

Input-provision/Output-elicitation MALL Program and Iranian Preintermediate EFL Learners' Vocabulary Enhancement

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Abstract

This study probed the effectiveness of text messaging device for vocabulary enhancement of Iranian preintermediate learners in English as a Foreign Language (EFL) context. To this end, 37 EFL male learners were selected (through convenience sampling) as the participants of the study and randomly assigned to three groups. The treatment lasted for 16 consecutive sessions (two sessions each week & 10 vocabulary items per session); overall, participants received 160 vocabulary items during the entire treatment period. Subsequent to treatment, a posttest was administered in order to measure learners' vocabulary retention. Besides, in the last phase of the study, the attitudes of students toward Mobile Assisted Language Learning (MALL) were investigated via conducting a semistructured interview and administering the MALL Attitude Questionnaire. The analysis of posttest data through Kruskal-Wallis test revealed that the Input-provision/Output-elicitation MALL group participants, who received the proposed input and produced output through cellphones, outperformed the other two groups. Moreover, the Input-provision MALL group, who received input via cellphones and produced output on paper, outperformed the Traditional group, who received input and produced output on paper. In addition, the analysis of the data gathered through MALL Attitude Questionnaire and semistructured interview revealed that almost all the participants held a positive attitude toward MALL. Finally, the results pointed to no significant relationship between students' attitudes toward MALL and their posttest vocabulary achievement.

Keywords: MALL, input-provision, output-elicitation, vocabulary enhancement

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1. Introduction

The rapid outgrowth of technology in recent years has created new opportunities to enhance the efficiency and quality of education, in general, and language learning, in particular. Mobile learning, m-learning for short, as a subset of technology-based training is a relatively new concept in education. Though various applications and utilities are available on today's cellphones, in comparison to other features, Short Messaging Service (SMS) has turned out to be the cheapest and most common cellphone feature that has a great potential to be used efficiently as a supporting tool for teaching and learning process.

Furthermore, it goes without saying that vocabulary knowledge has a key role in learners' competence and success in language learning. In this regard, Nesselhauf (2003) states that vocabulary knowledge has a significant importance for learners who desire to achieve a high level of competence in a second language. The pivotal role of learners' vocabulary repertoire has also been emphasized by many other researchers (e.g., Derakhshan & Khodabakhshzadeh, 2011; Krashen & Terrell, 1983; Paivio, 1986). Besides, lexical items play a seminal role in achieving communicative competence, which overshadows the other aspects of language proficiency (Hussein, 1990; Lewis, 2001; Nesselhauf, 2003).

An area of consensus among different scholars is the conviction that frequent exposure to lexical items as well as repeating and practicing the learnt items can be important factors in developing and enhancing learners' vocabulary knowledge. As Butler et al. (2010) point out, explicit instruction of lexical items together with their meanings augments the likelihood of not only understanding but also remembering the meanings of the new items that learners, in particular young learners, have been exposed to. However, due

to limited amount of in-class teaching and practicing time (Derakhshan & Khodabakhshzadeh, 2011), one of the innovative ways that is thought to contribute to explicit instruction of vocabulary and multiple exposure to it is sending text messages which contain appropriate content.

As browsing the literature reveals, few studies as regards Mobile Assisted Language Learning (MALL) have been conducted in Iran. Among the scant body of research available on the issue, reference can be made to the works of Alavinia and Qoitassi (2013), Baleghizadeh and Oladrostam (2012), Derakhshan (2007), and Khazaie and Ketabi (2011). Accordingly, the results of the study may offer some new horizons regarding the utilities of MALL in pedagogy, particularly concerning the potential of using SMS as a complementary instructional tool in learning vocabulary.

Thus, the main purpose of the study was to determine the effectiveness of using text messages as a complementary tool to support teaching and learning vocabulary. To this aim, attempts were made to investigate the effect of text messaging on EFL learners' vocabulary knowledge via input-provision and output-elicitation techniques. In other words, the researchers strived to examine the extent to which input-provision and output-elicitation via cellphones can bring about the enhancement of learners' vocabulary knowledge. Moreover, an attempt was made to examine the attitudes of students toward MALL and its relationship with their vocabulary learning. In line with the research objectives, the following research questions were put forth:

1. Do Traditional, Input-provision MALL, and Input-provision/Output-elicitation MALL techniques of learning vocabulary lead to significantly different gains in terms of vocabulary achievement?
2. What are the attitudes of EFL learners toward MALL?

3. Is there any significant relationship between MALL attitudes and students' vocabulary achievement?

2. Literature Review

Richards and Renandya (2002) consider vocabulary knowledge as an important component of language proficiency, a component which provides a sound basis for how well learners speak, listen, read, and write. They claim that without a vast repertoire of vocabulary, second language learners cannot often achieve their complete potential and may miss language learning opportunities available to them. Thus, finding appropriate ways for enhancing vocabulary instruction, acquisition and retention has always constituted a major preoccupation for researchers in applied linguistics. However, it must be noted that learning vocabulary is a gradual, cumulative process, which occurs slowly over time (Nation, 2001). In what follows, the researchers initially go over some of the contributions of technology for learning, in general, and vocabulary learning, in particular, and then browse the literature in the area of vocabulary learning through technology and MALL.

