

## PAPER

# A Systemic Review (2014–2023) on the Mobile-Assisted Blended Learning for English as a Foreign Language Education with a Focus on Empirical Studies

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## ABSTRACT

Over the past two decades, due to the rapid development of information and communication technologies (ICT), mobile learning (M-learning) and blended learning (BL) have emerged as new trends in sustaining English as a foreign language (EFL) education. The tumultuous COVID-19 pandemic has disrupted traditional teaching and learning, but it has also accelerated the integration of technology in EFL education. Mobile-assisted blended learning (MABL) combines mobile-assisted language learning (MALL) and BL into a single framework that effectively addresses their individual limitations when used in isolation. However, reviews of MABL, particularly in the context of EFL education, are scarce. Sourced from two major databases, namely Web of Science and Scopus, and two supplementary databases (Education Resources Information Center and Mendeley), 25 studies were extracted out of 205 in the latest decade, using specific exclusion and inclusion criteria. This review aims to shed light on the trend of utilizing advanced and effective pedagogy and teaching tools to benefit stakeholders in the sustainable development of English as a foreign language.

## KEYWORDS

mobile learning, blended learning (BL), mobile-assisted blended learning (MABL), English as a foreign language (EFL)

## 1 INTRODUCTION

Language is a manifestation of social communication needs and practices [1]. The ultimate objective of acquiring a foreign language is to communicate effectively with it. This communicative ability involves the capacity to receive information accurately and convey it proficiently [2]. With the substantial development of technology, mobile learning (M-learning) and blended learning (BL)

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have increasingly become two trendy methods in education [3–6]. The COVID-19 pandemic has further increased their popularity and significance, as they can be used to tackle the challenges that have emerged in the field of education during this period [6, 7]. In addition, the advancement of information and communication technology (ICT) and the integration of intelligence into mobile devices have resulted in an increasing number of people becoming familiar with using portable devices such as smartphones and tablets for online connectivity. This has led to the development of mobile-assisted blended learning (MABL). MABL undeniably constitutes an important means of promoting the sustainability of education, owing to its pedagogical benefits. It combines two methods that have the potential to transcend multiple contexts and create a seamless and continuous learning environment for learners [8]. This generates many opportunities for lifelong learning and ultimately enhances the quality and equity of education [9, 10].

In the realm of English as a foreign language (EFL) education, mobile-assisted language learning (MALL) has emerged as a noteworthy pedagogical approach within the broader field of M-learning. MALL offers the critical advantage of providing access to language learning resources that are placeless and timeless [9]. It also harnesses the flexibility and portability of mobile devices to accommodate learners' diverse language learning contexts [10, 11]. Previous research indicates that studies on MALL encompass a wide range of topics in the field of EFL education. These topics include, but are not limited to, language skills acquisition, the learning process, learners' acceptance, and perceptions of technology [12, 13]. Many of these studies have reported positive results [14–18]. Despite the ubiquitous benefits of MALL, it exposes students to limited supervision and surveillance [19], particularly in extra-curricular settings, and significantly increases their susceptibility to distractions during the learning process [20].

The rapid development of ICT has led to a significant increase in the use of BL in the field of EFL education. It thoughtfully and systematically integrates face-to-face learning and internet-based learning [21–23] to provide a significant amount of language exposure to the target language [24]. As a result, it has been regarded as the “new traditional model” or the “new normal” for modern educational environments [25]. The advantages of adopting BL in EFL education go beyond the improvement of fundamental language competencies [26–31]. It also enhances learning motivation and engagement [31, 32]. However, BL is somewhat constrained by the fact that it must either use a desktop or a non-portable device for network connectivity [33]. Fortunately, this deficiency could be compensated for by the mobility and accessibility of MALL, allowing for language learning to take place anywhere and at any time.

The term MABL, which was officially introduced by [34] in 2018, suggests an efficient combination of MALL and BL to create a more up-to-date, lifelong, and sustainable learning environment [35]. In fact, early on, many educators began to recognize the value of integrating these two methods within the scope of ELE [35–37] and expressed positive attitudes and high expectations towards it. Moreover, over the last decade, mobile phones have become increasingly “smarter” due to their association with state-of-the-art technologies, functions, and new communication protocols such as 4G/5G and Wi-Fi. Besides, the previous reviews focused primarily on MALL [12, 38–41] and BL [42–45] as distinct approaches in EFL education, without highlighting their connections to sustainable learning concepts. However, as a pedagogical method, MABL is closely aligned with SDG 4, which aims to ensure

inclusive and equitable quality education and promote lifelong learning opportunities for all [46]. Thereby, a gap is left that highlights the need for a systematic review of the recent and reliable empirical data to elucidate the developmental trends of the MABL method in sustainable EFL learning. The following research questions (RQs) will be addressed:

- RQ1: In the reviewed literature, at which educational levels was the application of MABL contextualized in the EFL context?
- RQ2: Which language skills are MABL applied to the reviewed literature, and what are the results?
- RQ3: What is the distribution of education levels across different platforms or applications?

## 2 LITERATURE REVIEW

### 2.1 MALL and BL in EFL

There has been a transformation in how we live, learn, and communicate, propelled by advancements in mobile technology, information technology, and wireless networks. The emergence of portable and user-friendly mobile devices, such as smartphones and tablets, offers language learners a more flexible, interactive, socially authentic, and multidimensional language learning environment [9, 47]. As its name implies, research exploring the linguistic learning achievements or progress resulting from MALL activities constitutes the most frequently studied area. [11] describes the development and effectiveness of a mobile-assisted, synchronously collaborative translation annotation system for EFL reading comprehension. Findings reported enhancements in students' reading comprehension skills and identified the ideal size of each user group to maximize the system's effectiveness. A study by [15] investigated the effectiveness of a mobile game-based learning environment in improving students' listening and speaking skills. The results indicated that the mobile game had a positive impact on learners' listening and speaking skills. Likewise, [16] evaluated the use of the Google Translate mobile application to enhance the English pronunciation of college students from remote areas in Thailand. After a six-week study, there has been a noticeable improvement in the pronunciation of difficult words.

Through careful and thoughtful design, employing the blended learning (BL) approach in EFL education has also been proven to be effective. This approach extends the traditional face-to-face learning experience to an online, off-class learning setting [26–32]. [27] conducted a study to assess the effectiveness of the BL method in improving English-speaking proficiency. The result was that students' speaking skills improved due to having more time and access to acquire and practice them. A similar conclusion has been reached in [32], which states that exposing tertiary-level students to BL activities has a positive impact on their speaking and listening skills. In studies [28–30], researchers have found that BL instruction yields positive results in terms of overall reading comprehension and reading-related subskills such as scanning, skimming, and grammar. Furthermore, researchers [26] have measured the potential of the BL approach to enhance the development of all four language learning skills (i.e., listening, speaking, reading, and writing) simultaneously in an English for specific purposes (ESP) class.

Researchers ultimately documented the direct beneficial improvement of BL on four English language skills.

In addition to linguistic achievements, MALL and BL have also been shown to positively influence certain affective factors of participants in the process of learning EFL [14, 17, 18, 26–28, 31, 32, 48]. The outcomes of these studies have demonstrated that motivation, engagement, and satisfaction are increased when introducing two technology-assisted methods, resulting in a positive impact on EFL learning outcomes. Therefore, it is practical and feasible to utilize the various functions and applications of MALL and BL for EFL education.

