

# Teachers' Perceptions of Using MALL in Teaching Vocabulary to Young EFL Learners in Saudi Arabia

Alotaibi Habiba Mansor  
KSU, Riyadh, Kingdom of Saudi Arabia

**Abstract**—This study examines the usefulness and functionalization of mobile-assisted language learning (MALL) applications for teaching vocabulary at public schools in the Kingdom of Saudi Arabia. A descriptive questionnaire was conducted in the KSA in the academic year 2022 to survey EFL instructors' aspects of functionalizing vocabulary MALL applications. The selected sample was composed of 100 English as a foreign language (EFL) instructors and was selected purposively. Most of them were youths and experienced. These EFL instructors are members of a WhatsApp group of EFL instructors who possess digital mobiles and are interested in EFL MALL applications. The questionnaire was divided into five categories that each included a specific item. It is composed of 25 items with four choices: strongly agree, agree, disagree, and strongly disagree. Every classification included five items to survey EFL instructors' perceptions of the impact of conducting MALL applications on Young Learners' vocabulary learning. Vocabulary MALL applications were determined to have important benefits for vocabulary teaching and learning. The EFL instructors regarded MALL applications as easy and effective and preferred MBVI over TVI due to its potential and usability among learners. To efficiently use vocabulary MALL applications, learners must be well prepared and classrooms must be more mobile-oriented. Consequently, EFL instructors must be efficient in terms of both technology and pedagogy.

**Index Terms**—MALL applications, vocabulary learning, mobile-based vocabulary teaching

## I. INTRODUCTION

Since the beginning of the 21st century, digital mobiles have started to disturb daily life. As the technology improved rapidly and reached the age of smartphones, the occurrence of an individual carrying a digital phone and staring motionlessly through it has become commonplace (Al Ghamdi et al., 2020). Smartphones have the properties of computers, and many individuals are becoming increasingly reliant on their small mobile devices to perform several actions such as interacting with others, performing work tasks, and studying. Digital mobiles are a developed technology that provide many services, such as calls and text messages, and also allow the use of emerging applications for users, such as educational ones that are available and installed through online markets, such as Google Play and Apple Store. Moreover, individuals can use their smart mobiles in processes such as editing, storing, sending, sharing, and playing media files; accessing the World Wide Web; and learning. Using mobiles within education facilitates the process of learning and provides English as a foreign language (EFL) instructors with more options for creative teaching (Al-Ahdal et al., 2013).

Many cutting-edge pedagogical concepts in the field of language education have been refined and implemented on mobile devices to make language learning more accessible and efficient (Al-Najjar, 2020). The use of mobile devices in language education has prompted the development of a new subfield of computer-assisted language learning (CALL), also known as mobile-assisted language learning (MALL). Several findings from MALL research indicate that mobiles are effective in a variety of school settings. Numerous studies such as those conducted by Abbasi and Hashemi (2013) as well as Cain and Oakhill (2014) demonstrate the importance of teaching vocabulary to language learners. In Saudi Arabia, the conditions under which English is taught are considerably discouraging, and smartphones might help improve EFL students' language learning in several ways. Several academics have examined how well students learn English through online courses. The effects of mobile devices on the acquisition and instruction of English vocabulary are the focus of this study (Li et al., 2017).

## II. LITERATURE REVIEW

Vocabulary is defined as all dictionaries that cover a certain language or subject area. It is the set of words used in a certain language. Vocabulary is a crucial aspect when learning a language, as it is essential for students to communicate their thoughts and ideas to others and themselves. According to Wilkins and corroborated by Zhang (2015, p. 4), limited vocabulary can be transmitted in the absence of grammar, but nothing can be altered in the absence of vocabulary (1972, p. 111). McCarthy (1990, p. 265) suggests that grammatical rules and pronunciation are unimportant, but that vocabulary was (Zhang, 2015, p. 4). Words are the building blocks of language, and a lack of them might pose difficulties or even prevent the development of a new language altogether (Lin et al., 2019).

Moreover, vocabulary refers to the foundational terms that one has to know to communicate. A rich vocabulary is a tunnel that transforms the meaning of speech or written text, and it is analogous to paints that artists use to create their work. Vocabulary expansion is also essential to the development of language skills. Developing working vocabulary at the outset of an EFL study is a crucial first step. Vocabulary is a powerful tool to enhance communication, understanding, fluency, and success. Broader vocabulary also improves performance in other areas of linguistic ability (Lane, 2016).

