategic Competence	1. Found that Telegram use increased learner motivation. 2. Observed peer interaction reduced language anxiety. 3. Reported voice notes facilitated pronunciation practice (strategic use). 4. Noted text exchanges promoted pragmatic awareness (sociolinguistic). 5. Revealed learners recommended teacher moderation to ensure quality. 6. Showed learners engaged in more autonomous practice. 7. Indicated notification overload sometimes distracted learners. 8. Suggested integration of Telegram tasks into coursework improved uptake.
S5	Boroughani et al. (2023)	Iran	Article	Mixed-method	Quizlet	1. Grammatical Competence 2. Discourse Competence 3. Strategic Competence	1. Demonstrated digital flashcards outperformed wordlists for academic vocabulary gains. 2. Reported learners developed stronger self-regulatory strategies using digital flashcards. 3. Indicated spaced-repetition features supported retention (grammatical/lexical). 4. Found mobile access increased study frequency outside class. 5. Revealed that some learners wanted more productive speaking tasks. 6. Highlighted quizzes and retrieval practice strengthened strategic competence. 7. Suggested pairing flashcards with communicative tasks for discourse transfer. 8. Confirmed digital flashcards boosted confidence for academic reading/listening.
S6	Sporn Z. et al. 2020	Germany	Article	Qualitative	Babbel	1. Strategic Competence 2. Discourse Competence 3. Linguistic Competence	1. Babbel empowers users to speak the language they've always wanted by focusing on practical, real-world communication skills. 2. Novice learners, however, need meta-learning support—guidance on what to expect, how to listen actively, and how to use podcast features like rewind, slow playback, and replay to shape their learning experience and build tolerance for ambiguity. 3. The audio-only format limits access to visual

							<p>or textual aids that teachers often use to reduce cognitive load. Many listeners requested added support such as transcriptions, challenging Babbel's goal of a fully screen-free, on-the-go learning experience.</p> <p>4. Guiding a learner's native language (L1) could ease learning but would narrow the audience, even though beginners remain Babbel's largest user base.</p> <p>5. To help learners reach their speaking goals and prepare for real conversations, the audio must feature authentic, natural speech from native or proficient speakers. Yet beginners' limited vocabulary and exposure require simplified structures. Striking a balance between authentic yet comprehensible dialogue was crucial.</p> <p>6. Creating engaging audio for beginners is even harder in today's crowded podcast space, where educational content competes with entertainment, news, and sports.</p> <p>7. Effective sound design—using cues and effects that reduce cognitive load, build context, and enhance immersion—can make learning more enjoyable and impactful.</p>
S7	Nuraeni & Nurmalia (2020)	Indonesia	Article	Mixed-method	Whatsapp		<p>1. WhatsApp is an alternative for engaging e-in - learning classes.</p> <p>2. It facilitates students in motivating students to learn English, especially in writing skills.</p> <p>3. It helps students to overcome their fear of using the language through sharing information and discussion.</p> <p>4. It helps the students to believe in their abilities and to have confidence.</p> <p>5. It enables students to learn from their colleagues' mistakes.</p> <p>6. Need extra time to prepare the material.</p> <p>7. Some students as a silent reader and do not participate in the discussion.</p> <p>8. Copy and paste of the tasks often occur; the teacher should be careful about this.</p> <p>9. Lack of students' attention to the material given by the teacher. It means not all students learn from the materials.</p> <p>10. The instructor must always be cautious and patient to control the group.</p>
S8	Kohnke & Ting	Hong	Article	Qualitative	Books and Brains@	1. Lexical Competence	1. Highlighted students' strong preference for dictionary apps that provided direct Chinese-English translation with pinyin support.

	(2021)	Kong		PolyU			<p>2. Emphasized the time-saving advantage of mobile dictionary apps during lectures and reading tasks.</p> <p>3. Revealed that most dictionary apps lacked adequate discipline-specific vocabulary and contextual examples.</p> <p>4. Showed that learners lost motivation when using general language-learning apps like Duolingo and Busuu over time.</p> <p>5. Demonstrated that gamified features and peer discussions enhanced engagement and motivation.</p> <p>6. Indicated that app simplicity and intuitive design promoted usability and consistent use.</p> <p>7. Confirmed that progressive levels and clear definitions supported comprehension and vocabulary retention.</p> <p>8. Illustrated that learners applied newly acquired vocabulary in academic writing and discussions.</p> <p>9. Identified the need for adaptive difficulty levels to match learners' varying proficiencies.</p> <p>10. Affirmed the potential of custom-built MALL apps to facilitate discipline-specific vocabulary development.</p>
S9	Budiarta, I. W., & Santosa, M. H. (2020)	Indonesia	Article	Qualitative	Flipgrid	Speaking as a core component of communicative competence (collaborative oral practice, fluency, confidence building)	<p>1. Integration of Flipgrid in the Think-Pair-Share speaking model enhanced students' speaking performance.</p> <p>2. It encouraged active engagement and creativity.</p> <p>3. It fostered communicative confidence.</p> <p>4. Learners became more willing to speak and interact using English.</p>
S10	Khodabandeh, F. (2024)	Iran	Article	Mixed-method	Instagram	Speaking tasks/academic writing (exploring students' interaction and communication in discipline-specific English contexts)	<p>1. Integrating Instagram into ESAP lessons enhanced students' engagement, collaboration, and discipline-specific communication skills.</p> <p>2. Students perceived the platform as an interactive space for practicing authentic communication in their academic field.</p>
S11	Tan, K.H., Phon, N.,	Malaysia	Article	Mixed-method	Tiktok	Public Speaking/ora	<p>1. Short-video speaking tasks on TikTok raised students' confidence, fluency, and</p>