## 2.2 Reviews on MALL and BL in EFL

In previous reviews on MALL and BL in EFL education, researchers generally do not synthesize these two methods separately. Taking [38] as an example, this study examined the popular theoretical frameworks of collaborative MALL and explored its benefits in language learning. It also attempted to clarify the strengths and weaknesses of previous research designs and their potential impact on future practices. The results mainly indicate that the collaborative MALL approach has several authenticated pedagogical benefits. These include fostering collaborative learning among learners, personalizing learning experiences, enhancing linguistic skills, and increasing motivation and autonomy. Meanwhile, a systematic review conducted by [39] revealed that higher education institutions in Malaysia mostly adopted MALL to enhance learners' English acquisition and performance. Thus, it was suggested to broaden the research scope and include more participants in order to deepen the understanding of later MALL practices. Likewise, the authors of [12] have reviewed empirical studies on MALL in China and reported that while the positive impact of MALL on language proficiency has been widely recognized, it is important to acknowledge that this effect may not be consistent for all students. Certain challenges have been identified, and there is a research gap in the study of higher-order cognitive skills or abilities.

As for the reviews of BL, [40] has identified three themes of findings, namely the benefits, challenges, implications, and suggestions. Even though 70% of the analyzed studies have produced beneficial results regarding BL in EFL education, it is still worth noting that teachers' unfamiliarity with this new approach and inappropriate role transitions are fundamental challenges in BL curriculum design. Similarly, the results of [41], while portraying both the academic and social benefits of BL, highlight the need for further literature examining the challenges faced by language teachers when implementing it. While acknowledging the benefits of blended learning in enabling students to become more autonomous and engaged in EFL learning, [42] emphasizes the possible challenges that institutions, students, and instructors may face during the implementation process.

Although some researchers have been aware that web connectivity is no longer restricted to fixed locations and is becoming mobile and have gradually introduced the combination of MALL and BL in EFL contexts, these attempts are still in the preliminary stage. As a result, there are currently very few or no reviews available on the relevant aspects. Therefore, to address this gap, ensure the progress and sustainability of MABL, and keep future practitioners informed and knowledgeable about the latest research findings, the present study aims to provide some valuable insights on practical considerations.

### 3 MATERIALS AND METHODS

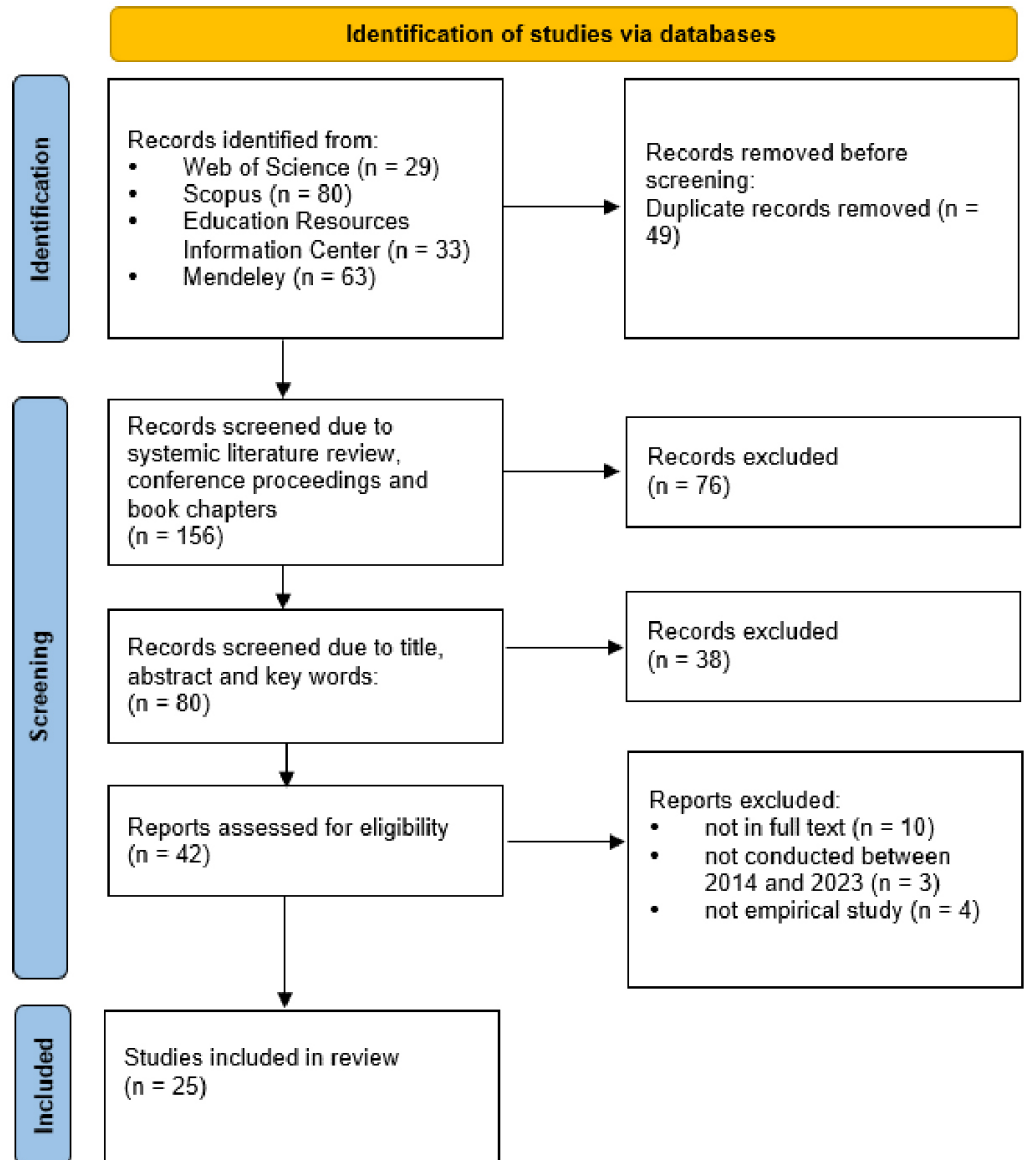


Fig. 1. PRISMA diagram

In order to conduct a comprehensive and systematic review of articles related to MABL in the context of EFL education, we followed the preferred reporting items for systematic reviews and meta-analyses (PRISMA) method. PRISMA is widely utilized by researchers to evaluate the feasibility and reliability of review outcomes [49], as it follows strict inclusion and exclusion procedures. Articles eligible for this study were identified using four sequential steps: identification, screening, eligibility, and inclusion, as displayed in Figure 1.

#### 3.1 Identification

Following the guidance in [49], the first step of a systematic review is to identify studies through databases. Two major databases, namely Web of Science (WoS)

and Scopus, were selected, along with two supplementary databases, the Education Resources Information Center (ERIC) and Mendeley. The key search terms are scientifically and carefully constructed and integrated to include as many relevant words as possible for the topic. Since MABL is a relatively new term, MALL and BL, as well as related expressions, were used as parallel search keywords and were combined with EFL. Table 1 lists the search strings adopted in this study to identify relevant documents from the most recent decade. It is worth mentioning that the time frame is set between 2014 and 2023 due to the significant increase in smartphone sales over the past ten years. The number of smartphones sold has risen from nearly 1 billion to over 1.5 billion [50]. This marks a new chapter in the development of ICT and related fields, including M-learning. In the end, 205 documents matching the search criteria were retrieved.