In the history of vocabulary lessons, classroom vocabulary training was largely ignored before the 1980s. In the 1970s, limited studies explored the topic of language education, and even fewer focused on the specific topic of teaching students new vocabulary. Nonetheless, a shift has occurred in recent years, with more studies focusing on the importance of vocabulary instruction and acquisition. The advent of the communicative method finally addressed vocabulary. In this process, words are incorporated into lessons as they naturally fit into the courses; thus, vocabulary development was secondary. The need to train students in other language skills to acquire a larger vocabulary is underlined. Recently, teaching vocabulary has become an integral aspect of any English as a foreign language (EFL) curriculum; as such, this aspect must be implemented in a consistent and well-organized fashion (DeWitt et al., 2014).

Some language teachers argue that word choice should be prioritized. Specifically, they divide vocabulary learning methods into two groups: one is the deliberate study of words and phrases, and the other is the unintentional learning of new words and phrases in everyday conversation. The following elements are necessary for successful vocabulary instruction (Li et al., 2017):

- Insightful choice of target words
- Multiple exposures to words
- Expanded instruction
- The involvement of word awareness
- Other educators have concluded these indications for teachers
- Support with a vocabulary-useful environment
- Integrate the meanings of vocabulary
- Organize and introduce vocabulary teaching constructively
- Clarify vocabulary
- Reinforce vocabulary teaching through the use of technology
- Evaluate the students' improvement

Vocabulary is best learned through drills and practice as well as by the teacher repeating and recycling words and the students re-encountering previously presented terms. As a result, vocabulary training in Saudi Arabia is in the same dismal state as in English as a foreign language overall; this context is unfortunate because vocabulary is an essential component of any language (Matsukawa et al., 2014).

Through MALL a mobile device is used to supplement or enhance language studies. In the same way as m-learning is a subset of CALL, MALL is a subset of mobile learning. With the widespread use and steady advancement of mobile technology, such as mobile phones (cellphones) and MP3 and MP4 players throughout the world, MALL has emerged as a beneficial tool to supplement students' language learning. The mobility and portability of MALL allows students to study a language independently or in a group and to communicate with their instructors and classmates from any location. The first attempts to use telephones for distance learning, which became the basis for MALL, were made in the 1980s and the 1990s (Crompton, 2017).

In the twenty-first century, MALL was defined and established as a legitimate field of study in language acquisition. The introduction of the iPhone in 2009 was a watershed moment in the rise of mobile phones as a replacement for laptops. In the realm of language education, mobile learning is a cutting-edge and boon. Numerous studies have demonstrated the practicality of using mobile devices in language schools, and the use of mobile devices as a tool for teaching and studying languages has recently increased in popularity because of their many beneficial features. Mobile devices are useful for language learning and teaching for a number of reasons, including the following (Larabee et al., 2014):

- They are portable.
- They are social and interactive.
- They are sensitive through contexts.
- They can connect to other devices.
- They are individuals.

The accessibility of mobile devices is perhaps the most valuable feature for boosting students' enthusiasm and involvement and strengthening their capacity for collaboration and communication. However, effective mobile-assisted education must be based on a sound pedagogical foundation that considers the learner, material, setting, and method of delivery. Despite the potential of MALL, certain challenges may undermine its implementation, including time constraints, technical expertise, and availability. Implementing the most recent developments in MALL may also be difficult. Furthermore, effectively using MALL requires widespread agreement among language educators and a solid pedagogical foundation (Liu & Chen, 2015).

According to Bieńkowska et al. (2021), the use of mobile devices in the classroom fosters communication skills. Students' motivation, a sense of community, autonomy, and flexibility in learning increased when mobile devices were

used as the teaching tools. WhatsApp is one example of a text messaging platform that can be used to teach vocabulary, and students have indicated they prefer this method over conventional methods. They often send and receive text messages, and they reply to it. Moreover, Alahdal and Alharbi (2021) studied the use of MALL as a tool for group learning, and they found that vocabulary retention and performance were enhanced. Furthermore, typically shy students profited immensely from using this tool as they had the chance to join in class activities without having to overcome their first hesitation. Ali et al. (2020) found that students could become more involved through the implementation of MALL in classrooms. Furthermore, MALL can also be useful for teaching grammar and improving speaking skills, writing skills, and vocabulary.