2.1 Technology-enhanced Learning

Hopefully, the outburst of new technological devices in recent decades has offered new horizons for pedagogues and educationalists to metamorphose their instructional techniques in all areas of language learning including vocabulary acquisition. Consistent with Computer Assisted Language Learning (CALL), studies on MALL have been increasing significantly since 2000 (Khazaie & Ketabi, 2011). MALL, as a subset of both m-learning and CALL, has evolved to support learners' language learning. As Stockwell and Hubbard (2013, as cited in Bozdžoan, 2015) state, MALL as the intersection of CALL and m-learning possesses its own specific characteristics. MALL is language learning via the use of mobile devices such as cellphones, Personal

Digital Assistants (PDAs), ultra-mobile PCs, and personal media players. M-learning, on the other hand, is defined as "any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies" (O'Malley et al., 2005, p. 7). Taj, Sulan, Sipra and Ahmad (2016) maintain, "mobile phones have recorded a tremendous growth since Chickering and Ehrmann (1996) coined the term MALL" (p. 76), and nowadays "teachers and students alike have embraced the idea of mobile learning with a lot of enthusiasm" (p. 77).

2.2 Vocabulary Learning via Cellphones

Collins (2005) argues that in language learning, cellphones are mostly used to employ text messaging for vocabulary learning, (e.g. Kennedy & Levy, 2008) and quizzes and surveys (e.g. Balasundaram & Ramadoss, 2007; Clarke, Keing, Lam, & McNaught, 2008). The effectiveness of using cellphones for improving and accelerating various aspects of language learning such as grammar (e.g., Baleghizadeh & Oladrostam, 2010; Guerrero, Ochoa & Collazos, 2010), vocabulary (e.g., Cavus & Ibrahim, 2009; Khazaie & Ketabi, 2011; Song & Fox, 2008), pronunciation (e.g., Saran, Seferoglu, & Cagiltay, 2009), reading (Chen & Hsu, 2008) and listening and speaking (Huang & Sun, 2010) has been approved in several reports and studies.

The effective use of cellphones can provide additional support for learning and teaching. It helps "the innovative course designer delivers appropriate strategies, tools, and resources for different kinds of learning" (Mason & Rennie, 2008, p. 118). The educational uses of cellphones range from simply taking photographs (e.g., Han, Yang & Jung, 2007) and playing educational games (e.g., Tornero Santamarina, Moreno-Ger, Torrente, & Fernández-Manjón, 2010) to creating podcasts (e.g., Nie, 2006) and digital

narratives (e.g., Byrne, Arnedillo-Sánchez & Tangney, 2008) on different subjects.

Despite being short in length, text messages offer cumulative lessons over time which can be read and reviewed anywhere and anytime. Also, text messaging may motivate learners to continue their studies out of the classroom and, as a result, it has a positive effect on students' learning (Hashemi & Aziznezhad, 2012). When it comes to vocabulary learning, text messaging has the potential to provide optimal psychological conditions for learners, as described by Nation (2001), to practice any vocabulary item. These conditions include cumulative learning, motivation and interest, novel and portable learning experience, as well as relaxing conditions.

2.3 Empirical Studies on MALL

Although many research findings have been published about the uses of cellphones in education, as Koszalka and Ntloedibe-Kuswani (2010) claim, relatively little is known regarding the utility of cellphones for facilitating learning. According to them, "little has been done to replicate current studies, synthesize the results of previous studies, or expand studies to investigate which features of these technologies are predictive of greater levels of interaction and knowledge development" (p. 151). Hence, in this study attempts are made to investigate the efficiency of teaching and learning English language vocabulary via the use of cellphones. In what follows, some of the research projects performed on text messaging and its impact on language learning are presented. In so doing, first a brief overview of literature concerning the utilities of text messaging for enhancing the acquisition of different components of language is presented and then the impact of text messaging on vocabulary learning as the major focus of the study is reviewed.

2.3.1 Acquisition of different language components through MALL

In an attempt to investigate whether cellphones are useful learning tools, Baleghizadeh and Oladrostam (2010) conducted a study which was intended to assess the utility of cellphones in improving grammatical accuracy of Iranian EFL students. Forty preintermediate Iranian female students participated in the study. The participants in experimental and control groups were provided with an opportunity to review and recycle three grammatical categories. During class discussions designed in such a way as to elicit the given grammatical items, the participants in the experimental group recorded their voice on their cellphones and as an out-of-class assignment analyzed their spoken mistakes and commented on them in the subsequent session. The participants in the control group, however, received no extra treatment at all. The results showed that the participants who had benefited from mobile-assisted learning had a significantly better performance on a multiple-choice grammar posttest than the participants in the control group.

In a similar vein, Najmi (2015) explored the potential impact of text messaging on upperintermediate female Iranian EFL learners' guided writing performance. To conduct the study, 30 learners were initially divided into two groups and the treatment in the experimental group was performed by asking the participants to make sentences regarding the taught grammar points (conditionals and passive voice), and send them to their teacher and classmates for receiving feedback. The findings of his study were indicative of a significant difference between the performances of two groups on the writing posttest. In another study, Motallebzadeh, Beh-Afarin, and Darily Rad (2011) investigated the effect of SMS on the retention of collocations among Iranian lower intermediate EFL learners. To this end, 40 university students (in two groups) received English collocations as well as definitions

and sample sentences either on paper or through text messages in a scheduled pattern of delivery during five weeks. After the third and the sixth session of treatment, students received two quizzes either on paper or via SMS in order to show whether the students progressed during the treatment or not. The results revealed that participants in SMS group significantly outperformed the ones in conventional group.

