The Effects of Using Mobile Phone SMS on Intentional and Incidental Vocabulary Learning by Iranian EFL Learners

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Abstract
The objective of this study was to examine the effects of mobile phone SMS on enhancing EFL learners’ vocabulary learning in incidental and intentional settings. Based on cluster sampling, ninety students from the Faculty of Engineering, Shiraz Azad University studying General English was chosen as participants of the study. In order to handle this study two instruments were used, The Instruction tool in this study was software of Oxford dictionary within the cell-phone system which was sent to each student, and the data collection tool was a researcher-made test employed as pre and post-tests. Results of the study revealed that all three groups with both methods of using SMS and traditional method of teacher-fronted class had improvements in their post-tests, but the significance difference was related to the intentional group because students in intentional group might be careful about their scores or more motivated. Moreover, between the incidental and the intentional groups, the difference was not significant.

Keywords: intentional learning, incidental learning, vocabulary learning, mobile phone SMS

INTRODUCTION

Nowadays, technology plays an important role in everyone’s life. Using mobile phone one of is the most popular technology usage. Many people receive lots of SMS every day and they send so many SMS for others; this potential can be employed in teaching vocabulary.

Vocabulary learning is an important part of learning a foreign language, because vocabulary is the root of language. During speaking we need knowledge of vocabulary, and it will be the same about reading, writing and listening. Moreover, to understand a text, one must understand the words that represent the ideas or concepts. According to Baumann & Kame’enui (2004) and Ritstj (2004) and Pearson (2007), studies confirm the high correlation (0.6 to 0.8) between vocabulary knowledge and reading comprehension.

Knowledge of English vocabulary can make a big difference between two persons during categorizing their knowledge in different levels. According to Lubliner & Scott (2008) we also know that there are degrees of word knowledge, from "I've never heard this word before," to "I know this word and can apply it in multiple contexts", as well as
metacognitive knowledge about how to apply prior knowledge and strategies to vocabulary learning Beck (2008).

Ally (2009) believes that using mobile technologies in the field of education is increasing each day. This means that there is no need for the teacher to provide learners with the hardware in order to incorporate a mobile learning component into their teaching context. Added to this is the fact that mobile phones are more inexpensive than wireless laptop computers, and with functions such as Internet browsers that are available in current mobile phones, the range of possibilities of mobile phones as tools for learning increases even further. For example Ducate and Lomicka (2009) and, Rosell-Aguilar (2007) mentioned the limitations in the interactivity that MP3 players can achieve, generally restricted to playing audio or, more recently, video. In contrast, most modern mobile phones have either e-mail or Short Message Service (SMS) functionality, and it can be useful for sending and receiving messages to and from teacher or students. And using internet in the mobile phone can be helpful for students to retrieve updated or specific information, as they require it, and for teachers to maintain detailed logs of access.

Mobile is a popular device of modern technology and it can be used for teaching different things including vocabulary to English students by sending SMS to each learner. Using this technology makes learning vocabularies much easier because without limitation of time or place you can send a message to each student and teach him or her some useful English vocabulary. Hence, this study will focus on the effect of using SMS on incidental and intentional vocabulary learning.

Chabra and Figueiredo (2002) mentioned mobile learning is the ability to receive learning anytime, anywhere and on any device. Learning through SMS resides in mobile learning and can be considered as part of the world of electronic learning. It can be helpful when students or teachers have limitation of time or place. And they need to learn vocabulary during their daily life, for example when they are at home, when they are in the office, or even when they are spending their time with their friends, and they have no time to spend in English classes.

SMS “encompasses educational processes carried out in compliance with different theoretical models pursued using different educational method and is normally based on activities that take place via any electronic medium” Anohina (2005, p. 94).

Cavus (2009) maintains that learners’ interest in using mobile phones can help them learn new words. He adds that one of the reasons could be the joy they get from using SMS as a “flexible tool into their learning” (p. 76).

In Taiwan, Lu (2008), in a study titled “Effectiveness of vocabulary learning via mobile phone”, examines the effectiveness of SMS vocabulary lessons, Thirty vocational high school students joined the study. In the first week 15 students learned 14 target words in English via the mobile phone (M1), and the rest learned the vocabulary using print materials (P1). And During the second week, group M1 became P2 and P1 became M2 with another set of 14 words. In the first week a pretreatment questionnaire and a test were conducted after receiving the vocabulary lessons, students were given a post-test and a post treatment questionnaire. In addition, interviews were conducted with the
participants. Results in this study showed that the mobile-participants gained a greater amount of vocabulary than their paper-group counterparts. Moreover, mobile-participants showed positive attitudes towards learning vocabulary. They felt that they could memorize vocabulary more easily through SMS lessons.

