



E-Learning as a Means to Enhance L2 Learners' Lexical Knowledge and Translation Performance

 **Mahmood Hashemian,¹**

 **Maryam Farhang-Ju,²**

¹Associate Professor at English Department, Shahrekord University, *Iran*

²English Department, Shahrekord University, *Iran*

Corresponding Author: Mahmood Hashemian

Phone: +98- 0913-2663269

e-mail: hashemian-m@sku.ac.ir

Article citation: Hashemian, M. & Farhang-ju, M. (2020). E-Learning as a means to enhance L2 learners' lexical knowledge and translation performance, *Applied Linguistics Research Journal*, 4(1): 23–34.

Received Date: June 17, 2019

Accepted Date: August 28, 2019

Online Date: January 5, 2020

Publisher: Kare Publishing

© 2018 Applied Linguistics Research Journal

E-ISSN: 2651-2629

ABSTRACT

As vocabulary learning has a key role in L2, investigating innovative techniques to enhance L2 learners' vocabulary knowledge merits further attention. Thus, this study investigated the effects of e-learning on Iranian intermediate L2 learners' lexical knowledge and translation performance. Fifty-three intermediate L2 learners at Shahrekord University (Iran), selected via convenience sampling, participated in the study. Participants were assigned into 2 experimental (n = 27) and control (n = 26) groups. In the next step, vocabulary and idiom and translation performance tests were given to the participants prior to the treatment as their pretests. One week after the pretests, the experimental group received 12 treatment sessions through Skype. At the end of the study, the posttests (vocabulary and idiom and translation performance tests) were administered to the participants. Then, 2 independent samples t tests were run to see if the participants' lexical knowledge and translation performance had improved as a result of the treatment. Results revealed that e-learning had positive effects on the participants' L2 lexical knowledge and translation performance. In light of the findings of this study, educational policymakers, syllabus designers, and materials developers for lexical knowledge and translation studies are recommended to deem e-learning as an effective element in both academic and upcoming career success..

Keywords: E-learning; L2 lexical knowledge; L2 learners; Translation performance; Vocabulary.

1. Introduction

Vocabulary is the foundation of communication. Nowadays, L2 educators and investigators have recognized the significant role of vocabulary in various pedagogical tasks. Proliferation of studies have investigated various techniques that may lead to second language (L2) vocabulary learning in and outside classrooms over the past few decades (e.g., Barcroft, 2004; Çakmak, & Erçetin, 2018; Derakhshan & Kaivanpanah, 2011; Folse, 2006; Mirzaei, Hashemian, & Azizi Farsani, 2016; Nguyen, & Boers, 2019). Translation performance of L2 learners is directly related to their lexical knowledge.

One important issue in the field of L2 teaching is translation, which is primarily recognized as a method to ensure L2 learners comprehend the materials and, furthermore, as an important means to assess their understanding. Nevertheless, concerning the field of translation studies, the act of translation is regarded

as a practical task or activity in classrooms. Being familiar with theoretical backgrounds of the text and having sufficient knowledge of principles of translation may affect the quality of translation. However, the other important feature affecting the quality of L2 text translation is distinct dissimilarities and individuality; the ability to translate successfully requires many traits, one of which is the possession of good vocabulary knowledge.

As knowledge is renovating, the traditional style of learning is no longer adequate for L2 learners. Technology contributes to keep up with the changing world so as to facilitate L2 learning. L2 instructors provide learning content for L2 learners using e-learning (i.e., the Internet or electronic flat screen). Likewise, learning activities for L2 learners are performed via the same form (Jheng, 1999). In e-learning, the role of L2 instructor is to provide L2 learners with necessary guidance; however, L2 instructors do not explain the course content which makes L2 learners more active. Therefore, e-learning (asynchronous or synchronous) enables L2 learners and instructors to be in different places and cooperate at any time while transferring the learning responsibility from instructors to L2 learners. Nowadays, most schools employ e-learning so that they can develop L2 learners' anticipated L2 learning content and provide them with modern ways of L2 teaching (Garrison, 2011).

According to Pecherzewska and Knot, (2007), mobile devices are the most regularly applied devices by L2 learners. Currently, approximately 4.77 billion mobile devices are used throughout the world. Mobile-assisted language learning (MALL) is the stimulating art of applying mobile technology to increase L2 learners' knowledge and experience. According to Laurillard (2007), a typical mobile learning task or activity could incorporate more probabilities for digitally-facilitated tasks and activities and for ownership and managing what L2 learners do.

