

Systematic Literature review on the Use of Applications of Smartphones for Teaching English in EFL Contexts

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Abstract

This review paper provides an overview of the use of applications of smartphones, target language skills, methodology, and EFL contexts from the studies published between 2010 and January 2020. As per the time frame and parameters followed by the PRISMA model, 45 of 2707 studies were retrieved from four reputable online databases, namely Springer link, Web of Science, Scopus, and ScienceDirect, which were eligible for this study. All these studies (n=45) were scrutinized and analyzed with NVIVO-12 for obtaining the objectives of this study. The findings showed that 25 applications of smartphones were employed, and the most used application was Short Message Service (SMS). Further, the findings reported that vocabulary was the most targeted language skill, and the quantitative research methodology was the most popular and highest number of studies held in Iran employing smartphone apps in ELT. Based on the findings, the study would provide some implications and suggestions over the use of the applications of smartphones for facilitating teaching and learning language skills in the EFL contexts for educators and researchers.

Keywords: applications of a smartphone, English language skills, learning, teaching, PRISMA model.

Introduction,

The smartphone is a device that can be interchangeable with the terms mobile phone, cell phone, personal digital assistant (PDA), and wireless handheld device (WHD) (Pimmer et al., 2016). For multiple functions with the characteristics of portability, ubiquity, comfortability, flexibility, social connectivity, context-sensitivity, individuality, and easy accessibility, this device became the most used handheld globally (Gangaiamaran & Pasupathi, 2017; KİLİS, 2013). With the multiple applications of a smartphone, it is not limited merely to make communication; instead, its application is necessarily spreading over all aspects of human life (Nakamura, 2015; Rahman et al., 2021).

On the other hand, language teaching and learning method are still traditional

in many EFL (English as a foreign language) contexts. The traditional teaching method is lecture-based and teacher-oriented, less effective for language teaching and learning in EFL contexts (Tipmontree & Tasanameelarp, 2018). Moreover, in many contexts, the traditional teaching method fails to meet learners' demands and is required to innovate to develop learners' language skills. Again, the researchers felt that it was very challenging to manage a large class, provide an oral practice environment and authentic materials, and make learners active in facilitating teaching and learning language skills with the traditional teaching method (Al-Jamal & Al-Jamal, 2013).

According to (Sağlam & Salı, 2013), ideal teaching and learning EFL language skills environment depends on a positive classroom atmosphere, language teaching materials, learner-centeredness, collaboration between teacher and learners, teachers' and learners' attitude, instructional approach, and teaching method. Given the importance of ideal teaching and learning language skills, different smartphone applications are being employed and made positive pattern shifts for attaining success in teaching and learning language skills in different contexts (Godwin-Jones, 2017).

Thus, several studies e.g., (Burston, 2015; Luo et al., 2015; Machmud & Abdullah, 2017) found that smartphone-assisted language teaching aided learning in multiple settings providing a seamless learning atmosphere for undistributed, continued, and intensive occasions for practicing language skills in any context (Sung et al., 2015). Hence, it has immense pedagogical applications for both teachers and learners in education (Yang, 2013). Nowadays, smartphone applications have become an accessible and useful language tool in the language classroom.

Nevertheless, several studies e.g., (KİLİS, 2013; Viberg & Gronlund, 2012) pointed out some drawbacks of the smartphone, such as small screen, dependency on the internet, shortage of memories, causing distractions by surfing multiple websites, and multiple chatting options. These problems can be mitigated mainly by adding instruments like a projector, external memories, etc., to use them in the classroom more effectively and efficiently. The researchers found the literature on an increase in smartphone applications in education for developing learners' language performance.

Several review studies were found from 2001 to 2017, and the studies indicated the importance and effectiveness of using smartphones in the field of education.

These review studies also provided an overview of different issues of using smartphones to teach and learn language skills in different contexts with foreseeing future research. The researchers found that some studies explored the use of different applications of smartphones for developing learners' language skills from 2000 to 2015 (Crompton & Burke, 2018; Duman et al., 2014; Shadiev et al., 2020). Some studies reported different language skills examined with the applications of smartphones from 2000 to 2013 (Darmi & Albion, 2017; Duman et al., 2014). Some review studies reported employed research methodologies from 2003 to 2017 (Sönmez et al., 2018; Wu et al., 2012). Besides, some other review studies stated EFL contexts of the studies from 2001 to 2015 (Crompton & Burke, 2018; G.-J. Hwang & Tsai, 2011). In recent past years, no review studies were found to survey all four issues like applications, language skills, research methodology, and EFL contexts. Moreover, in the passage of time, the smartphone got several modifications to add many new applications, and those are very comfortable to access ubiquitously. That is why it is necessary to overview the use of smartphones for teaching language skills in EFL contexts in the near past years.

Therefore, this systematic literature review would extend the body of knowledge from previous review studies providing a comprehensive and critically synthesized update overview on different issues related to the usage of the smartphone, such as employed applications of the smartphone, language skills, methodology, and EFL contexts from 2010 to January 2020, a total of ten years. For this purpose, The following research questions were set to investigate the peer-reviewed studies on implementing the applications of a smartphone for English language teaching and learning published between 2010 and January 2020: 1) What were the applications of a smartphone employed for teaching language skills in related literature from 2010 to January 2020?; 2) What were the language skills targeted to teach with the applications of a smartphone in related literature from 2010 to January 2020?; 3) What were the research methods employed for using applications of a smartphone for teaching and learning language skills in related literature from 2010 to January 2020?; 4) What were the EFL contexts of the studies found in related literature from 2010 to January 2020?

Research Methodology

This systematic literature review followed three steps for collecting and analyzing the peer-reviewed studies to attain the answers to the research questions. Mendeley, the reference management software, was used for referencing and preparing data to analyze with NVIVO 12- QSR International, the qualitative data analysis software. The steps are discussed in the following.

Searching Process of the studies

The reputable online databases, especially Springer Link, Scopus, Web of Science, and ScienceDirect were queried for any articles, book chapters, and conference papers from 2010 to January 2020, employing the applications of mobile phones or smartphones for teaching and learning language skills conducted in any EFL contexts. All the studies that addressed other subject domains, such as physics, mathematics, science, etc., non-empirical and the studies that were written earlier than 2010 were excluded. The researchers included the studies that addressed the use of the applications of mobile phones or smartphones for facilitating language skills teaching and learning in EFL contexts. The Boolean method was applied using the words "mobile phone and language skills" and "smartphone and language skills" to search for expected studies. The guidelines of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) (Moher et al., 2015; Ibna Seraj et al., 2021) for inclusion and exclusion of the studies.