### III. METHODOLOGY

This study was designed as a survey. A survey collects data in a structured manner, which is then statistically analyzed to yield important research findings (Guyette, 1983). The survey investigated EFL educators' views on how mobile application-based language learning (MALL) impacts the vocabulary development of YLs.

#### A. Setting and Context

This study was conducted in Riyadh, Saudi Arabia during the 2022–2023 school year. Mobile phone use has expanded rapidly across the population, especially among young people. Today, students have shown growing interest in smartphones and other forms of mobile technology. The prevalence of smartphones and tablets, such as Apple iPhones and iPads as well as Samsung Galaxy phones and tablets, among users of all ages and levels of education is undeniable. Therefore, EFL students may be open to using mobile devices for instructional purposes.

#### B. Population and Subjects

Participants in the research were all female EFL teachers employed by the Saudi Directorate of Education's public schools in the 2022–2023 school year. Approximately 100 academics were included in this group. The researcher's survey clarified that the majority of them were experienced and worked in public schools, they are interested in ESL/EFL MALL apps, and they were part of a WhatsApp group of EFL teachers who use smartphones.

#### C. Instruments

Data was collected through a survey with closed-ended questions administered to EFL teachers. The researcher fashioned it after the works of Blasco (2016), Brooke (1996), Ebadi and Bashiri (2018), El Boukhari (2015), Lund (2001), and Perez-Paredes, Ordonana Guillamon, and Aguado Jimenez (2016a, 2016b, 2018).

The survey had five classifications. Certain claims were made for each heading. The survey consisted of 25 questions, with response options of "strongly agree", "agree", "disagree", or "strongly disagree". Five statements per category were used to collect feedback from EFL educators on how MALL influences YLs' vocabulary development. The study's data included a five-point scale for "strongly agree," a four-point scale for "agree," a one-point scale for "disagree", and zero-point scale for "strongly disagree". A total of 100 points were available to correct the response to the research question, and 20 points were available for each category. The score indicates the extent to which vocabulary MALL apps are influential.

The researcher employed a split-half technique to ensure the validity of the poll. Using the Spearman-Brown method, the reliability coefficient was  $0.821 > 0.70$ , indicating a high level of trustworthiness. Facial validity was strictly implemented to ensure the reliability of the survey, and the researcher's professor verified and accepted this aspect. High validity was also determined by calculating self-validity, which was 0.906.

#### D. Procedures

- After defining the research question, the researcher developed a 25-item survey for language teachers.
- After receiving clearance from their professor, the researcher digitized the questionnaire using Google Forms and kept the paper version for further use.
- The survey was sent to a WhatsApp group of female EFL teachers in Saudi Arabia.
- Approximately 100 educators were chosen to complete the survey.
- The questionnaire data were collected regularly and examined whenever possible.

#### E. Data Analysis

SPSS and Excel were used to perform the statistical analyses of the collected data. For each survey question, the average and standard deviation were determined by converting the written replies to survey questions into numeric forms, as required for the statistical analysis. A one-sample *t*-test was also conducted to determine whether a statistically significant difference existed between the mean of each item and the standard population mean ( $SM = 2$ ). In addition, using the split-half approach, the Spearman–Brown formula was used to examine the reliability coefficient. A high dependability coefficient was defined as a value greater than 0.70. In addition, the square-root of the dependability coefficient was used to derive the self-validity coefficient.

### IV. RESULTS

The researcher used SPSS and MS Excel to statistically analyze the results. The results and indications investigated in this study are presented in Table 1.

TABLE 1  
DEMOGRAPHIC STATISTICS FOR SAMPLE SCHOOLS

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Private Schools	8	8.0	8.0	8.0
Public Schools	92	92.0	92.0	100.0
Total	100	100.0	100.0	

Table 1 indicates that the values of all means of the survey items are above the standard population mean (SM = 2). As for the demographic statistics for sample schools, the valid private schools scored 8 as a frequency and 8.0 as a cumulative percentage. However, the public schools scored 92 as a frequency and 100.0 as a cumulative percentage, which is illustrated in Figure 1.

