

Using Mobile Educational Technologies in Vocabularies Acquisition

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Abstract: *This study aimed at investigating the effect of using mobile in improving English students' achievement in Al-Balqa Applied University in Jordan. It attempts to answer the following question:*

- *What is the effect of mobile on vocabulary acquisition?*

To answer the above question, the researcher carried out a study based on using mobile devices for the experimental groups. The sample of the study consisted of forty students who were distributed randomly on experimental group and control group. The instruments of the study were an instructional software program for teaching vocabulary and an achievement test that was prepared by the researcher. T-test was used to find out the effect of the instructional program on the students' achievement in vocabulary. The findings of the study revealed that there were statistically significant differences between the students' achievement mean scores in vocabulary attributed to the instructional method of teaching. This difference is in favor of the students in the experimental group. On the basis of the results of this study, the researcher proposed a number of recommendations and made suggestions for future researches.

Keywords: *Computer assisted language learning, Achievement, Instructional program.*

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Introduction:

Mobile Technologies have been playing an important role in foreign language learning and teaching in recent years (Ally, 2009; Kukulka-Hulme & Traxler, 2005). They are getting more and more popular tools such as Personal Digital Assistants (PDAs), tablet computers, and mobile phones. One of the primary reasons for the popularity of the mobile phone is the fact that mobile phones are relatively inexpensive if compared with, for example, wireless laptop computers, and internet browsers that are available in current mobile phones. Thus, the range of possibilities of mobile phones as tools for learning increases even furthermore than any aspects of language learning.

Learning vocabulary is one of the fundamental steps to learn a foreign language. So many studies are carried out in order to increase efficiency of vocabulary learning (Akin & Seferoğlu, 2004; Bruton, 2007; Erten & Tekin, 2008; McCarten, 2007; Newton, 2001; Tang & Nesi, 2003). Vocabulary has been one of the most commonly taught language areas through technology in recent years (Dodigovic, 2005 and Yoshii, 2003), and the range of technologies used is broad, including courseware (both commercial and self-developed), online activities (such as Hot Potatoes), dictionaries, corpora and concordancing, and Computer-mediated communication (CMC) technologies.

Several studies have investigated using mobile phones for learning vocabulary, and the results were in favor of experimental groups who learned

vocabulary by mobile. Mobile plays significant role in teaching and learning English particularly in learning vocabulary. In Saran, Çağıltay and Seferoğlu's (2008) study, results showed that students specified positive feedback to the use of mobile phones in language learning. Students stated that they were delighted to use the instructional materials in their mobile phones. In another study about mobile learning, Thornton and Houser (2005) used emails to send English vocabulary lessons to the mobile phones at specific times. The researchers wanted to find out whether mobile learning promoted learning for Japanese university students. They found that students using mobile phones in learning became more successful when compared to the students who used identical materials on paper or web and they concluded that using mobile phones was a valuable teaching method. In a similar study, Cavus and İbrahim (2009) used a mobile learning tool to investigate the use of wireless technologies in learning English vocabulary using Short Message Service (SMS) text messaging. The results showed that students expressed positive attitudes while learning new words via mobile phones. Also, Stockwell's (2007) study investigates mobile-based intelligent vocabulary learning system. Learners completed vocabulary activities through either their mobile phones or personal computers. Results of the study revealed that mobile phones were less preferred than computers in vocabulary learning and students achieved better scores on computers. Similarly, in a year-long pilot study conducted by

Okunbor and Retta (2008) to investigate the use of mobile phones to enhance student learning, students were able to manage their academic and social lives using customized packages of applications developed by the wireless company for university students made available to students on the national mobile phone network. The results of the study revealed that most of the students using the mobile-based applications found them insignificant.

