

## **A SCOPING REVIEW OF THE EFFECTS OF MALL ON COLLEGE EFL LEARNERS' ENGLISH LISTENING AND SPEAKING PERFORMANCE**

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### **Abstract**

The integration of mobile-assisted language learning (MALL) has become increasingly prevalent in enhancing the English listening and speaking (ELS) skills of college-level English as a Foreign Language (EFL) learners. This scoping review aims to map out the existing research on the effects of MALL on the English listening and speaking performance of college EFL learners, identify key themes, and highlight gaps for future research. Studies focusing on college EFL learners, using MALL interventions, and measuring listening and speaking performance were included. A systematic search was conducted across databases including Scopus, ERIC and Web of Science. Data were charted and synthesized to identify patterns, themes, and research gaps. The review includes 33 studies, highlighting positive effects of MALL on listening and speaking skills, with variations in methodology, intervention duration, and assessment tools. It has been demonstrated that MALL has significant positive effects on both listening and speaking skills. In terms of listening skills, MALL has been found to improve learners' listening comprehension, listening fluency, and vocabulary acquisition and recognition. In terms of speaking skills, MALL contributes to improving pronunciation, speaking fluency, lexical richness, speech production, and skills of presentation and communication. It also enhances presentation performance and communication skills. These findings highlight MALL's potential in improving EFL learners' listening and speaking performance, though more longitudinal and diverse studies are needed.

**Keywords:** *Mobile-Assisted Language Learning (MALL), English as a Foreign Language (EFL), listening performance, speaking performance, college students*

## **INTRODUCTION**

ELS is of vital importance for EFL learners. Since the 1980s, English listening has been viewed as a primary vehicle for language learning (Rost, 2013). Especially in learning a language for communicative purposes, listening plays a vital role (Nabiyev & Rustam, 2022). Listening is also a direct exposure to language and can help to acquire it subconsciously (Gilakjani & Sabouri, 2016). Furthermore, English oral fluency is widely acknowledged as a crucial factor in engaging in effective communication (Leong & Ahmadi, 2017), achieving academic excellence (Andrin et al., 2024), and pursuing a successful career (Ba-Udhan, 2024; Hamid et al., 2013; Kas-sim & Ali, 2010) in many regions of the current world. Similarly, there is a growing emphasis on developing ELS skills in higher education in China. In accordance with the College English Curriculum Requirements by the Ministry of Education of China in 2007, the goal of college English teaching is to cultivate students' comprehensive English application abilities, especially their listening and speaking abilities. Besides, according to the College English Teaching Guide (2020), college English teaching is centred around the pragmatic utilisation of the English language. It emphasizes the development of students' proficiency in applying English. Thus, ELS proficiency plays a crucial part in English learning and application.

In the wave of the information age, the progress of science and technology and the rapid development of the mobile Internet have greatly changed people's learning methods. For college students, the impact of this technological change is particularly significant. With the popularity of smart mobile devices such as smartphones and tablet computers, college students have begun to get used to using these devices for daily information acquisition and communication. This provides the hardware foundation for mobile-assisted learning so that learners can use these devices to learn anytime and anywhere, no longer limited to a fixed learning place and time. Currently, MALL, defined by Hou and Aryadoust (2021) as "a flexible, continuing, adaptive language learning process in which language learners have easy access to learning content supported by mobile devices" (p. 2), has gradually occupied a place in college English education due to its flexibility and convenience. Meanwhile, lots of applications for smartphones are being designed for the purpose of learning English (Hockly & Dudeney, 2014). Many educators are adopting strategies to capitalize on smartphones and personal electronic devices for MALL, which have been extensively examined in academic literature (Avidov-Ungar & Hayak, 2023; Gafni et al., 2017; Kamasak et al., 2021; Luo & Shi, 2022; Ma, 2017; Simonova, 2016; Stockwell & Hubbard, 2013; Toetenel, 2014; Wong et al., 2010). However, although MALL has brought a lot of convenience to college students' English learning, the research on its specific impact on students' ELS learning is still insufficient.

Therefore, this study aims to comprehensively evaluate the influence of MALL on college students' ELS learning and to provide theoretical support and practical guidance for educational practice. By systematically exploring the body of literature on the impact of MALL on ELS performance among college EFL learners, the study aims to identify key findings, methodological approaches, and gaps in the current research. Educators, policymakers, and technology developers can be informed about best practices and areas that require further exploration by comprehending the efficacy of MALL in improving listening and speaking abilities.

## **METHODOLOGY**

This scoping study followed the requirements of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (Tricco, A. C. et

al., 2018). The present scoping review was carried out utilizing Arksey and O’Malley’s (2005) methodological framework, as depicted in Figure 1. This framework encompasses the following steps: (1) identifying research questions; (2) identifying relevant studies; (3) study selection; (4) charting the data; and (5) collating, summarizing, and reporting the results.



**Figure 1:** Methodological framework (adapted from Arksey & O’Malley, 2005)

### Identifying Research Questions

Although MALL is currently receiving significant attention in the education system, there is a scarcity of literature materials specifically dedicated to the effects of MALL on ELS, with a primary emphasis on college EFL learners. Therefore, the PCC (population, concept, context) model (Peters et al., 2020) was employed to investigate the main research topic of this study: “What can be inferred from the current literature resource regarding the effects of MALL on college EFL learners’ ELS performance?” Thus, a concise overview of the research objectives and questions derived from the PCC framework is presented in Table 1.

**Table 1:** Research questions formed based on the PCC model

Research Objectives	Research Questions
To investigate the chronological and geographical relationships and the setting where research on the effects of MALL on college EFL learners’ ELS performance has been developed	How is the research on the effects of MALL on college EFL learners’ ELS performance distributed?
To identify the purposes of conducting research related to the effects of MALL on college EFL learners’ ELS performance	What are the purposes of conducting research related to the effects of MALL on college EFL learners’ ELS performance?
To identify the pedagogical theory and/or theoretical framework adopted in studies related to the effects of MALL on college EFL learners’ ELS performance	What is the pedagogical theory and/or theoretical framework adopted in studies related to the effects of MALL on college EFL learners’ ELS performance?
To identify the research designs applied in studies related to the effects of MALL on college EFL learners’ ELS performance	What are the research designs applied in studies related to the effects of MALL on college EFL learners’ ELS performance?
To identify the MALL elements used in past research	What are the MALL elements used in past research?
To summarize the effects of MALL on college EFL learners’ ELS performance	What are the current findings on the effects of MALL on college EFL learners’ ELS performance?

## Identifying Relevant Studies

The previous research studies were found by employing search strings and keywords in three online databases: the Education Resources Information Centre (ERIC), Scopus, and Web of Science (WoS). The search strings were optimized by employing the Boolean operators “OR” and “AND.” The search strings and keywords that were employed are illustrated in Table 2.