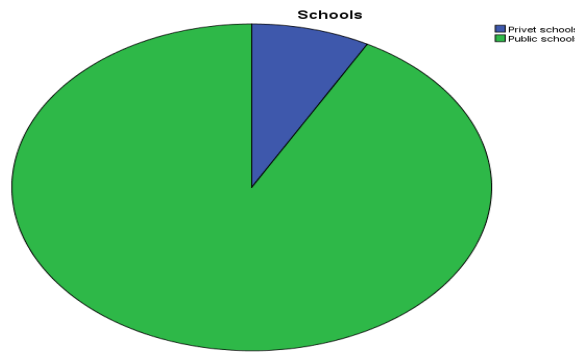


Figure 1. Demographic Statistics for Sample Schools

Based on the findings, the vast majority of respondents in the sample were assumed to share at least some degree of agreement with each statement. These numbers indicate that the educators have optimistic views about MALL applications.

TABLE 2  
EXPERIENCE OF TEACHERS

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid (less than five years teaching)	28	28.0	28.0	28.0
(more than five years teaching)	72	72.0	72.0	100.0
Total	100	100.0	100.0	

Table 2 presents that the validity of frequency for experience of teachers with less than five years of teaching is 28. However, the validity of frequency for experience of teachers with more than five years of teaching is 72, as shown in Figure 2.

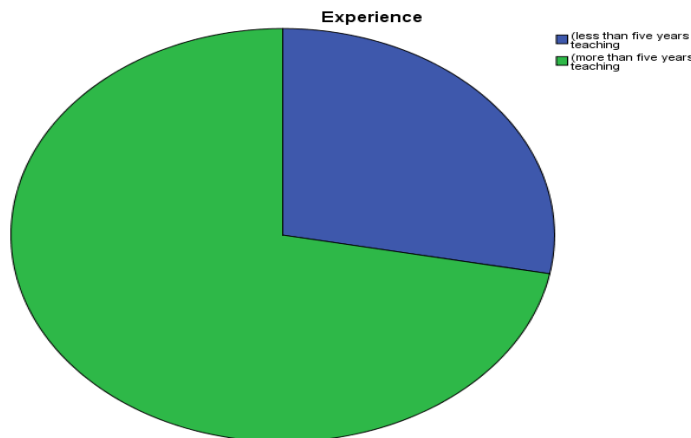


Figure 2. Experience of Teachers

Based on these findings, the researcher assumes that most of the sample is approved for each item to various degrees. These values refer to the positive perspectives of teachers with different experiences with MALL applications.

TABLE 3  
DESCRIPTIVE STATISTICAL ANALYSIS OF QUESTIONNAIRE'S ITEMS

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	100	1.00	5.00	4.2200	0.73278
Q2	100	1.00	5.00	4.1300	0.77401
Q3	100	1.00	5.00	4.0300	0.90403
Q4	100	1.00	5.00	4.1100	0.87496
Q5	100	2.00	5.00	4.0800	0.74779
Q6	100	1.00	5.00	4.4500	0.70173
Q7	100	2.00	5.00	4.4500	0.60927
Q8	100	1.00	5.00	4.2900	0.79512
Q9	100	1.00	5.00	4.2200	0.84781
Q10	100	1.00	5.00	4.2700	0.75015
Q11	100	1.00	5.00	4.2200	0.73278
Q12	100	1.00	5.00	4.1900	0.72048
Q13	100	2.00	5.00	4.1800	0.67240
Q14	100	2.00	5.00	4.2200	0.64479
Q15	100	2.00	5.00	4.1900	0.67712
Q16	100	2.00	5.00	4.2800	0.62085
Q17	100	1.00	5.00	4.1800	0.75719
Q18	100	2.00	5.00	4.1900	0.72048
Q19	100	2.00	5.00	4.0700	0.81965
Q20	100	1.00	5.00	4.1000	0.79772
Q21	100	2.00	5.00	4.0900	0.82993
Q22	100	1.00	5.00	4.1800	0.79620
Q23	100	1.00	5.00	4.1500	0.82112
Q24	100	2.00	5.00	4.1900	0.72048
Q25	100	2.00	5.00	4.1700	0.71145
Valid N (listwise)	100				

