

An Investigation into the Impact of Traditional vs. Blended Teaching on EFL Learners' Vocabulary Acquisition: M-learning in Focus

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Abstract

This study aimed to explore the application of SMS to the blended method of teaching L2 vocabulary. It was also aimed at investigating the impact of adding written cues to Iranian high-school juniors' L2 vocabulary learning. To these ends, after conducting Nelson English Language Test (i.e. Test 100 A), 60 out of 74 Iranian high-school juniors in two classes with pre-intermediate level of English language proficiency were selected. Then, they were divided into two equal groups in terms of number. The first group received the learning content in the traditional way (G1); while the second group received the learning content through the blended mode of teaching (G2), with and without written annotation. They were then evaluated on their recognition and recall of vocabulary items. The results showed that the participants who received treatment outperformed significantly the other group in L2 vocabulary learning. Moreover, the blended group performed in a better way than the other group in learning the annotated content. The results of the study also revealed that employing SMS as part of learning content can create a desirable condition to enhance the EFL learners' L2 vocabulary knowledge.

Keywords: annotation, blended method, traditional method, vocabulary learning, SMS Mobile-Assisted Language Learning (MALL)

1. Background to the study

The United Nations reported in 2010 that mobile subscribers surpassed five billion, indicating that 70 percent of the world population is affected. Based on this report, Informa Telecoms and Media (2011) predicted that by 2015, 15 trillion Short Message Service (SMS) texts will be sent annually. At the same time, new educational trend favors a technological outlook in the academics, and this has led to concentration on the use of mobile technology in the educational environment. The cell-phone does not merely combine all previous functions of communication, but its system of norms is less bound to large social environments such as the home, school, or the office (Benedek, 2007). It could be claimed therefore that the ascending application of wireless devices has paved the way for learning anytime and anywhere. Hence, mobile-learning (m-learning), especially instant messaging service, is expected to be used as a bridge between the formal and informal learning approaches (Wagner & Wilson, 2005). In fact, the growth or the existence of m-learning is directly tied to the growth of mobile technology (Caudill, 2007). On the other hand, since English as an international language affects the overall competition of different fields in a country and since to enhance the English proficiency of people is a critical issue in non-English countries (Chen & Hsu, 2008), presently the flexible ways of teaching English (i.e. teaching through mobile) seems to be an important issue in such countries.

Learning English is influenced by many factors which directly or indirectly affect the learners' acquisition. Among these, the learner himself or herself is the most direct and important (Xiong, 2010). According to Alavi and Leidner (2001), most of recent studies have traditionally drawn their bases and procedures from stimulus-response theory, which probed only the relationship between teaching method (stimulus) and learning outcome (response). The new approaches, however, combine human mind operation with a rich learning environment where the crucial features of technology such as text, music, etc. are juxtaposed. This brings up one of the central issues in teaching language via cell-phone which provides proper learning content to be displayed to the learners with a different psychological learning process. As a result, the question of what counts as proper learning materials to be represented to L2 learners involves a consideration of their different psychological characteristics. In this vein, by proposing Dual-Coding Theory (DCT), Mayer and Sims (1994) claim that the combination of the two modalities (pictorial or written) could culminate in the long-term learning of contents. As a result, using different manners of learning content delivery and spending a reasonable amount of time on several dimensions of what is involved in knowing a new vocabulary items such as spelling, meaning, and contexts of use in order to attain the well-established vocabulary learning, as Schmitt (2002) defines, seems indispensable.

Among numerous choices mobile technology provides for education, instant messaging is one of the most widely spread applications (Rau & Wu, 2008). However, as relatively little is known about how Iranian teachers deal with the preparation of proper learning content for use via new wireless technology (i.e., employing traditional printed text materials, or blended ways of teaching which comprises SMS and printed text materials), this study was conducted to examine the possible differences of learning content delivery to Iranian high school juniors through different channels of material presentation. In addition, the effect of application of written annotation vs. no annotation content in the blended way of teaching new English vocabulary items was investigated.