Joe (1995) investigated vocabulary knowledge gains by an adult learner who was required to perform a read and retell task. She found that the task demands (specifically, attention, retrieval, and generation) led to a significantly higher level of incidental vocabulary learning. Some educationalists have therefore advocated the use of activities conducive to incidental vocabulary learning (i.e. massive reading and listening activities) while discouraging procedures of intentional vocabulary learning Krashen (1989).

As Singleton (1999: 161) observes "Clearly, in order for the debate about incidental vocabulary learning to proceed with any degree of coherence in the future, a consensus will have to be reached about what is to be included and what is to be excluded under the term 'incidental'. Inferring word meaning is likely to be a very slow process. Considering that many L2 learners in China have a limited amount of time to learn words, it is not perhaps the most efficient way to approach the task (Hulstijn, 1989).

According to Coady (1997a) in the literature vocabulary acquisition of both L1 and L2 most vocabulary items are acquired incidentally during listening, reading, speaking or writing and that few words are acquired by an act of intentional learning. Krashen (1989) concluded that incidental vocabulary learning achieves better results than compared to intentional vocabulary learning. A major flaw in this review lies in the assumption that "spelling and vocabulary are developed in second languages as they are in the first language" (p. 454).

According to Haynes (1990) one of the possible ways for incidental vocabulary learning is learning through reading, and reading ability is an ability beginning foreign language learners possess only to a very limited extent. This is a problem that would be exacerbated when the L2 being learned is of a totally different orthography, e.g., Chinese EFL students learning English, where differences in writing system pose serious challenges to the development of reading ability and therefore to vocabulary learning through reading. Moreover, Haynes (1990) mentioned; where learners have little target language input and insufficient reading materials at their disposal, an exclusive incidental vocabulary learning program will stifle the language development of these learners.

**REVIEW OF LITERATURE**

**Technology and learning**

Rozgein (2008) states that technology enhances language learning (TELL), motivates students by letting them decide about their study time, the conditions they will run the tasks, and organizes their study process regardless of whether the other participants of the course follow the same line.

Bouvet (2003), Willetts (1992), and Williams & Williams (2000) suggest that integration of technology can improve academic performance, enhance motivation, and promote learning.
As early as 1993, William D. Graziadei described an online computer-delivered lecture, tutorial and assessment project using electronic mail. In 1997 he published an article which described developing an overall strategy for technology-based course development and management for an educational system. He said that products had to be easy to use and maintain, portable, replicable, scalable, and immediately affordable, and they had to have a high probability of success with long-term cost-effectiveness.

Educators consider learning as an active process leading to the acquisition of knowledge, which is long lasting, measurable, and specific to changes in behavior (OECD, 2007). Severin’s Cue Summation Theory (1967) states that learning is increased as the number of available stimuli is increased. The stimuli supplied through different channels have to be relevant to each other or the distraction would cause a decrease rather than an increase in learning and retention (Kaur et al. 2005).

Paribakht and Wesche (1997) argue that contextualized learning through reading is effective but that contextualized reading plus explicit instruction is superior. Consequently, they concluded that although reading for meaning does contribute to vocabulary knowledge, a supplementary plan with specific vocabulary exercises produces more significant gains.

**M-learning**

M-learning (mobile learning) is one way for better learning in different aspects not only vocabulary learning, for example, Educators have recently voiced concern about the detrimental effect the rise of text messaging is having on teenagers’ vocabulary. Earlier this year a chief examiner in the Department of Education and Science stated that text messaging posed a significant threat to writing standard in English due to the use of phonetic spelling and lack of punctuation (Flynn, 2007).

Kukulska-Hulme and Tralxer (2005) believe mobile learning refers to the use of mobile or wireless devices for the purpose of learning while you are moving from one place to another. Peters (2007) viewed mobile learning as a useful component of the flexible learning model. In 2003, Brown summarized several definitions and terms and identified mobile learning as “an extension of e-learning”. Keegan (2003) says m-Learning will provide the future of learning. This statement has proven true for this short pilot project and it has provided an insight into the role m-Learning could play in the future of the Irish language.