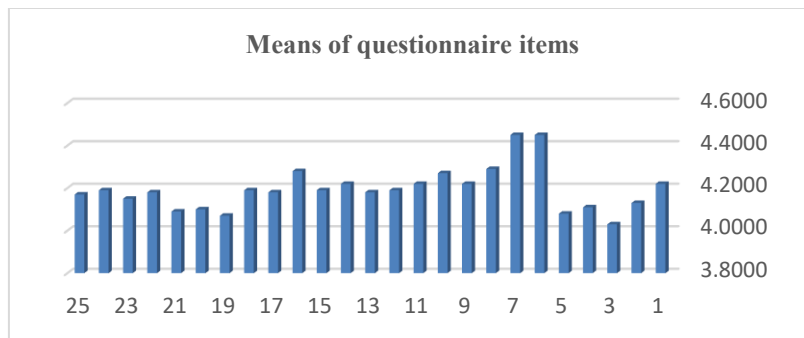


Figure 3. Descriptive Statistical Analysis of Questionnaire's Items

TABLE 4  
STATISTICAL ANALYSIS OF QUESTIONNAIRE'S ITEMS

Question	One-Sample Test							Teachers' Perspectives
	Standard Mean = 3							
	Mean	t	df	Sig. (2tailed)	Mean Difference	95% Confidence Interval of the Difference		
Lower						Upper		
Q1	4.2200	16.649	99	0.000	1.22000	1.0746	1.3654	Positive
Q2	4.1300	14.599	99	0.000	1.13000	0.9764	1.2836	Positive
Q3	4.0300	11.393	99	0.000	1.03000	0.8506	1.2094	Positive
Q4	4.1100	12.686	99	0.000	1.11000	0.9364	1.2836	Positive
Q5	4.0800	14.443	99	0.000	1.08000	0.9316	1.2284	Positive
Q6	4.4500	20.663	99	0.000	1.45000	1.3108	1.5892	Positive
Q7	4.4500	23.799	99	0.000	1.45000	1.3291	1.5709	Positive
Q8	4.2900	16.224	99	0.000	1.29000	1.1322	1.4478	Positive
Q9	4.2200	14.390	99	0.000	1.22000	1.0518	1.3882	Positive
Q10	4.2700	16.930	99	0.000	1.27000	1.1212	1.4188	Positive
Q11	4.2200	16.649	99	0.000	1.22000	1.0746	1.3654	Positive
Q12	4.1900	16.517	99	0.000	1.19000	1.0470	1.3330	Positive
Q13	4.1800	17.549	99	0.000	1.18000	1.0466	1.3134	Positive
Q14	4.2200	18.921	99	0.000	1.22000	1.0921	1.3479	Positive
Q15	4.1900	17.575	99	0.000	1.19000	1.0556	1.3244	Positive
Q16	4.2800	20.617	99	0.000	1.28000	1.1568	1.4032	Positive
Q17	4.1800	15.584	99	0.000	1.18000	1.0298	1.3302	Positive
Q18	4.1900	16.517	99	0.000	1.19000	1.0470	1.3330	Positive
Q19	4.0700	13.054	99	0.000	1.07000	0.9074	1.2326	Positive
Q20	4.1000	13.789	99	0.000	1.10000	0.9417	1.2583	Positive
Q21	4.0900	13.134	99	0.000	1.09000	0.9253	1.2547	Positive
Q22	4.1800	14.820	99	0.000	1.18000	1.0220	1.3380	Positive
Q23	4.1500	14.005	99	0.000	1.15000	0.9871	1.3129	Positive
Q24	4.1900	16.517	99	0.000	1.19000	1.0470	1.3330	Positive
Q25	4.1700	16.445	99	0.000	1.17000	1.0288	1.3112	Positive
Gross	4.1940	24.441	99	0.000	1.19400	1.0971	1.2909	Positive