Inclusion and exclusion process of the studies

The flow chart of the PRISMA model for the inclusion and exclusion process of selecting the studies is shown in Fig. 1. The researchers searched with the searching phrases for relevant studies in the online database of Springer link, Web of Science, Scopus, and ScienceDirect limited to January 2010 to January 2020. Initially, the result of searching was 2415 in total studies. After screening with titles, 125 studies were downloaded and made into a systematic review database on a desktop. Then after examining the duplicity, 26 studies were excluded from the desktop database. This desktop database of 99 studies was screened with abstracts, and 54 studies were omitted as they did not match the research objectives. Finally, the total accepted studies (N=45) were exported as ris. file from Mendeley for importing into NVIVO 12 for analyzing and finding the answers to the research questions. The analysis process is described in the following PRISMA model.

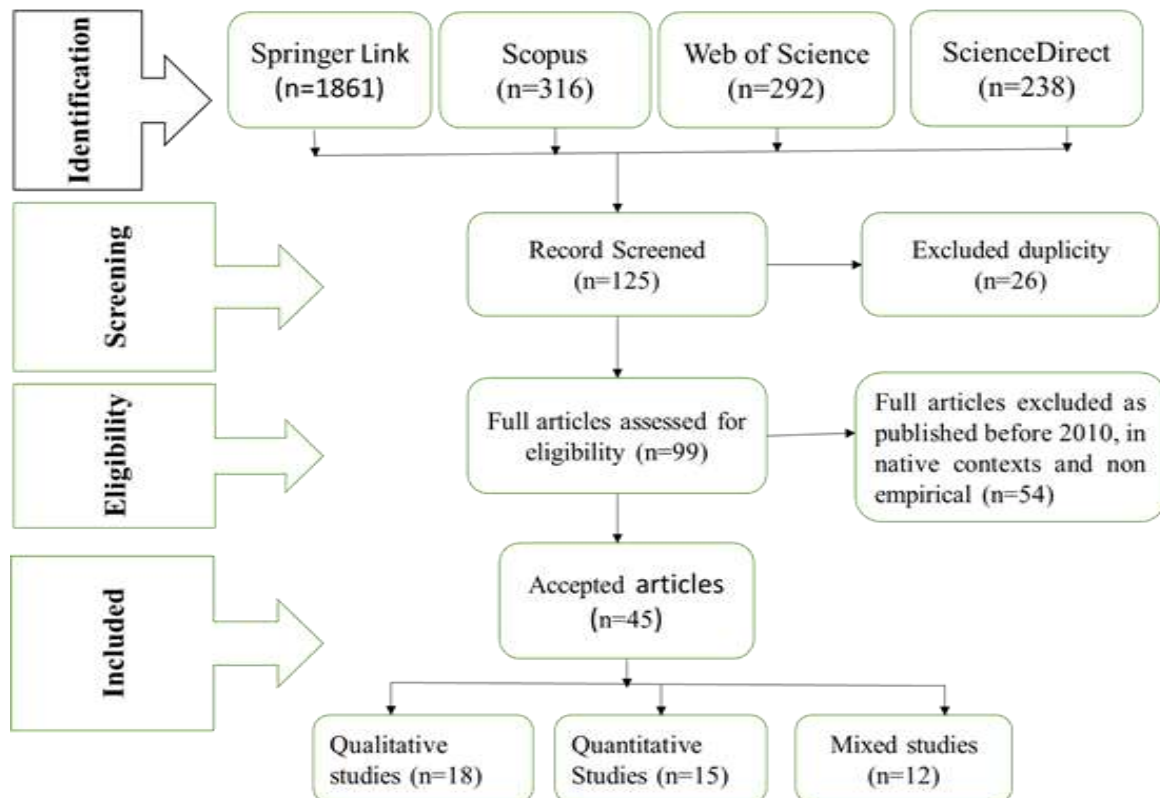


Fig.1 PRISMA Flow Diagram

Analyzing the Process of the studies

The analyzing phases of the studies are presented in Figure 2. Initially, all the selected studies (N=45) were screened and imported into Mendeley, the reference management software, to make a database for the analysis. This database was exported as a ris file to scrutinize for answering the research questions through developing several themes concerning the objectives through NVIVO 12 version, the data analytics software. At this phase, the studies were analyzed for file classifications according to the research questions. After analysis, the results were presented as tables and figures to identify and fulfill the objectives of this systematic literature review.

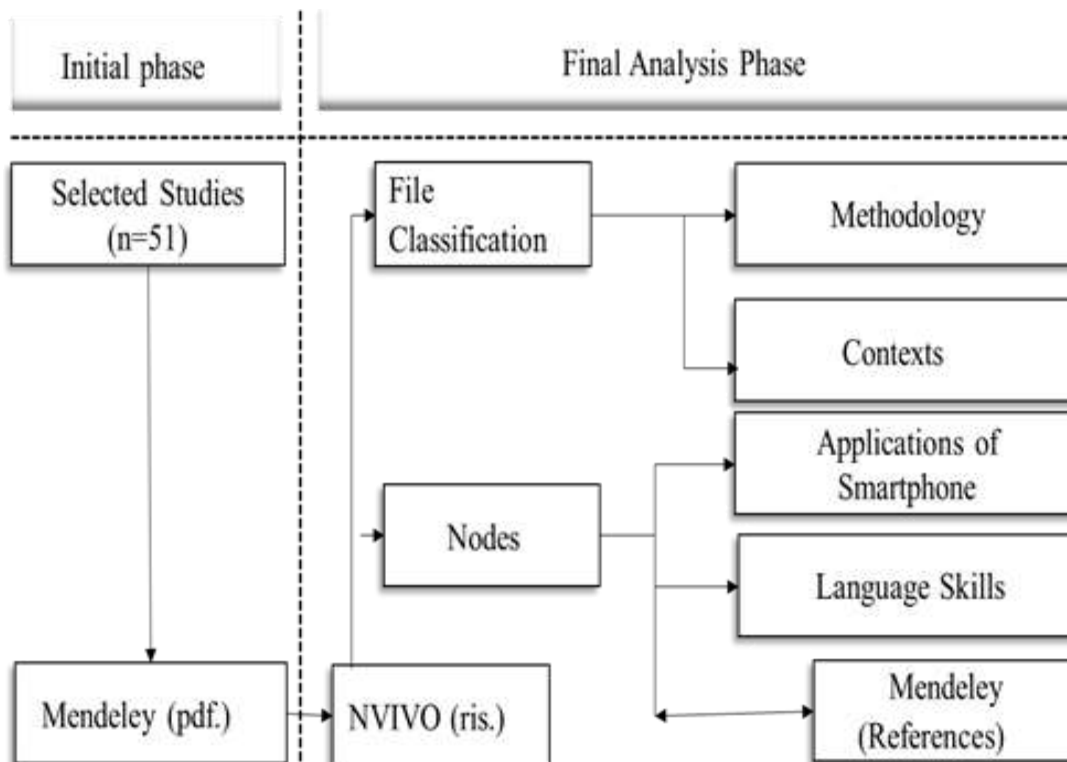


Fig. 2 Analyzing Phases of the Studies

Findings and Discussion

The results after analyzing the studies are discussed in the following to show the relevancy of the objectives.