**Table 1.** Search string used in this study

Database	Search String
WoS	TS = (("blended learning" OR "blended education" OR "blended courses" OR "integrated learning" OR "hybrid learning") AND ("mobile learning" OR "m-learning" OR "mobile device" OR "mobile app" OR "smartphone" OR "mobile assisted language learning") AND ("EFL" OR "English as a foreign language" OR "English"))
Scopus	TITLE-ABS-KEY(("blended learning" OR "blended education" OR "blended courses" OR "integrated learning" OR "hybrid learning") AND ("mobile learning" OR "m-learning" OR "mobile device" OR "mobile app" OR "smartphone" OR "mobile assisted language learning") AND ("EFL" OR "English as a foreign language" OR "English"))
ERIC	"Mobile" AND "Blended learning" AND "EFL"
Mendeley	"Mobile Blended Learning" AND "EFL"

### 3.2 Screening

After identifying the 205 articles, the researchers used the relevant features of the reference management software (i.e., EndNote) to detect 43 duplicates. To ensure that no additional duplicate articles were omitted, the researchers double-checked the remaining articles using manual detection and excluded six articles. This resulted in a total of 156 articles for further screening. These remaining articles were initially screened based on their type of literature. Only articles from journals were included ( $n = 80$ ), while systematic review articles, conference proceedings, books, and book chapters were excluded. This decision was made because journal articles undergo peer review and are typically longer, which allows for more detailed information. As a result, they are considered to be high-quality research. Conversely, conference proceedings and book chapters, on the other hand, tend to be less extensive [51]. These 80 articles underwent a second screening based on their titles, abstracts, and keywords to ensure that the selected articles are relevant to MABL and EFL education. During this process, 38 articles were excluded as they were deemed irrelevant to the purpose of this study. Then, the remaining articles ( $n = 42$ ) were screened based on the inclusion and exclusion criteria outlined in Table 2. Consequently, 10 publications were not available in full-text format from the database; two articles were published more than 10 years ago; and four non-empirical works of literature were excluded. After the screening and exclusion process, the quality of the remaining studies was further examined to ensure the validity of this review study. Based on the assessment procedure described by [52], the quality assessment was conducted independently by two or more reviewers.

Any discrepancies were resolved through discussion or consultation with a third reviewer, if necessary. Researchers examined each publication to determine if it adequately addressed the RQs. They also evaluated various factors, including study design, sample size, participant selection methods, data collection procedures, data analysis techniques, and the clarity and transparency of the study results and conclusions. The assessment results showed that all of the screened articles were deemed suitable for inclusion.

**Table 2.** Inclusion and exclusion criteria

Inclusion	Exclusion
Between 2014 to 2023	Earlier than 2014
Empirical study	Systemic review articles, conference proceedings, books, and chapters in a book
Related to mobile learning, blended learning, and EFL	Not related to mobile learning, blended learning, and EFL
In full text	Not in full text

### 3.3 Articles selection

After the screening procedure, 25 articles met the inclusion criteria and were deemed eligible for a systematic review due to their provision of proper empirical research data. In addition, when considering the current status of implementing MABL in EFL education from a comprehensive perspective, literature from various regions and involving participants at different stages was included. Detailed information and findings from the included articles are presented in Appendix A.

### 3.4 Data analysis

All the selected articles were retained in a specific group within the reference management software, EndNote, while the screened articles were removed. Then, the remaining 25 articles were thematically analyzed to identify the major themes based on the RQs:

- RQ1: In the reviewed literature, at which educational levels was the application of MABL contextualized for EFL?
- RQ2: In the reviewed literature, which language skills are MABL applied to, and what are the results?
- RQ3: What is the distribution of education levels across different platforms or applications?

For RQ1, the themes were categorized based on the education level of the participants as presented in the literature. The themes for RQ2 were categorized based on the platforms or applications used in the studies, which were ultimately classified into five types. The last question was designed to determine the relationship between education level and platforms or applications. The findings of the reviewed articles will be discussed in detail in the following section.

## 4 RESULTS

### 4.1 Background of the articles

Between 2014 and 2023, the highest number of articles published was in the field of MALL, with a total of five articles. *Education and Information Technologies*, *Sustainability*, and *Education and Information Technologies* each published two articles, while the remaining journals published only one article each. The publishing trends were relatively stable for the first six years, but there was a significant increase in growth in the following three years, from 2020 to 2022. This is due to a well-known reason: the COVID-19 pandemic. Traditional face-to-face teaching was limited, and blended learning was gaining unprecedented momentum and emerging as a new norm. Coupled with the fact that cell phones are becoming more advanced, MABL has garnered significant attention, leading to an increase in the number of publications. Since it is only the first quarter of 2023, only two relevant articles have been published, and more are expected to emerge in the next few months. Moreover, the current study only reviewed relevant empirical journal articles written in English; other types of literature and articles written in different languages were not included.

Table 3 demonstrates the distribution of articles based on the countries. South Korea is a country that is keen on studying MABL in EFL education. This interest can be attributed to the fact that South Korean scholars were the ones who coined the term [34]. Even before the term was officially recognized, several researchers in South Korea had already conducted studies related to MABL. Additionally, China, Iran, and Indonesia were the other three countries that have also shown significant interest in this research trend. Furthermore, publications relevant to the application of MABL in EFL can be found in several other Asian and European countries.

**Table 3.** Distribution of articles based on countries

Country	14	15	16	17	18	19	20	21	22	23	Total
China							1	1		1	3
Iran						1	1			1	3
Thailand									1		1
South Korea	2	1			1			1	2		7
Slovakia									1		1
Serbia								1			1
Cambodia								1			1
Turkey				1				1			2
Spain							1				1
Indonesia			1	1	1						3
Iraq		1									1
United Arab Emirates					1						1
Total	2	2	1	2	3	1	3	5	4	2	25



#### 4.2 RQ1: In the reviewed literature, at which education levels were the application of MABL to EFL contextualized?

The first research question investigated the education levels of learners who have participated in the MABL in EFL education. The reviewed articles revealed that the participants’ education levels could be categorized into five types: elementary school, junior high school, senior high school, secondary vocational school, and higher education. However, in one article, the education level of the students was not explicitly mentioned. Only their age range was provided, as it was a language school. A summary of the respondents and their corresponding educational levels is presented in Table 4.

**Table 4.** Education levels of participants in each study

Education Level	Study
Elementary	[54]
Junior High	[65, 75]
Senior High	[55, 62, 67, 72]
Secondary Vocational	[57]
Higher Education	[24, 53, 56, 58–61, 63, 66, 68–71, 73, 74, 76]
Not Specified	[64]

It is evident from Table 4 that MABL in EFL is particularly favored in higher education research, with a total of 16 studies conducted with university students as the research participants. In the majority of studies [24, 53, 56, 59–61, 63, 66, 68–70, 73], researchers employed MABL in a specific or comprehensive four-skill English language course and validated its effectiveness. Interestingly, although studies [24] and [56] were conducted by the same researchers on the theme of the application of MABL to improve EFL students’ listening skills, with some variations between these studies. In [24], the researchers treated 87 university students as a group and compared the differences in their English listening skills before and after the intervention. While in [56], the 91 participants were divided into a CG and an EG. This division increased the reliability of the experimental results by allowing for between-group and within-group comparisons. Besides the four major language skills, MABL was also incorporated into certain programs to enhance the language sub-skills of tertiary-level learners, including vocabulary [70, 74] and grammar [73, 74, 76]. Additionally, it aimed to improve their affective aspects towards EFL education, such as confidence [53], motivation [58, 68], satisfaction [58], and engagement [56, 59, 63, 69].