Although the results of some studies revealed that mobile phones were insignificant from students' point of view, it is understood that using mobile phones as a learning tool has many potential benefits to the language learning and takes learning out of the classroom walls, often beyond the reach of the teacher (Kukulka-Hulme, 2009). Studies that have looked at actual mobile phone use outside the classroom include research into sending messages to learners' mobile phones by Thornton and Houser (2005) and Kennedy and Levy (2008). Both studies were based on the "push" mode of operation (teachers control the frequency and the timing of messages sent to learners). Thornton and Houser sent short mini-lessons for learning vocabulary via e-mail to learners' mobile phones three times a day, using new words in multiple contexts to allow learners to infer the meanings.

Although many studies related to mobile phone use in language learning have been carried out in the world, yet no studies have been done on the effectiveness of using mobile approach to language learning and its impact on vocabulary in Jordan. Therefore, more studies should be carried out to investigate the effectiveness of using mobile phones in language learning. In this respect, this study was designed to determine the effectiveness of mobile phone use in vocabulary learning in Albalqa Applied University.

Statement of the Problem:

Learners in the private and public universities in Jordan still have problems in acquiring vocabulary. Many students still experience difficulties in learning to read for lack of vocabulary. The researcher believed that this might be due to the strategies used in teaching vocabulary. At this stage, perhaps the most widespread technology is the mobile phone, which most of the students in Jordan universities carry a mobile phone with them most of the time. Thus, language teachers and researchers have started to capitalize on this technology. Learners show very little effort to deal with their problems about newly learned words (Meara, 1980). During the lesson, teachers often tend to have an attitude to make the students deal with this problem outside the class on their own (Baykal and Daventry, 2000). However,

learners do not have enough knowledge about the vocabulary learning techniques and they have difficulty in dealing with this problem themselves (Akin and Seferoğlu, 2004).

Aims of the Study:

The general aims of this study are the following:

- Developing an instructional program for teaching vocabulary.
- Investigating its effect on developing students' English vocabulary.

All in all, the study attempts to answer the following question:

- Are there any statistically significant differences between the students' achievement mean scores in vocabulary attributed to the instructional method of teaching (traditional & mobile)?

The Importance of Study:

To the researchers' best knowledge, studies about mobile instruction in Jordan do not exist. This study also attempts to bridge the gap between the theoretical and practical sides of using mobile in teaching vocabulary. Moreover, it may help English as Foreign language (EFL) curricula designers and EFL methodologists develop teaching materials which suit various ways of teaching and match students' level of achievement in vocabulary.

Limitations of the Study:

This study has the following primary limitations:

- This study is confined to the students in the academic year 2011/2012 in Ajloun University College.
- The study is restricted to the vocabularies mentioned in Interaction 2.
- The sample size is also very small.

Procedures of the Study:

The researcher implemented the following procedures in conducting his study during the first semester of the academic year 2011-2012:

1. Reviewing the related literature was conducted about the roles of using mobile in teaching and learning vocabulary.
2. Designing the instruments of the study.
3. Establishing the validity and reliability of the instruments.
4. The pre-test was administrated to both groups before implementing the strategy.
5. Holding a meeting with the participating students to clarify the purpose of the study.
6. Before the experimental process was started, a vocabulary acquisition program to be operated on students' mobile phones was selected.
7. All the details and objectives of the experiment were explained.

8. Starting the experiment under investigation in the first semester of the year 2011-2012.
9. Keeping in touch with the students, so as to guarantee that they are applying the treatment correctly.
10. The test was administrated as a post-test to both groups after implementing the strategy.
11. Analyzing statistically the obtained data to reach conclusions and suggest pedagogical implications and possible recommendations.

Review of Related Literature:

Knowing a foreign language has become crucial to access information and learning vocabulary. It is one of the fundamental steps to learn a foreign language. New devices are invented everyday to fulfill the needs of citizens of the twenty first century. Increased use of mobile phones has made them popular for not only communication, but also entertainment and learning purposes. Mobile phones have provided remarkable advantages in learning process. They provide opportunity for learning outside the classrooms at any time and in any place.