Findings

Applications of Smartphone and Language Skills

For investigating the answer of RQs. No. 1 & 2, the applications of the smartphone and targeted language skills are presented in Table 1 & Figure 3. There are two types of smartphone applications found: in-built applications and third-party applications or smartphone applications (Apps). In-built applications are built-in applications or manufactured as installed with a smartphone. These cannot be installed from outside sources. Furthermore, smartphone applications are third-party applications that can be downloaded and installed from different sources of storage such as google play store, etc. They are also known as mobile apps; millions of apps are available in stores; most of them are free at cost. The findings of this review tended those in-built applications were more frequently used than third-party applications. On the other hand, vocabulary (n=17), writing (n=8), listening (n=7),

speaking (n=12), grammar (n=5), reading (n=6), pronunciation (n=2), and spelling (n=2) skills were targeted to employ the applications of a smartphone of the language skills.

The findings showed that several built-in applications found to be used for language skills teaching and learning such as audio recording (n=2), camera (n=5), cell phone (n=1), SMS (n=12), MMS (n=2), Mobile phone (n=3), smartphone (n=1), PDA (n=2), and wireless hand-held device (n=1). Some studies employed more than one feature for developing learners' language skills in their studies.

Of these in-built applications, SMS, a short form of "Short Message Service," was used most frequently. As SMS is the common function of smartphones for written communications, previous studies investigated the impact on developing learners' writing skills in different contexts. The findings showed that it had a mostly positive effect on developing learners' vocabulary skills enriching words and idioms rather than the traditional paper and pencil way in different EFL contexts (Alemi et al., 2012; Derakhshan & Kaivanpanah, 2011; Hayati et al., 2013; Motallebzadeh & Ganjali, 2011; Tabatabaei et al., 2012; Zhang et al., 2011). This feature of the smartphone was more effective than other technology like flashcards for developing EFL learners' vocabulary skills (Azabdaftari & Mozaheb, 2012). It also helped improve children's literacy skills, especially reading and spelling (Wood et al., 2011) and advanced learners' reading skills (Motallebzadeh & Ganjali, 2011). On the other hand, it had an adverse impact on EFL learners' spelling, punctuation, sentence length, and the tendency to use non-standard and contracted forms of words in their writing communication skills (Dansieh, 2011; Geertsema et al., 2011). This sort of tendency was found mostly among young learners who were in grades 8 and 9 (Geertsema et al., 2011). But, this tendency was absent among advanced learners because when they wrote formally, they used standard forms of writing (Aziz et al., 2013). Despite some shortcomings, SMS provided a flexible and convenient learning environment to develop learners' language skills, especially writing skills

Some studies reported the effective usage of video and still camera, the feature of a smartphone, for facilitating teaching and learning different language skills. Most of the studies investigated participants' perception, the process, and the impact of the use of video cameras on developing oral communication skills. Participants had a positive attitude toward the use of video cameras as an effective learning tool to develop speaking skills (Gromik, 2012; Kirkgöz & Kirkgöz, 2011). As learners did not get

enough opportunity to speak in the classroom, different oral tasks were designed by integrating video cameras, such as students produced videos and reflection videos on selected topics learners got more exposure to practice oral skills (Akdeniz, 2017; Cahyanti & Rahayu, 2019; Gromik, 2012). Video recording also motivates learners to speak, providing an oral practice environment and prevailed the opportunity to review and evaluate their speech, which helps develop their oral skills (Akdeniz, 2017; Cahyanti & Rahayu, 2019; Gromik, 2012). On the other hand, the still camera had a positive impact on developing reading skills by capturing images or photos for reading practice (A. Hazaea & Alzubi, 2016).

Table 1: Applications of the Smartphones

Applications of Smartphone	Number of Studies (n)
In-built Applications	
Audio Recording	2
Cell phone	1
MMS	2
Mobile phone	3
PDA	2
Smartphone	1
SMS	12
Camera	5
Wireless handle devices	1
Third-Party Applications (Mobile Apps)	
2D Barcode	1
Aurasma	1
Busuu	1
Dictionary	1
Email	2
Facebook	1
Grammar Clinic	1
i-learn	1
i-MoL	1
LINE APP	1
Papa	1
Skype	1
Speech Recognition	1
Telegram Messenger	1
WhatsApp	8
YouTube	1

According to the results, some studies referred to mobile technology using different terminologies, e.g., mobile phone, PDA (n=2), wireless hand devices (n=1), cell phone (n=1), and smartphone (n=1). Some studies reported that mobile phones supported a mobile-assisted learning environment for analyzing learning activities (BALEGHIZADEH & ELNAZ, 2010), providing personalized, authentic, and situated learning environments (Sytwu & Wang, 2016) the positive effect of E-learning on the developing learners' language skills performance. Again, the term PDA, Personal Digital Assistant, and cell phone is used as a mobile phone-based learning tool for providing mobile learning context (Chen & Chang, 2011; Taki & Khazaei, 2011) or mobile learning system (W. Hwang et al., 2014). Wireless handheld System (WHS) was or mobile device (Chang et al., 2014), whereas smartphones, like mobile phone, had multiple applications and functions (Machmud & Abdulah, 2017) and had significant role in developing learners' language skills. Thus, all terms, mobile phones, PDA, WHS, cell phones, and smartphones, are mutually inclusive and interchangeable (Taki & Khazaei, 2011), where the smartphone is sought as the latest term for mobile technology.

The result also showed that some studies reported that MMS (Multimedia Message Service) positively impacted vocabulary skills by providing pictorial activities (Saran et al., 2010, 2012). On the other hand, the audio recording was effective for improving learners' listening skills by providing g audiobooks, audio recordings overall authentic materials (Azar & Nasiri, 2014; Bahasa & Padang, 2019). Thus, different built-in smartphone applications were found accepted and effective for developing learners' language skills by providing authentic and innovative learning activities in different contexts.