TABLE 5  
DESCRIPTIVE STATISTICS FOR MEANS OF THE QUESTIONNAIRE CATEGORIES

	N	Minimum	Maximum	Mean	Std. Deviation
Usability	100	2.00	5.00	4.1140	0.57718
Motivation	100	2.00	5.00	4.3360	0.57762
Collaboration	100	2.00	5.00	4.2000	0.53182
Vocabulary Learning	100	2.00	5.00	4.1640	0.60728
MBVI vs. TVI	100	2.00	5.00	4.1560	0.65046
Valid N (listwise)	100				

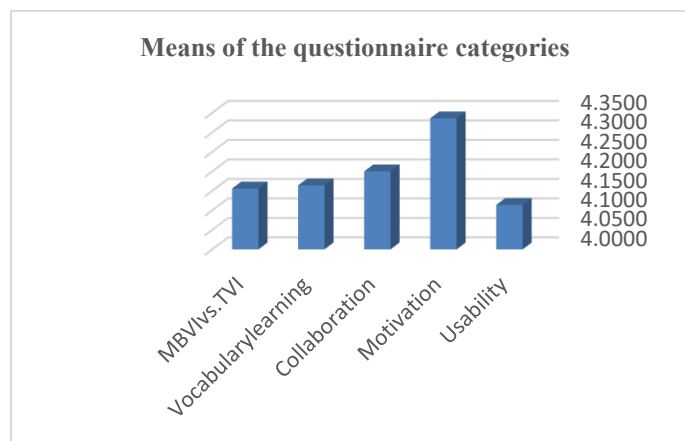


Figure 4. Means of the Questionnaire Categories

Consequently, “motivation” occupied the highest mean of the questionnaire categories (4.3000). The second highest means of the questionnaire categories is “collaboration” (4.2000). We then discuss vocabulary reading and usability.

The researcher performed a statistical analysis for each category by determining the mean and standard deviation. In this context, “often” refers to a near-universal level of agreement among teachers on how MALL apps may be used to boost students’ motivation, teamwork, and vocabulary acquisition, as seen in Figure 3, and finally, to teachers’ preference for MBVI over TVI.

As shown in Table 1, a one-sample *t*-test was used to examine the statistical significance of the category means. Since all *p*-values fall within the range 0.000–0.01, all differences in the means are statistically significant. The researcher also

recorded the survey questions (out of a possible 40) and determined the overall mean to understand teachers' opinions about MBVI. A one-sample *t*-test was used to examine the relevance of the overall mean, and 0.01 is considered significant. The preceding tables present the findings.

## V. DISCUSSION

Based on the results, this chapter discusses the findings and how they are related to the literature review. The findings are presented in the context of the following research question: *What are teachers' perceptions about the impact of using MALL applications on young learners' vocabulary learning?*

The results indicate that EFL teachers agree that vocabulary MALL applications are useful and straightforward. They recognize the apps' value as a supplementary tool for education both inside and outside the classroom. Several other studies, including those by Basal et al. (2016); Elaish et al. (2017); Gurkan (2018); Kassem (2018); Khan et al. (2018); and Perez-Paredes et al. (2018) all provide substantial support for this finding (2018). In light of this discovery, most vocabulary apps are determined to be designed to help all language students at all skill levels. However, each MALL application may have a different level of complexity and usability. Therefore, the study's findings validate teachers' valuable role in introducing and instructing students on how to use MALL applications.

Stemming from these findings, students' interest in learning vocabulary and English as a whole is assumed to be bolstered when using MALL applications. Many studies, including those by Elaish et al. (2017), Goz and Ozcan (2017), Linskens (2015), and Wu (2017), have shown similar results (2015). Owing to their novelty and modernity, mobiles have proven to be inspiring, and they prompt people to explore and find new uses for them. As a result, students are more interested in and dedicated to completing the provided vocabulary activities. The use of MALL apps also enables Saudi students to overcome their lack of motivation.

In addition, this study discovered substantial proof of the functionalization of MALL applications in creating a favorable setting for group vocabulary development. Several apps are available on MALL's social media, and WhatsApp in particular allows students to communicate with one another and share vocabulary-related information. Linskens (2015), Navariz (2015), and Wu (2015), among others, provided evidence (2015). Students can work with their peers to complete projects and receive constructive criticism. Students who use technology to acquire knowledge tend to work together. When students are introduced to a novel piece of technology, such as a mobile phone, they often turn to their fellow students rather than the teacher for guidance on how to use the device. This occurrence is a technical aid at first, but it has the potential to help with language learning and reaction times as well. This aspect suggests that the level of cooperation that occurs through mobile devices has grown from simple to complicated and fruitful over time.