Among the selected articles, four studies were conducted in a high school context. Three of these studies [62, 67, 72] aimed to enhance students’ English writing skills by utilizing MABL, while the fourth study [55] upgraded MABL to the mobile blended active language learning (MBALL) approach and investigated its impact on the critical reading skills of Thai high school students. Participants in each study demonstrated a positive attitude toward this innovative approach.

Compared to the use of MABL in higher education and senior high schools, there is a relatively limited amount of research on the use of MABL in EFL education at the levels of junior high schools, secondary vocational schools, and elementary schools. In [65], researchers focused on harnessing the potential of mobile

devices to develop blended learning models for language teaching and learning. They evaluated respondents' satisfaction and acceptance. With the same education level as the students, [75] proposed the use of a smartphone-based blended learning (SBBL) environment in L2 writing classes and ultimately found it to be useful and productive. For secondary vocational school learners, [57] explored the usefulness of a mobile application in enhancing their vocabulary and generating overall satisfaction. When conducting research in an elementary school setting, the researcher discovers a method to make the learning process more engaging. [54] created a game-based teaching scenario using augmented reality (AR) and mobile devices to teach students how to ask for directions in English. This scenario enables students to actively interact and collaborate in a virtual world.

Although the specific education level was not addressed in [64], the age range of the participants (15 to 19) indicates that they were at the middle and high school levels. Similar to the aforementioned studies at the same education levels, [64] applied mobile applications in a flipped-classroom approach to improve students' self-efficacy in EFL learning and achieved positive results.

#### 4.3 RQ2: What are the types of platforms or applications used in MABL for EFL education?

Mobile platforms or applications in this systematic review are categorized into five types: (1) social networking apps (SNA), (2) learning management systems (LMS), (3) vocabulary apps, (4) listening apps, and (5) mobile apps for integrated language skills. These classifications were summarized and derived from reviewing the selected 25 pieces of literature to visualize trends in the use of mobile platforms or applications in MABL for EFL education. Table 5 presents the names and types of mobile platforms and applications used in the reviewed literature.

**Table 5.** Types of platforms/applications used in MABL for EFL

Type	Example
Social Networking App (SNA)	<i>WeChat</i> [53] <i>WhatsApp</i> [54, 70] <i>Kakaotalk</i> [61, 69, 75] <i>Youtube</i> [65] <i>Facebook</i> [73] <i>Band</i> [76]
Learning Management System (LMS)	<i>Mobil2Eng</i> [58] <i>Schoology</i> [59, 68, 71] <i>Edmodo</i> [64, 66, 67, 72, 73] <i>Edpuzzle</i> [65] <i>Blackboard Mobile</i> [74]
Vocabulary App	<i>Angličtina Today</i> [57]
Listening App	Self-developed MBCL Website [60] <i>Smart English</i> [63]
Not Specified	[24, 55, 56, 62]

As demonstrated in the table above, SNA and LMS were two categories that researchers in MABL for EFL significantly favored. Eight studies utilized social

networking apps in either online or offline EFL classes. Although several applications emerged, the studies [53, 54, 61, 65, 69, 70, 73, 75] yielded similar results. SNAs facilitate interactions and collaborations in the learning process, thus helping students improve their English skills and develop positive attitudes. As mobile instant messaging applications, WeChat and WhatsApp have been used not only to improve communication skills, expand vocabulary knowledge, and enhance accuracy in wording [54, 70], but also to boost students' confidence and improve their business writing skills [53]. Kakaotalk was widely used as a SNA by researchers studying MABL in the EFL context in Korea [61, 69, 75]. These studies reported that this application had a positive impact on learners' participation and engagement, which were crucial for the development of language skills. Likewise, Youtube [65] and Facebook [73], being standouts in their respective niches, were naturally sought after as effective teaching aids in MABL. Although these two SNAs were not implemented as the primary applications in [65] and [73], the researchers effectively utilized their strengths to facilitate learners in sharing and accessing learning materials. EFL learners claimed that they were motivated and encouraged in the learning process with the use of SNAs. Another smartphone application, Band, which was initially designed for group communication, was accepted in [76] for improving grammar proficiency. The researcher also reminded future users of this application to be aware of its imperfections, such as the small text size on the screen, the lack of a backtracking function, and the absence of resource-sharing features.

In the selected articles, most of the studies focused on LMS-type platforms or applications as the primary tools. Being a medium that facilitates effective blended learning, several popular platforms, such as Schoology [59, 68, 71], Edmodo [64, 66, 67, 72, 73], and Blackboard Mobile [74], enable teachers to upload teaching materials and assignments to cloud-based servers. This allows students to access the materials before or after class using their mobile devices, thereby integrating online and offline learning. In [59], the author asked students to upload their vlogs to Schoology and then receive or provide comments to enhance their speaking performance. Also, in terms of oral communication skills, [68] supported participants in engaging in autonomous learning to accomplish interaction, production, and reflection tasks using Schoology in the flipped classroom setting. This approach ultimately improved the communicative competence of business professional students. Besides, [71] similarly highlighted the impact of blended learning using the Schoology platform on learner autonomy. Students from an EAP class believe that LMS is beneficial for their autonomy practice. Another effective aspect was that female participants' self-efficacy increased after the flipped classroom intervention with Edmodo [64]. This m-learning platform was used in the other three studies to establish a MABL environment and assess its impact on enhancing writing skills [66, 67, 72]. The majority of students expressed positive responses to its adoption, despite limited improvement in two out of five areas of academic writing [66]. However, some students were unable to access mobile devices [67], and there was insufficient utilization due to technical problems or low information literacy [72]. In [73], the author discovered that the combination of Edmodo and Facebook increased student motivation in EFL reading classes. Additionally, the author proposed further consideration of socio-cultural background when employing this novel approach in Iraq. In [74], the researcher conducted a study in an English language course and found that the traditional teaching method was not as effective as the flipped classroom method with the Blackboard Mobile application. Furthermore, the researcher advised the instructors to prioritize offline instruction and the design of video content, which was in line with [65]. In addition to recognizing the positive

contribution of the LMS in the flipped classroom, [65] specifically highlighted the significant role of teachers in developing effective flipped learning. This includes elaborating on video content and materials. The platform in [58] was developed by the researchers and included five characteristics. It is worth stressing. This platform facilitated the acquisition of new words and technical expressions, which resulted in positive evaluations from its users.

It was expected that in studies on EFL, there would be numerous platforms and applications available for developing one or more language skills. However, among the reviewed articles, only one focuses on a vocabulary app [57], one discusses a self-developed listening website [60], and one explores a mobile EFL application that utilizes VR tools [63] to improve listening ability. [57] identified students' positive perceptions of various aspects of the Angličtina Today application. Meanwhile, the mobile blended cooperative learning (MBCL) website for English listening in [60] was found to be productive. In [63], students experienced immersive English learning in a VR-supported blended flipped classroom model using mobile VR equipment. The immersive experience of participating in a virtual scenario allowed students to avoid distractions and become fully engaged in the language learning task, ultimately improving their listening skills.

Several studies did not specify the mobile platforms or applications used in their research [24, 55, 56, 62]. In these studies, researchers no longer adhered to a specific platform. Instead, they utilized different applications at different stages to effectively accomplish the corresponding tasks and better serve the students' learning objectives.