Therefore, as the use of mobile devices and online L2 learning has increased as a result of the growth in global computer networks, social networking applications such as *Skype* are believed to play an important role in developing an L2 in interactive and dynamic contexts. The logic behind choosing *Skype* from among other social networking applications relies on the fact that this application is a well-known communicative tool for people in order to interact with each other. *Skype*, a free online communication tool, provides opportunities for L2 learners to communicate when they are in distant locations (Rassaei, 2017). Previous research has also indicated that *Skype* fosters learning opportunities such as negotiation of meaning during online interactions as well as L2 learners' motivation and autonomy for L2 learning (e.g., Lee, 2016). Therefore, *Skype* was chosen to be used in the current study.

Given the increasing interest in the role of internet in L2 research (e.g., Alsultanny, 2006; Hashemian & Farhang-Ju, 2017; Lee, 2016; Maurer & Sapper, 2001), little is known about the effect of e-learning on L2 lexical knowledge and translation performance (e.g., Mirzaei, Rahimi Domakani, & Rahimi 2016). Therefore, one issue that needs to be addressed is the extent to which e-learning affects L2 learners' lexical knowledge and translation performance.

2. Literature Review

2.1. Lexical knowledge

Lexical knowledge in social communicative environments is a critical stage in a way that L2 learners can learn sets of new words in an L2 and get wiser to the relationship between words and their meanings. This is particularly important because the role of lexical knowledge in L2 learners' overall linguistic knowledge takes precedence over other linguistic aspects. Many studies have shown that vocabulary is an important predictor of both reading comprehension and L2 development (Nation, 2001). However, how vocabulary is learned or what processes are involved has been the focus of much theoretical discussion (Laufer & Hulstijn, 2001; Nation & Webb, 2011).

In lexical knowledge, two concepts have been frequently explored: incidental vocabulary and intentional lexical knowledge. Postman and Keppel (1969) believed that the terms intentional and incidental lexical knowledge were initially employed by the American behaviorist psychology in the mid-20th century, which hypothesized learning as stimulus-response possibilities (as cited in Laufer & Hulstijn, 2001). Incidental lexical knowledge is commonly considered as the "learning

of vocabulary as the by-product of any activity not explicitly geared to lexical knowledge” and it is different from intentional lexical knowledge, which is regarded as “any activity geared at committing lexical information to memory” (Hulstijn, 2009, p. 271). According to Krashen (1989), in incidental lexical knowledge, previously unknown lexical items or features of lexical items, such as meaning, spelling, or word class are assimilated gradually in partial increments as a by-product of processing discourse in the exchange of messages. In other words, there is no conscious intention to attend to particular lexical items or to commit them to memory.

Incidental lexical knowledge refers to learning by L2 learners who acquire words while intending to do so. Maghsoudi (2012) claimed that “intentional language acquisition is used to refer to any learning activities the learner undertakes with the intention of gaining new knowledge” (p. 28). It is employed on the basis of antonyms, synonyms, scrambled words, crossword puzzles, and word substitution multiple-choice, irrespective of the context. This method is not that effectual as L2 learners are more disposed to rote learning. They might predict the meaning of unfamiliar words lacking undergoing cognitive processes.

According to Barcroft (2004), whether someone is paying more or less conscious attention to learning very often depends on the individual and is not easily observable, which is partly why Hulstijn (1997) distinguishes incidental and intentional learning operationally in terms of whether students are told they will be tested or not. When lexical knowledge activities are influenced by communicative approaches, L2 learners are encouraged to learn L2 vocabulary incidentally by doing extensive reading and inferring meanings of words from a context.

Some studies have found that incidental lexical knowledge via inferring meaning from a context is small, and it is only a complementary activity to intentional vocabulary teaching (Nation, 2001). Therefore, the adequacy of authentic communicative input of an L2 makes incidental lexical knowledge less effective.

2.2. E-Learning

Fry (2000) defines e-learning as the formation and transfer of knowledge through online services in forms of communication, education, information, and training. It is a self-directed learning which is conducted on the basis of technology, particularly web-based technology that is based on collaborative learning (Bleimann, 2004).

E-learning creates a new style of learning via the Internet that it is not constrained by time and space; it offers individual and discrete multi-interactions so that it can amend the insufficiencies of traditional teaching activities which were restricted to L2 classroom (Hsu, 2007; Shi, 2008). Therefore, it can be concluded that the central point of e-learning is learning through electronic as the only means of learning, such as electronic learning, the Internet learning, or online learning.