2. Research questions

Based on what was stated above, the present study sought to address the following two research questions:

1. Do Iranian high school juniors learn English vocabulary items differently through using different ways of teaching (i.e., traditional vs. blended method)?
2. Do Iranian high school juniors learn English language vocabulary through different delivery modes of content (no annotation vs. written annotation) in the blended way of teaching English vocabulary?

3. Method

3.1. Participants

Since the present study was aimed at investigating the possible effects of using different modes of teaching English vocabulary, after conducting Nelson English Language Test, Test 100 A, 60 out of 74 Iranian high-school juniors in two classes with pre-intermediate level of English language proficiency were selected. The selected participants were then divided into the following two groups, equal in number: Group 1 (G1) who received the learning content in the traditional way of teaching, and Group 2 (G2) who received the learning content in the blended way of teaching with either non-annotated-written materials or with annotated-written materials (i.e. SMS + traditional learning materials). It is to be noted that the second group had access to cell-phones to send and receive messages daily at different places.

3.2. Materials

a) Proficiency test- To make sure that the participants were all at the same level of language proficiency; namely, pre-intermediate level, Nelson English Language Test, Test 100 A (Coe & Fowler, 1976) was conducted. The Nelson English Language Test is a battery consisting of 40 separate tests for ten levels of language proficiency ranging from beginners to the advanced. The levels are numbered from 050, 100, 150 to 500. Each test consists of 50 items. The tests are designed for a 30 (60%) pass mark. The reliability of the Test was calculated through KR-21 in a pilot study (0.84). The validity was also confirmed by three competent experts in this field.

b) Vocabulary level test- Although all the vocabulary items of English book (3) of high school (Birjandi, Noorozi, & Mahmoodi, 1991) were taught traditionally in an educational year (i.e., two successive semesters), vocabulary level test was administered to assess the learners' initial knowledge of words with a view on excluding the words with which learners were already familiar in the learning phase of the study. Since making frequency counts of large relevant corpora (in this study, word items of Iranian high-school English books), paves the way coming up with lists of words that are useful for teaching English to the students at elementary level of education (Schmitt, 2002), the word items for the vocabulary level test were selected from the comprehensive list of Iranian high school English books vocabulary items (Zahedi & Sohrabi, 2010). The vocabulary level test consists of 40 word items, starting from 'nurse' to 'giant'. The students have to write the Persian meaning of the words in front of it or mark (×) in the loco citato if in they did not know the meaning. The reliability of this test was also calculated (0.87). Its validity too was confirmed by three Iranian experts in TEFL.

c) Open-ended questionnaire- As open-ended questions let the students better express their answers, and at the same time provide the researchers with a plethora of data about the learners' opinions on the ways to teach language (for this study, traditional and blended ways of teaching), for to enhance the quality of the study and to maximize the proportion of high-school juniors' response rate, an open-ended questionnaire was given to the students to complete. Since the questionnaire sought background information on juniors' experience with using cell-phone, that is, their opinions on the frequency and timing of the learning content (new vocabulary items), perception questions were included in the questionnaire to check the learners' interests on m-learning.

d) Vocabulary items- One hundred new vocabulary items for conducting the main phase of the study in ten sessions of an educational year, were selected from English book (3) taught at Iranian high schools.

Moreover, as the investigation into the effect of using annotation on English vocabulary learning was another major aim of the present study in the blended way of teaching vocabulary items, the following two types of representation were made for each vocabulary item:

Type 1- representing the English word, and the Persian meaning of the word plus a written annotation (i.e., an English sentence with its Persian translation).

Type 2- representing the English word, and the Persian meaning of the word.