#### 4.4 RQ3: What is the distribution of education levels across different platforms/applications?

Based on the previous two questions, the third research question addressed the relationship between education level and mobile platform/application. Thoroughly elucidating the correlation between education level and platforms is crucial, as it empowers educators and researchers to understand and choose more suitable platforms designed for different educational levels. This, in turn, enhances teaching and research efforts. Table 6 demonstrates the distribution of education levels across various platforms and applications.

**Table 6.** Distribution of education levels across different platforms/applications

Platforms/Applications	Education Level
Social Networking App (SNA)	Higher Education [53, 61, 69, 70, 73, 76] Senior High [65] Junior High [75] Elementary [54]
Learning Management System (LMS)	Higher Education [58, 59, 66, 68, 71, 73, 74] Senior High [65, 67, 72] Not Specified [64]
Vocabulary App	Secondary Vocational [57]
Listening App	Higher Education [60, 63]
Not Specified	Higher Education [24, 56] Senior High [55] Junior High [62]

Based on the selected literature, it is evident that higher education is the primary level for implementing MABL, encompassing almost all the platforms mentioned earlier. There were six research studies [53, 61, 69, 70, 73, 76] conducted at the higher education level that utilized SNA to enhance EFL teaching and learning. Similarly, within the same educational level, seven studies [58, 59, 66, 68, 71, 73, 74] utilized LMS to achieve similar objectives. Also, two listening apps [60, 63] were designed and implemented for college students. As for senior high school students, researchers have shown a preference for using LMSs [65, 67, 72] to encourage the development and improvement of EFL skills. Additionally, one study [75] incorporated SNA in the same context. For younger EFL learners in junior high, second vocational school, and elementary school, two studies utilized SNA [54, 75] to enhance learners' vocabulary proficiency. Additionally, specialized vocabulary-learning software was employed [57]. Moreover, across three different educational stages, namely higher education [24, 56], senior high [55], and junior high [62], a common trend emerged. The selection of platforms or applications was not specific but rather based on factors such as curriculum content and learning stages.

## 5 DISCUSSION

Apparently, the results of this review highlight the effectiveness of the MABL model for EFL teaching and learning by systematically integrating MALL and BL. Although some studies did not directly mention MABL or its associated terms, these researchers have actively used various mobile tools, applications, or platforms to extend offline classroom learning to out-of-classroom online learning. In a sense, these studies can be considered to employ MABL. Importantly, this systematic review further solidifies the notion that MABL has the potential to achieve sustainable outcomes in the realm of English as a foreign language.

The findings from the reviewed studies illustrate the implementation of MABL in EFL courses across various educational levels. Most of the researchers conducted their studies in tertiary-level settings [24, 53, 56, 58–61, 63, 66, 68–71, 73, 74, 76] and senior high schools [55, 62, 67, 72]. Only a few studies have focused on students in elementary schools [54], junior high schools [65, 75], and vocational schools [57]. This could be explained by the fact that younger students may not have their own mobile devices or may have limited access to them due to their tendency to excessively play mobile games [75]. In addition, a relatively low level of digital literacy also hinders individuals from fully utilizing the potential of mobile devices. However, considering the wide range of age groups it caters to, MABL has been applied from primary education to higher education, demonstrating its versatility in serving EFL learners of different ages. This highlights MABL as an approach conducive to lifelong learning, capable of accommodating learners throughout their educational journey, in alignment with SDG 4.

Moreover, the present review has also examined and demonstrated the integration of mobile platforms and applications in MABL for EFL education. Unsurprisingly, the construction of MABL settings often fails to meet the requirements of teachers and students due to their limited functionality in practicing specific language skills. In contrast, SNS and LMS, which combined multiple functions into one platform, were widely accepted. Uploading and storing learning materials, enabling online communication and interaction among students, and providing prompt feedback and evaluation can all be achieved without any limitations of time or place. Each SNA and LMS characteristic is essential to MABL and the creation of lifelong and sustainable learning opportunities [6, 7, 35]. Additionally, using multiple mobile teaching platforms in

the MABL model may be an effective solution to the problems associated with the previously mentioned single language skill practice application. It is also a promising approach to achieving learning outcomes at various stages and for different purposes. In order to improve students' language skills, some researchers have even started developing their own mobile learning platforms tailored to their student population and aligned with their teaching objectives. Meanwhile, others have been using more advanced mobile assistive devices, such as VR and AR devices, to create immersive learning experiences. In order to achieve pedagogical outcomes more effectively, these new advances present new challenges to the digital literacy of EFL teachers.

It is worth noting that college students are more likely to possess the ability to set goals, monitor their learning progress, and employ effective language learning strategies [77]. Thus, they could be organized on different platforms or applications. By contrast, young learners are still in the early stages of cognitive and linguistic development, which generally require more guidance and support in language learning [78]. It might explain why SNAs and LMSs are more frequently applied at this stage, as they provide channels for teachers to monitor and guide students' learning processes inside and outside the classroom. Besides, by utilizing multiple platforms instead of relying on a single one, students can enhance their language skills and view the MABL approach as flexible, motivating, engaging, and effective. Notwithstanding the favorable results, it is important to be aware of certain uncontrollable factors that could distract students' attention when transitioning between platforms.

## 6 CONCLUSION

In conclusion, this study has systematically reviewed articles relevant to the adoption of MABL in the EFL context. This fills the gap of scarce reviews on the topic and provides educators and researchers with an understanding of the patterns and trends of MABL in EFL. Following the scientific and authoritative PRISMA guidelines, with specific inclusion and exclusion criteria, we screened the final 25 empirical research articles out of 205 selected from four databases: Web of Science, Scopus, Education Resources Information Center, and Mendeley.

The significant findings of this review illustrate the application of MABL in EFL across various education levels, with the majority concentrated at the tertiary level and senior high school. In contrast, studies at the junior and basic education levels are relatively limited. From the five types of mobile platforms mentioned, instructors were inclined to use SNA and LMS in the MABL model. These platforms are ideally suited to satisfy multiple demands in the teaching and learning process, enabling students to continue their studies anytime and anywhere. As mature learners, students from higher education institutions were able to utilize various platforms and applications. While younger learners require more guidance and monitoring, LMS and SNA are better suited to meet the learning needs of students at this stage.

Admittedly, this review also has room for improvement. First, only a few of these studies have reported on the constraints encountered in the implementation of MABL in the EFL context. These constraints include the limited screen size of mobile devices, unstable Internet connections, uncontrollable distractions, and insufficient digital literacy [15, 65, 66, 69, 76]. In addition, language skills are often intertwined with other aspects [79], such as affective factors. Affective factors, such as motivation, anxiety, self-confidence, and satisfaction, undeniably exert a significant impact on learners' academic outcomes [80, 81]. However, the review article omits the analysis of learning EFL skills and affective factors. Then, only a few of the articles mentioned

teachers' perceptions of MABL. As a result, the authors were unable to conduct a systematic analysis due to the lack of sufficient samples. As frontline educators in the field of teaching [82], EFL, teachers' attitudes, acceptance, familiarity, and other variables with MABL may have an impact on academic outcomes. Lastly, due to the filtering criteria, this paper reviewed only the journal articles that were published in English. It did not consider other types of articles or articles in other languages, which limited the sources of additional evidence. Therefore, future practitioners and researchers can appropriately modify or broaden the criteria for screening articles in order to obtain more comprehensive research information. This would open up new research possibilities, such as studies on the application of MABL in EFL in various languages or regional contexts or conducting further comparative studies. Indeed, all future studies will continue to contribute to the effective and sustainable implementation of MABL in English as a foreign language.