Over the last decade, third-party applications of a smartphone (smartphone apps) are becoming popular for their easy accessibility and multiple functions in ELT. The results showed that there was a trend towards widening the use of multiple smartphone applications or mobile applications (Apps) for teaching and learning language skills. This study reported 15 different types of mobile apps e.g., 2D Barcode (n=1), Aurasma(n=1), Basuu (n=1), Email (n=2), Facebook(n=1), Grammar Clinic (n=1), i-Learning (n=1) i-Mol (n=1), LINE APP (n=1), Skype (n=1), Dictionary (n=1), Speech Recognition (n=1), Telegram Messenger (n=1), WhatsApp(n=8) and YouTube(n=1).

According to the results of the smartphone applications (Apps), the most frequently used feature was WhatsApp. Some studies found WhatsApp had instrumental consequences on developing learners' writing skills enriching vocabulary, sentence patterns, knowledge of punctuation, and critical writing ability (Awada, 2016; Fathy et al., 2015; Hamad, 2017; Issa & Alsaleem, 2014). Some studies affirmed that it was effective for reducing learners' psychological factors, e.g., anxiety for improving oral skills providing authentic interaction (Han & Keskin, 2016; Mustafa, 2018). It also had a positive impact on learners' reading skills (Hazaea & Alzubi, 2016). Moreover, the use of WhatsApp facilitated a stress-free learning environment and made learners enthusiastic about developing their language skills (Hamad, 2017; Issa & Alsaleem, 2014). But sometimes, it was difficult to prepare materials, maintain discipline, ensure the attention of all learners, and some learners merely copied and pasted the messages in the group through WhatsApp (Hamad, 2017). Nevertheless, it has ample opportunity to create an authentic learning environment for facilitating an oral practice environment inside and outside the classroom.

Some studies presented the positive impact of Email (Electronic Mail) and Telegram messenger on enriching learners' vocabulary, grammar, reading, and writing skills (Alkkhezzi & Al-Dousari, 2016; Fahim et al., 2011; Wang & Smith, 2013). But the issues related to privacy, learning materials, teacher monitoring, and safe and secured technical environments are much needed to implement Email-based learning and teaching (Wang & Smith, 2013).

The other third-party applications like 2D Barcode, Aurasma, Dictionary, and Basuu, were employed and found to have a positive impact on developing learners' vocabulary skills in some studies (Hazaea & Alzubi, 2016; Kagan et al., 2013; Rezaei et al., 2014; Sytwu & Wang, 2016). Likewise, social networking sites (SNS) apps Papa, YouTube, and Skype had a substantial impact on developing speaking skills providing a sufficient oral practice environment outside the classroom (Mustafa, 2018; Sun et al., 2017). On the other hand, mobile apps like Speech Recognition Engine help young learners to correct their mispronounced words (Cavus & Ibrahim, 2016). For developing learners' grammar skills employing I-MoL and Grammar Clinic apps was very useful (Ganapathy, M., Shuib, M., Gunasegaran, T. and Azizan, 2016). LINE APP positively influenced developing learners' spelling skills (Shih et al., 2015). Again, smartphone apps supported using an online portal through i-learning to

develop learners' listening skills by uploading and downloading audio files for task-based practice (Apolonius et al., 2016). One study reported that Facebook did have a significant role in improving learners' vocabulary skills (Mirabela, Monica - Ariana et al., 2017). Despite some limitations like small screens and shortage of memory capacity, these applications of smartphones have ample potential for learners' language skills development through facilitating learners' engagement, authentic environment, and materials and managing large size.

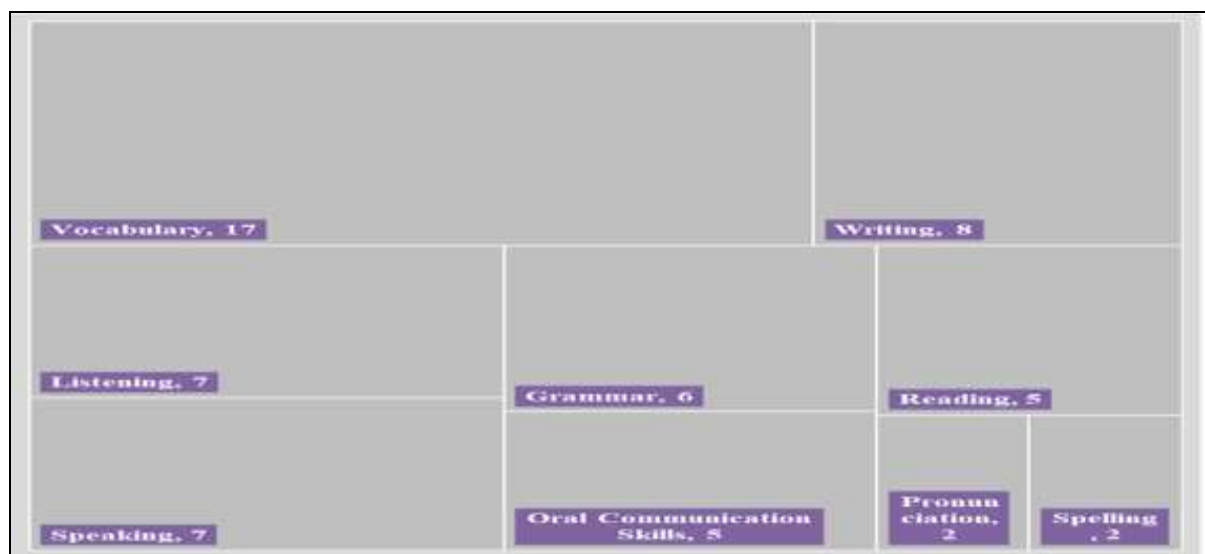


Fig. 3 Hierarchy Chart of Targeted Language Skills

Some studies integrated three applications like WhatsApp, Dictionary, and Camera for developing learners' reading skills (A. N. Hazaea & Alzubi, 2016); Aurasma, camera, and audio for vocabulary skills (Sytwu & Wang, 2016) and YouTube, Skype, and WhatsApp for oral skills (Mustafa, 2018). Thus, integrating more applications for teaching and learning a specific language skill could enhance the learning environment inside and outside the classroom.

Research Methodology

In finding the answer to RQ no. 3, the results showed that all three kinds of research methodology, e.g., quantitative, qualitative, and mixed method, were applied in conducting studies on the use of the applications of smartphones for teaching and learning the English language skills (Figure 5). Of 51 studies, most studies (n=32) employed quantitative research methodology, whereas the least used research

methodology was qualitative (n=3). Moreover, most of the quantitative research design applied quasi-experimental research applying pre and post-test with an intervention for a certain period to determine the effectiveness of smartphones for language skills teaching and learning. Again, the quantitative research method also was employed to investigate participants' positive and negative perceptions of the use of smartphones for language skill teaching and learning through a survey questionnaire. A mixed-method research design (n=16) was conducted to explore both the perception and effectiveness of using smartphones through triangulation from different sources. However, a qualitative design was applied through interviews, observation, and textual analysis to report an in-depth understanding of the use of smartphones for teaching and learning language skills.