Thornton and Houser (2005) studies on completing short multiple choice activities by accessing video lessons about English idioms from their mobile phones during class time. The results of this study shows that an overwhelming majority (99%) of 333 Japanese students using their mobile phones in preference to using desktop PCs. They concluded that mobile-based email cab is used to promote vocabulary learning. Although using mobile phone is useful for teaching new vocabulary but, educators are sad about bad effects of text messaging which can pose a significant threat to writing standard in English due to the use of phonetic spelling and lack of punctuation.
Thornton and Houser (2005) mentioned that “mobile phones enhance regular study, lead to more exposure to the target words and more vocabulary gains than the detailed presentation of the lessons do” (p. 216). Mellow (2005) believes that

m-learning is a subset of e-learning which needs to be considered within a blended learning strategy in the same way that any education institution or corporate training department needs to view all other learning delivery methods, moreover; m-learning is a helpful means to enhance the broader learning experience, and the last one, m-learning is a powerful method for engaging learners on their own terms especially for those who could be classed as nontraditional learners or for those groups of students who cannot participate in classroom learning for whatever reason. (p. 471)

Thornton and Houser (2004), focused on providing English vocabulary instruction by SMS. The results indicated that the students in SMS group learned over twice the number of words as the students in web and paper groups.

The appropriate practices of m-learning have many recognized benefits, documented by Attewell (2005), amongst others:

- Mobile learning helps learners to improve their literacy and numeracy skills and to recognize their existing abilities;
- Mobile learning can be used to encourage both independent and collaborative learning experiences;
- Mobile learning helps to identify areas where they need assistance and support;
- Mobile learning helps to combat resistance to the use of ICT and can help bridge the gap between mobile phone literacy and ICT literacy;
- Mobile learning helps to remove some of the formality the learning experience and engages reluctant learners;
- Mobile learning helps learners to remain more focused for longer periods;
- Mobile learning helps to raise self-esteem;
- Mobile learning helps to raise self-confidence. (pp.13-5)

**Empirical studies**

Motallebzadez and Ganjali (2011) examined the effects of SMS on vocabulary retention and reading comprehension ability of Iranian EFL learners. They chose 40 university students as experimental and control groups. The participants in experimental group received English words as well as definitions and example sentences through SMS three times a week throughout 16 sessions while those in control group were taught new words though conventional board and paper technique during the same period. The results in this study can also provide pedagogical implications for utilizing SMS as an effective and flexible learning tool.

Alemi and Lari (2012) investigate the effectiveness of short message service (SMS) on Iranian university students’ vocabulary learning and retention. To this end, 28 university students were chosen. After pretest and 16 weeks for experiments, students were taught all words of Academic Word List with SMS. And at the end, they were given a posttest, in order to understand if using SMS had any effect or not, then a comparison between
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pretest and posttest (with dependent t-test) clarified the results. Results of the study showed, besides having a positive effect on vocabulary knowledge, SMS affects students’ vocabulary retention positively.

Tabatabaei and Heidari Goojani (2012) investigated the effectiveness of text messaging on vocabulary learning of EFL learners. 60 Iranian high school students participated in this study; based on the results of the proficiency test, they were divided into two equal groups of experimental and control. The target words in the book English for pre-university students by Birjandi, Samimi and Anabisarab (2007) were taught to the groups, using synonyms and antonyms. Six to seven new words were thought each session. In the experimental group, SMS was used for teaching new words but in the control group students were supposed to write sentences about their parents containing new words. Results of the study help teachers to provide a flexible situation to teach new words, and provide pedagogical implications for utilizing text-messaging as an effective and flexible learning tool.

Derakhshan and Kaivanpanah (2011) assessed the effectiveness of SMS on university students’ vocabulary learning. The experiment continued for seven weeks, and during this time the participants were taught fifteen to twenty words each session and they were asked to work in groups and talk about the words. But students in the experimental group were asked to send an SMS containing the new word; they were expected to send one SMS for each word. The participants in the control group were asked to write sentences on the paper and bring it to the class. Students in the experimental group on the other hand just sent SMS. The result in the posttest showed that students in the experimental group had higher scores than students in the control group.

On the basis of above contentions and noticing lack of studies on the effects of using mobile phone SMS on enhancing intentional and incidental vocabulary learning by Iranian EFL learners, it seems essential to do a research in this area in order to understand if SMS has any different effects on different groups as incidental group, intentional group and control group. The study includes the following research questions:

- Does using mobile phone SMS enhance intentional and incidental vocabulary learning among Iranian EFL learners?
- Is there any difference between intentional and incidental vocabulary learning via SMS?