In general, this systematic review has the potential to make a meaningful contribution to MABL in EFL education for the benefit of practitioners in relevant fields. Combining the advantages of both MALL and BL offers a flexible, student-driven learning environment that overcomes the deficiencies of traditional pedagogy and leads to a lifelong and sustainable EFL education.

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## 8 AVAILABILITY STATEMENT

The information of selected studies in this research is available upon request to individuals or organizations with legitimate research purposes.

## 9 REFERENCES

- [1] S. Rabiah, "Language as a tool for communication and cultural reality discloser," *INA-Rxiv*, 2018. <https://doi.org/10.31227/osf.io/nw94m>
- [2] J. Zhang, "A study of hybrid audio-lingual model in college English teaching with the support of mobile technology," Ph.D. Thesis, Northeast Normal University, 2011.
- [3] L. S. Zhen and H. Hashim, "The usage of MALL in learners' readiness to speak English," *Sustainability*, vol. 14, no. 23, p. 16227, 2022. <https://doi.org/10.3390/su142316227>
- [4] K. R. M. Rafiq, H. Hashim, and M. M. Yunus, "New qualitative perspective in human-computer interaction: Designing mobile English for STEM," *Frontiers in Psychology*, vol. 13, 2022. <https://doi.org/10.3389/fpsyg.2022.863422>
- [5] M. Drolia, S. Papadakis, E. Sifaki, and M. Kalogiannakis, "Mobile learning applications for refugees: A systematic literature review," *Educ. Sci.*, vol. 12, no. 2, p. 96, 2022. <https://doi.org/10.3390/educsci12020096>
- [6] K. R. M. Rafiq, H. Hashim, and M. M. Yunus, "Sustaining education with mobile learning for English for specific purposes (ESP): A systematic review (2012–2021)," *Sustainability*, vol. 13, no. 17, p. 9768, 2021. <https://doi.org/10.3390/su13179768>
- [7] S. Ramalingam, M. M. Yunus, and H. Hashim, "Blended learning strategies for sustainable English as a second language education: A systematic review," *Sustainability*, vol. 14, no. 13, p. 8051, 2022. <https://doi.org/10.3390/su14138051>

- [8] J. Xi, J. H. Wang, and H. Z. Zhang, "A comparative analysis of mobile language teaching and learning behaviors between college teachers and students," *Journal of PLA University of Foreign Languages*, vol. 45, no. 5, pp. 94–102, 2022.
- [9] A. Kukulska-Hulme and L. Shield, "An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction," *Recall*, vol. 20, no. 3, pp. 271–289, 2008. <https://doi.org/10.1017/S0958344008000335>
- [10] M. L. Koole, *A Model for Framing Mobile Learning. In Mobile Learning: Transforming the Delivery of Education and Training*, M. Ally, Ed., AU Press Canada, 2009.
- [11] P. M. Leonardi and J. W. Treem, "Knowledge management technology as a stage for strategic self-presentation: Implications for knowledge sharing in organizations," *Information and Organization*, vol. 22, no. 1, pp. 37–59, 2012. <https://doi.org/10.1016/j.infoandorg.2011.10.003>
- [12] Q. Luo and M. Shi, "Empirical studies on mobile-assisted language learning in China: A review of selected research," *Frontiers in Educational Research*, vol. 5, no. 13, pp. 45–57, 2022. <https://doi.org/10.25236/FER.2022.051309>
- [13] Y. T. Sung, K. E. Chang, and T. C. Liu, "The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis," *Comput. Educ.*, vol. 94, pp. 252–275, 2016. <https://doi.org/10.1016/j.compedu.2015.11.008>
- [14] C. K. Chang and C. K. Hsu, "A mobile-assisted synchronously collaborative translation annotation system for English as a foreign language (EFL) reading comprehension," *Computer Assisted Language Learning*, vol. 24, pp. 155–180, 2011. <https://doi.org/10.1080/09588221.2010.536952>
- [15] W. Y. Hwang, T. K. Shih, Z. H. Ma, R. Shadiev, and S. Y. Chen, "Evaluating listening and speaking skills in a mobile game-based learning environment with situational contexts," *Computer Assisted Language Learning*, vol. 29, no. 4, pp. 639–657, 2016. <https://doi.org/10.1080/09588221.2015.1016438>
- [16] P. Wongsuriya, "Improving the Thai students' ability in English pronunciation through mobile application," *Educ. Res. Rev.*, vol. 15, pp. 175–185, 2020. <https://files.eric.ed.gov/fulltext/EJ1250462.pdf>
- [17] L. H. Hui, Y. Zhang, and X. X. Li, "A survey of motivation regulation for college students' English study in mobile-assisted language learning environment," *Foreign Language Education*, vol. 40, no. 1, pp. 59–65, 2019.
- [18] K. Saidouni and A. Bahloul, "Exploring the value of mobile-assisted language learning on students' engagement in an EFL classroom," *Les TIC et l'Enseignement/Apprentissage*, Centre Universitaire de Relizane, 2017.
- [19] F. Rosell-Aguilar, "State of the app: A taxonomy and framework for evaluating language learning mobile applications," *CALICO Journal*, vol. 34, no. 2, pp. 243–258, 2017. <https://doi.org/10.1558/cj.27623>
- [20] M. L. Crescente and D. Lee, "Critical issues of M-learning: Design models, adoption processes, and future trends," *Journal of the Chinese Institute of Industrial Engineers*, vol. 28, no. 2, pp. 111–123, 2011. <https://doi.org/10.1080/10170669.2010.548856>
- [21] C. J. Bonk and C. R. Graham, Eds., *Handbook of Blended Learning: Global Perspectives, Local Designs*, San Francisco, CA: Pfeiffer Publishing, 2006.
- [22] A.-M. Bliuc, P. Goodyear, and R. A. Ellis, "Research focus and methodological choices in studies into students' experiences of blended learning in higher education," *The Internet and Higher Education*, vol. 10, no. 4, pp. 231–244, 2007. <https://doi.org/10.1016/j.iheduc.2007.08.001>
- [23] I. E. Allen and J. Seaman, "Class differences: Online education in the United States," *The Sloan Consortium*, pp. 15–25, 2010.