Pirasteh and Mirzaeian (2015), however, were interested in finding the influence of text messaging for boosting learners' use of phrasal verbs in an English for Specific Purposes (ESP) context. In so doing, 75 engineering students from Arak University of Technology were selected and assigned to two groups. The findings pointed to the efficacy of learning phrasal verbs via SMS, yet gender was found to be of no significance in this regard.

Furthermore, Alavinia and Bahmani (2015) investigated the would-be impact of text messaging on the enhancement of EFL learners' idiomatic knowledge. After assigning the participants (60 students) to three groups (contextualized MALL, decontextualized MALL, & control group) the treatment was given to experimental groups through text messaging, the difference being that in the first group the context was created for the idioms by means of sending the sample sentences as well as the meanings of idioms. At the end, it was observed that contextualized MALL group outperformed the other two groups on the idiomatic knowledge posttest.

2.3.2 MALL and vocabulary learning

Among the numerous studies conducted on the effects of MALL on vocabulary acquisition and retention, mention is made of four studies at this juncture. Derakhshan (2007), for instance, utilized text messages for furthering EFL freshmen's vocabulary learning. In his study, the participants in both groups were taught 15 to 20 words each session. Three days a week, the participants in the experimental group were supposed to send the

researcher one text message containing an original sentence for each word covered in the class; they also sent one text message containing a sentence to their three predetermined partners in the afternoon of the same days. On the other hand, the participants in the control group were asked to write one sentence for each word, and they were also asked to write one sentence to exchange with their partners. Furthermore, they were required to bring their assignments to the class the following session. However, the result of the study showed that there was no significant difference concerning the retention of vocabulary by both groups.

In like manner, Tabatabaei and Heidari Goojani (2012) studied the effectiveness of text-messaging on vocabulary learning of EFL learners. To fulfill the purpose of research, 60 high school students participated in the study. The target words in the pre-university English book were taught to the groups, using synonyms and antonyms. Six to seven words were introduced and taught to these students each session. The participants in the experimental group were required to send the researcher SMSs containing a sentence for each word covered in class while those in the control group wrote some sentences containing the target words to exchange them with their partners and bring their assignments to the class the next session. Results of the study indicated that participants in the experimental group outperformed those in the control group.

In another similar research on the effect of MALL and text messaging on vocabulary enhancement, Alavinia and Qoitassi (2013) recruited forty female EFL learners at the elementary level of proficiency. A variety of instruments, i.e. a multiple-choice vocabulary test, questionnaire and interview, were utilized by the researchers and the obtained data were analyzed mainly through ANCOVA. The results, in tandem with most previous research findings, indicated that learning vocabulary via text messaging is both a

productive technique giving rise to learners' vocabulary expansion as well as a pleasant experience for learners based on their voiced attitudes.

Finally, Suwantarathip and Orawiatnakul (2015) also probed the influence of text messaging on learners' vocabulary acquisition. To this aim, 80 participants were assigned to two groups, with the experimental one experiencing vocabulary practice through SMS. Both learners' performance on the posttest and their attitudes toward the use of cellphones for vocabulary learning were indicative of the claim that text messaging had improved their vocabulary knowledge as well as their learning motivation.

As another major foundation of the study is built upon the two seminal theories by Krashen (1985) and Swain (1985), at this juncture, a brief overview of these two well-established theories is provided.

2.4 The Study and its theoretical foundation

Though the mere provision of comprehensible input was once thought to suffice for bringing about appropriate conditions for learning and acquisition (Krashen, 1985), later theories in Second Language Acquisition (SLA) refuted the idea that input geared to students' level can, in itself, produce the desired outcome for learners (e.g., Long, 1983; Schmidt, 1990; Swain, 1985). Among these opponents of comprehensible input hypothesis, Swain, for instance, put forth the argument of 'pushed output' and maintained "when learners must produce language that their interlocutor can understand, they are most likely to see the limits of their second language ability and the need to find better ways to express their meaning" (as cited in Lightbown & Spada, 2013).

In the light of the theories briefed above, the study was after investigating the alternative effects of applying input and output models, by drawing on the role of mobile technology and, in particular, text messaging. Thus, in line with Krashen's input hypothesis, one group in the current research was

treated only through the provision of input via cellphones, whereas for the other group, following Swain's (1985) Comprehensible Output Hypothesis, both input-provision and output-elicitation occurred through the cellphones.

