

Mobile mediated versus traditional method of L2 vocabulary learning: A comparison between vocabulary learning with and without pictorial annotation

Saeed Ketabi¹⁺, Gholam Reza Zarei² and Saeed Khazaie³

¹ University of Isfahan, Faculty of Foreign Languages

² Isfahan University of Technology, Language Center

³ University of Isfahan, Entrepreneurship Center

Abstract. The focus of this study was to explore the efficacy of mobile learning (m-learning) in the context of teaching English vocabulary items to Iranian semi-illiterates in a traditional versus blended manner of content delivery. To that end, 60 semi-illiterate adults were randomly assigned to the traditional (G1) and the blended groups (G2) after their familiarity with English alphabet was assessed via English alphabet letter writing test. Then, they were taught 30 new English vocabularies in traditional (G1) and blended (G2) methods, with the vocabulary items in two forms of without annotation and with pictorial annotation presented to the second (blended) group. Following the teaching phase and at the end of the course, paper-and-pencil-based English Vocabulary Recognition and Recall (EVRR) tests were administered. The data were collected and then subjected to the appropriate statistical operations, that is, paired sample t-test. The t-test analysis indicated that blended group of semi-illiterates outperformed their traditional counterpart in vocabulary learning. Also, the results showed that the vocabulary items with pictorial annotations were learned better than those without. This study could have some pedagogical implications for language teachers and practitioners.

Keywords: m-learning, vocabulary learning, blended manner of teaching, pictorial annotation

1. Introduction

The significance of developing citizens' English language proficiency has been widely acknowledged in non-English language countries. The trend towards promoting people independence in English as a foreign language (EFL) has been parallel with the proliferation of mobile devices and increasing availability of such devices to people around the world. In 2010 the number of mobile subscribers surpassed 5 billion [1] and by 2015, 15 trillion Short Message Service (SMS) texts will be sent annually (Informa Telecoms & Media, 2011). One recent example in promoting learning is sending learning contents through SMS texts.

In fact, mobile-learning (m-learning) can bridge formal and informal learning experiences [1], and it can work best when used as part of the blended method of teaching, as a supplementary tool that is used in combination with traditional methods, such as paper-based materials [2-3]. In this way, it could be claimed that together with formal education, everyday opportunities to access learning resources on mobile devices can get multiplied [4].

The present study thus attempts to put the issues of mobile learning, blended modes of content delivery, learners' processing capacities into a new perspective and see if this integration makes a difference in second language vocabulary learning outcomes in the case of Iranian adult learners who have equivalent of three or four years of formal education and possess minimal literacy skills in Farsi, defined as Iranian semi-illiterate adults.

2. Research Questions

⁺ Corresponding author. Tel.: +98-9133264035; fax: +98-311 7932116.
E-mail address: s.ketabi@yahoo.com

Preparation of learning contents and delivery of them through different teaching methods (i.e., traditional, & blended methods) are the issues to be taken up in the following research questions:

- Do Iranian semi-illiterate adults learn English vocabulary items differently through using different ways of teaching (i.e., traditional vs. blended methods)?
- Do Iranian semi-illiterate adults learn English language vocabulary items differently through different delivery modes of content (no annotation vs. pictorial annotation) via cell-phone?

3. Method

3.1. Participants

The sample of the study consisted of 60 Iranian semi-illiterates, adult fourth graders who were enrolled in the courses offered by Iran's literacy movement organization (ILMO). This organization was established in 1978 for coping with literacy problem in Iran. Their age range was 30-45. The selected sample was distributed randomly in two homogenous groups (in terms of their alphabet knowledge).

3.2. Materials

3.2.1 Alphabet test- To make sure that the participants were all of the same level of literacy and familiar with English letters, they were required to participated in English alphabet test. The test consisted of 20 alphabet letters, being dictated to the participants to write them down. Those who showed at least the knowledge of 18 letters were selected as the target group.

3.2.2 Background questionnaire- As open-ended questionnaire let the researchers elicit more detailed answers and the students were free to answer, an open-ended questionnaire was prepared. The purpose was to elicit the semi-illiterates' attitudes and provide the researchers data about their opinions on the manners of teaching English (for this study, traditional & blended manners of teaching) to enhance the quality of the study, maximize the Iranian semi-illiterates' response rate, and to remove those reluctant to learn English via mobile technology.

3.2.3 New English vocabulary items- 15 new word items for conducting the main phase of the study in seven sessions of a semester, for both manners of teaching English in this study, were selected from Let's go (i.e., starter) [14]. Moreover, as the investigation into the effectiveness of using pictorial annotation in English vocabulary learning was another major aim of the present study in the blended manner of teaching vocabulary items. For each word item, the following two types of representation were made:

- Type 1- represents the English word, and the Persian meaning of the word;
- Type 2- represents the English word, and the Persian meaning of the word plus the pictorial annotation (i.e., a related picture).