**Table 2:** Search Strings and Keywords

Database	Search strings/keywords
ERIC	(“MALL” OR “mobile-assisted language learning”) AND (“higher education” OR “university” OR “college”) AND (“English learning” OR “English teaching”) AND (“EFL”) AND (“English listening*”) OR (“English speaking*”)
Scopus	TITLE-ABS-KEY ((“MALL” OR “mobile-assisted language learning”) AND (“higher education” OR “university” OR “college”) AND (“English learning” OR “English teaching”) AND (“EFL”) AND (“English listening*”) OR (“English speaking*”))
WoS	TS= ((“MALL” OR “mobile-assisted language learning”) AND (“higher education” OR “university” OR “college”) AND (“English learning” OR “English teaching”) AND (“EFL”) AND (“English listening*”) OR (“English speaking*”))

## Study Selection

The research team implemented specific criteria to enhance searching convenience and exclude irrelevant literature. During the process, the research team members deleted the duplicated items and evaluated the eligibility of the remaining literature in accordance with the title and abstract. The qualifying studies were subsequently presented in a flow chart in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, which were determined based on the criteria described in Table 3.

**Table 3:** Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
1. English-language texts	1. Other language texts
2. Published within 10 years (2015–2024)	2. Published before 2015
3. Examined the effects of MALL on listening and/or speaking performance.	3. Focused on language skills other than listening and speaking

4. Focused on college EFL learners	4. Involved participants other than college EFL learners
5. Empirical papers employing quantitative, qualitative, or mixed-methods research designs	5. Theoretical or conceptual papers without empirical data
6. Journal articles	6. Full text not attained or incomplete

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### **Charting the Data**

Zotero is applied in the process of reviewing titles and abstracts. And after conducting a full-text screening of the selected literature, the research team collaboratively identified the specific characteristics of the articles that should be extracted for the purpose of summary and analysis. The resulting literature matrix chart extracts the following research attributes: authors and publication year, location, aim, research design, sample size, duration, instruments, MALL intervention, key findings (effects on listening, effects on speaking, and perceptions of MALL), and recommendations. The first author independently extracts data from each article and charts it, while the senior author double-checks the extracted data and updates the chart form.

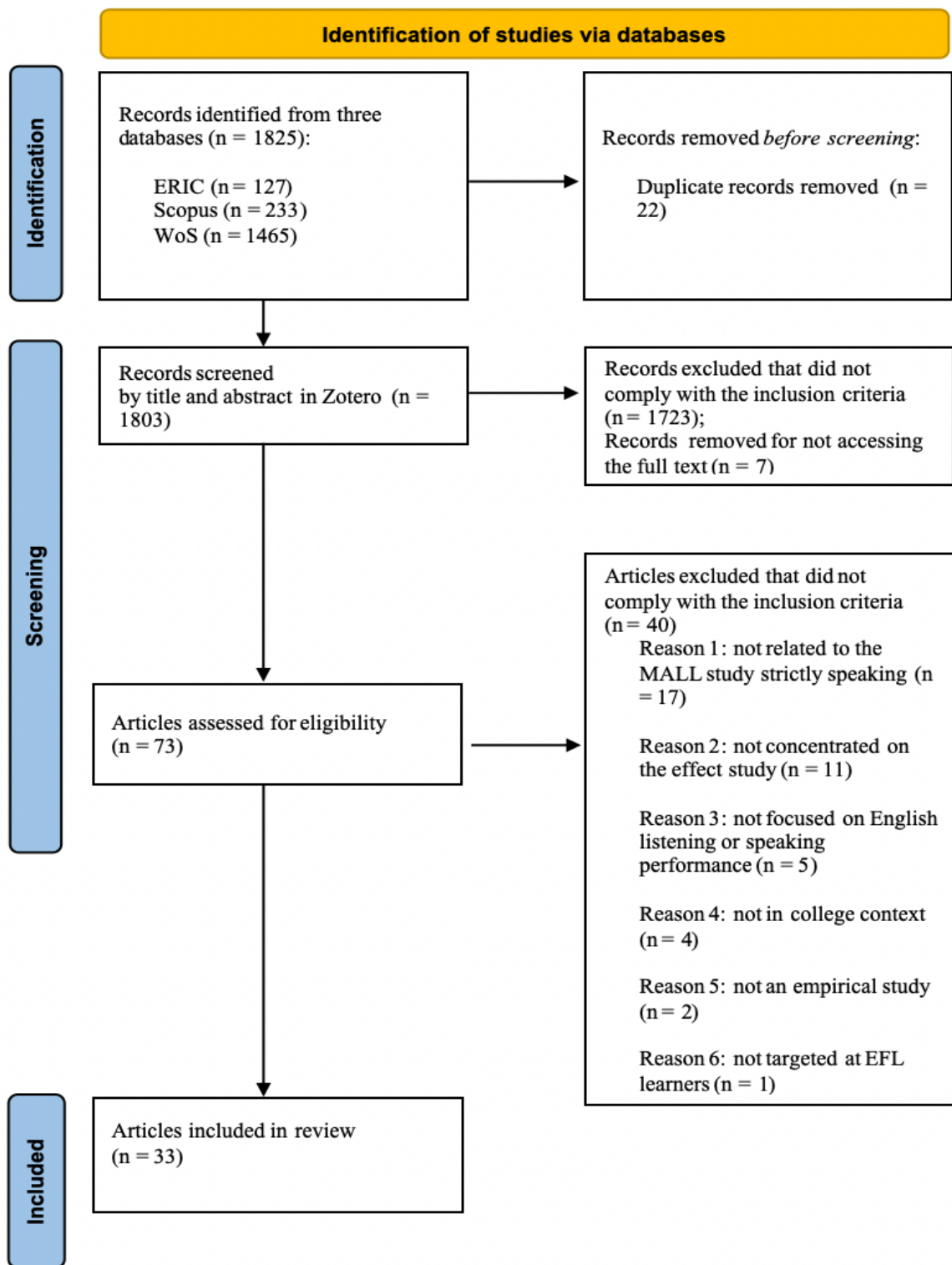
### **Collating, Summarizing, and Reporting the Results**

The extracted information is carefully assessed to verify that it aligns with the predetermined criteria for what should be included or excluded. Subsequently, information is transferred to the literature matrix for a subsequent evaluation conducted by the senior author. Once the data collection is finished, the researchers report the findings of the entire process to aid in the scoping review. The initial author subsequently uses inductive content analysis techniques to amalgamate significant discoveries into viable evidence-based suggestions. Later, the research team thoroughly examined and modified the coding of prospective evidence-based recommendations. They then further condensed and categorized the material, which was later organized into cohesive groups.

## **RESULT**

Through the search, 1825 citations were identified. As shown in Figure 2, 127 were found in ERIC, 233 were retrieved from Scopus, and 1465 were from WoS. After deleting 22 duplicates, 1803 citations remained for title and abstract screening. During this process, 105 from ERIC, 203 from Scopus, and 1415 from WoS, are removed for irrelevance. In the remaining 80 journal articles,  $n = 7$  cannot be accessed in full text.