Although many studies have been done to investigate the effectiveness of using SMS in education, in general, and foreign language learning, in particular, what distinguishes the study from other ones is that in the domain of vocabulary studies, most of the relevant MALL studies lack exploring the possible effect and importance of the role of output that students can produce using text messaging. In the previous studies, researchers just investigated the effectiveness and the potential of using cellphones in providing the learners with the opportunity to enhance their vocabulary knowledge via exposing them to enough input. Learners were exposed to the target word items and did not have the opportunity to negotiate and produce and make use of the learnt items to see if it has any effect on their learning. Accordingly, this study aimed to investigate not only the potential benefits of text messaging in vocabulary learning, but also analyze if the negotiation and production of the learnt items via text messaging can have any effect on learners' vocabulary retention. It, therefore, might contribute not only to the literature but may also provide new insights in this area of research.

3. Method

3.1 Design of the Study

This study enjoys a mixed-method design. The first phase of research which dealt with the effects of input-provision/output-elicitation MALL techniques on EFL learners' vocabulary learning followed a quasi-experimental pretest-posttest research design. The second phase, however, probed the attitudes of learners toward MALL, via interview or attitude questionnaire, for which data were collected both quantitatively and qualitatively.

3.2 Participants

To conduct the study, 37 preintermediate male EFL learners were initially selected (through convenience sampling) as the participants of research and then randomly assigned to three groups. Each class consisted of twelve to thirteen students. The learners' age ranged from 12 to 17, with the mean age of 14.46. Unlike most text messaging studies, to date, which have focused on more advanced learners, this study was carried out with preintermediate EFL learners studying in a language institute. The time of conducting this study was summer semester and the students attended the classes twice a week. The course lasted for a period of ten weeks.

3.3 Instruments

Preliminary English Test (PET): To guarantee that learners are truly at the same level of English language proficiency, the reading, listening, and the writing sections of a sample Preliminary English Test (PET) (<http://cambridge.org>) were administered. The reliability of the test, which was initially piloted with a group of similar participants (other than those who were to participate in the mains study), turned out to be .76, using split-half method.

Vocabulary Achievement Test: The main source of instruction for all three groups was *English Vocabulary in Use*, written by Stuart Redman (1997). This book was taught as a vocabulary aid beside learners' main book (i.e., *World English*). According to the school curriculum, for the period of time during which the study was conducted, 25 lessons from this book were supposed to be covered. The researchers made use of these lessons in providing the input for teaching vocabulary across all the three groups with a different mode of instruction for each group.

As the mentioned book had a parallel workbook with different exercises written by the same author, the researchers made a test using the exercises

from that book. Accordingly, the second data elicitation tool was a tailor-made vocabulary test used as the pretest and posttest of the study. The purpose of using it as the pretest was to ensure that the learners did not have prior knowledge of the items that were to be covered during the sessions, and also, to make sure there was not any significant difference among the three groups in terms of their vocabulary knowledge. The test content was validated by two TEFL specialists. The Cronbach Alpha reliability coefficient of the scale was also measured to be .85.

Attitude Questionnaire: The attitude questionnaire was adapted from Chen and Chung (2008). It is worth noting that the adapted version of the questionnaire was used in the current study, which contained 12 items in Likert-scale format and provided five options ranging from 1 (strongly agree) to 5 (strongly disagree). The questionnaire was piloted prior to main administration, and the reliability coefficient of .84 was obtained. Moreover, the content of the questionnaire was validated by a group of TEFL specialists.

Semistructured Interview: The completion of the MALL attitude questionnaire was followed by a semistructured interview. Thirteen participants consented to be interviewed as a representative sample. Each interview took around 20 minutes. The interview encompassed three central questions, each related to one or more of the items on the MALL Questionnaire. The first question enquired students' beliefs toward the usefulness of learning English language via cellphones, whether they thought it was beneficial in furthering learning. The second question asked students about their opinions of learning and teaching English via cellphones as a motivating element to trigger students' motivation in learning English, whether they thought cellphones can act as a motivating element in teaching English, and if yes, how cellphones bring about such an interest for learning.

The third question, on the other hand, probed the students' views of cellphones as important devices in expanding their vocabulary repertoire. Students were required to explain how cellphones can help improve their vocabulary knowledge.

3.4 Procedure

At the first session of the course, in order to obtain the learners' consent to participate in the study, the procedure and the aims of the study were explained to them. Then, the researchers administered the Preliminary English Test (PET) to the learners prior to giving them the vocabulary pretest, to make sure the participants were homogeneous in terms of their English language proficiency.

Having administered the PET as well as the vocabulary pretest, each group was assigned a name, in accordance with the given treatment. Thus, three groups entitled Traditional, Input-provision MALL, and Input-provision/Output-elicitation MALL group were created.

All groups covered the same content, yet in different modes, and used the taught vocabulary items to make sentences in different ways. Each session the learners in the Traditional group received ten vocabulary items on a piece of paper. They would take them home and were asked to write two sentences for each vocabulary on a piece of paper and submit them to the teacher the next session. The teachers received the papers, gave feedback to the students and, if necessary, rewrote the sentences and provided complementary notes; then, the corrected sentences were given back to the students the next session. It must be noted that none of the vocabulary items were either taught or discussed in the classroom and all of the activities were done out of class.

The second group (Input-provision MALL group) received the same vocabulary items with the same format as the third group via text messaging. Then, like the first group the learners in this group were asked to use the

received vocabulary and write two sentences for each on a piece of paper and deliver it to the teacher on the next session. Again, they were provided with the same feedback and correction process as the Traditional group, the only difference being the mode of receiving vocabulary.