	Philip, B., & Alias, J. (2023)					I skills	expressiveness. 2. Re-recording enabled practice and feedback cycles.
S12	Aguerto Gajardo, M.A., Cisterna, C.C., * Parra, J.A. (2024)	Chile	Article	Mixed-method	Tandem	Speaking fluency & confidence (via real partner exchanges)	1. Significant fluency gains were observed. 2. Students reported higher confidence. 3. Students valued interaction with native and non-native partners.
S13	Azani, Ghifari, Qurniawan, Anisa & Ma'rufah (2025)	Indonesia	Article	Qualitative	Discord	Speaking and Fluency (Confidence and anxiety reduction when speaking and vocabulary growth via real-time voice interaction with peers)	1. The platform supported increased student interactivity and participation. 2. Students reported feeling more comfortable speaking, interacting, and experimenting with language. 3. They appreciated the reduced pressure compared to traditional classroom talk time.

RESULTS AND DISCUSSION

This section presents the synthesized patterns across thirteen (13) empirical studies on Mobile-Assisted Language Learning (MALL) tools and their contributions to developing communicative competence. The findings were clustered into five dominant themes and one overarching meta-theme derived through cross-case comparison. Each theme is discussed in light of current MALL scholarship, highlighting convergences, divergences, and implications for communicative language development.

Theme 1: MALL as a Catalyst for Intercultural, Sociolinguistic, and Pragmatic Growth

Across multiple studies, MALL platforms created expanded spaces for authentic intercultural and pragmatic encounters, surpassing what traditional classrooms can typically provide. HelloTalk users (Yang & Yang, 2025) reported heightened awareness of foreign cultures and improved abilities to respond appropriately in intercultural scenarios. These findings mirror Zhao et al. (2022), whose Telegram-based interactions promoted pragmatic sensitivity and sociolinguistic awareness as learners negotiated meaning through real-time text and voice exchanges.

However, early communication breakdowns—delayed responses, misunderstandings, and intermittent participation—were common challenges (Yang & Yang, 2025). Safety concerns, particularly among female learners, echoed broader MALL literature warning about privacy and platform anonymity.

Overall, these results suggest that intercultural competence thrives in mobile-mediated interactions, though ethical safeguards and teacher moderation remain essential.

Theme 2: Development of Grammatical, Lexical, and Structural Knowledge through Repetition, Accessibility, and Automated Feedback

A second dominant theme concerns the role of MALL tools in supporting grammatical and lexical competence. Duolingo (Nguyen & Nguyen, 2023), Google Translate (Aratusa et al., 2022), and Quizlet (Boroughani et al., 2023) demonstrated consistent benefits in morphological accuracy, phonological development, and vocabulary

retention. These tools provided immediate feedback, spaced repetition, and portable access, enabling frequent micro-learning.

Nevertheless, limitations emerged. Duolingo's reliance on direct translation methods confused learners regarding phrase-level grammar, especially at higher proficiency levels (Nguyen & Nguyen, 2023). Similarly, Google Translate required stable internet connectivity and lacked offline lexical completeness (Aratusa et al., 2022). These findings reinforce that MALL boosts foundational linguistic competence but may plateau at advanced levels without teacher mediation or supplementary materials.

Theme 3: Enhancing Speaking Fluency, Confidence, and Oral Interaction through Video, Voice, and Real-Time Exchanges

A large cluster of studies (S9–S13) highlighted the transformative potential of MALL on speaking skills, particularly confidence, fluency, and oral communicative performance. Platforms such as Flipgrid (Budiarta & Santosa, 2020), Instagram (Khodabandeh, 2024), TikTok (Tan et al., 2023), Tandem (Agurto Gajardo et al., 2024), and Discord (Azani et al., 2025) enabled learners to engage in authentic, multimodal communication with peers and global partners.

Learners across contexts consistently described reduced anxiety, improved willingness to speak, and increased creativity in oral production. The option to re-record, review, and share outputs (especially on TikTok and Flipgrid) fostered iterative learning. Voice channels on Discord and partner exchanges on Tandem enhanced spontaneity and real-time negotiation of meaning.