METHOD

Participants

Participants of this study were chosen randomly in the form of intact classes (cluster sampled) of ninety students from the Faculty of Engineering, Shiraz Azad University studying General English. All the students were divided into three groups; control group, intentional group and incidental group (30 students in each group). All students had mobile phones and were allowed to use their mobile phone in order to send SMS or read their received messages.
Instrumentations

Instruments in this study included software of Oxford dictionary within the cell-phone system which was sent to each student (as the instruction tool); another instrument was a researcher-made test employed as both pre and post-test (data collection tool).

Procedures

This study makes use of an experimental design to investigate the effect of using mobile phone SMS on enhancing intentional and incidental vocabulary learning by EFL learners. Ninety students from the Faculty of Engineering, Shiraz Azad University studying General English were assigned to two experimental groups and a control group randomly. Each group consisted of thirty students. The two experimental groups were designated as intentional and incidental groups.

At the beginning of the study, all three groups were given a pre-test. The pre-test consisted of 30 multiple choice recognition items that measure learners’ knowledge of the target words. Another version of the same test was assigned as the post-test to the experimental and control groups. After the pre-test, a treatment session were hold by researcher, (one session for each group) during the treatment sessions, the experimental groups were provided with a number of sentences containing the target words via their mobile phones. The sentences including the target words were the same for both experimental groups. The participants of the intentional group were informed in advance to pay attention to the new words that they received (the target words for both groups are bold) on their mobile phones because they were supposed to be tested on those target words afterwards. The participants of the incidental group, on the other hand, were provided with the same sentences containing the target words. However, they were not notified of a subsequent test. The sentences learners received via their mobile phones were 30 understandable sentences (including 30 target words). After receiving each sentence, students were expected to understand the meaning. Otherwise, they could use their digital dictionaries on their mobile phones for more clarification. Then both groups’ learners were asked to send one sentence and use the new words. And it was the same for all the sentences. With regard to the control group, the learners were provided with the same sentences including the target words in a traditional teacher-fronted classroom. After pre-test and treatment, students were given a post-test in order to understand if they learnt the new words or not.

Data Analysis

After pre-test and post-test all the collected data were analyzed by SPSS. As there were three groups in the study the scores in pre-test analyzed by one way ANOVA and the descriptive statistics were calculated too, in order to have mean, minimum score and maximum score in each group and to obtain significance for pre-test.

The data in the post-test analyzed the same as scores in pre-test. Moreover, tuky was calculated for the post-test.
RESULTS AND DISCUSSION

In order to analyze the participants’ scores, all the collected data were analyzed by SPSS. The results are reported below in tables and tables are superseded by interpretations and explanations for better understanding. Also the research questions are answered.

<table>
<thead>
<tr>
<th>Table 1. Results of Descriptive Statistics for the three groups</th>
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<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>Control group</td>
</tr>
<tr>
<td>Incidental group</td>
</tr>
<tr>
<td>Intentional group</td>
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<tr>
<td>Total</td>
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<tr>
<th>Table 2. One-Way ANOVA of the results of the pre-tests for the three groups</th>
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<tbody>
<tr>
<td>Sum of Squares</td>
</tr>
<tr>
<td>Between Groups</td>
</tr>
<tr>
<td>Within Groups</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

As is evident from the Table 2 above, One-Way ANOVA of the results reveals that there is no significant difference between groups’ scores (p>.05). It means that there is no significance difference between groups and the groups are the same in pre-test.

<table>
<thead>
<tr>
<th>Table 3. Descriptive statistics of the post-tests for the three groups</th>
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<tbody>
<tr>
<td>N</td>
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<tr>
<td>----</td>
</tr>
<tr>
<td>Control group</td>
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<tr>
<td>Incidental group</td>
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<tr>
<td>Intentional group</td>
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<tr>
<td>Total</td>
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</tbody>
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<tr>
<th>Table 4. One-Way ANOVA of the results of the post-tests for the three groups</th>
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</tr>
<tr>
<td>Between Groups</td>
</tr>
<tr>
<td>Within Groups</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

As Table 4 shows, in post-test the One-Way ANOVA results report that the difference between the groups is statistically significant (p<.05)
Table 5. Multiple comparisons of the post-tests of three groups