Some of the related studies investigated the effect of using mobile on acquiring vocabularies; the first study was carried out by Baki (2010), who investigated the effects of using vocabulary learning programs in mobile phones on students' English vocabulary learning. The mixed-method research design with sixty students studying in the Undergraduate Compulsory Preparatory Program of a public university located in the Black Sea region of Turkey was used. Results indicated that using mobile phones as a vocabulary learning tool is more effective than the traditional vocabulary learning tools. The second study by Lu (2008) was conducted to examine the effectiveness of SMS vocabulary lessons of limited lexical information on the small screens of mobile phones. Thirty high school students were randomly distributed into two groups and given two sets of English words either on paper or through SMS messages during two weeks. Students recognized more vocabulary during the post-test after reading the regular and brief SMS lessons than they did after reading the relatively more detailed print material. The third study also conducted by Brown (2008) that aimed at re-evaluating the mobile phone as a portable computer tool and investigated how ninth-grade reading students could improve vocabulary building. This mobile learning study determined whether appropriately designed frontloading techniques improved comprehension and produced a significant difference between students who used mobile phones versus students in a traditional non-digitized delivery. This study used a descriptive quantitative

method to determine how much the use of mobile phones improved reading vocabulary for the test group. Findings revealed an increase in vocabulary comprehension when ninth-grade average students used appropriately designed vocabulary frontloading techniques delivered via mobile phone.

There are few studies about the effect of mobile phone on reading and writing. The researcher found only one study by Chen and Hsu (2008) who investigated the advantages of mobile learning to present a Personalized Intelligent Mobile Learning System (PIMS) which can appropriately recommend English news articles to learners based on the learners' reading abilities evaluated by the proposed Fuzzy Item Response Theory (FIRT). Currently, the PIMS system has been successfully implemented on the Personal Digital Assistant (PDA) to provide personalized mobile learning for promoting the reading ability of English news. Experimental results indicated that the proposed system provides an efficient and effective mobile learning mechanism by adaptively recommending English news articles as well as enhancing unknown or unfamiliar vocabularies' learning for individual learners.

Stockwell (2007) investigated the use of a prototype mobile-based intelligent vocabulary tutor system by learners in an advanced EFL class. Learners used the tutor to complete vocabulary activities in a variety of task formats through either their mobile phone or through a computer, and the system kept logs of all access to the system. A profile of each learner was created in terms of the vocabulary that they had difficulty with, and presented these items to the learners more frequently than items that were less likely to cause learners problems. Learner access logs to the vocabulary activities and the learner profiles were analyzed, and a survey was administered to learners at the completion of the project. The study suggests that the intelligent mobile-based system had the potential to provide learners with sophisticated vocabulary learning activities through mobile devices that they already possess, as well as to store information about the learners that may be used to assist them with their vocabulary learning. The study provided preliminary evidence that learners generally require more time to complete vocabulary activities and achieved slightly lower scores on mobile phones when compared to completing the same activities on desktop computers.

Elements of Originality and Modernity:

To the researchers' best knowledge; no studies were conducted on teaching vocabulary through mobile in Jordan. For this reason, the researcher has

developed an instructional program for teaching vocabulary via mobile phones.

Method and Procedures:

Subjects of the Study:

The target population of the study was the university students of English as a foreign language in Al-Balqa Applied University-Jordan. It is assumed that such students have had similar opportunities for learning English. The respondents are of English major who learned English for four years. The study sample included 40 female university students enrolled in Al-Balqa Applied Public University. The subjects of the study consisted of two groups and were divided into an experimental group and a control group, each consisting of twenty students. The experiment started on the third of October and ended on 24 of November during the first semester of the academic year 2011-2012.

Research Instruments:

To implement this study successfully, the researcher have developed two types of instruments: an achievement test, and a software program.