The remaining 73 articles were ultimately evaluated by thoroughly reading the complete text to confirm their eligibility. A total of 40 were omitted for the following reasons: (a)  $n = 17$  was not related to MALL strictly speaking; (b)  $n = 11$  was not concentrated on the effect study; (c)  $n = 5$  was not focused on English listening or speaking performance; (d)  $n = 4$  was not in a college context; (e)  $n = 2$  was not an empirical study; (f)  $n = 1$  was not targeted at EFL learners.



**Figure 2:** Flow Diagram of Scoping Review  
Source: Primary data (adapted from Page et al., 2021)

The remaining 33 studies were incorporated into the qualitative synthesis and analysed in this scoping review, as seen in Table 4.

Table 4: Literature Matrix

Author s and publica tion year	Locatio n	Aim	Pedagogi cal theory and/or theoretic al framewor k	Research design	Sample Size	Duratio n	Instrumen ts	MALL Intervent ion	Effects on English Listening	Effects on English Speaking	Perceptions of MALL	Recommendations
Al-Jarf (2022)	Saudi Arabia	To investigate the impact of Text-To-Speech software on EFL freshman students' decoding skills and pronunciation accuracy	Not explicitly specified	Quasi-experimental design	86 (43 experimental group+45 control group)	12 weeks	pre-/post-tests and questionnaire	Text-To-Speech software NaturalReader	Not mentioned	Improvements in pronunciation accuracy	Positive attitudes towards using NaturalReader for self-study	Integrate Text-To-Speech software, like NaturalReader to enhance EFL students' reading and listening comprehension skills, pronunciation, vocabulary, and spelling.
AlSaleem (2018)	Jordan	To investigate the effect of utilizing Facebook activities on enhancing oral communication skills for EFL learners	Not explicitly specified	Quasi-experimental design	80 (40 experimental group+40 control group)	Not specified	questionnaire, observation checklist, oral communication skills rubric, pre-/post-tests	Facebook activities	Not mentioned	Statistically significant improvement in overall oral communication skills in the experimental group	Not mentioned	Utilize Facebook activities to improve various language skills, such as speaking, listening, and pronunciation.



Chang & Lan (2020)	Taiwan, China	To investigate the impact of integrating the LINE app into an EFL classroom on students' English-speaking performance and perceptions	Not explicitly specified	Mixed-methods research design	38	Two hours per week for 18 weeks	English-speaking pre-/post-tests, questionnaire and group interviews	LINE mobile app	Not mentioned	Significant improvement in students' speaking performance post-intervention, with higher engagement in LINE-based activities correlating with better performance	Positive impact on non-English majors' perceptions of the English-language learning environment, reduced anxiety about speaking English publicly, and enhanced confidence in speaking English	Pedagogical suggestions to effectively integrate LINE-integrated flipped-classroom instruction into EFL curricula
Chen (2022)	Taiwan, China	To examine the impact of incorporating STR app assignments into EFL oral training	Not explicitly specified	Action study	27	One semester	Pre- and post-tests, speaking practice results, field-observation notes, student reflective journals, and end of class survey	Speech-to-text recognition (STR) app	Not explicitly mentioned	Significant improvement in students' speaking ability	Students found STR app tasks highly motivating and engaging.	Develop a diverse array of STR tasks that cater to the unique preferences and requirements of individual learners.



Chien et al. (2020)	Taiwan, China	To examine the influence of YouTube videos on the listening comprehension of EFL college students	Not explicitly specified	Quasi-experimental design	38	5 weeks	pre-/post-tests and a questionnaire	YouTube videos	YouTube indeed improved students' English listening comprehension.	Not explicitly mentioned	Positive perceptions from students about the use of YouTube in class	Combining YouTube with traditional teaching methods for enhanced learning outcomes
Chitprapong (2024)	Thailand	To investigate the impact of MALL on the English listening skills of EFL accounting undergraduates	O'Malley and Chamot's language-acquisition strategies	Mixed-methods research design	46 (23 high proficiency, 23 low proficiency)	4 weeks	pre-/post-tests, a questionnaire, and a semi-structured interview	BBC Learning English, VoiceTube, Business English Pods, TED Talks	Significant improvement in listening abilities for both high- and low-proficiency learners after MALL intervention	Not mentioned	Participants found MALL flexible, convenient, and multimedia-rich, enhancing their comprehension and retention of linguistic content.	Explore long-term effects of MALL on language acquisition, specialized techniques for low-proficiency learners, the integration of metacognitive training into MALL, and cultural differences in MALL usage to enhance listening skills.
Derakhsan et al. (2024)	Iran	To explore the applicability of Virtual Realities (VRs) for general English and English for Medical Academic Purposes (EMAP) speaking and writing skills	Game-based learning theory	Quasi-experimental design	665 students for general English and 510 students for English for medical purposes	17 weeks	test	Multi-touch mobile VRs	Not mentioned	Significant improvement in communication skills through educational technology-based modules	Positive impact on language learning, especially in medical fields	Incorporate mobile VRs into language learning to enhance English skills, particularly in specialized fields like medicine.

Each & Suppasee (2021)	Cambodia	To examine the effects of Mobile-Blended Cooperative Learning (MBCL) on EFL students' listening comprehension and examine students' opinions on MBCL	Not explicitly specified	Mixed-methods research design	30	8 weeks	MBCL lesson plans, pre-/post-tests, a questionnaire, and a semi-structured interview	MBCL website	Improved listening comprehension	Not mentioned	Positive opinions on MBCL, a user-friendly website, convenience, fun, motivation, and skill improvement	Focus on teaching vocabulary, grammatical structures, and familiarizing students with different accents to enhance listening comprehension with MBCL.
Gavenila (2021)	Indonesia	To investigate the use of TED Talks for extensive listening with EFL students	Not explicitly specified	Mixed-methods research design	28 (9 male, 19 female)	Not explicitly specified	Questionnaires, EL journals, and in-depth interviews	TED lectures	Improvements in vocabulary acquisition, listening fluency, and comprehension	Not mentioned	Positive perceptions of using TED Talks for extensive listening practice	Teachers should compile a list of TED videos tailored to students' linguistic and affective needs for effective listening practice.
Gonulal (2022)	Turkey	To investigate the impact of extensive listening with podcasts and vodcasts on English listening skills	Not explicitly specified	Action research	49	One year	pre-/post-tests and questionnaire	English language podcasts and vodcasts, listening logs	Significant improvement in listening proficiency scores	Not explicitly mentioned	Positive student responses, with 88% enjoying the project and willing to continue using podcasts and vodcasts	Implement extensive listening projects with podcasts and vodcasts to improve listening skills in language teaching.