<table>
<thead>
<tr>
<th>(I) instruction</th>
<th>(J) instruction</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group</td>
<td>Incidental group</td>
<td>-2.5667</td>
<td>1.36227</td>
<td>.149</td>
<td>(.6816, -5.8150)</td>
</tr>
<tr>
<td></td>
<td>Intentional group</td>
<td>-3.4667*</td>
<td>1.36227</td>
<td>.034</td>
<td>(-2.184, -6.7150)</td>
</tr>
<tr>
<td>Incidental group</td>
<td>Control group</td>
<td>2.5667</td>
<td>1.36227</td>
<td>.149</td>
<td>(-5.8150, 0.6816)</td>
</tr>
<tr>
<td></td>
<td>Intentional group</td>
<td>-0.90000</td>
<td>1.36227</td>
<td>.787</td>
<td>(-2.3483, 1.4183)</td>
</tr>
<tr>
<td>Intentional group</td>
<td>Control group</td>
<td>3.4667*</td>
<td>1.36227</td>
<td>.034</td>
<td>(0.2184, 6.7150)</td>
</tr>
<tr>
<td></td>
<td>Incidental group</td>
<td>.90000</td>
<td>1.36227</td>
<td>.787</td>
<td>(-2.3483, 4.1483)</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the 0.05 level.

As this table shows, the significance in comparison of control group and incidental group is 0.149 which is more than 0.05 and therefore it is not meaningful. This means that in comparison of control group and incidental group there is no significance difference between the results in control group and the results in incidental group. In comparison of control group and intentional group the significance is 0.034 that is less than 0.05 which indicates that there is a significance difference between the results in control group and intentional group. Therefore students in intentional group might be careful about their scores or more motivated because it can be beneficial for them and this students use Cell-phone for vocabulary learning instead of traditional teacher fronted class method in control group. The significance in comparison of incidental group with intentional group is 0.787 which is more than 0.05 and therefore it is not meaningful.

Table 6. Homogeneous Subsets of three groups

<table>
<thead>
<tr>
<th>Instruction</th>
<th>N</th>
<th>Subset for alpha = 0.05</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control group</td>
<td>30</td>
<td>7.9667</td>
</tr>
<tr>
<td>Incidental group</td>
<td>30</td>
<td>10.5333</td>
</tr>
<tr>
<td>Intentional group</td>
<td>30</td>
<td>11.4333</td>
</tr>
<tr>
<td>Sig.</td>
<td></td>
<td>.149</td>
</tr>
</tbody>
</table>

Table 6 is for more clarification about alpha (0.05). It shows one more time that there is no significant difference between control and incidental groups. And there is no significant difference between incidental group and intentional groups, but the significance difference is between control group and intentional group. As in the post-test the mean for control group is 7.9667 and the mean for intentional group is 11.4333.

CONCLUSION

The result session contained a technical report of how the statistical analyses turned out and in this part all findings will be discussed according to research questions posed in the study; each research question will be answered separately.
Research Question one: Does using mobile phone SMs enhance intentional and incidental vocabulary learning among Iranian EFL learners?

One-Way ANOVA of the results of the post-tests for the three groups shows that there is statistically significant difference among the three groups as the p-value in the study is 0.035 which is less than 0.05, and it means that vocabulary learning has happened in all three groups, with both methods of using SMS and with traditional method of teacher-fronted class. As the results of post hoc Tukey test revealed, there were improvements in vocabulary learning of the intentional and incidental groups compared to the control group. However, only the intentional group showed a significant difference in its performance compare to the control group.

Prensky (2005) believes that one of the technologies that can be used to help learners in learning a foreign language is mobile phone which are dominant in most student's life. They are not just communication devices anymore. They are useful computers that fit into students' pockets, are always with them and they are nearly always on, and can be used in any kind of learning.

Research Question two: Is there any difference between intentional and incidental vocabulary learning via SMS?

To answer the second question, multiple comparisons of the post-tests of three groups were run. As table 4.5 shows, the significance in comparison of incidental group with intentional group is 0.787 which is more than 0.05. Both intentional group and incidental group had improvements in post-test, but the difference between two groups is not significant.

Mobile learning or more specifically SMS learning can help teachers to teach better and sometimes easier. It can help students to improve their English language. Moreover; using technology can help students to learn using new technologies and learn more during a short time and it can being about a great revolution in EFL learning by Iranian students.

The researcher did the research on intact classes; the results could have been different had she employed other sampling procedures. Also, the researcher ended up with 90 participants for the study while for obtaining a high degree of external validity more than this number of participants is required.

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