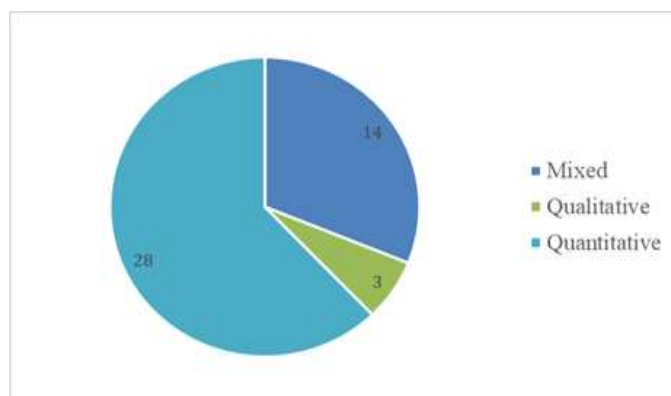


Fig.4 Methodology of the study

Contexts of the studies

For investigating RQ no 4, the results are presented in Figure 5. In response to the research question, there were 19 different EFL contexts found from 2010 to January 2020. They were China (3), Cyprus (n=1), Ghana (n=1), India (n=1) Indonesia(n=3) Iran (n=11), Japan (n=2), Kuwait(n=1), Lebanon(n=1), Malaysia (n=2), Palestine(n=1), Pakistan(n=1), Romania(n=1), Saudi Arabia (n=5), South Africa (n=1) Spain (n=1), Taiwan (n=5), Thailand (n=1), and Turkey (n=6).

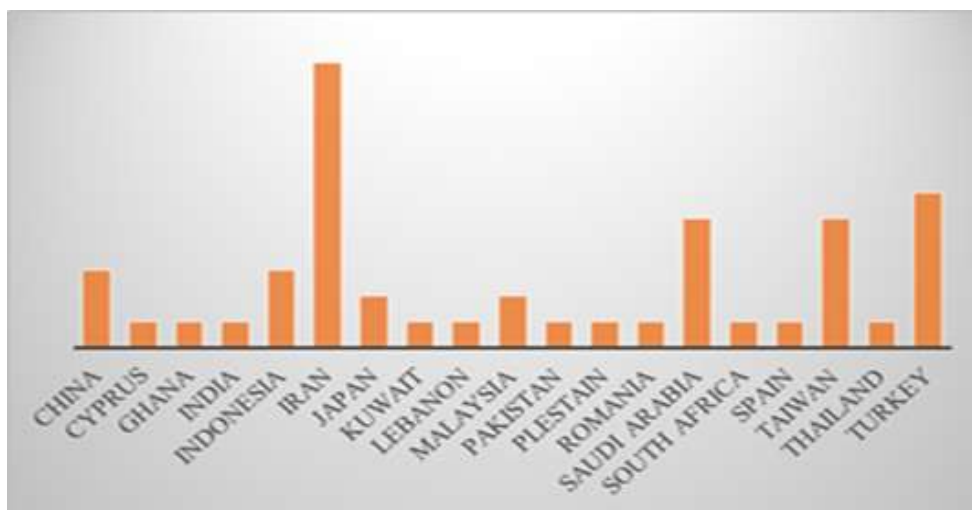


Fig.5 Contexts of the Studies

Discussion

This systematic review revealed that the various applications of smartphones categorizing in-built applications and smartphone applications had an influential impact on teaching and learning different kinds of English language skills in EFL contexts. The findings also reported that a total of 23 applications of smartphones were employed, and SMS was the most used feature. Moreover, this study found that some applications like smartphone applications were not investigated in the list of review studies before. The previous review studies from 2000 to 2010 found 6 applications, and a cell phone was the most used (Duman et al., 2014), and from 2010 to 2015 found 6 applications, and the mobile device was the most frequently used (Crompton & Burke, 2018). On the other hand, this study found that 9 different language skills were targeted to develop with these applications, and vocabulary was the most targeted language skill here. The previous review studies from 2000 to 2010 reported 6 different language skills, and vocabulary was the most dealt (Duman et al., 2014), and from 2004 to 2013, research studies found 5 different language skills, and the most dealt language skill was vocabulary as well (Darmi & Albion, 2014). However, this systematic review presents the growing tendency to widen the usage of many applications of smartphones for teaching and learning all areas of language skills. Provided information indicates that more studies are needed to explore the usage of smartphone applications in the field of language skills, teaching, and learning.

Regarding the employing research method for conducting research in this field,

this study revealed that the quantitative method was more frequent and popular. The previous review studies from 2003 to 2010 (Wu et al., 2012) and from 2013 to 2017 (Sönmez et al., 2018) also reported that the quantitative method was the frequent choice of researchers to investigate the use of the applications of a smartphone for teaching and learning language skills. The studies found that the duration of the period of intervention used to investigate the effect of smartphone applications on language skills was short. The findings suggested a more experimental research design with the intervention for the whole semester of an academic session for assessing the effect of smartphones on developing learners' language skills that are needed in future studies.

Finally, the results showed that Asian researchers were the top contributor to the field of smartphone-based language skills teaching. Extending the body of the knowledge of literature, the previous review study from 2001 to 2010 reported 23 different contexts, e.g., EFL (n=17) and native speaking (n=6) contexts, and Taiwan was the most contributing country (Hwang & Tsai, 2011). Another review study held from 2010 to 2015 reported 29 different EFL (n=21) and native speaking (n=8) contexts, and Taiwan was the most contributing country as well (Crompton et al., 2017). The findings pointed out that the highest number of studies held in Iran was the difference between the previous review studies. Thus, this systematic literature review added to the body of knowledge in the relevant field, reviewing the previous studies on the use of the applications of a smartphone for facilitating teaching and learning English language skills in different contexts. This study also upgrades systematic information and provides the current overview of the research trends critically on the use of the applications of a smartphone in English language skills teaching and learning.

Limitations and implications for future research

This systematic literature review is a critical and systematic overview of the current studies on the use of the applications of a smartphone in teaching and learning English language skills in different EFL contexts issued from 2010 to January 2020. The first limitation of this study is that it is limited to only four reputable online databases, namely Springer link, Web of Science, Scopus, and ScienceDirect, during the mentioned period. This study is also limited to the studies that used applications of smartphones only for teaching and learning English language skills. Another

limitation is that this study includes only peer-reviewed studies. Last but not least, this review was not exhaustive but systematic.