Hamad et al. (2019)	Saudi Arabia	To investigate the impacts of using YouTube videos and Audio Tracks Imitation (YATI) on improving the speaking skills of EFL learners	Not explicitly specified	Qualitative experimental study	48	One semester	Speaking tests analysed using SPSS Pearson correlation coefficient	YouTube videos and Audio Tracks Imitation (YATI)	Positive impact on listening comprehension	Improved speaking skills, fluency, and pronunciation	Positive attitudes towards podcasts and video-podcasts	Recommend the application of YATI approach to help students overcome speaking problems.
Huynh et al. (2022)	Vietnam	To investigate the effects of learner-generated material using ubiquitous photography on students' speaking performance in a foreign language	Cognitive load theory and generative learning theory	Experiential design	24	4 weeks	Questionnaires for psychological aspects, recordings of oral tasks	Learner-generated photos using mobile phones	Not mentioned	Improved speaking fluency and lexical diversity	Positive perceptions of learner-generated material and its impact on learning	Implement learner-generated material strategies in language education for improved speaking performance.
Jao et al. (2024)	Taiwan, China	To examine the influence of video dubbing on the English-speaking proficiency of college students	Cognitive apprenticeship	Quasi-experimental design with qualitative data analysis being supplementary	26	8-week remedial English course	GEPT speaking pre-/post-test scores, initial and final dubbing videos, learning logs, reflective essays	Video dubbing app Mofunshow	Improved through repeated listening, echoing, and imitating	Enhanced accuracy and fluency	Positive feedback on the usefulness of video dubbing	Conduct longitudinal studies, include control groups, explore different speaking patterns and genres, and error analysis in the future

Jia & Hew (2022)	Hong Kong, China	To investigate the impact of a dictation program supported by a mobile instant messaging app on learners' listening proficiency in EFL	Field's concept of lower-level processes	(Sequential Explanatory) Mixed methods research	70 (37 experimental group+33 control group)	One semester (Week 1 to Week 17)	pre-/post-tests and an open-question survey	WeChat dictation program	Significant improvement in listening proficiency in experimental group compared to control group	Not mentioned	Positive attitudes towards the WeChat dictation program	Further research with larger sample sizes, access to usage logs for deeper analysis, and replication with EFL students from different countries will enhance generalizability.
Kartal (2022)	Turkey	To evaluate the use of WhatsApp for large-class speaking instruction	Noticing hypothesis (Schmidt, 1990), socio-cultural theory (Vygotsky, 1978), and the self-determination theory (SDT)	Mixed methods research (design-based research)	99	2 weeks	Open-ended survey, individual, and focus-group interviews	WhatsApp	Positive impact through recording and listening to native speakers	Improved speaking skills through peer feedback and practice activities	Positive attitudes towards using WhatsApp for language learning	Implement mobile instant messaging tools like WhatsApp for speaking and pronunciation practice in language classes.
Kim (2022)	Korea	To investigate the effectiveness of AI-integrated MALL for TOEIC test preparation among Korean students	Not explicitly specified	Experimental research	486 (AI CALL 190+AI MALL 164+ control group 132)	One semester	pre-/post-tests	AI-integrated mobile applications	Increased TOEIC listening scores for both the AI MALL and AI CALL groups	Not mentioned	Not directly addressed in the study	Explore the effectiveness and practical use of AI mobile applications in L2 settings and conduct further research.

Lee (2019)	Taiwan, China	To investigate the integration of multimodal technologies with VARK strategies for learning and teaching EFL presentation	VARK model and technologies in a multimodal theory	Quasi-experimental research	50 (21 experimental group+29 control group)	18 weeks	pre-/post-tests and questionnaire	Technology-mediated VARK+ activities	Marginally significant progress	Improved presentation performance	Overwhelmingly positive about technology-supported multimodal activities but encountered challenges	Emphasize learner training in technology practices when integrating multimodal technologies into EFL speech education.
Li et al. (2015)	China	To examine the efficacy of an English public speaking course inspired by TED Talks in China	Not explicitly specified	Quasi-experimental research	150	One-semester	Questionnaire	TED	Improved listening abilities, vocabulary acquisition, and idea inspiration	Enhanced public speaking skills, including fluency, idea integration, and active participation	Positive feedback on self-motivated language input, note-taking, and imitation of TED speakers	Incorporate TED-inspired teaching methods, encourage self-motivated learning, and integrate notetaking in public speaking courses.
Menggo et al. (2023)	Indonesia	To investigate the effectiveness of using WhatsApp group video calls in enhancing English speaking skills	Not explicitly specified	Quasi-experimental research	119	Ten meetings	Pre-/post-tests, speaking rubric, Google Form questionnaire	WhatsApp group video calls	Not specified	Improved speaking competence and motivation	Positive perceptions of using WhatsApp for speaking practice	Further research is needed on the effectiveness of WhatsApp group video calls in non-speaking courses to enhance English language skills.

Mulyadi et al. (2023)	Indonesia	To investigate the effectiveness and practicality of a developed mobile learning application in enhancing EFL learners' listening comprehension	Not explicitly specified	Quasi-experimental research	86 (45 experimental group+41 control group)	12 meetings of EFL listening instruction	Pre-/post-tests, and questionnaire	A developed MLA (mobile learning application)	Improved listening comprehension	Not mentioned	Participants' perceptions of the mobile learning application	Enhance EFL learners' listening comprehension through mobile learning applications.
Nguyen et al. (2018)	Taiwan, China	To examine the effectiveness of EzTranslate in supporting EFL speaking through instant speech translation and shadowing in authentic contexts	Enactivism theory	Mixed-methods research design	80 (experiment 1); 36 (experiment 2)	One semester	Pre-/post-tests, and questionnaire (with open ended items)	EzTranslate mobile application, Google technologies	The speech translation feature is helpful for listening practice, but some noted issues with accuracy.	Students were motivated to speak more in authentic contexts, leading to the production of complex and richer speech.	Students appreciated the convenience and interactive nature of EzTranslate but raised concerns about accuracy and system stability.	Students suggested incorporating collaborative activities in the app to enhance learning and provide support for unfamiliar words during conversations.
Pratiwi & Waluyo (2023)	Indonesia	To examine the influence of digital technologies on autonomous learning in online English classrooms	Not explicitly specified	Quasi-experimental research	48	One year	TOEFL ITP standardized pre-/post-tests, and questionnaire	Google Form, Kahoot!, Socrative, Quizizz, and Quizlet.	Low effectiveness in improving scores	Not explicitly mentioned	Students' autonomy varied in listening, structure, and reading skills	Consider using alternative digital platforms for listening skills, such as YouTube videos, to enhance learning outcomes.

Suppasee et al. (2023)	Thailand	To examine the influence of an online personal learning environment on Thai EFL students' extensive listening skills	Personal learning environment, self-regulated learning theory, and student engagement model	Mixed-methods research design	30	2 weeks	Pre-questionnaire, post-questionnaire, and semi-structured interviews	Utilized Moodle as the online learning platform for extensive listening activities.	Significant levels of student involvement in behavioural, cognitive, and emotional dimensions	Not explicitly mentioned	Positive opinions towards the online PLE due to enjoyable learning experiences	Examine the provision of online Personal Learning Environments (PLEs) to facilitate students' self-regulated listening learning.
Suthiwartrarueng & Nutayanngkul (2022)	Thailand	To investigate the influence of using the Line app for English-speaking practice among Thai EFL students	Social constructivists' theory (Vygotsky, 1978)	Mixed-methods research design	95	4 weeks	Pre-/post-tests and interviews	LINE App	Not mentioned	Enhanced speaking proficiency, reduced errors	Moderate to good satisfaction among students	Utilize LINE App for after-class exercises to improve English skills
Tran et al. (2024)	Vietnam	To improve the speaking and listening abilities of EFL learners by engaging them in authentic online discussions using video conferencing capabilities	Not explicitly specified	Mixed-methods research design	42	Project cycles over multiple weeks	Self-reported surveys, feedback from participants, and observations	Video conferencing tools	Improvement in listening skills	Enhanced speaking skills, including fluency, intonation, stress, vocabulary, and grammar	Positive feedback on the effectiveness of the MALL approach	Implement regular online conversations with communicative tasks, involve researchers for informed project implementation, provide consistent supervision and evaluation, and maintain flexibility for adaptation and scalability.