Examples of two different representation types, for the English word 'apple: سیب' are shown in figure 1.

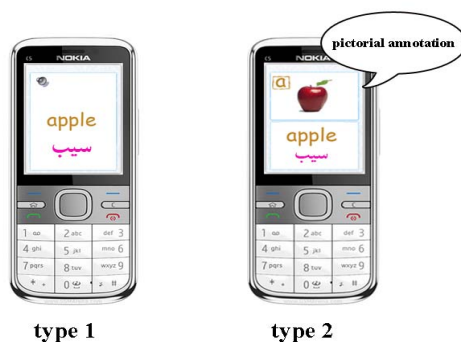


Fig. 1: Different types of learning content

3.2.4 English Vocabulary Recognition and Recall (EVRR) tests - At the conclusion of the course, in order to compare the effects of the two manners of teaching English vocabulary items, the researchers constructed English Vocabulary Recognition and Recall (EVRR) test and administered to both groups. It

must be borne in mind that the tests comprised 30 items, that is, 15 multiple-choice-questions and 15 cued-recall questions were given to the learners of both groups in the same manner..

3.3. Instruction

The two groups were taught the selected vocabulary items differently, the first group through the so-called traditional mode whereby learners were given the vocabulary items plus their Farsi equivalents. Then, they were asked to repeat the same several times orally and give back their equivalents. Some spot-checking was also carried out to enhance and thus reinforce the learning. Finally, they were required to jot down the words along with their Farsi translations in their notebooks. The second group, however, enjoyed the same conditions as describe above coupled with the mobile mediated exchange of the vocabulary items. This group was all required to use the cell-phone information transaction. The vocabulary items for this group were presented in two ways; some with the Farsi translation only and some others with Farsi equivalent and the pictorial annotations.

3.4. Procedures

To choose the learners for the two groups, first of all 85 semi-illiterates from different ILMOs were administered the same type of English alphabet test, that is, pencil-and paper-based alphabet letter writing test.

On the basis of their scores in this phase, they were defined as being able to read and write the English alphabet letters. This procedure led to the selection of 60 elementary semi-illiterate learners. They were assigned to two groups (traditional group (G1) and blended group (G2)) (See section 3.1. participants).

Seeking their opinions on the proper conducting of the study, at the beginning of the semester, the background questionnaire was distributed among the students of ILMO to complete.

Filling in the background questionnaire, the majority of learners gave their opinions about timing and frequency of the messages; their preferences concerning those issues were taken into consideration in designing the syllabus.

For content delivery to the second group of ILMO (students using MMS) and in order to counterbalance the effect of the order of representations, a 2×2 Latin Square (LS) design was employed. According to Montgomery (1995) [16], 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 two digits or letters (i.e., 1, & 2 or A & B) would appear just once in each row and column.

In this study, the first 15 word items were delivered to the first participant in type 1 and the last 15 word items in type 2. At the same time, the second participant received the first 15 word items in type 2, and the last 15 word items in type 1.

By the end of the teaching course, the tests were conducted simultaneously to the two groups in their local classes, that is, subjects were provided with 30 multiple-choice and cued recall questions (paper-and-pencil-based tests).

4. Results

The data consisted of both groups' scores in the paper-and-pencil-based EVRR tests. The collected data was analyzed through SPSS software, version 16. The inferential statistics displayed in Table 1 indicated that second group of Iranian semi-illiterates differed significantly from their counterparts in the first group (i.e., traditional group or G1) (T value: 4.09, df: 58, & Sig: 0.000). While the blended group achieved a mean of 25.27 out of 30, the traditional group obtained only a mean of 18.9. Thus, the traditional way of teaching new English vocabulary proves insignificant to Iranian semi-illiterates.

The participants in group one (traditional) showed somewhat greater consistency in their performances, with the standard deviation being 4.06 . This finding probably points out that the traditional teaching helps learners come closer to each other, with their differences being diminished. While, blended group find more latitude through multiple methods to act independently (SD= 5.44).

As regards the second question, the data analysis reveals that the delivery of vocabulary items with pictorial annotation enhanced the learners' learning significantly. Compared with no annotation vocabulary items, the ones with pictorial annotation were learned and remembered much better ($t = -14.71$, Sig: 0.000).

The second group comprised 30 participants who received 15 vocabulary items with annotation and 15 without any annotation. Those learners having received vocabulary items with picture annotations obtained a mean of 13.7 (out of 15) and those without annotations had a mean of 11.57. The former, as shown in the table, displayed a convergent behavior as a result of receiving pictorial materials (SD=3.07)

To cast more light on the findings, we attempted to discover how the two components of recognition and recall in the test have affected the results. As for the traditional group, it was found that the participants recall the vocabularies better in comparison with the recognition part. However, the blended group remained distinct by showing an almost equal performance on the two parts (recall and recognition).