Maurer and Sapper (2001) believe that e-learning is built on many pillars: culture, management, and information technology. E-learning requires the support of management to express a visualization and design for learning and to incorporate learning into everyday work. It requires alterations in structural performances to establish culture which holds that: Acquire in the morning, perform in the afternoon. Therefore, an information technology stage that allows well-organized application of such as infrastructure learning is similarly desired.

A number of studies (e.g., Alshehab, 2013; Çakmak, & Erçetin, 2008; Fahim, Motallebzadeh, & Sazegar, 2011; Liaw, 2006; Yumuk, 2002) have been conducted to investigate the (probable) effect of e-learning on L2 learning. In their study, Fahim, Motallebzadeh, and Sazegar (2011) investigated the effect of e-mail on vocabulary retention of Iranian lower-intermediate L2 learners. Forty participants were divided into two groups of experimental and control. They were provided with English words, their definitions, and examples either on paper or via e-mail. The treatment was held for 12 sessions. At the end of the study, the learners’ conditions in maintenance of vocabulary were calculated. The results revealed that using e-mail had improved the learners’ vocabulary retention.

Derakhshan and Kaivanpanah (2011) attempted to identify the effect of SMS on lexical knowledge of university L2 learners. The results of their investigation indicated that the participants of experimental group outperformed the control group in lexical knowledge.

In another attempt to shed light on the efficacy of e-learning, Alshehab (2013) explored the impact of e-learning on L2 learners' ability to translate from English into Arabic at Irbid National University in Jordan. The participants were 40 translation learners at the English Department at Irbid National University in Jordan. The participants were divided into the experimental and control groups. The results indicated that e-learning had improved the translation ability of the learners.

Yumuk (2002) explored the possible effect of e-learning on Turkish academic translation course. The Internet program was primarily applied in order to encourage the participants to make use of the Internet with the purpose of selecting, analyzing, evaluating, and applying relevant information to improve the accuracy of the participants' translations.

Liaw (2006) conducted a study to explore the efficiency of an online learning environment which was designed to nurture L2 learners' intercultural competence through reading articles with topics about their own culture and share their ideas and answers with speakers of different cultures. The findings illustrated that all of the participants could communicate easily in the L2 without receiving much assistance from the e-referencing means provided in the system. After the first two readings, using online dictionary decreased extremely. In spite of some technical problems with the systems, the association between the two groups of learners was completely successful.

In his study, Alsultanny (2006) developed an e-learning system by taking the advantage of a semantic Web and displayed how the description formats of semantic Web resources might be used for automatic production of hypertext arrangements from scattered metadata. Principally, it is grounded on the ontology-based descriptions of context, structure, and content of the educational materials, and therefore, offers personalized and flexible availability to the very educational materials.

Hubbard, Coady, Graney, Mokhtari, and Magoto (1986) conducted some studies on computerized programs that provided the L2 learners with example sentences or short definition and other information of L2 words, and found the programs had facilitated vocabulary gains. Schmitt (2000) explored the use of concordances in lexical knowledge and indicated that this method was advantageous. This study concluded that using computerized programs facilitate L2 learners' lexical knowledge.

To put it shortly, previous research has generally provided us with some practical and theoretical insights to understand e-learning instruction (e.g., Alsultanny, 2006; Kılıçkaya & Krajka, 2010). As the above review suggests, incidental lexical knowledge certainly makes a significant contribution to L2 learners' lexical knowledge. However, little is known about L2 lexical knowledge in situated learning situation. Therefore, this study aimed to investigate the effectiveness of computer-assisted instruction on intermediate L2 learners' vocabulary achievement. Hence, the following research questions were addressed:

1. Does e-learning have any significant effect on lexical knowledge of Iranian intermediate L2 learners?
2. Does e-learning have any significant effect on translation performance of Iranian intermediate L2 learners?

3. Method

3.1. Participants

The participants included 90 Iranian B.A. English Translation learners in an Iranian university. They were selected through convenience sampling. The Oxford Placement Test (OPT) was administered so as to choose a group of homogenized participants from among them. Consequently, a sample of 53 intermediate learners were selected to participate in the study. Based on the OPT results, those who scored 35-40 were considered as intermediate participants for the main phase of the study. The rest of the learners were excluded because they were at a higher or lower level of language proficiency. They were 33 female and 20 male Persian native speakers, aged 19-25 ($M = 23.48$) years old. They were divided into two groups: experimental ($n = 27$) and control ($n = 26$) groups. It should be mentioned that participants were assured that this participation would not affect their grades

in the course.