Wang (2024)	Taiwan, China	To investigate the impact of applying podcasts and collaborative learning on freshmen's English communicative competence	Not explicitly specified	Quasi-experimental research	108	18 weeks	Pre-/post-tests and questionnaire	Podcasts from BBC Learning English, collaborative learning activities	Participants' English listening skills improved significantly.	Participants' English-speaking abilities showed noticeable enhancement.	Favourable dispositions towards acquiring knowledge through podcasts and cooperative tasks	Incorporate podcasts and collaborative learning strategies in English language teaching for improved outcomes.
Woldets adik et al. (2022)	Ethiopia	To examine the impact of mobile-based auditory oral skill sessions on the oral performance of EFL teacher trainees	Constructivism and comprehensible inputs (i+1)	Quasi-experimental research (Non-equivalent comparison-group quasi-experimental time series design, specifically employing an interrupted Time Series Design)	25	One semester	one-group-only quasi-experimental; pre-/post-tests	Moodle 3.0 app; mobile phones for aural contents and comprehension activities, oral discussions, and reflective feedback	Positive impact on listening skills	Improvement in speaking proficiency and vocabulary acquisition	Enhanced engagement and control in language learning	Utilize MALL to increase vocabulary, grammar knowledge, and overall language proficiency.

Yassin & Abugohar (2022)	Saudi Arabia	To investigate the impact of a MALL technique on holistic language proficiency, focusing on listening, vocabulary, and grammar skills among English Language Learners (ELLs)	Not explicitly specified	Quasi-experimental research	598	14 weeks, consisting of two cycles of seven weeks each	The Oxford Placement Test (OPT) was used as the instrument for pre-/post-tests assessments	Kahoot! and Quizizz	A statistically significant positive influence of using mobile apps on students' overall language proficiency, particularly in listening skills	not explicitly mentioned	not explicitly mentioned	integrating MALL techniques in formative assessment practices to enhance language proficiency among ELLs.
Yeh et al. (2021)	Taiwan, China	To examine the effects of podcast-making on college students' English-speaking skills in higher education	Metacognition	Mixed-methods research design	77 first-year non-English majors	6 weeks	TOEIC speaking pretest and post-test, podcast recordings, reflective essays	Podcast-making	Not mentioned	Improved speaking accuracy and fluency	Students documented the influence of podcast-making on their English-speaking performance.	Incorporate podcast-making activities to enhance English speaking skills in higher education settings.
Yeh et al. (2019)	Taiwan, China	To examine the influence of online peer feedback through blogs on English speaking performance	Social-constructivism and Vygotsky's zone of proximal development and scaffolding	Quasi-experimental research	45	18 weeks	General English Proficiency Test	video blogging	Not explicitly mentioned	Significant improvements especially in introduction, conclusion, and gesture/body	Positive perceptions of online peer feedback for enhancing public speaking performance	Explore the impact of more capable majors' feedback on less capable students, investigate the influence of posting transcripts on feedback quality, and conduct qualitative case analyses to document

			g							y language		individual student experiences with peer feedback through blogs.
Yucedal (2023)	Iraq	To investigate the effects of Google Play on students' pronunciation skills	Not explicitly specified	Mixed-methods research design	40	10 weeks	pre-/post-tests and qualitative interviews	Google Play applications (Learn English by Short Stories, Cambridge English Dictionary)	Not mentioned	Improved motivation towards reading and speaking; enhanced vocabulary skills; and phonemic awareness	Emphasized interaction, user-friendliness, and learning in and out of the class	Integrate technology systematically, expand the study to include other application stores, such as Apple App Store and Amazon App Store
Zheng & Barrot (2022)	China	To examine the effects of applying social media as an e-portfolio platform on L2 English learners' speaking performance	Social constructivist theory and the Decomposed Theory of Planned Behavior (DTPB) by Taylor and Todd	Quasi-experimental research	45 (23 experimental group+22 control group)	16 weeks	pre-/post-tests and questionnaire	QQ social media platform	Not mentioned	Experimental group outperformed the control group in terms of language quantity and lexical richness	Not mentioned	Emphasize systematic training for students and teachers, consider using social media beyond high-profile platforms, address implementation challenges, and expand research to include teachers' perspectives on using MALL platforms

Zou et al. (2023)	China	To examine how interactions on social networks affect the practice of oral English by EFL learners using AI speaking apps	Not explicitly specified	Mixed-methods research design	70 undergraduates (35 EG, 35 CG)	5 weeks	Pre-and post-tests, questionnaires, and semi-structured interviews	AI speaking apps (a. English Liulishuo; b. IELTS; c. Liulishuo; d. EAP Talk; e. Yidian English)	Not mentioned	Improvements in oral fluency, grammatical range and accuracy, pronunciation, oral rhythm, idea organization, reading aloud, and presentation skills	Communication in the WeChat group is helpful for the learning process, with daily reminders and additional learning materials.	Future improvements in interactive learning activities with AI-assisted oral English learning, emphasizing student interactions and supplementary materials
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## **Distribution of Research on the Effects of MALL on College EFL Learners' ELS Performance**

Studies investigating the impact of MALL on the ELS performance of college EFL students have been distributed across various countries and years. From 2015 to 2018, two studies were conducted in China (Li et al., 2015; Nguyen et al., 2018), while one in Jordan (AlSaleem, 2018). Since 2019, there has been a significant and quick increase in the number of studies that are pertinent to the topic. From 2019 to 2024, the highest number of studies distributed by country was conducted in China (Chang & Lan, 2020; Chen, 2022; Chien et al., 2020; Jao et al., 2024; Jia & Hew, 2022; Lee, 2019; Wang, 2024; Yeh et al., 2021; Yeh et al., 2019; Zheng & Barrot, 2022; Zou et al., 2023), with  $n = 11$ , followed by Indonesia with  $n = 4$  studies on the impact of MALL on college EFL students' English listening or speaking performance (Gavenila, 2021; Menggo et al., 2023; Mulyadi et al., 2023; Pratiwi & Waluyo, 2023). Additionally, a total of  $n = 3$  relevant studies were identified in Saudi Arabia (Al-Jarf, 2022; Hamad et al., 2019; Yassin & Abugohar, 2022) and Thailand (Chitprarop, 2024; Suppatsereee et al., 2023; Suthiwartnarueput & Nutayangkul, 2022), respectively. Meanwhile, a total of  $n = 2$  studies were implemented in Turkey (Gonulal, 2022; Kartal, 2022) and Vietnam (Huynh et al., 2022; Tran et al., 2024), respectively. Five countries, namely Iran (Derakhshan et al., 2024), Cambodia (Each & Suppatsereee, 2021), Korea (Kim, 2022), Ethiopia (Woldetsadik et al., 2022), and Iraq (Yucedal, 2023), had been recorded with one study each.