- The Achievement Test:

The test was designed by the researcher. It was used as both a pre-test and a post-test to find out the impact of the software program on students' vocabulary achievement. The test comprises thirty multiple-choice items of four alternatives. The students' previous knowledge was assessed by the pre-test administered to both groups (control and experimental) before the study started. The objective of the pre-test was to assess the students' background knowledge of the words. The same pre-test was used at the end of the study as a post-test to assess the students' achievement on the topic, the vocabularies. The objective of the post-test was to assess the effect of both instructional methods (mobile and traditional) on students' achievement.

- The Software Program:

For the purpose of this study, the researcher designed an instructional program to teach the vocabularies by using the students' phone mobiles. The designer also added a lesson plan to direct the instructor. The program was based on the content of Interaction2 course for reading. The program is organized in the following way:

- Introduction
- Construction
- Use
- Vocabulary preview
- Guessing the meaning from context
- Understanding parts of speech

- Expanding vocabulary
- Finding related words
- Compound words
- Suffixes and prefixes
- Expressions and idioms
- Drills and practice
- Test yourself

The program also provides model answers for the items presented in the exercises. Moreover, the student receives feedback for his achievement simply because the program contains a system for correction. The student can easily get his/her scores when he/she finishes any exercise. When developing the software instructional program, the researcher took into consideration the colors, font type, and the ease of using the program.

- Validity and Reliability of the Test:

The test content was validated by a team of English language specialists who are instructors and specialized in teaching, learning, Computer Assisted Language Learning (CALL), and language acquisition. The team was asked to validate the content of the test with regard to test instructions, the relevance of questions to content, its suitability to the research goals and objectives, the number and arrangement of questions, and the suitability of the time allocated to the test. Criticism and comments on the original draft of the questionnaire were solicited from a number of experts from public and private universities in Jordan (departments of the English language, and departments of curriculum and instruction). The remarks of the validating team, their notes and suggestions were taken into consideration, and the researcher made the necessary modifications before applying the test.

The test reliability was obtained through a test-retest method, which was applied on a pilot group of (20) students who were randomly chosen from the population of the study and excluded from the sample. The reliability was computed using Pearson correlation formula, the obtained value was (0.80) which is considered to be suitable, and accepted from a statistical point of view for the purpose of the study.

- Validity of the Software Program:

The content of the program was validated by Teaching English as a Foreign Language (TEFL) and curricula designing specialists. The validating committee consisted of four PhD holders in curricula and instruction; two of them are specialized in educational technology, four highly qualified instructors of English, and two supervisors in the Ministry of Education in Jordan.

- The Traditional Method:

The traditional method is used in the lecture. In this method, the instructor presents new words and uses the general procedures for teaching vocabulary as follows:

- Before reading the text to the class, the teacher tries to get students to tell him what they know about the topic of the text.
- The teacher uses the title of the text and illustrations. For example, the teacher asks students to describe a scene in a picture by using familiar words.
- The teacher uses the pre-reading, while-reading, and post-reading questions: that is, questions occur before the start of the text, in the middle of the text, and after the text to examine the students' vocabulary knowledge.
- The teacher sets each student to read the whole text silently on his own to examine the meaning of the words and aloud reading to check the pronunciation.
- The instructor asks the students to memorize vocabulary from pre-determined lists.
- students should complete vocabulary workbook exercises, which were discussed only one day each week
- The instructors use flash cards, writing the definitions, fill in the blank sentences, and students writing sentences for the vocabulary words.
- Students also had to do several exercises, for example, choose the correct words to put into pre-made sentences or write their own sentences using the weekly vocabulary words.

Design of the Study:

In order to conduct the study, the effects of using vocabulary learning program in mobile phones on students 'vocabulary learning, the study employed the True-experimental design which is Pretest-Posttest Control Group Design. The researcher used an experimental and a control group with 20 subjects in each. The experimental group was taught through the mobile (software program), while the control group was taught through the traditional way (lecture method). The two groups were pre and post tested by an achievement test. The study consists of two variables: the independent variable (Mobile) and the dependent variable (Vocabulary).