3.2. Instruments

3.2.1. Oxford Placement Test (OPT)

The OPT was used in order to homogenize the participants. The test has 60 items (reading, grammar, and vocabulary) and approximately took 30 min to be answered. The OPT is an international flexible test of English language proficiency developed by Oxford University Press and Cambridge ESOL (2015) which enjoys high validity and reliability. This placement test enjoys many advantages: It was pretested worldwide, ensuring accurate and reliable results (Oxford University Press, 2015). This test gives teachers a reliable and time-saving method of finding L2 learners' level of English. Another feature of this placement test is being easy and quick to administer that has proved to be suitable for learners aged 15 years and above. Also, it can be scored in different ways to help researchers make the right placement decision. Meanwhile, the reliability of the test calculated through Cronbach's alpha, was found to be 0.89.

3.2.2. Vocabulary Test

A vocabulary and idiom tests with 100 multiple-choice items (1 point each item) was developed and used as the pretest and posttest. Idioms, proverbs, and words adopted from different valid English sources, like *Basic Idioms in American English*, *Essential Idioms*, *504 Absolutely Essential Words*, *1100 Words You Need to Know*, and *100 English Proverbs* were used in this test (see Appendix). Attempts were made to include the lexical items with difficulty level higher than the current English level of the participants. The difficulty level of the words was checked via *Longman Dictionary*. Also, the test developer tended to utilize all kinds of lexical items, such as formal lexical items (e.g., *rendezvous*, *culpable*, *fallacious*) and informal and slang lexical items (*off-color*, *something sucks*, *settle the score with someone*). In addition, proverbs with challenging translation (e.g., *beauty is only skin-deep*, *two dogs are fighting for a bone, a third runs away with it*, *beauty and folly are often companion*) and idioms made with colors, animals, tool, fruits and so on (e.g., *give someone the ax*, *take a cat nap*, *rain cats and dogs*, *as cool as cucumber*, *as happy as a clam*) were included in the test. The reliability of test was found to be .83.

3.2.3. Translation Performance Test

To assess the translation performance of the Iranian intermediate L2 learners, a translation performance test was developed. Those lexical items identified as mostly unknown in the vocabulary and idiom test administration were used in developing this test. This test included texts and sentences that compromised with the lexical items mostly unknown for the participants which had been used as the treatment. These texts were extracted from different sources like *Longman Dictionary Contemporary English*, *Oxford Dictionary of Contemporary English*, and *The Online Free Dictionary*. It was an essay-type test in which no dictionary was allowed to be used and it took about 1 hour to be answered.

Each translation was scored from 1 (*Completely Inappropriate*) to 100 (*Perfectly Appropriate*). The test scores of the students ranged 49-70. As there is no scale to evaluate L2 learners' translation performance up-to-date, two Ph.D. students in translation, considered as experts in this field, graded the translation texts. The students' translations were scored and, then, compared to the official translations in order to identify deviations in their translations. In fact, the most important criterion when grading the translation texts was the quality of translation.

The scale's validity and reliability were tested. For validity, expert opinion (i.e., two associate professor who had a Ph.D. in applied linguistics) was attained to see whether the tests were appropriate in measuring the intended research questions and if the explanation were understandable. Based on the feedback received from the experts, the vocabulary and translation tests were modified (e.g., the sentences with inappropriate difficulty level were regulated), and some items were considered as inappropriate and totally eliminated.

3.3. Procedure

In the first step of the study, the OPT was administered to 90 Iranian translation learners at Shahrekord University (Iran) who were selected based on convenience sampling. From among them, based on their OPT scores, 53 intermediate L2 learners were selected.

Then, they were randomly assigned into the experimental and control groups in order to avoid the possible effects of any intervening variable(s). After assigning them into two groups, the pretests (vocabulary and translation tests) were administered to the participants to measure their knowledge of L2 vocabularies. As Hulstijn (2009) highlighted, one of the problems in designing lexical knowledge experiments is controlling background knowledge of the L2 words. Thus, before conducting the treatment, they were given vocabulary and idiom test with a higher level than their current language proficiency level which was determined through the OPT.