The third group (Input-provision/Output-elicitation MALL group) received the same vocabulary items via text messaging, but unlike the second group, made sentences and delivered them to the teacher via text messages. Indeed, the input to which the learners were exposed and the output produced by learners based on the received input were both delivered via text messaging. The treatment lasted for 16 sessions (two sessions each week) and for each session the students received 10 vocabulary items; all in all, they received 160 vocabulary items during the study.

Next to administering the posttest, MALL Attitude Questionnaire was given to learners. The completion of the questionnaire was followed by a semi-structured interview. A number of participants who consented to take part in the interview were selected as a representative sample for the semi-structured interview. Therefore, 13 of these participants were interviewed to gain more in-depth information on their views concerning MALL program.

The recorded interview data were first transcribed. Then, the researchers read them several times to single out the general themes. The identified relevant themes germane to a similar concept were clustered together and this way the coding and categorization of themes was ascertained.

3.5 Data Analysis

The analysis of data was done through SPSS, version 18. To answer the first research question and see whether there was any significant difference among the three groups on the posttest, Kruskal-Wallis Test was run. In order to answer the second research question which was qualitative in nature, the attitudes of learners toward MALL gained through questionnaire and

interview analysis were analyzed separately. To analyze the data gathered through MALL Attitude Questionnaire (which was on a 5-point Likert scale), the mean opinion scores and the standard deviation of students' responses were obtained. Moreover, the data gathered via interviews were analyzed through thematic categorization and calculation of the frequency of each theme. Finally, in order to answer the third research question and to figure out whether there is a significant relationship between students' MALL Attitude Questionnaire scores and their posttest vocabulary achievement scores, Spearman Rank Order correlation (ρ) was run.

4. Results

Having checked the homogeneity of the learners in terms of their English language proficiency, the researchers first checked the normality of data distribution on pretest to see if it met the assumptions of parametric tests. Indeed, the assumptions of One-way ANOVA (normality of distribution, independence of observation, and having interval data) were all met. Table 1 shows the normality of the test scores.

Table 1
Test of Normality for Pretest

	KOLMOGOROV-SMIRNOV		
	Statistic	Df	Sig.
Pretest	.137	34	.078

As Table 1 demonstrates, the obtained p value is .078, which is greater than .05, and hence the assumption of normality has been met.

Table 2
Descriptive Statistics for the Results of Pretest

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
traditional group	12	12.08	2.275	.657	9	16
input group	12	12.00	1.859	.537	9	14
input-output group	13	10.92	1.256	.348	9	13
Total	37	11.65	1.859	.306	9	16

As Table 2 indicates, mean score of 12.8 (on the scale of 0 to 40) with a standard deviation of .657 was obtained for the Traditional group. However, the mean scores of the Input-provision MALL group and the Input-provision/output-elicitation MALL group were 12.00 and 10.92, with standard deviations of 1.859 and 1.256, respectively. After making sure that all the assumptions of parametric tests were met, One-way ANOVA was run to investigate the students' performance on pretest. Table 3 presents the results of One-way ANOVA for pretest.

Table 3
One-way ANOVA for Pretest

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.593	2	5.296	1.582	.220
Within Groups	113.840	34	3.348		
Total	124.432	36			

As Table 3 depicts, the obtained p value is .220, which is greater than .05, and hence no statistically significant difference was encountered among the three groups at the outset of study.

4.1 Findings Obtained for the First Research Question

To answer the first research question and find the would-be differences among the three groups of participants, in terms of their vocabulary achievement on the posttest, first test of normality was run. Table 4 shows the descriptive statistics for posttest scores, and Table 5 depicts the results of test of normality.

Table 4

Descriptive Statistics for Vocabulary Performance across the Three Groups

	N	Mean	Std. Deviation
traditional group	12	17.50	3.729
input group	12	21.33	6.800
input-output group	13	23.77	5.946
Total	37	20.95	6.087

Table 5

Test of Normality for Posttest

	Kolmogorov-Smirnov		
	Statistic	df	Sig.
Posttest	.161	37	.016

As is clear from Table 5, the obtained p value resulting from Kolmogorov-Smirnov test is .016, which is less than .05, and hence it was concluded that the assumption of normality has been violated. Therefore, the non-parametric alternative to One-way ANOVA, The Kruskal-Wallis Test, was run to investigate the possible differences that could exist among the three groups on the posttest (see Tables 6 & 7).

Table 6

Mean Ranks for Vocabulary Performance across Three Groups

Group	N	Mean Rank
Posttest Traditional group	12	12.83
Input group	12	19.29
Input-output group	13	24.42
Total	37	

Table 7

Kruskal-Wallis Test Results for Vocabulary Performance across the Three Groups

	Posttest
Chi-square	7.220
Df	2
Asymp. Sig.	.027

As illustrated in Table 7, a significant difference existed among the scores of learners in three groups ($p = .027 < .05$), and, accordingly, the first null hypothesis was rejected. An inspection of the mean ranks for the groups suggested that Input-provision/output-elicitation MALL group had the highest (24.42) and Traditional group obtained the lowest mean rank (12.83).