## **Purposes of Conducting Research Related to the Effects of MALL on College EFL Learners' ELS Performance**

The research included and analysed in the scoping review serves multiple purposes. The primary purpose of  $n = 29$  studies was to assess the effects of specific MALL interventions in enhancing English listening performance (Chien et al., 2020; Chitprarop, 2024; Gavenila, 2021; Gonulal, 2022; Jia & Hew, 2022; Mulyadi et al., 2023; Suppatsereee et al., 2023; Yassin & Abugohar, 2022), speaking performance (Al-Jarf, 2022; AlSaleem, 2018; Chang & Lan, 2020; Chen, 2022; Derakhshan et al., 2024; Hamad et al., 2019; Huynh et al., 2022; Jao et al., 2024; Kartal, 2022; Li et al., 2015; Menggo et al., 2023; Nguyen et al., 2018; Wang, 2024; Woldetsadik et al., 2022; Yeh et al., 2021; Yeh et al., 2019; Yucedal, 2023; Zheng & Barrot, 2022; Zou et al., 2023), or both (Suthiwartnarueput & Nutayangkul, 2022; Tran et al., 2024). Besides, all the studies were conducted to examine learners' attitudes or perceptions towards MALL, except the  $n = 4$  studies (AlSaleem, 2018; Kim, 2022; Yassin & Abugohar, 2022; Zheng & Barrot, 2022). Additionally,  $n = 4$  studies focused on exploring the integration of MALL and other teaching approaches, tools, or environments to improve language skills (Each & Suppatsereee, 2021; Kim, 2022; Lee, 2019; Pratiwi & Waluyo, 2023).

## **Pedagogical Theories and/or Theoretical Frameworks Adopted in Studies Related to the Effects of MALL on College EFL Learners' ELS Performance**

Regarding the pedagogical theories or theoretical frameworks adopted in the MALL-related research, notable variations were observed across the studies. Explicitly mentioned theories within the scoping review studies include O'Malley and Chamot's Language-Acquisition Strategies (Chitprarop, 2024), Game-Based Learning Theory (Derakhshan et al., 2024), Cognitive Load Theory and Generative Learning Theory (Huynh et al., 2022), Cognitive Apprenticeship (Jao et al., 2024), Field's Concept Of Lower-Level Processes (Jia & Hew, 2022), Noticing Hypothesis, Sociocultural Theory, and the Self-Determination Theory (Kartal, 2022), VARK Model integrated with Multimodal Theory (Lee, 2019), Enactivism Theory (Nguyen et al., 2018), Personal Learning Environment, Self-Regulated Learning Theory, and Student Engagement Model (Suppatsereee et al., 2023), Social Constructivist Theory (Suthiwartnarueput & Nutayangkul, 2022; Yeh et al., 2019; Zheng & Barrot, 2022),

Constructivism and Comprehensible Input Theory (Woldetsadik et al., 2022), Metacognition (Yeh et al., 2021), Vygotsky's Zone Of Proximal Development and Scaffolding (Yeh et al., 2019) and the Decomposed Theory Of Planned Behavior (Zheng & Barrot, 2022).

For those articles not clearly articulating the pedagogical theories or theoretical frameworks, there were also underlying theories supporting the research design, among which Constructivism had the highest frequency (Gavenila, 2021; Chang, 2021; Li et al., 2015; Menggo et al., 2023; Mulyadi et al., 2023; Pratiwi & Waluyo, 2023; Wang, 2024; Zou et al., 2023), followed by Multimedia Learning Theory (Chang, 2021; Chien et al., 2020; Each & Suppasetsee, 2021; Gonulal, 2022; Mulyadi et al., 2023; Yucedal, 2023) and Communicative Language Teaching (Gavenila, 2021; Chang, 2021; Li et al., 2015; Menggo et al., 2023; Zou et al., 2023). Besides,  $n = 2$  studies were underpinned by Affective Filter Hypothesis (Li et al., 2015; Menggo et al., 2023), Input Theory (Li et al., 2015; Gonulal, 2022), and Task-Based Language Teaching (Li et al., 2015; Tran et al., 2024), respectively. Moreover,  $n = 1$  study was grounded in Social Constructivism (AlSaleem, 2018), Flipped Classroom Model (Chang, 2021), Blended Learning (Each & Suppasetsee, 2021), Cooperative Learning (Each & Suppasetsee, 2021), Output Hypothesis (Li et al., 2015), Cognitive Load Theory (Mulyadi et al., 2023), Autonomous Learning (Pratiwi & Waluyo, 2023), and Interaction Hypothesis (Tran et al., 2024) individually.

### **Research Designs Applied in Studies Related to the Effects of MALL on College EFL Learners' ELS Performance**

The research designs of the 33 studies varied, with a strong preference for quasi-experimental or experimental research designs and mixed-methods research designs. Quasi-experimental or experimental research designs were utilized in the majority of studies (Al-Jarf, 2022; AlSaleem, 2018; Chien et al., 2020; Derakhshan et al., 2024; Huynh et al., 2022; Jao et al., 2024; Kim, 2022; Lee, 2019; Li et al., 2015; Menggo et al., 2023; Mulyadi et al., 2023; Pratiwi & Waluyo, 2023; Wang, 2024; Woldetsadik et al., 2022; Yassin & Abugohar, 2022; Yeh et al., 2019; Zheng & Barrot, 2022), with  $n = 17$  studies, which often used pre- and post-tests to investigate the effects of MALL. While  $n = 13$  studies were identified to apply mixed-methods research design (Chang & Lan, 2020; Chitprarop, 2024; Each & Suppasetsee, 2021; Gavenila, 2021; Jia & Hew, 2022; Kartal, 2022; Nguyen et al., 2018; Suppasetsee et al., 2023; Suthiwartnarueput & Nutayangkul, 2022; Tran et al., 2024; Yeh et al., 2021; Yucedal, 2023; Zou et al., 2023), integrating both quantitative and qualitative data, for instance, interviews, to examine the effects of MALL and the perceptions towards MALL. The remaining studies were conducted by action research design (Chen, 2022; Gonulal, 2022) and qualitative design (Hamad et al., 2019). Despite similarities in instruments, these studies vary in sample sizes and durations. Regarding the sample sizes, the number of participants ranges from 24 participants (Huynh et al., 2022) to larger groups of over 500 students (Yassin & Abugohar, 2022). Durations also display prominent differences, from two weeks (Kartal, 2022; Suppasetsee et al., 2023) to one year (Gonulal, 2022; Pratiwi & Waluyo, 2023).