- [24] J. Pyo and C. H. Lee, "Students' perspectives of mobile-assisted blended learning (MABL) in L2 listening classes at the university level," *Korean Journal of English Language and Linguistics*, vol. 22, pp. 1175–1198, 2022. <https://doi.org/10.15738/kjell.22..202210.1175>
- [25] C. Dziuban, C. R. Graham, P. D. Moskal, A. Norberg, and N. Sicilia, "Blended learning: The new normal and emerging technologies," *International Journal of Educational Technology in Higher Education*, vol. 15, no. 3, pp. 1–16, 2018. <https://doi.org/10.1186/s41239-017-0087-5>
- [26] C. Banditvilai, "Enhancing Students' language skills through blended learning," *The Electronic Journal of E-Learning*, vol. 14, pp. 220–229, 2016.
- [27] E. Ehsanifard, Z. Ghapanchi, and M. Afsharrad, "The impact of blended learning on speaking ability and engagement," *Journal of Asia Tefl*, vol. 17, no. 1, pp. 253–260, 2020. <https://doi.org/10.18823/asiatefl.2020.17.1.17.253>
- [28] B. Radial, "Approaching a reading course via moodle-based blended learning: EFL learners' insights," *Modern Journal of Language Teaching Method*, pp. 1–12, 2019.
- [29] R. Bataineh, "The utility of blended learning in EFL reading and grammar: A case for moodle," *Teaching English with Technology*, vol. 17, no. 3, pp. 35–49, 2017.
- [30] H. Setyawan, "Blended method: Online-offline teaching and learning on students' reading achievement," *English Education: Jurnal Tadris Bahasa Inggris*, vol. 12, no. 1, pp. 22–33, 2019. <https://doi.org/10.24042/ee-jtbi.v12i1.4432>
- [31] R. Peng and R. Fu, "The effect of Chinese EFL students' learning motivation on learning outcomes within a blended learning environment," *Australasian Journal of Educational Technology*, vol. 37, no. 6, pp. 61–74, 2021. <https://doi.org/10.14742/ajet.6235>
- [32] N. H. Alsowayegh, H. J. Bardesi, I. Garbaand, and M. A. Sipra, "Engaging students through blended learning activities to augment listening and speaking," *Arab World English Journal*, vol. 5, pp. 267–288, 2019. <https://doi.org/10.31235/osf.io/hqcggy>
- [33] C. R. Graham, "Blended learning systems: Definition, current trends, and future directions," in *Handbook of Blended Learning: Global Perspectives, Local Designs*, C. J. Bonk and C. R. Graham, Eds., Pfeiffer Publishing, 2006, pp. 3–21.
- [34] J. Baek and C. H. Lee, "University students' perceptions and engagement in mobile assisted blended learning in English speaking classes," *Multimedia-Assisted Language Learning*, vol. 21, no. 4, pp. 11–36, 2018.
- [35] M. Pieri and D. Diamantini, "From E-learning to mobile learning: New opportunities," in *Mobile Learning: Transforming The Delivery of Education and Training*, M. Ally, Ed., AU Press Canada, 2009.
- [36] U. Imtinan, V. Chang, and T. Issa, "Common mobile learning characteristics-an analysis of mobile learning models and frameworks," in *Proceedings of the International Conference Mobile Learning*, IADIS Press, 2013, pp. 3–11.
- [37] H. Uzunboylu, N. Cavus, and E. Ercag, "Using mobile learning to increase environmental awareness," *Computers & Education*, vol. 52, no. 2, pp. 381–389, 2009. <https://doi.org/10.1016/j.compedu.2008.09.008>
- [38] C. L. Ngo, "A review of research in mobile assisted collaborative language learning," *VNU Journal of Foreign Studies*, vol. 34, no. 4, 2018. <https://doi.org/10.25073/2525-2445/vnufs.4282>
- [39] N. U. Che Mustaffa and S. N. Sailin, "A systematic review of mobile-assisted language learning research trends and practices in Malaysia," *International Journal of Interactive Mobile Technologies*, vol. 16, no. 5, pp. 169–198, 2022. <https://doi.org/10.3991/ijim.v16i05.28129>
- [40] X. Zhang, "Mobile-assisted writing instruction: Affordances, challenges, and future directions," *International Journal of Interactive Mobile Technologies (ijIM)*, vol. 15, no. 10, pp. 194–207, 2021. <https://doi.org/10.3991/ijim.v15i10.21519>

- [41] N. Sürüç Şen, “A critical review on the mobile assisted language learning with a focus on empirical studies,” *Journal of Learning and Teaching in Digital Age*, vol. 6, no. 2, pp. 117–126, 2021. Retrieved from <https://dergipark.org.tr/en/pub/joltida/issue/63505/816714>
- [42] I. F. Altay and A. Altay, “A review of studies on blended learning in EFL environment,” *International Journal of Curriculum and Instruction*, vol. 11, no. 1, pp. 125–140, 2019.
- [43] W. S. Albiladi and K. K. Alshareef, “Blended learning in English teaching and learning: A review of the current literature,” *Journal of Language Teaching and Research*, vol. 10, no. 2, pp. 232–238, 2019. <https://doi.org/10.17507/jltr.1002.03>
- [44] H. A. H. Sheerah, “Using blended learning to support the teaching of English as a foreign language,” *Arab World English Journal (AWEJ)*, Special Issue on CALL, vol. 6, pp. 191–211, 2020. <https://doi.org/10.24093/awej/call6.13>
- [45] S. Alam, H. Faraj Albozeidi, B. Okleh Salameh Al-Hawamdeh, and F. Ahmad, “Practice and principle of blended learning in ESL/EFL pedagogy: Strategies, techniques and challenges,” *International Journal of Emerging Technologies in Learning (IJET)*, vol. 17, no. 11, pp. 225–241, 2022. <https://doi.org/10.3991/ijet.v17i11.29901>
- [46] UN, *Transforming Our World: The 2030 Agenda for Sustainable Development*. New York: United Nations, 2015. Available Online: <https://unstats.un.org/sdgs/indicators/indicators-list/>. [Accessed Mar 15, 2023].
- [47] A. Kukulska-Hulme, “Mobile-assisted language learning [Revised and updated version in online],” in *The Concise Encyclopedia of Applied Linguistics*, C. A. Chapelle, Ed., Wiley, 2018.
- [48] F. L. Jing, “A Q methodology-based study on tertiary student engagement in mobile-assisted foreign language learning,” *Foreign Language World*, vol. 1, pp. 79–87, 2020.
- [49] M. J. Page, D. Moher, P. M. Bossuyt, I. Boutron, T. C. Hoffmann, C. D. Mulrow *et al.*, “PRISMA 2020 explanation and elaboration: Updated guidance and exemplars for reporting systematic reviews,” *BMJ*, vol. 372, no. 160, pp. 1–36, 2021. <https://doi.org/10.1136/bmj.n160>
- [50] F. Laricchia, Global smartphone sales to end users 2007–2021, 2022. Available Online: <https://www.statista.com/statistics/263437/global-smartphone-sales-to-end-users-since-2007/>. [Accessed Mar 25, 2023].
- [51] B. González-Albo and M. Bordons, “Articles vs. proceedings papers: Do they differ in research relevance and impact? A case study in the library and information science field,” *Journal of Informetrics*, vol. 5, no. 3, pp. 369–381, 2011. <https://doi.org/10.1016/j.joi.2011.01.011>
- [52] G. Moss, A. Bradbury, S. Harmey, R. Mansfield, B. Candy, R. France, and C. Vigurs, *Mitigating Impacts of the COVID-19 Pandemic on Primary and Lower Secondary Children During School Closures: A Rapid Evidence Review*, EPPI Centre, UCL Social Research Institute, University College London: London, UK, 2021.
- [53] L. Sun and A. Asmawi, “The effect of WeChat-based instruction on Chinese EFL undergraduates’ business English writing performance,” *International Journal of Instruction*, vol. 16, no. 1, pp. 43–60, 2023. <https://doi.org/10.29333/iji.2023.1613a>
- [54] F. Khodabandeh, “Exploring the viability of augmented reality game-enhanced education in WhatsApp flipped and blended classes versus the face-to-face classes,” *Education and Information Technologies*, vol. 28, no. 1, pp. 617–646, 2023. <https://doi.org/10.1007/s10639-022-11190-6>
- [55] Y. Yang, J. Dibyamandala, and C. Mangkhang, “The effects of mobile blended active language learning on the English critical reading skills of high school students in Thailand,” *Journal of Curriculum and Teaching*, vol. 11, no. 5, pp. 1–14, 2022. <https://doi.org/10.5430/jct.v11n5p1>
- [56] J. Pyo and C. H. Lee, “Academic engagement and task completion in L2 listening through mobile-assisted blended learning (MABL) in higher education,” *Korean Journal of English Language and Linguistics*, vol. 22, pp. 1389–1416, 2022.