This systematic review would recommend some insights for further research for researchers, educators, and language teachers to integrate the applications of a smartphone for teaching and learning English language skills. First of all, studies are needed to explore the impact of the simultaneous combination of 2 or 3 or 4 applications of a smartphone for the teaching and learning of language skills. Secondly, for producing a standard model of language pedagogy, more studies are needed to investigate teachers' opinions and involvement at a particular level. Fourthly, research is needed to examine the influence of the applications of a smartphone on dealing with problems like lack of oral English practice environment, lack of authentic materials, and large size classes that the EFL learners face to develop their oral English communication skills.

Nevertheless, the findings provide implications for educators and researchers to implement smartphone phones for developing EFL learners' pronunciation and spelling. As there were the least studies conducted in this regard. Moreover, few studies were designing qualitative research, and there is a methodological gap among researchers.

Conclusion

This systematic literature review presents a systematic and critical overview of the studies on implementing smartphone applications in facilitating teaching and learning language skills published from 2010 to January 2020 in alignment with the findings of some previous review studies. This study extends the body of knowledge of review studies on the use of the smartphone for facilitating English language skills learning by surveying the applications of a smartphone, targeted language skills, research methodologies, and EFL contexts from the studies of a timeframe. In conclusion, this study illustrates many more different applications of smartphones employed for teaching language skills than the previous review studies. The EFL context, where the highest number of studies is also different from the previous review studies. Nevertheless, the research methodology and targeted language skills of this study remain the same as in the previous review studies. The results of this review are valuable to researchers as it offers a systematic and critical overview of current studies and identifies gaps in implementing the applications of a smartphone in teaching and learning language skills dealing with the problems like large size

classes, lack of authentic material, and lack of oral practice environment in an EFL context. Additionally, this review delivers additional applications of the smartphone that were not reviewed before.

References

- Akdeniz, N. Ö. (2017). Use of student-produced videos to develop oral skills in EFL classrooms. *International Journal on Language, Literature and Culture in Education*, 4(1), 43–53. <https://doi.org/10.1515/llce-2017-0003>
- Al-Jamal, D. A., & Al-Jamal, G. A. (2013). An investigation of the difficulties faced by EFL undergraduates in speaking skills. *English Language Teaching*, 7(1), 19–27. <https://doi.org/10.5539/elt.v7n1p19>
- Alemi, M., Sarab, M. R. A., Lari, Z., Reza, M., Sarab, A., & Lari, Z. (2012). Successful learning of academic word list via MALL: Mobile assisted language learning. *International Education Studies*, 5(6), 99–109. <https://doi.org/10.5539/ies.v5n6p99>
- Alkkhezzi, F., & Al-Dousari, W. (2016). The impact of mobile learning on ESP learners' performance, College of Allied Health Sciences, Kuwait University, Kuwait. *The Journal of Educators Online-JEO*, 13(2), 73–101.
- Apolonius, L. E., Joseph, A. H., Raj, J. A. T., & Thambu Raj, J. A. (2016). Mobile phone app insights: L-Listen, R-Reflect, A-Act (LIRA). In A. and A. A. Alias, Johan Eddy Luanan, Janudin Sardi (Ed.), *Envisioning the Future of Online Learning* (pp. 413–421). Springer. <https://doi.org/10.1007/978-981-10-0954-9>
- Awada, G. (2016). Effect of whatsapp on critique writing proficiency and perceptions toward learning. *Cogent Education*, 3(1). <https://doi.org/10.1080/2331186X.2016.1264173>
- Azabdaftari, B., & Mozaheb, M. A. (2012). Comparing vocabulary learning of EFL learners by using. *The EUROCALL Review*, 20(2), 47–59.
- Azar, A. S., & Nasiri, H. (2014). Learners' attitudes toward the Effectiveness of Mobile Assisted Language Learning (MALL) in L2 Listening Comprehension. *Procedia - Social and Behavioral Sciences*, 98, 1836–1843. <https://doi.org/10.1016/j.sbspro.2014.03.613>
- Aziz, S., Shamim, M., Aziz, M. F., & Avais, P. (2013). The Impact of texting / SMS Language on Academic Writing of Students- What do we need to panic about? *Linguistics and Translation*, 55, 12884–12890.
- Bahasa, F., & Padang, U. N. (2019). Mobile-based media as the solution in teaching and learning listening skill. *Contemporary Educational Psychology*, 1387. <https://doi.org/10.1088/1742-6596/1387/1/012024>
- Baleghizadeh, S. O., & Elnaz. (2010). The Effect of mobile assisted language learning (MALL) on grammatical accuracy of EFL Students. *MEXTESOL Journal*, 34(2), 77–86.
- Burston, J. (2015). Twenty years of MALL project implementation: A meta-analysis of learning outcomes. *ReCALL*, 27(1), 4–20. <https://doi.org/10.1017/S0958344014000159>
- Cahyanti, T. W., & Rahayu, A. B. (2019). Enhancing Students' Speaking Skills Using Reflectional Video in Story Telling. *Seminar Nasional Penelitian Dan Pengabdian Masyarakat*, 1979, 175–181.
- Cavus, N., & Ibrahim, D. (2016). Learning English using children's stories in mobile devices. *British Journal of Educational Technology*, 2011. <https://doi.org/10.1111/bjet.12427>