Examples of two different representation types, for the word 'repair' are shown in figure 1 below:



Figure 1. Different types of representation

e) English Vocabulary Recognition and Recall (EVRR) tests- In order to compare the effects of the two ways of teaching English vocabulary items and their impacts on the learners' long-term retention, after each teaching session, EVRR test items were given to the high-school juniors. This comprised a receptive test in the form of multiple-choice questions which examined the students' new vocabulary items knowledge, and a productive test which required the students to fill in the blanks using appropriate English vocabulary items. The rationale behind using this test was that such tests are often used to examine the learners' vocabulary knowledge (Jones, 2004) and that they provide good conditions for learning vocabulary both receptively and productively (Nation, 2001). In each test session, 20 items were tested, with 10 for each test type. The frameworks for constructing recognition and recall tests and also the sequence of administration were based on the study done by Chen, N.-S., Hsieh, and Kinshuk (2008) with some modifications.

3.3. Procedures

For the purposes of the present study, the following steps were taken:

1. Seventy five high-school juniors in two high schools were required to participate in Nelson English Language Test (Test 100 A). This procedure led to the selection of 60 homogeneous juniors. They were assigned to two groups--traditional group (G1) and blended group (G2).
2. Seeking for the participants' opinions about the proper performance of the study, at the beginning of the educational year, the open-ended questionnaire mentioned above was distributed among the learners to complete.
3. The vocabulary level test was administered to assess the learners' initial knowledge of words with a view on excluding the words with which juniors were already familiar in the learning phase of the study.
4. When the participants' completed the vocabulary level test, it became clear that nearly all them were familiar with the vocabulary items up to the word 'watch'. Hence, one hundred vocabulary items were selected to be taught in two ways of teaching.
5. Class meetings were scheduled based on a 10-session syllabus, that is, at the frequency of 10 words each session. Getting the students' cell-phone numbers (G2), the researchers sent high-school juniors of the blended group an average frequency of two words per day (except Fridays) in the form SMS texts, including the Persian definition of new English vocabulary items with or without written annotation. The one-way, unsolicited message from teachers to the learners', or push model as Mellow (2005) defines was selected for using SMS in the m-Learning part of the study. Students' preferences concerning the time and the frequency of SMS texts were taken into consideration in designing the curriculum (See Appendix).

In order to counterbalance the effect of the order of representations, a 2×2 Latin Square (LS) design was employed. According to Montgomery (1991), one of the frequent uses of LS is to counterbalance the various sequences in which the level of an independent variable might take place. In LS, each of the 2 digits (i.e., 1, & 2) would appear just once in each row and column. Figure 2 shows a 2×2 Latin Square.

A	B
B	A

Figure 2. The 2×2 Latin square

In this research project, the first five words were delivered to first participant in type 1 and the last five words in type 2. At the same time, the second participant received the first five words in type 2, and the last five words in type 1.

1. Immediately after each teaching session, participants were required to answer the questions of EVRR tests (paper-and-pencil- based tests), that is, 10 multiple-choice and 10 fill-in-the-blank questions.
2. The collected data was analyzed through SPSS software, version 16. After analyzing the data descriptively, paired sample t-test was carried out to find the possible significant relationships.

4. Results

As Table 1 below shows, the analysis of the data revealed that high-school juniors enjoyed the new vocabulary teaching mode when it was accompanied by SMS as a supplementary tool for teaching the new English vocabulary items. Actually, the results confirmed the hypothesis that sending text messages in conjunction with traditional way of instruction help EFL learners in the process of L2 vocabulary acquisition.

Table 1- Descriptive Statistics: Recognition and Recall Scores of the Two Groups

Score Differences	Mean	Paired Differences		Sig.
		95% Confidence Interval of the Difference		
		upper	Lower	
Recog G1 & G2	-1.99	-1.67	-2.30	0.000
Recall G1 & G2	-2.81	-2.46	-3.17	0.000

Note. Recog.= recognition test

Juniors of group two (G2) outperformed in both recognition and recall tests of the new vocabulary items presented to them in the blended way of teaching (means of 7.59 and 6.87 for recognition and recall tests, respectively). Also, the inferential statistics revealed that the differences between blended (G1) and traditional group remain significant (Sig.: .000, $p < .05$) (Table 2 below). Therefore, it is implied from the results that sending word items using messaging service of juniors' cell-phone creates the suitable condition required to enrich the learners' L2 vocabulary knowledge, that is, the relative superiority of blended vocabulary learning method over the traditional way of teaching (i.e. using paper-based texts) in terms of enhancing students' learning of unknown word items.