- [57] P. Polakova and B. Klimova, "Vocabulary mobile learning application in blended English language learning," *Frontiers in Psychology*, vol. 13, p. 869055, 2022. <https://doi.org/10.3389/fpsyg.2022.869055>
- [58] S. Stefanovic and E. Klochkova, "Digitalisation of teaching and learning as a tool for increasing students' satisfaction and educational efficiency: Using smart platforms in EFL," *Sustainability*, vol. 13, no. 9, 2021. <https://doi.org/10.3390/su13094892>
- [59] H.-W. Huang, "Effects of smartphone-based collaborative vlog projects on EFL learners' speaking performance and learning engagement," *Australasian Journal of Educational Technology*, vol. 37, no. 6, pp. 18–40, 2021. <https://doi.org/10.14742/ajet.6623>
- [60] N. Each and S. Suppasetsree, "The effects of mobile-blended cooperative learning on efl students' listening comprehension in cambodian context," *LEARN Journal: Language Education and Acquisition Research Network*, vol. 14, no. 2, pp. 143–170, 2021.
- [61] J. S. Baek and C. H. Lee, "Effects of mobile-assisted blended learning on university students' English speaking proficiency in Korea," *Journal of Asia Tefl*, vol. 18, no. 4, pp. 1266–1284, 2021. <https://doi.org/10.18823/asiatefl.2021.18.4.12.1266>
- [62] M. Ataizi and I. Aksak Komür, "Teaching writing skills in EFL classes with blending learning," *Journal of Educational Technology and Online Learning*, vol. 4, no. 4, pp. 822–834, 2021. <https://doi.org/10.31681/jetol.932682>
- [63] L. Xiao-Dong and C. Hong-Hui, "Research on VR-supported flipped classroom based on blended learning—A case study in 'learning English through news'," *International Journal of Information and Education Technology*, vol. 10, no. 2, pp. 104–109, 2020. <https://doi.org/10.18178/ijiet.2020.10.2.1347>
- [64] E. Namaziandost and F. Çakmak, "An account of EFL learners' self-efficacy and gender in the flipped classroom model," *Education and Information Technologies*, vol. 25, no. 5, pp. 4041–4055, 2020. <https://doi.org/10.1007/s10639-020-10167-7>
- [65] A. Andujar, M. Sagrario Salaberri-Ramiro, and M. S. Cruz Martinez, "Integrating flipped foreign language learning through mobile devices: Technology acceptance and flipped learning experience," *Sustainability*, vol. 12, no. 3, 2020. <https://doi.org/10.3390/su12031110>
- [66] N. Hosseinpour, R. Biria, and E. Rezvani, "Promoting academic writing proficiency of Iranian EFL learners through blended learning," *Turkish Online Journal of Distance Education*, vol. 20, no. 4, pp. 99–116, 2019. <https://doi.org/10.17718/tojde.640525>
- [67] Q. Yusuf, Y. Q. Yusuf, N. Erdiana, and A. R. Pratama, "Engaging with Edmodo to teach English writing of narrative texts to EFL students," *Problems of Education in the 21st Century*, vol. 76, no. 3, pp. 333–349, 2018. <https://doi.org/10.33225/pec/18.76.333>
- [68] C. Nickerson, "Mobile and multidimensional: Flipping the business English classroom," *ESP Today*, vol. 6, no. 1, pp. 65–83, 2018. <https://doi.org/10.18485/esptoday.2018.6.1.4>
- [69] C. H. Lee and J. S. Baek, "University students' perceptions and engagement in mobile assisted blended learning in English speaking classes," *Multimedia-Assisted Language Learning*, vol. 21, no. 4, pp. 11–36, 2018.
- [70] H. Avci and T. Adiguzel, "A Case study on mobile-blended collaborative learning in an English as a foreign language (EFL) context," *International Review of Research in Open and Distance Learning*, vol. 18, no. 7, pp. 45–58, 2017. <https://doi.org/10.19173/irrodl.v18i7.3261>
- [71] P. Ardi, "Promoting learner autonomy through schoology M-learning platform in an EAP class at an Indonesian university," *Teaching English with Technology*, vol. 17, no. 2, pp. 55–76, 2017.
- [72] P. Purnawarman, Susilawati, and W. Sundayana, "The use of Edmodo in teaching writing in a blended learning setting," *Indonesian Journal of Applied Linguistics*, vol. 5, no. 2, pp. 242–252, 2016. <https://doi.org/10.17509/ijal.v5i2.1348>

- [73] T. Yagci, “Blended learning via mobile social media & implementation of ‘EDMODO’ in reading classes,” *Advances in Language and Literary Studies*, vol. 6, no. 4, pp. 41–47, 2015. <https://doi.org/10.7575/aiac.all.v6n.4p.41>
- [74] N. Kang, “The comparison between regular and flipped classrooms for EFL Korean adult learners,” *Multimedia-Assisted Language Learning*, vol. 18, no. 3, pp. 41–72, 2015. <https://doi.org/10.15702/mall.2015.18.3.41>
- [75] H. Kim and M. Yoon, “Adopting smartphone-based blended learning: An experimental study of the implementation of Kakao Talk and Mocafe,” *Multimedia-Assisted Language Learning*, vol. 17, no. 2, pp. 86–111, 2014. <https://doi.org/10.15702/mall.2014.17.2.86>
- [76] S. H. Jin, “Implementation of smartphone-based blended learning in and EFL undergraduate grammar course,” *Multimedia-Assisted Language Learning*, vol. 17, no. 4, pp. 11–37, 2014. <https://doi.org/10.15702/mall.2014.17.4.11>
- [77] R. L. Oxford, *Language Learning Strategies: What Every Teacher Should Know*. Heinle & Heinle Publishers, 1990.
- [78] Y. G. Butler, “Cognition and young learners’ language development,” in *Handbook of Early Language Education*, M. Schwartz, Eds., Springer International Handbooks of Education. Springer, Cham., 2022, pp. 29–56. [https://doi.org/10.1007/978-3-030-91662-6\\_2](https://doi.org/10.1007/978-3-030-91662-6_2)
- [79] M. Zeraatpishe, A. Faravani, H. R. Kargozari, and M. Azarnoosh Eds., *Issues in Applying SLA Theories toward Reflective and Effective Teaching*, Brill: Leiden, The Netherlands, vol. 7, 2018. <https://doi.org/10.1163/9789004380882>
- [80] M. Chengjun and S. S. Mustakim, “Relationship between motivation and learning outcomes in e-learning among university students in Malaysia,” *International Journal of Academic Research in Progressive Education and Development*, vol. 11, no. 2, pp. 666–676, 2022. <https://doi.org/10.6007/IJARPEd/v11-i2/12956>
- [81] Thuy Vy Tran and Olivia Aspiras, “College students’ engagement and academic outcomes in online learning during the COVID-19 pandemic,” *Modern Psychological Studies*, vol. 28, no. 1, 2022.
- [82] T. Manyeredzi and V. Mpofu, “Smartphones as digital instructional interface devices: The teacher’s perspective,” *Research in Learning Technology*, vol. 30, 2022. <https://doi.org/10.25304/rlt.v30.2639>

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