4.2 Findings Obtained for Research Question Two

To answer the second research question, the attitudes of learners, gained through MALL Attitude Questionnaire, were analyzed by calculating the mean opinion scores and the standard deviation of students' responses. Moreover, the data gathered through interview were analyzed via thematic categorization and calculation of the frequency of each theme. Table 8 summarizes the results of attitude questionnaire (which was on a five-point Likert-type scale) by reporting the means and standard deviations.

Table 8
Students' Opinions toward MALL (Adapted from Chen & Chung, 2008)

	M	SD
1. I think that the Mobile provides a friendly user interface.	4.49	.768
2. I am very clear about the learning procedure of the Mobile.	4.30	.777
3. I can completely understand the meaning of learning materials that appears on the Mobile.	4.11	.994
4. I think the Mobile is a good learning tool to assist English learning.	4.27	.932
5. I agree that learning English by Mobile is very convenient; because I can perform English learning at any time and place.	4.32	.884
6. The design learning materials on the mobile can promote my learning interests.	4.27	.769
7. I often increase my learning time because learning by the proposed mobile promotes my learning interests.	4.08	.983
8. I think that using the mobile can effectively promote my English vocabulary ability.	4.38	1.037
9. The self-inspection interface of the mobile can prompt my learning motivation.	3.84	1.167
10. I agree that using mobile to learn English vocabulary is a very interesting learning mode.	4.38	.924
11. After learning some vocabulary, a cloze test immediately given from the proposed system for the learned vocabulary is very helpful to test whether I have memorized the English vocabulary.	4.19	.845
12. The review strategy of English vocabulary is very effective to me.	4.51	.768

As depicted in Table 8, students had the highest positive attitude toward the effectiveness of reviewing the learnt vocabulary through mobiles (item 12, $M = 4.51$, $SD = .768$), and they found that learning through mobiles provides a user-friendly interface (item 1, $M = 4.49$, $SD = .768$). In addition, they held a positive attitude toward learning vocabulary this way, and thought that through this method they can promote their English vocabulary

repertoire and found this kind of learning so interesting (item 8, $M = 4.38$, $SD = 1.037$, & item 10, $M = 4.38$, $SD = .924$).

Furthermore, the lowest values were given to items 9 (The self-inspection interface of the mobile can prompt my learning motivation, $M = 3.84$) and 7 (I often increase my learning time because learning by the proposed mobile promotes my learning interests, $M = 4.08$).

As stated earlier, the other instrument employed for tapping learners' attitudes was a semistructured interview, which consisted of three central questions each related to one or more of the items on the questionnaire.

Interview Question NO 1. How much do you think cellphones can prove beneficial in furthering language learning?

Almost all of the students interviewed indicated that cellphones can significantly affect their language learning and help them improve their language ability in a positive way. Figure 1 provides the main themes that were extracted from the students' responses to this question.

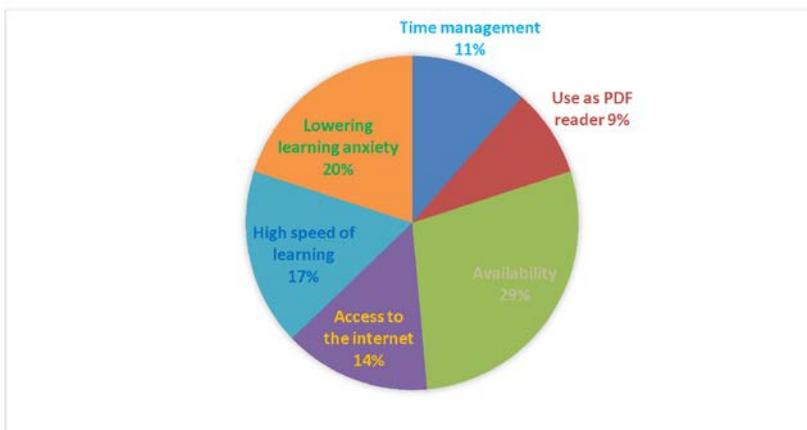


Figure 1. Percentages of the main Themes extracted from learners' responses to the first interview question

As Figure 1 indicates, the first theme that was found in the students' responses was related to the availability of cellphones, with 29 percent. The students believed that they can benefit from their cellphones almost everywhere and every time in different situations to learn language, because it is easy to take their cellphones anywhere they want. The second theme seen from the learners' responses was related to the role of learning through cellphones in lowering learning anxiety. In this regard, 20% of learners reported that whenever they use their cellphones for language learning, their learning anxiety decreases considerably.

The next theme extracted was related to the speed of learning. Seventeen percent of interviewees reported that by learning through cellphones their speed of learning highly increases. For instance, one student stated: *since I feel so comfortable using mobile phones for language learning, I can process the information quickly and without any problems*. Another theme was related to access to internet. 14% of respondents stated that since cellphones are portable devices, they can get a lot of information from internet anywhere they go.

Finally, the other two themes extracted from the students' interview responses were related to the management of time (11%) and using mobiles for reading PDF files (9%). They pointed out that cellphones are the most important devices by which they can save time to learn English. Moreover, they reported that cellphones provide them with the opportunity to read the PDF files of their textbooks and other instructional materials without any problem.

Interview Question NO 2. Do you think cellphones can act as a motivating element in teaching English? If yes, how do they bring about more interest for learning?