### **MALL Elements Used in Past Research**

Concerning the MALL elements in the eligible research articles for this scoping review, multiple MALL applications are introduced, including general categories such as social software, audio learning tools, and video learning tools, as well as specialized ones including mobile applications and AR, educational platforms, and specialized learning tools. First, a total of  $n = 7$  studies were involved in social software MALL, like Facebook (AlSaleem, 2018), LINE (Chang & Lan, 2020; Suthiwartnarueput & Nutayangkul, 2022), WeChat (Jia & Hew, 2022), WhatsApp (Kartal, 2022; Menggo et al., 2023) and QQ (Zheng & Barrot, 2022). Another  $n = 6$  studies were conducted with audio learning tools such as TTS software NaturalReader (Al-Jarf, 2022), Business English Pods (Chitprarop, 2024), podcasts (Gonulal, 2022; Wang,

2024; Yeh et al., 2021), and vodcasts (Gonulal, 2022). While a total of  $n = 9$  studies used video learning tools to facilitate the listening and speaking abilities of EFL learners, these studies included YouTube (Chien et al., 2020; Hamad et al., 2019), TED Talks (Chitprarop, 2024; Gavenila, 2021; Li et al., 2015), BBC Learning English (Chitprarop, 2024), VoiceTube (Chitprarop, 2024), video conferencing tools (Tran et al., 2024), and video blogging (Yeh et al., 2019).

Additionally, regarding the specialized MALL elements, a total of 4 studies were investigated based on mobile applications and VR, involving the STR app (Chen, 2022), multi-touch mobile VRs (Derakhshan et al., 2024), developed MLA (Mulyadi et al., 2023), and YATI (Hamad et al., 2019). Furthermore,  $n = 6$  studies applied eight educational platforms encompassing the MBCL website (Each & Suppasetserree, 2021), EzTranslate (Nguyen et al., 2018), Google Form (Pratiwi & Waluyo, 2023), Kahoot! (Pratiwi & Waluyo, 2023; Yassin & Abugohar, 2022), Socrative (Pratiwi & Waluyo, 2023), Quizizz (Pratiwi & Waluyo, 2023), Quizlet (Pratiwi & Waluyo, 2023; Yassin & Abugohar, 2022), and Moodle (Suppasetserree et al., 2023; Woldetsadik et al., 2022). Another  $n = 7$  studies were connected to specialized learning tools, consisting of learner-generated photos (Huynh et al., 2022), Mofunshow (Jao et al., 2024), technology-mediated VARK+ (Lee, 2019), AI-integrated mobile applications (Kim, 2022), Short Stories (Yucedal, 2023), Cambridge English Dictionary (Yucedal, 2023), and AI-speaking apps (English Liulishuo, IELTS Liulishuo, EAP Talk, Yidian English) (Zou et al., 2023).

### **Current Findings on the Effects of MALL on College EFL Learners' ELS Performance**

The findings from the 33 studies on the effects of MALL on college EFL learners' ELS performance highlight several key outcomes. Firstly, quite a few studies,  $n = 10$ , found significant improvements in listening skills among learners using MALL applications (Chien et al., 2020; Chitprarop, 2024; Gavenila, 2021; Gonulal, 2022; Jia & Hew, 2022; Mulyadi et al., 2023; Suppasetserree et al., 2023; Suthiwartnarueput & Nutayangkul, 2022; Tran et al., 2024; Yassin & Abugohar, 2022). Similarly, 21 studies reported enhanced speaking abilities as a result of MALL usage (Al-Jarf, 2022; AlSaleem, 2018; Chang & Lan, 2020; Chen, 2022; Derakhshan et al., 2024; Hamad et al., 2019; Huynh et al., 2022; Jao et al., 2024; Kartal, 2022; Li et al., 2015; Menggo et al., 2023; Nguyen et al., 2018; Suthiwartnarueput & Nutayangkul, 2022; Tran et al., 2024; Wang, 2024; Woldetsadik et al., 2022; Yeh et al., 2021; Yeh et al., 2019; Yucedal, 2023; Zheng & Barrot, 2022; Zou et al., 2023).

Additionally, concerning the attitudes towards MALL,  $n = 28$  studies showed positive learner attitudes towards MALL, suggesting that mobile technologies are well-received in educational contexts (Al-Jarf, 2022; Chang & Lan, 2020; Chen, 2022; Chien et al., 2020; Chitprarop, 2024; Derakhshan et al., 2024; Each & Suppasetserree, 2021; Gavenila, 2021; Gonulal, 2022; Hamad et al., 2019; Huynh et al., 2022; Jao et al., 2024; Jia & Hew, 2022; Kartal, 2022; Lee, 2019; Li et al., 2015; Menggo et al., 2023; Mulyadi et al., 2023; Nguyen et al., 2018; Suppasetserree et al., 2023; Suthiwartnarueput & Nutayangkul, 2022; Tran et al., 2024; Wang, 2024; Woldetsadik et al., 2022; Yeh et al., 2021; Yeh et al., 2019; Yucedal, 2023; Zou et al., 2023). Finally,  $n = 3$  studies highlighted improved language skills through the integration of MALL and other teaching approaches or tools in language learning (Each & Suppasetserree, 2021; Kim, 2022; Lee, 2019). However, the  $n = 1$  study indicated low effects in the process of



improving scores (Pratiwi & Waluyo, 2023).

## **DISCUSSION**

It is suggested in the scoping review that MALL has a positive impact on college EFL learners' ELS performance generally. Multiple research approaches were adopted, ranging from quasi-experiment research to mixed-methods design. It is demonstrated from most of the studies that MALL can facilitate ELS competence significantly. Meanwhile, positive effects can be observed in different geographical areas and educational contexts, with the enhancement of learners' listening and speaking abilities, demonstrating the popularity and reliability of MALL as an English learning tool.

### **MALL's Positive Effects on College EFL Learners' Listening Performance**

It has been found that MALL's positive effects on listening include listening comprehension, listening fluency, and vocabulary acquisition and recognition.

Firstly, MALL has demonstrated significant effects in improving learners' listening comprehension. Studies by Chien et al. (2020) and Each & Suppasetsee (2021) highlight that digital tools enhance learners' ability to understand spoken language in various contexts. Hamad et al. (2019) and Mulyadi et al. (2023) further emphasize the role of MALL in fostering comprehension by providing diverse audio resources and interactive tasks. Gavenila (2021) also notes how MALL encourages active listening practices, improving comprehension over time.

Secondly, listening fluency, which refers to the ability to process spoken language efficiently, is another area improved through MALL. Gavenila (2021) found that regular exposure to multimedia materials in MALL settings contributes to better automaticity in listening, thus helping learners respond more quickly and accurately.

Furthermore, MALL facilitates vocabulary acquisition and recognition by exposing learners to new words in real-life contexts presented through vivid images or videos. MALL enables learners to infer the meanings of new words in context with greater speed and accuracy. Gavenila (2021) and Li et al. (2015) report that listening to authentic audio materials helps learners expand their vocabulary and internalize word meanings more effectively.

### **MALL's Positive Effects on College EFL Learners' Speaking Performance**

The positive effects of MALL on speaking involve multiple areas, including pronunciation, fluency, lexical richness, speech production, and skills of presentation and communication.