Table 2- Inferential Statistics: Recognition and Recall Scores of the Two Groups

Test Type	Mean	Standard Error Mean	Standard Deviation
Recog G1	5.59	0.28	0.89
Recog G2	7.59	0.24	0.78
Recall G1	4.05	0.21	0.69
Recall G2	6.87	0.22	0.79

Note. Recog= recognition test

$P < 0.005$

As shown in Table 3 below, the results highlighted the significance of using written annotation in L2 vocabulary learning. In fact, students of the blended group underperformed on the two tests with no annotation (means of 7.2 and 6.5 for recognition and recall tests, respectively), compared with written cues (means of 7.87 and 7.19 for recognition and recall tests, respectively); namely, the paramount role of annotated mode of content delivery in vocabulary learning.

Table 3- Descriptive Statistics: Recognition and Recall scores of the Blended Group

Test Type	Mean	Standard Error Mean	Standard Deviation
Recog type 1	7.87	0.29	0.93
Recog type 2	7.2	0.24	0.76
Recall type 1	7.19	0.28	0.91
Recall type 2	6.5	0.19	0.6

Note. Recog= recognition test

This result revealed that annotation type of learning content in the blended way of teaching new English vocabulary items significantly contributed to the high-school juniors' gains (Table 4 below). In other words, the results mirrored that presenting annotated learning contents as context in L2 vocabulary teaching, enriched juniors' vocabulary knowledge dramatically.

Table 4- Inferential Statistics: Recognition and Recall Scores of Blended Group

Score Differences	Mean	Paired Differences		Sig.
		95% Confidence Interval of the Difference		
		upper	lower	
Recog type 1 & 2	0.66	1.24	0.75	0.031
Recall type 1 & 2	0.63	0.99	0.26	0.004

Note. Recog= recognition test

$P < 0.005$

5. Discussion and Conclusions

The results of the blended way of teaching new vocabulary items to Iranian high-school juniors in the present study confirmed the significant supplementary role of Mobile-Assisted Language Learning (MALL) in the teaching of new vocabulary items. In fact, compared with the traditional classes chiefly based on the paper-based texts, this study revealed that juniors enjoyed and benefited from the pedagogical merits of messaging. This finding is in congruence with the results reported by Chen N.-S. et al. (2008) and Kennedy and Levy (2008). Overall, the results obtained in this study seem to bear testimony to the claims that proper use of SMS help the learners to consolidate and expand their vocabulary knowledge. This reinforces Nation's (2001) opinion that 'developing the arena for repeated encounters with vocabulary items, thoughtful processing, and retrieval of meaning in a receptive situation and retrieval for production could pave the way for bringing the key conditions of vocabulary learning'. Besides, using SMS services for the representation of L2 vocabulary can foster retention and fluency. Thus, the obtained results are interpreted as being in favor of Mellow's (2005) Push Model of sending SMS, as it provides evidence of harmony in the process of learning content representation.

Another interesting finding of the study concerns the use of different types of annotation, i.e. nearly all the learners can take advantage of the materials with written annotation. This result has already been reported by Paivio (1986) who believes that different modalities combined together present a condition for accommodating more channels of learning simultaneously, thus increasing the likelihood of learning such materials. This is referred to as DCT. This study presents another general pattern emerging in the obtained data, which reinforces previous research, that is, higher scores in the recognition test in almost all cases are indicative of the fact that recall tests are more challenging as the learners need far more processing ability to tackle them compared with recognition tests representing receptive type of knowledge (Richards & Schmidt, 2002; Cousin, 2010). This important fact, according to Richards and Schmidt, suggests that practitioners rely on a multi-faceted assessment technique in order to reach a clear and reliable profile of their learners.