Furthermore, the blended group showed slightly better performance in the recognition of the no pictorial annotation (compared with recall), and a slightly better performance in the recall of pictorial annotations. The results were not statistically significant.

5. Discussion and Conclusion

The results of the present study suggest that English language learners can obviously benefit more from various methods and strategies integrated together. In addition to the fact that learners with different background and individual differences are provided more opportunity for learning through blended method, the results also indicate that the easy and ubiquitous accessibility of mobile phones removes the restrictions of learning associated with the confines of classrooms. Additionally, as mobile technologies provide the learners with the aids to connect their learning processes with real world experiments, developing new ways for converging what is learnt in the classroom and what should be learnt outside seems unavoidable. These findings are in line with those of [5] and also [6]. The literature has already shown that language learners usually adopt a multiple and also variable position to approach the challenges of learning contexts. In other words, they exercise various techniques of various nature, namely, cognitive, linguistic, communicative, etc. to get by the bottlenecks they encounter and also oscillate flexibly among a range of possible options as the contexts of learning vary. This finding is exactly in line with the finding that learning is not to be bound by and defined within the one size fit all approaches and methods of the past [5], but that the new era of learning requires active and agentive role of the learners where they can tamper with the multiple conditions and also construct their own paths and experiences [7].

Another finding of this work shows that learners are more inclined to learn the vocabulary items enhanced with pictures. This finding is in support of the study by [8], in which they demonstrated that the language learners with higher visual abilities benefit most from the pictorial materials. In the same line of research, Chen et al. (2008) confirmed that language learners improve better if provided with visually annotated vocabulary items. In this particular case, the mobile mediated vocabulary delivery can be considered as an additional advantage [9]. This implies that learners with different cognitive abilities are more likely to succeed if their internal mental characteristics are respected through multimodality of materials [10]. The results also tie into the findings reached by [11-12] that the more diverse the processing involved in the learning process, the more effective and long-term the learning is likely to be.

This study also revealed that while traditional method of teaching leads to better recall of the vocabulary items the blended method brings out no distinction between recall and recognition components of the test. This may imply that traditional method which is actually one dimensional in nature cannot help with the easing of the double load of both channels of recall and recognition. In other words, the blended method of teaching can decrease the cognitive load of learning as the materials are also visually and electronically presented with an increased possibility of repeated retrievals and practices. This is also reaffirmation of cognitive load theory [13]. This theory maintains that learners may get irritable and unable to concentrate if they are cognitively overloaded, and that the cognitive overloading can get relaxed if information is given parallel processing channels such as visual plus written. However, this finding can be attributed to the

individual differences in their inherent verbal or visual orientations too, which can be pursued in future investigation.

6. References

- [1] Wanger, E. D., & Wilson, P. (2005). Disconnected. *T+D*, 59(12), 40-43.
- [2] Brown, T. (2005). Towards a model for m-learning in Africa. *International Journal on E-learning*, 4(3), 29-38.
- [3] Stead, G., Sharpe, B., Anderson, P., & Philpott, M. (2006). *Emerging Technology for Learning*. Coventry, UK: Becta.
- [4] Bull, S., & Kukulska-Hulme, A. (2009). Theory-based support for mobile language learning: Noticing and recording. *IJIM*, 3(2), 12-18.
- [5] Geva, E., & Ryan, E. B. (1993). Linguistic and cognitive correlates of academic skills in first and second languages. *Language Learning*, 43(1), 5-42.
- [6] Chen, N.-S., Hsieh, sh.-W., & Kinshuk. (2008). The effects of short-term memory and content representation type on mobile language learning. *Journal of Learning and Technology*, 12, 93-113.
- [7] Afghari, A., & Zarei, G. R. (2003). New era of language learning. *Academic Exchange Quarterly*, 7(1), 148-152.
- [8] Zarei, G. R. & Khazaie, S. (2011). L2 vocabulary learning through multimodal representations. *Social and Behavioral Sciences*, 15, 369-375.
- [9] Ally, M. (2009). *Mobile learning: Transforming the delivery of education and training*. Athabasca: AU Press.
- [10] Jones, L., (2004). Testing L2 vocabulary recognition and recall. *Learning and Technology*, 8(3), 122-143.
- [11] Courtney, M. S. (1998). An area specialized for spatial working memory in human frontal cortex. *Science*, 279(5355), 1347-1351.
- [12] Cohen, A. D., & Aphek, E. (1981). Basifying second language learning. *Studies in Second Language Acquisition*, 3(2), 221-236.
- [13] Sweller, J. (1988) Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12, 257-285.