In terms of pronunciation, MALL helps learners refine their pronunciation accuracy through speech recognition tools and real-time feedback. Al-Jarf (2022), Hamad et al. (2019), Jao et al. (2024), and Yeh et al. (2021) explain how interactive pronunciation exercises help learners practice and perfect their articulation of sounds, resulting in clearer communication. Besides, MALL supports the development of intonation, stress, and rhythm in speech. Tran et al. (2024) and Zou et al. (2023) found that digital tools featuring native speaker models and guided practice help learners adopt natural speaking patterns, improving their overall delivery.

Regarding speaking fluency, MALL has been found to improve speaking skills and promote constant practice in conversational contexts. Studies by Hamad et al. (2019), Huynh

et al. (2022), Li et al. (2015), Jao et al. (2024), and Tran et al. (2024) show how mobile platforms enable learners to acquire smooth and uninterrupted speech in real time. Furthermore, Zou et al. (2023) and Yeh et al. (2021) observe that MALL improves fluency by incorporating grammar practice into speaking exercises, and the learners can construct grammatically correct sentences easily and fluently.

Concerning lexical richness, MALL promotes lexical richness due to learners' exposure to a variety of language inputs and encouraging active usage. Huynh et al. (2022) observed that learners using MALL tools significantly increased their vocabulary diversity and word usage frequency, contributing to more sophisticated expressions.

With respect to speech production, Nguyen et al. (2018) found that MALL facilitates the production of more complex speech by providing learners with opportunities to use advanced vocabularies and structures in speaking tasks. MALL also help reduce grammatical and pronunciation errors. Suthiwartnarueput & Nutayangkul (2022) stress the importance of corrective feedback in reducing mistakes and fostering confidence.

In relation to skills of presentation and communication, MALL supports learners in developing essential presentation skills. Lee (2019) shows that learners improve their delivery, timing, and audience engagement through simulated presentation tasks. In addition, Yeh et al. (2019) report that MALL enhances learners' ability to structure their ideas and use appropriate body language, contributing to more impactful presentations. Moreover, Zou et al. (2023) found that AI contexts and guided reading activities in MALL improve learners' reading aloud abilities, which directly translates into better presentation skills.

### **Limitations in Past Studies**

However, results vary considerably due to different study designs. These differences are related to the duration of the intervention, the sample size, the instruments, and the specific MALL applications used. For example, some studies have conducted short-term interventions that have lasted only a few weeks (Kartal, 2022; Supasetsee et al., 2023), while others have conducted long-term studies for several months to a year (Gonulal, 2022; Pratiwi & Waluyo, 2023). Similarly, the sample size varies from small groups of less than 30 people to large groups of more than 500 people. This diversity highlights the need for standardization in future research. Establishing consistent criteria for intervention duration, sample size, and tools would facilitate more reliable comparisons between cross-studies and a more consistent understanding of the impact of MALL.

Moreover, while most studies show that MALL plays a positive role in EFL listening and speaking learning, a few studies did not achieve the expected outcomes (Pratiwi & Waluyo, 2023). Researchers suggest "considering alternative digital platforms for listening skills, such as YouTube videos, to enhance learning outcomes." This indicates that in specific teaching practices, it is necessary to review and select appropriate MALL tools, and the effects of different types of MALL elements may require comparative studies.

The review also noted that while some literature mentioned specific items of listening performance, such as lexical recognition, accent recognition, speech speed adaptation, content retention (Gavenila, 2021), and speaking performance, such as fluidity, intonation, accent, vocabulary use, and grammatical accuracy (Tran et al., 2024), few documents have been devoted to the systematic and step-by-step evaluation of the results of the final report, and the

discussion section. Therefore, future research into MALL's effects should focus more on specific items of listening and speaking performance to provide more comprehensive and effective recommendations for MALL-based ELS learning.

### **Research Implications**

It is indicated from the current result analysis that Constructivism is the most commonly used pedagogical theory and theoretical framework in the MALL study. Constructivism, widely employed in research on integrating mobile technologies and language learning, attaches the importance of learners' active engagement and social interaction, providing a solid foundation for MALL study. However, two critical problems concerning theoretical guidance are revealed. Firstly, some MALL-related studies lack explicit theoretical foundations, which may affect their universality and reproducibility. It is demonstrated that the introduction of a clear pedagogical theory or theoretical framework should be emphasized in the future. Secondly, usually, the application of a single theory in a MALL study can limit the breadth and depth of the result. Therefore, future research should consider integrating multiple theories to construct a more comprehensive and practical theoretical framework and to examine the diverse dimensions of MALL learning.

### **Practical Significance**

The findings of this scoping review have practical significance for educators, policymakers, and technology developers. For educators, the positive impact of MALL demonstrates that incorporating mobile technology into language learning can enhance EFL learners' listening and speaking performance. Integration of various MALL elements into listening and speaking teaching practices should be considered for the innovation of traditional classroom teaching.

Policymakers should acknowledge the potential of mobile technology to enhance language education and support programs that promote the incorporation of mobile technology in educational institutions. Providing funds for related studies, the development of MALL applications, and training programs for instructors to improve their competency in using these tools would be crucial and beneficial.

Technology developers should prioritize designing MALL elements that are both user-friendly and pedagogically sound, as emphasized in this review. Developers should engage in collaboration with language educators to create applications that are both engaging and interactive while also conforming to educational objectives and standards.

### **Future Research Directions**

Subsequent research should focus on the development of standardized study procedures, including intervention duration, sample sizes, and instruments, which will improve the accuracy and reliability of comparisons among studies. Additionally, it is critical to explore and examine the effects of various MALL elements to improve the effectiveness of the learning process. Finally, it is necessary to evaluate the effects of MALL elements on specific items of ELS performance to provide more comprehensive and effective recommendations.

## **CONCLUSION**

This scoping review sheds important light on how MALL affects college EFL students' speaking and listening abilities. It has been shown that MALL has significant potential for improving students' speaking and listening skills through an extensive review of existing research. These findings indicate that mobile technology has the capacity to enhance these skills using adaptable learning methods and customized learning experiences. More

specifically, MALL offers the convenience of learning at any time and from any location, engaging learning materials, and tailored learning environments that cater to individual learner needs. These factors greatly enhance language learning results. However, despite the positive findings highlighted by recent studies, there are still multiple topics that need to be investigated in more depth. There are certain gaps in the research that need to be addressed. These gaps are related to the impact of various MALL applications on listening and speaking skills, as well as the effects of MALL in improving specific aspects of listening and speaking performance. It is important for future research to examine these aspects to gain a more comprehensive understanding of the impact of MALL on language learning.

In conclusion, by continually exploring and refining the use of mobile technology in language education, more effective and engaging learning experiences for English learners are created, thereby improving their listening and speaking skills. This ongoing process requires continuous effort to fully realize the potential of mobile technology in advancing language education.

## ACKNOWLEDGEMENTS

The authors acknowledge Universiti Malaysia Sarawak (UNIMAS) for the financial support.

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