- Chang, K. E., Lan, Y. J., Chang, C. M., & Sung, Y. T. (2014). Mobile - device - supported strategy for Chinese reading comprehension. *Contemporary Educational Psychology*, 47(1), 37–41. <https://doi.org/10.1080/14703290903525853>
- Chen, I.-J. J., & Chang, C.-C. C. (2011). Content Presentation Modes in Mobile Language Listening Tasks: English Proficiency as a Moderator. *Computer Assisted Language Learning*, 24(5), 451–470. <https://doi.org/10.1080/09588221.2011.577749>
- Crompton, H. and, & Burke, D. (2018). The use of mobile learning in higher education : A systematic review. *Computers & Education*, 123(April), 53–64. <https://doi.org/10.1016/j.compedu.2018.04.007>
- Crompton, H., Burke, D., & Gregory, K. H. (2017). The use of mobile learning in PK-12 education: A systematic review. *Computers and Education*, 110, 51–63. <https://doi.org/10.1016/j.compedu.2017.03.013>
- Dansieh, S. A. (2011). SMS texting and its potential impacts on students ' written communication skills. *International Journal of English Linguistics*, 1(2), 222–229. <https://doi.org/10.5539/ijel.v1n2p222>
- Darmi, R., & Albion, P. (2017). Mobile learning in higher education in the asia-pacific region. *Education in the Asia-Pacific Region*, 40, 297–314. <https://doi.org/10.1007/978-981-10-4944-6>
- Darmi, R., & Albion, P. (2014). A review of integrating mobile phones for language learning. *10th International Conference Mobile Learning*, 93–100.
- Derakhshan, A., & Kaivanpanah, S. (2011). The impact of text-messaging on EFL Freshmen's Vocabulary Learning. *THE EUROCALL REVIEW*, 19, 47–56.
- Duman, G., Orhon, G. G., & Gedik, N. (2014). Research trends in mobile assisted language learning from 2000 to 2012. *ReCALL*, 27(02), 197–216. <https://doi.org/10.1017/s0958344014000287>
- Fahim, M., Motallebzadeh, K., Sazegar, Z., & Mansoor Fahim, Khalil, M. (2011). The effect of e-mailing on vocabulary retention of Iranian lower intermediate EFL learners. *Journal of Language Teaching and Research*, 2(6), 1385–1390. <https://doi.org/10.4304/jltr.2.6.1385-1391>
- Fathy, S. S. E. A. F., Said, E., & Fattah, A. (2015). The effectiveness of using whatsapp messenger as one of mobile learning techniques to develop students ' writing skills. *Journal of Education and Practice*, 6(32), 115–127. www.polleverywhere.com
- Ganapathy, M., Shuib, M., Gunasegaran, T. and Azizan, S. N. (2016). ESL lecturers' perceptions on using i-MoL as a mobile-based tool for teaching grammar. *Pertanika J. Soc. Sci. & Hum*, 24(3), 1051–1067.
- Gangaiamaran, R., & Pasupathi, M. (2017). Review on use of mobile apps for language learning. *International Journal of Applied Engineering Research*, 12(21), 11242–11251.
- Geertsema, S., Hyman, C., Van Deventer, C., & Deventer, C. Van. (2011). Short message service (SMS) language and written language skills : educators ' perspectives. *South African Journal of Education*, 31(2006), 475–487.
- Godwin-Jones, R. (2017). Smartphones and Language Learning. *Language Learning & Technology*, 21(2), 3–17. <http://llt.msu.edu/issues/june2017/index.html%0Ahttps://eric.ed.gov/?q=Godwin-Jones&id=EJ1142376>
- Gromik, N. A. (2012). Cell phone video recording feature as a language learning tool: A case study. *Computers and Education*, 58(1), 223–230. <https://doi.org/10.1016/j.compedu.2011.06.013>

- Hamad, M. M. (2017). Using WhatsApp to enhance students ' learning of English Language " experience to share ." *Higher Education Studies*, 7(4), 74–87. <https://doi.org/10.5539/hes.v7n4p74>
- Han, T., & Keskin, F. (2016). Using a mobile application (WhatsApp) to reduce EFL Speaking Anxiety. *Gist: Education and Learning Research Journal*, 12(12), 29–50.
- Hayati, A., Jalilifar, A., & Mashhadi, A. (2013). Using Short Message Service (SMS) to teach English idioms to EFL students. *British Journal of Educational Technology*, 44(1), 66–81. <https://doi.org/10.1111/j.1467-8535.2011.01260.x>
- Hazaea, A., & Alzubi, A. (2016). The Effectiveness of using mobile on EFL learners ' reading practices in the effectiveness of using mobile on EFL learners ' Reading Practices in Najran University. *English Language Teaching*, 9(5), 8–21. <https://doi.org/10.5539/elt.v9n5p8>
- Hazaea, A. N., & Alzubi, A. A. (2016). The Effectiveness of Using Mobile on EFL Learners' Reading Practices in Najran University. *English Language Teaching*, 9(5), 8. <https://doi.org/10.5539/elt.v9n5p8>
- Hwang, G.-J., & Tsai, C.-C. (2011). Research trends in mobile and ubiquitous learning: a review of publications in selected journals from 2001 to 2010. *British Journal of Educational Technology*, 42(4), E65–E70. <https://doi.org/10.1111/j.1467-8535.2011.01183.x>
- Hwang, W., Chen, H. S. L., Shadiey, R., Huang, Y., & Chen, C. (2014). Improving English as a foreign language writing in elementary schools using mobile devices in familiar situational contexts. *Computer Assisted Language Learning*, 27(5), 37–41. <https://doi.org/10.1080/09588221.2012.733711>
- Ibna Seraj, P. M., Klimova, B., & Habil, H. (2021). Use of mobile phones in teaching english in bangladesh: A systematic review (2010–2020). *Sustainability (Switzerland)*, 13(10), 1–13. <https://doi.org/10.3390/su13105674>
- Issa, B., & Alsaleem, A. (2014). The effect of " WhatsApp " electronic dialogue journaling on improving writing vocabulary word choice and voice of efl undergraduate saudi students. *21st Century Academic Forum Conference at Harvard*, 32–47.
- Kagan, R., Özdemir, S., Agca, R. K., & Özdemir, S. (2013). Foreign language vocabulary learning with mobile technologies. *Procedia - Social and Behavioral Sciences*, 83, 781–785. <https://doi.org/10.1016/j.sbspro.2013.06.147>
- KİLİS, S. (2013). Impacts of mobile learning in motivation , engagement and achievement of learners : Review of literature. *Gaziantep University Journal of Social Sciences*, 12(December), 375–383.
- Kirkgöz, Y., & Kirkgöz, Y. (2011). A blended learning study on implementing video recorded speaking tasks in task-based classroom instruction. *Turkish Online Journal of Educational Technology*, 10(4), 1–13.
- Luo, B., Lin, Y., & Chen, N. (2015). Using Smartphone to Facilitate English Communication and Willingness to Communicate in a Communicative Language Teaching Classroom. *2015 IEEE 15th International Conference on Advanced Learning Technologies*. <https://doi.org/10.1109/ICALT.2015.22>
- Machmud, K., & Abdulah, R. (2017). Using smartphone-integrated model of teaching to overcome students' speaking anxiety in learning English as a foreign language. *Journal of Arts and Humanities*, 6(9), 01. <https://doi.org/10.18533/journal.v6i9.1249>
- Mirabela, Monica - Ariana, S. and P. A.-, Monica -Ariana, S., & Mirabela, A.-. (2017). The impact of social media on vocabulary learning case study- facebook.

Proceedings of the International MultiConference of Engineers and Computer Scientists, 120–130.

- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, A. L., & Group, P.-P. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews*, 4(1), 1–9. <https://doi.org/10.1186/2046-4053-4-1>
- Motallebzadeh, K., & Ganjali, R. (2011). SMS : Tool for L2 vocabulary retention and reading comprehension ability. *Journal of Language Teaching and Research*, 2(5), 1111–1115. <https://doi.org/10.4304/jltr.2.5.1111-1115>
- Mustafa, E. N. E. (2018). The Impact of youtube , skype and whatsapp in improving efl learners ' speaking skill. *International Journal of Contemporary Applied Researches*, 5(5), 18–31. www.ijcar.net
- Nakamura, T. (2015). The action of looking at a mobile phone display as nonverbal behavior/communication: A theoretical perspective. *Computers in Human Behavior*, 43, 68–75. <https://doi.org/10.1016/j.chb.2014.10.042>
- Pimmer, C., Mateescu, M., & Grohbiel, U. (2016). Mobile and ubiquitous learning in higher education settings . A systematic review of empirical studies. *Computers in Human Behavior*, 63, 490–501. <https://doi.org/10.1016/j.chb.2016.05.057>
- Rahman, M., Rahman, R. A., & Habib, M. (2021). Integrated mobile learning education supply chain management for higher learning institutions. *AIUB Journal of Science and Engineering*, 20(4), 166–175. <https://doi.org/10.53799/AJSE.V20I4.289>
- Rezaei, A., Mai, N., & Pesaranghader, A. (2014). The effect of mobile applications on english vocabulary acquisition. *Jurnal Teknologi*, 68(2), 73–83. <https://doi.org/10.11113/jt.v68.2912>
- Sağlam, G., & Sali, P. (2013). The essentials of the foreign language learning environment: Through the eyes of the pre-service EFL teachers. *Procedia - Social and Behavioral Sciences*, 93, 1121–1125. <https://doi.org/10.1016/j.sbspro.2013.09.342>
- Saran, M., Seferoğlu, G., & Saran, Murat Seferoglu, Golge and Cagiltay, K. (2012). Mobile language learning : Contribution of multimedia messages via mobile phones in consolidating vocabulary. *The Asia-Pacific Education Researcher*, 21(1), 181–190. <https://www.researchgate.net/publication/282395967>
- Saran, M., Seferoğlu, G., & Üniversitesi, Ç. (2010). Supporting foreign language vocabulary learning through multimedia messages via mobile phones. *Journal of Education*, 38(1), 34-42 http://www.marcprensky.com/writing/PrenskyWhat_Can_You_Learn_From_a_Cell_Phone-FINAL.pdf
- Shadiev, R., Liu, T., & Hwang, W. Y. (2020). Review of research on mobile-assisted language learning in familiar, authentic environments. *British Journal of Educational Technology*, 51(3), 709–720. <https://doi.org/10.1111/bjet.12839>
- Shih, R., Lee, C., & Cheng, T.-F. (2015). Effects of English spelling learning experience through a mobile LINE APP for college students. *Procedia - Social and Behavioral Sciences*, 174, 2634–2638. <https://doi.org/10.1016/j.sbspro.2015.01.945>
- Sönmez, A., Göçmez, L., Uygun, D., & Ataizi, M. (2018). A review of current studies of mobile learning. *Journal of Educational Technology and Online Learning*, 1(1), 12–27. <https://doi.org/10.31681/jetol.378241>
- Sun, Z., Lin, C. H., You, J., Shen, H. jiao, Qi, S., & Luo, L. (2017). Improving the English-speaking skills of young learners through mobile social networking. *Computer*

- Assisted Language Learning, 30(3–4), 304–324.
<https://doi.org/10.1080/09588221.2017.1308384>
- Sung, Y. T., Chang, K. E., Yang, J. M., Ph, D., Chang, K. E., & Yang, J. M. (2015). How effective are mobile devices for language learning? A meta-analysis. *Educational Research Review*, 16, 68–84.
<https://doi.org/10.1016/j.edurev.2015.09.001>
- Sytwu, T. A., & Wang, C. H. (2016). *An Investigation of the Effects of Individual Differences on Mobile-Based Augmented Reality English Vocabulary Learning*. In D. C. L. K. F. C. and B. Fox (Ed.), *Mobile Learning Design* (Issue 9789811000256, pp. 387–410). Springer International Publishing.
<https://doi.org/10.1007/978-981-10-0027-0>
- Tabatabaei, O., Goojani, A. H., Abdolsamad, ;, & Goojani, H. (2012). The Impact of Text-Messaging on Vocabulary Learning of Iranian EFL Learners. *Cross-Cultural Communication*, 8(2), 47–55.
<https://doi.org/10.3968/j.ccc.1923670020120802.1689>
- Taki, S., & Khazaei, S. (2011). Learning vocabulary via mobile phone: Persian EFL learners in focus. *Journal of Language Teaching and Research*, 2(6), 1252–1258. <https://doi.org/10.4304/jltr.2.6.1252-1258>
- Tipmontree, S., & Tasanameelarp, A. (2018). The effects of role-playing simulation activities on the improvement of EFL students' business English oral communication. *Journal of Asia TEFL*, 15(3), 735–749.
<https://doi.org/10.18823/asiatefl.2018.15.3.11.735>
- Viberg, O., & Gronlund, A. (2012). Mobile assisted language learning : A literature review mobile assisted language learning : A literature review. *11th World Conference on Mobile and Contextual Learning*, January.
[https://doi.org/10.1016/S0022-5347\(17\)39354-0](https://doi.org/10.1016/S0022-5347(17)39354-0)
- Wang, S., & Smith, S. (2013). Reading and grammar learning through mobile phones. *Language Learning & Technology*, 17(3), 117–134.
<http://llt.msu.edu/issues/october2013/wangsmith.pdf>
<http://llt.msu.edu/issues/october2013/wangsmith.pdf>
- Wood, C., Jackson, E., Hart, L., Plester, B. and, & Wilde, L. (2011). The effect of text messaging on 9- and 10-year-old children ' s reading , spelling and phonological processing skills. *Journal of Computer Assisted Learning*, 27(1), 28–36. <https://doi.org/10.1111/j.1365-2729.2010.00398.x>
- Wu, W. H., Jim Wu, Y. C., Chen, C. Y., Kao, H. Y., Lin, C. H., & Huang, S. H. (2012). Review of trends from mobile learning studies: A meta-analysis. *Computers and Education*, 59(2), 817–827. <https://doi.org/10.1016/j.compedu.2012.03.016>
- Yang, J. (2013). Mobile assisted language learning: Review of the recent applications of emerging mobile technologies. *English Language Teaching*, 6(7), 19–25. <https://doi.org/10.5539/elt.v6n7p19>
- Zhang, H., Song, W., & Burston, J. (2011). Reexamining the effectiveness of vocabulary learning via mobile phones. *Turkish Online Journal of Educational Technology - TOJET*, 10(3), 203–214.
<http://www.eric.ed.gov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=EJ944968>