However, speaking-focused apps also required learners to manage performance pressure and multitasking demands, especially when visuals or scripts were absent (Sporn et al., 2020). Even so, results strongly affirm that MALL environments democratize talk time, allowing learners previously silent in classrooms to participate actively.

Theme 4: Learner Motivation, Engagement, and Affective Support in MALL Environments

Motivation emerged as a recurrent thread in mobile-assisted language learning (MALL). Telegram fostered peer support and reduced anxiety (Zhao et al., 2022), while dictionary-based apps like Books and Brains@PolyU sustained engagement through usability, multilingual support, and gamified features (Kohnke & Ting, 2021). WhatsApp similarly supported affective development by enhancing confidence, self-belief, and reducing fear (Nuraeni & Nurmalia, 2020). Students valued apps that were easy to use, included visuals or multimodal inputs, allowed autonomy and flexibility, provided immediate feedback, and enabled collaboration. However, motivation declined when apps became repetitive, misaligned with proficiency levels, or lacked contextual relevance (Kohnke & Ting, 2021; Nguyen & Nguyen, 2023). These findings suggest that MALL engagement is dynamic, requiring adaptive difficulty and meaningful content to sustain long-term participation.

Theme 5: Limitations, Risks, and Pedagogical Challenges of Mobile-Assisted Language Learning

Despite its benefits, mobile-assisted language learning (MALL) presents significant challenges. Technical and design constraints include limited offline accessibility (Aratusa et al., 2022), cognitive overload from audio-only learning (Sporn et al., 2020), and grammar confusion caused by direct translation methods (Nguyen & Nguyen, 2023). Pedagogical concerns arise when lack of teacher moderation leads to inconsistent quality (Zhao et al., 2022), overreliance on gamified features reduces the depth of learning, and students engage in silent participation or task copying in WhatsApp groups (Nuraeni & Nurmalia, 2020). Safety and ethical issues are also prevalent, including anonymity-related risks such as unsolicited or inappropriate messages (Yang & Yang, 2025) and notification overload that reduces focus (Zhao et al., 2022). These challenges underscore the need for structured integration, teacher scaffolding, and robust safety protocols in the implementation of MALL.

Meta-Theme: Mobile-Assisted Language Learning as a Multimodal Ecosystem for Holistic Communicative Competence

Synthesizing all themes, a meta-theme emerges: mobile-assisted language learning (MALL) functions as a multimodal ecosystem that supports the holistic development of communicative competence across linguistic, sociolinguistic, pragmatic, discourse, and strategic domains. The studies collectively indicate that linguistic competence is strengthened through repetition, feedback, and lexical expansion; sociolinguistic and pragmatic competence develop through authentic interaction; discourse competence grows through meaning negotiation, extended output, and multimedia tasks; and strategic competence emerges as learners self-regulate, troubleshoot, and adapt to platform affordances. Thus, MALL does not merely supplement language learning—it reconfigures the communicative environment, offering learners unprecedented autonomy, exposure, and interactional possibilities.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The cross-study synthesis demonstrates that MALL substantially enhances multiple dimensions of communicative competence. Through intercultural exchanges, real-time interaction, spaced repetition, and multimodal activities, mobile applications enable learning experiences that extend far beyond traditional classrooms. While challenges persist—such as safety concerns, platform limitations, cognitive load, and uneven learner engagement—the overall evidence confirms that MALL is a powerful, flexible, and transformative medium for language development.

Recommendations

1. Integrate MALL into formal curricula using structured tasks aligned with communicative objectives.
2. Provide teacher moderation, especially in open platforms (e.g., HelloTalk, Telegram, Discord) to ensure safety and pedagogical quality.
3. Adopt blended approaches, combining MALL with classroom instruction to address higher-level skills where apps may plateau.
4. Use adaptive and context-specific apps, particularly for advanced learners needing discipline-specific vocabulary and tasks.
5. Offer digital literacy training to help learners manage privacy, avoid cognitive overload, and optimize app features.
6. Encourage reflective learning, such as voice journals, re-recording, and self-evaluation to build strategic competence.
7. Develop institutionally supported MALL tools (e.g., customized vocabulary apps, LMS-integrated mobile tasks) to improve alignment with local needs.

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Ethical Consideration

Ethical Approval

This study did not involve human participants, animal subjects, or any procedures requiring personal or identifiable data. Therefore, formal ethical clearance was not required. The research is purely based on secondary sources/document analysis/system data that do not pose ethical risks.

Conflict of Interest

The authors declare no conflict of interest related to the conduct, analysis, or publication of this study.

Data Availability

All data used in this study are secondary, publicly accessible, and obtained from published materials (i.e., journal articles). No private, confidential, or proprietary information was used.

If applicable, links or DOIs to publicly available studies can be provided upon request.