Almost all of the responses to this question were positive and showed that the students believed the utilization of cellphones in language learning boosts their motivation in a positive way to learn and process the language in a better way. The main themes extracted from the learners' responses to this interview question are depicted in the figure below.

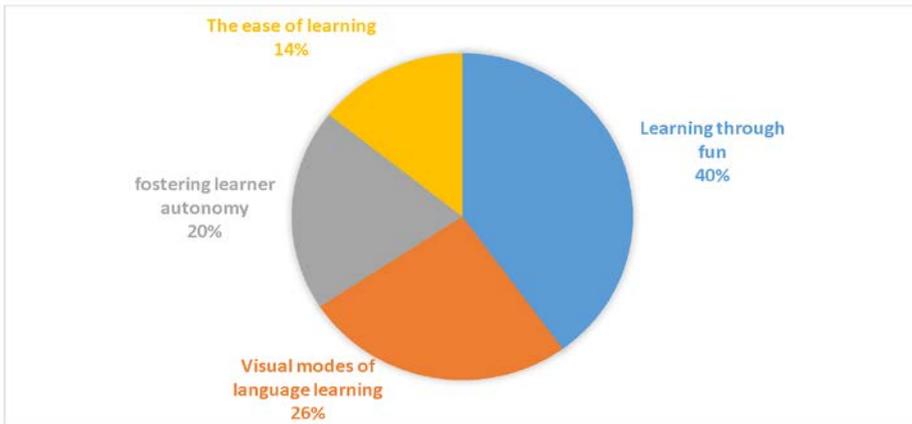


Figure 2. Percentages of the main themes extracted from the students' responses to the second interview question

As is evident from Figure 2, students had a variety of comments regarding the role of cellphones as a motivating element in language teaching and learning. 40 percent of the students stated that the utilization of cellphones in language learning and teaching provides an environment full of fun and makes learning a language fun. This provides a new approach to language learning and teaching that can accelerate the speed of learning.

The second theme which was revealed from the students' answers was related to the role of visual modes of language learning and the way they bring about more interest. Twenty six percent of students interviewed stated that by watching different instructional clips on cellphones and making use of picture dictionaries and also by installing some applications on their

cellphones that provide a visual mode of language learning, their motivation increased dramatically. The other two themes were related to fostering learner autonomy and the ease of learning through cellphones with 20 % and 14%, respectively. The participants reported that learning a language through cellphones is much easier for them than learning from books. They believed that when they study and learn a language through cellphones, it gives them a sense of autonomy and such a sense motivates them in a positive way to study and learn better.

Interview Question NO 3. Do you think Cellphones can help expand learners' vocabulary repertoire? Explain please.

Regarding the third interview question, all of the participants interviewed, held a positive attitude toward the role of cellphones in expanding their vocabulary knowledge. They reported some ways by which they can enhance their vocabulary repertoire using cellphones, which are depicted on Figure 3.

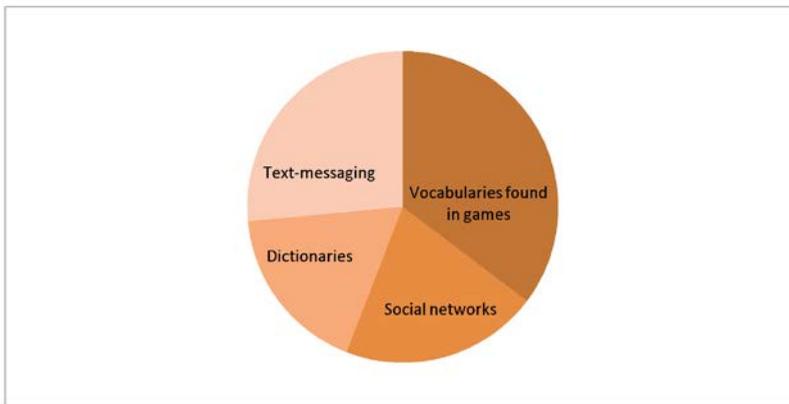


Figure 3. Percentages of the main themes extracted from the students' responses to the third interview question

As Figure 3 shows, four main cellphone properties were reported by the interviewees through which they believed they could expand their vocabulary knowledge. The first one to which 35 percent of participants referred was

learning new vocabulary by installing and playing games on cellphones. They believed that when they come across new words while playing these games they become curious to find their meaning and since the meaning of these unknown words is so important to play well, they remember it forever.

Another application of the cellphones by which the interviewees indicated they can learn and enhance their vocabulary knowledge was Text-messaging (26%). They regarded text-messaging as an effective way of vocabulary development and reported that since they take their cellphones everywhere they go, they can make good use of their leisure time to study and also review the vocabulary.

The other way of learning vocabulary by cellphones as reported by the interviewed participants was learning from dictionaries installed on cellphones (18%). They believed cellphone dictionaries are so helpful and allow them to find the meaning of unknown words easily and quickly. Moreover, they referred to some features of these dictionaries such as the access to the pronunciation of the words and their parts of speech and also the example sentences in which the words are used.

The next way of studying vocabulary through cellphones was the access to the internet and social networks via the use of cellphones (21%). The students reported that by having access to social networks, they can chat with their friends and learn and also practice new vocabulary and expressions.