Statistical Treatment:

The researcher used SPSS 15.0 for quantitative analyses. T-test was computed to detect any significant differences between the two groups on the vocabulary.

Results of the Study:

To make sure that there were no statistically significant differences between vocabulary achievement of the experimental group and that of the control group due to the instructional strategies (mobile and traditional), they were given a pre-test. Table (1) shows the t-test for the pre-test at baseline.

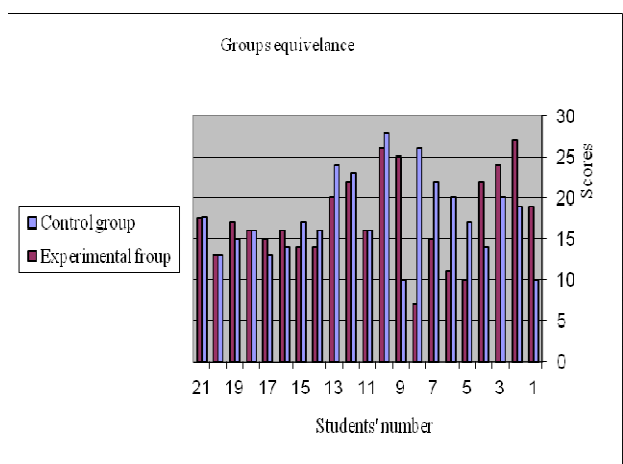
Table No. 1. Results of t-test for the pre-test of both groups

Group	N	Mean	T	Sig. (2-tailed)
Contr.	20	17.6500	.134	0.894
Exp.	20	17.4500	.134	0.894

Table (1) indicates that at level ($\alpha \leq 0.05$), there are no significant statistical differences between the two means of the groups. It is clear from Table (1) that the significant value was more than 0.05 and the t value of .134 is not significant at ($\alpha \leq 0.05$). In other words, the two groups were equivalent in achievement at baseline so this test controlled the effects of any kind in achievement before the experiment.

In Fig. 1 below, the pre- test evaluates whether the difference between the means of the two groups is significant. The overall average scores between the two methods are very close (see column no.21) so the average scores of the two groups did not show much difference. These averages are seen in the following chart:

Figure No. 1. The means of the students scores for the pre-test



The question of the study is "are there any statistically significant differences ($\alpha \leq 0.05$) between the students' achievement mean scores in vocabulary attributed to the instructional method of teaching (traditional & mobile)?"

To answer this question, a two sample t-test was conducted for the post-test of both groups. Table (2) shows the means of students scores t-test values for the post-test for both groups.

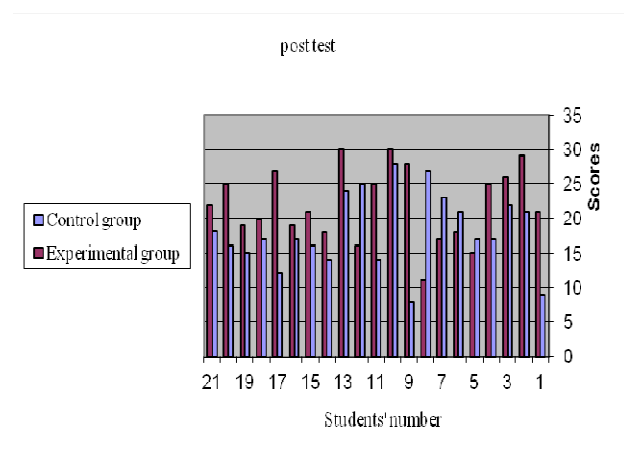
Table No. 2. T-test for the post-test of both groups

Group	N	Mean	T	Sig. (2-tailed)
Contr.	20	18.1500	2.707	0.010
Exp.	20	22.000	2.707	0.011

Since the significance value of the test in Table (2) is less than 0.05, then, there are statistically significant differences between the two groups. So, it can be argued that there is a significant difference between the achievement of the students after being exposed to the mobile method. In other words, the mobile method was better in achievement after applying the treatment. Also, the results of Table (2) indicate that the t value of (-2.707) is significant at ($\alpha \leq 0.05$). Thus, the null hypothesis which stated that there is no statistically significant difference at ($\alpha \leq 0.05$) in the mean scores of vocabulary between the two groups that can be ascribed to the strategy of teaching was rejected. This means that students' vocabulary on the post-test was improved due to the treatment in favor of the experimental group which was taught by the mobile.