A final word here is that since it would seem that employing cell-phone has the potential of opening new windows for L2 learners with regard to their EFL skill and sub-skill practices, the following suggestion is made to augment the integration of MALL (Mobile-Assisted Language Learning) in the EFL curriculum in Iran: the use of cell-phone in the blended way of teaching boosts vocabulary learning but the utilization of cell-phone requires attention on the part of teachers to different aspects of teaching and learning L2 vocabulary learning construct.

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Appendix

To establish criteria for the frequency and timing of sending vocabulary via SMS, a pilot study was conducted in favor of proper completion of the major phase of the study. The participants were 30 high-school juniors. The learning content; namely, new vocabulary items, was sent to their cell-phones via SMS in higher frequency manner (more than two per day) as Kennedy and Levy (2008) define in seven successive weeks. At the end of this trial study, they were given a questionnaire to complete. Its items were mainly focused on such matters as their preferences about timing and frequency of the messages (charts 1, & 2 below). It should be noted that at the end of the pilot study, a few changes were made to the items of the questionnaire.

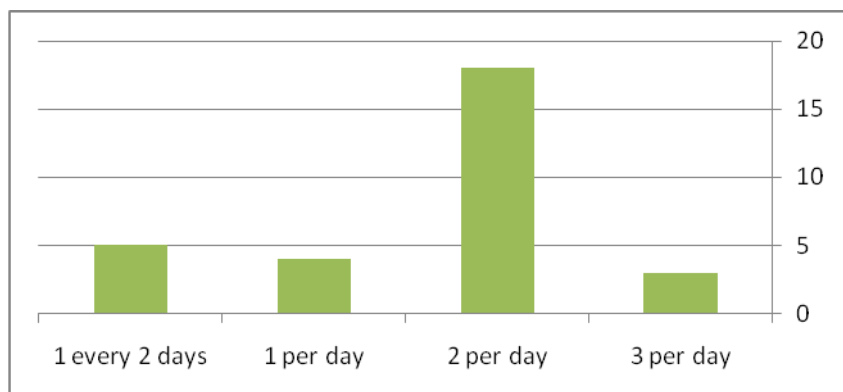


Chart 1- Students' preferences for the frequency of messages

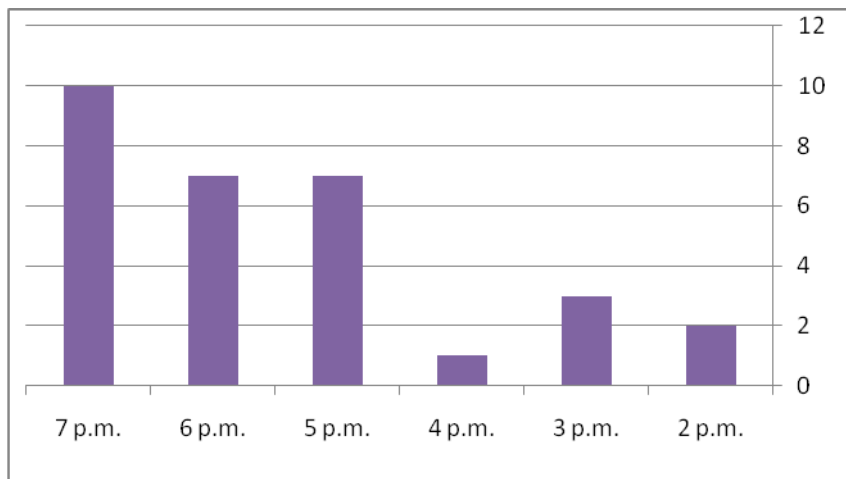


Chart 2- Students' preferences for the timing of messages