4.3 Findings Obtained for Research Question Three

To answer the third question and to figure out whether there is a significant relationship between students' MALL Attitude Questionnaire scores and their posttest vocabulary achievement scores, the Spearman Rank Order correlation (ρ) was conducted, the results of which are reported in Table 9.

Table 9

Spearman Rank Order Correlation (rho) for Examining the Relationship between Students' MALL Attitude Scores and their Posttest Vocabulary Achievement Scores

		posttest Total Attitude score		
	Posttest	Correlation Coefficient	1.000	.039
		Sig. (2-tailed)	.	.821
		N	37	37
Spearman's rho	Total Attitude score	Correlation Coefficient	.039	1.000
		Sig. (2-tailed)	.821	.
		N	37	37

Based on the results, there was not any significant correlation between MALL Attitude scores and posttest vocabulary achievement scores ($r = .039$, $n = 37$, $p = .821$).

5. Discussion

As the results obtained for the first research question indicated, there was a significant difference among the posttest scores of learners in three groups. More specifically, the Input-provision/output-elicitation MALL group outperformed the other two groups and the Input-provision MALL group, in turn, ranked higher than the Traditional group.

Research has provided ample support for the claim that using cellphones for educational purposes can provide a suitable learning environment for language learners to extend their vocabulary knowledge and also promote learners' interests to improve their general language proficiency (e.g. Alavinia & Qoitassi, 2013; Suwantarathip & Orawiwatnakul, 2015; Tabatabaei & Heidari Goojani, 2012). The findings of the present study are in line with the findings of the previously conducted studies on the efficiency of vocabulary learning through cellphones.

The significant increase in learners' vocabulary knowledge via the use of cellphones can be traced back to the learners' interest in using technology for educational purposes. Thus, the use of this particular technology not only

developed the learners' vocabulary knowledge, but opened a new horizon and approach to augment their motivation and interest toward the application of the recent modern technology to improve their overall general English language proficiency in which learning and acquiring up-to-date lexical items play a vital role. Likewise, it seems that the opportunity that cellphones provide to learn and review vocabulary without any time and place constraints, helps learners make good use of their spare time to practice and subsequently learn and extend their vocabulary. Thus, this technique maximizes the frequency of encounters with the learnt vocabulary items.

As the results for the second research question demonstrated, the participants held positive attitudes toward MALL. However, regarding the third research question, no correlation was reported between MALL Attitude scores and posttest vocabulary achievement scores.

These findings are in conformity with the findings of the previously conducted studies including Al-Fahad (2009), Cavus and Ibrahim (2009), and Stockwell (2007). These studies support the findings of the current study, in that learners in all these studies held positive attitudes toward MALL. Moreover, the majority of the participants in all of the studies mentioned above believed that cellphones are convenient tools that enable them to learn English without the constraints of place and time. Cavus and Ibrahim (2009), for instance, concluded that the students' positive attitudes toward MALL leads to an increase in their vocabulary knowledge.

6. Conclusion and Implications

Although not each learner may prefer learning English with the help of technology, utilizing SMS to foster learners' vocabulary learning in the current study appeared to be an efficient, effective and enjoyable out-of-class instructional tool as reflected in the students' test scores and their positive attitudes toward cellphone-based learning. The findings of this study

indicated that using technology can further learning and serve pedagogical and learning purposes. Integrating MALL technologies into language teaching classes is a tremendously large step to be taken for any educational system in any country.

The results of this research could have important implications for teachers, learners and institutions. The study showed the complementary role of cellphones to support and improve EFL learners' outcomes and their performances. Low-cost technologies such as SMS can increase the opportunities of exposure and practicing language beyond classroom environment and school day. Therefore, language teachers may consider employing SMS as a supporting learning and teaching tool to facilitate and complement language instruction.

As SMS is potentially an effective, efficient and affordable educational tool, it can be used for teaching language components such as grammar and vocabulary. It can also be used to help students who do not have access to English language classrooms or lack sufficient time to participate in classes.

Because text messaging has promoted the teacher-student interaction, in addition to educational purposes, it can be used to communicate with students. Text messaging helps the teachers and students stay connected outside the classroom and this may have positive psychological effects for students. According to Klem and Connell (2004), when learners have access to their teachers and receive support from them, they learn the material more effectively.

The results of the study can be better interpreted if some of its limitations are taken into consideration. The first limitation is that since the study was conducted in one specific language institute, with limited number of participants, the results are not generalizable to other contexts. It is obvious that clearer results would have been obtained with a larger sample.

Another limitation of the study concerns the learners' level of proficiency and gender. The participants were only male EFL learners with different educational backgrounds from preintermediate level of English language proficiency; therefore, the findings cannot be extrapolated to other proficiency levels. The third limitation of the study is that there was no randomization as the classes were intact.

Furthermore, another shortcoming of this study is that it was not possible to administer a delayed posttest to measure the participants' vocabulary retention over time to see how many of these words have remained in the participants' long-term memory.

Finally, the text messages were text-based and short (limited to 160 characters per message). Therefore, the delivered text messages contained limited information and it was not possible to present the other necessary information about vocabulary, such as their pronunciation.

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