According to results, the teachers' favorite method of functionalizing MALL applications through the teaching of language was MBVI in comparison to TVI. Aslan (2016), Basal et al. (2016), Celik (2018), Mahdi (2018), and Uz Bilgin and Tokel (2018) provided conclusive evidence for this conclusion (2018). This aspect is because mobile devices provide access to a wide variety of resources and activities that can help language learners progress quickly and effectively. A major problem with conventional classrooms is that they tend to be boring. Students are eager to try novel approaches, such as MALL apps, that disrupt the status quo of language learning, and teachers have the opportunity to update methods that have proven ineffective.

## VI. CONCLUSION

To assess the instruction of English terminology to students in intermediate school, Saudi EFL instructors were surveyed to understand their thoughts on the practicality of MALL applications. The study's ultimate conclusion was that mobile devices play a useful role in the process of teaching and acquiring new languages. The results validated the professors' beliefs that MALL apps are appropriate, relevant, and helpful. They boost students' interest and willingness to work together as they learn new terminology. The teachers consider MALL apps to be useful tools for enhancing their language instruction and study. Furthermore, they appreciated the mobile-based approach for learning new words and found it to be more effective than more conventional approaches. Functionalizing vocabulary MALL apps makes sense and will be helpful given the rising prevalence of network technology in Saudi Arabia.

Additionally, students feel comfortable using a MALL app whenever it is convenient. Long-term vocabulary MALL applications help teachers foster more self-reliant students who take charge of their own language education. Many language teachers in Saudi Arabia have discovered that their pupils are losing their interest in learning English. Vocabulary MALL applications may be a novel and effective way to reengage these students. These MALL apps are beneficial if they are carefully selected and effectively utilized pedagogically and technologically in and out of the classroom. To succeed as a language educator in the twenty-first century, EFL teachers need to consider how they may include mobile devices in their lessons.

### A. Recommendations and Instructional Implications

A number of suggestions and implications were drawn from the literature review and the findings that may help strengthen mobile-assisted vocabulary instruction and learning in Saudi schools (Kassem, 2018, p. 256; Khan et al., 2018a; Linskens, 2015, pp. 110–113; Mahdi, 2018; Navariz, 2015, p. 67; Rajayi et al., 2018; Uz Bilgin & Tokel, 2018, p. 20).

The following aspects were identified:

1. Both the educator and the students need to agree on the vocabulary MALL app to use.
2. It ought to be simple, practical, and understood by students.
3. Effective education requires solid pedagogical foundations.
4. The setting should be luxurious and MBVI-focused.
5. Learners should be instructed on how to profit from numerous vocabulary MALL applications on the market.
6. An effective educator also has a firm grasp on technology and the ability to make MALL apps useful.
7. The role of the EFL teacher is to encourage their students to use vocabulary MALL applications and engage in mobile-based activities.
8. Teachers of English as a foreign language should encourage their students to use their phones to study vocabulary on their own.
9. Seminars and gatherings for educators to discuss MALL on a regular basis are essential.
10. If a student is learning English as a second language, they should be allowed to use a mobile device to determine their meaning and pronunciation.

#### B. Future Studies

Due to the limited sample size, extrapolating the study's results to all Saudi intermediate school students would be inappropriate. The researcher recommends future studies to further investigate the effects of vocabulary MALL apps.

1. Examining the effect that MALL apps have on young people's vocabulary development at the primary and secondary levels is important.
2. A larger sample size from all around Saudi Arabia would be ideal.
3. Further research should be conducted on the feasibility of using vocabulary MALL applications in a blended learning setting.
4. Further research should assess how employing MALL apps to teach other linguistic elements and skills affects EFL students in Saudi Arabia.

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**Habiba M. Alotabi** was born in Saudi Arabia in 1983. She earned her Master of Arts in Education, specializing in Teaching English to Speakers of Other Languages (TESOL), from the College of Education, King Saud University (KSU), Riyadh, Saudi Arabia, on April 13, 2023.

She currently works as a teacher at a school in Riyadh. She is interested in the field of TESOL and language acquisition.