Fig 2 indicates that there are significant statistical differences between the two means of the groups:

Figure No.2. The means of the students scores for the post-test



Conclusions:

The results related to the question of the study indicated that there was a statistically significant difference at ($\alpha \leq 0.05$) between the mean scores of the experimental group and that of the control group on the post-test. This difference was in favor of the experimental group since the mean scores of mobile

strategy (22.000) was higher than the mean scores of the control group (18.1500).

The findings of this study are consistent with Brown (2008) and Baki (2010) who studied the effectiveness of using Mobile on vocabulary and showed that there are significant differences in increasing vocabulary ability in favor of the experimental group. These findings corroborate those of Lu (2008) and Stockwell (2007). These results in favor of the experimental group are expected because the researcher believes that features of the mobile phone arouse learners' motivation. The lessons delivered via mobile phone are more appealing to students. Carrying a mobile phone and checking the software anytime and anywhere is trendy among students. Hence, the mobile phone can be a more effective medium for self-learning English vocabulary than the paper material. The students also made improvement in vocabulary because they learned some knowledge of local life and leisure activities which they were unfamiliar with. Finally, mobile plays a significant role in teaching and learning English vocabularies because of the characteristics of mobile such as the physical characteristics (e.g., size and weight), input capabilities (e.g., keypad or touchpad), output capabilities (e.g., screen size and audio functions), file storage and retrieval, and processor speed.

The findings of the current study is in line with the theoretical and practical studies surveyed in the previous chapters in which most of the studies provided evidence for the positive effectiveness of using mobile in developing students' vocabulary achievement.

Recommendations:

On the basis of the findings mentioned in the previous section, the researcher offers the following recommendations:

- The researcher recommends instructors in universities to adopt mobile strategy in teaching English skills and components for the effectiveness of it in improving students' academic achievement.
- The researcher suggests conducting similar studies on other levels and other language skills so that the generalization could become more valid and widely applicable.

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استخدام تقنيات الموبايل التربوية في اكتساب المفردات

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المخلص: تهدف هذه الدراسة معرفة أثر استخدام تقنيات الموبايل في تحسين تحصيل طلاب اللغة الإنجليزية في جامعة البلقاء التطبيقية في الأردن. وقد حاولت الدراسة الإجابة عن السؤال التالي: - ما أثر استخدام الموبايل في اكتساب المفردات؟

وللإجابة عن سؤال الدراسة، استخدم الباحث برنامجاً تعليمياً يقوم على استراتيجية تعلم اللغة بواسطة الموبايل من المجموعة التجريبية، حيث اختير أربعون طالباً، وزعوا على المجموعتين التجريبية والتقليدية بشكل عشوائي. أعد الباحث اختباراً تحصيلياً على المفردات، أداة للدراسة، وبرنامجاً تدريسياً مبرمجاً، وقد استخدم اختبار (ت) لإيجاد أثر البرنامج التعليمي في تحصيل الطلبة في المفردات. أشارت نتيجة الدراسة إلى وجود فرق لصالح طلاب المجموعة التجريبية. وقدمت الدراسة عدداً من التوصيات والاقتراحات للدراسات المستقبلية.

الكلمات المفتاحية: تعلم اللغة بواسطة الحاسوب، التحصيل، البرنامج التعليمي.

تاريخ استلام البحث 2013/4/11، وتاريخ قبول البحث 2013/10/29