In the next step, the experimental group received the treatment (i.e., teaching 40 unknown lexical items) through *Skype*. There are many forms of e-learning which can be employed for the purpose of language learning (e.g., *Facebook*, *WhatsApp*, *Twitter*, *Viber*), but the logic of choosing *Skype* was the availability and simplicity of this form of e-learning for the participants of the study.

The experimental group was provided with the lexical items, their Persian equivalents, and examples with their translations via *Skype*. They were asked to study and pay enough attention to content of the messages they received and also review them whenever possible (at least one time each day). Treatment lasted for 12 sessions. The control group, on the other hand, just received the words in printed format without any example and Persian equivalents; they were requested to memorize them as they already were used to do so. One week after the last treatment session, the posttests (i.e., vocabulary and translation tests) were administered. The tests were scored by two experts in the ELT field. After administering the posttests, they were scored by two experts in the field. The two scores for each participant were added up and divided by two, submitting an average score which was used in the statistical analyses. Then, the translation performance test scores of the experimental group and those of the control group were compared using independent samples *t* test. The interrater reliability found for the vocabulary and translation tests were found to be .98 and .93, respectively.

3.4. Data Analysis

To explore the effect of e-learning on the participants, multiple statistical analyses were performed (i.e., descriptive analysis and *t* test). In order to reach a general description of the collected data, descriptive statistics were first performed on the pretest and posttest scores.

4. Results and Discussion

4.1. Results

To explore the effect of e-learning on the participants, multiple statistical analyses were performed (i.e., descriptive analysis and *t* test). In order to reach a general description of the collected data, descriptive statistics were first performed on the pretest and posttest scores. Table 1 illustrates a summary of the descriptive statistics of the pretest and posttest scores on the vocabulary test for the groups. The mean (*M*) and standard deviations (*SD*) of the participants' scores are presented in Table 1:

Table 1. *Descriptive Statistics for Vocabulary and Translation Test*

		Grouping	N	M	SD
Vocabulary Test	Posttest	Control	26	68.58	10.66
	Pretest	Control	26	59.77	9.58
	Posttest	Experimental	27	74.78	11.28
	Pretest	Experimental	27	60.30	9.16
Translation Test	Posttest	Control	26	65.43	10.46
	Pretest	Control	26	51.36	9.58
	Posttest	Experimental	27	59.92	11.78
	Pretest	Experimental	27	52.44	9.66

To answer the first research question, an independent samples *t* test was performed on the participants' vocabulary and idiom test scores. The results are indicated in Table 2:

Table 2. *Results of Independent Samples t Test for Lexical knowledge*

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Lexical Knowledge	Equal variances assumed	.12	.72	-2.05	51	.04	-6.20	3.01
	Equal variances not assumed			-2.05	50.98	.04	-6.20	3.01

As evident in Table 2, there was a significant difference between the vocabulary and idiom test scores of the experimental group and those of control group ($p < 0.05$). That is, the experimental group outperformed the control group regarding L2 lexical knowledge.

To answer the second research question of the study, another independent samples *t* test was run, the results which for comparing the translation performance test scores of the experimental group and those of control group are shown in Table 3:

Table 3. *Results of Independent Samples t Test for Translation Performance*

F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
2.25	.14	3.42	51	.00	7.52	2.19
		3.44	47.24	.00	7.52	2.18

As observed in Table 3, there was a significant difference between the experimental and control groups regarding their translation performance ($p < 0.05$). That is, the experimental group outperformed the control group. Thus, it can be concluded that the treatment had a significant effect on the translation performance of the participants.

4.2. Discussion

This study aimed at investigating the possible effects of e-learning on L2 lexical knowledge and translation performance of Iranian L2 learners. The results indicated that the experimental group outperformed the control group in connection with their L2 lexical knowledge. The results in line

with Fahim, Motallebzadeh, and Sazegar (2011) and Derakhshan and Kaivanpanah (2011) provide further evidence for the efficacy of e-learning for L2 learners' lexical knowledge.

With respect to the first research question, one plausible explanation is that majority of L2 learners spend lots of time making use of their mobile phones. Consequently, having vocabularies on their mobile phones might have probably encouraged them to read and review the words on a quite regular basis. This can be verified by the actual fact that on the posttest, the experimental group's participants outperformed the control group's participants. Hence, with respect to the findings of the first research question, it can further be argued that in order for L2 learners to put much time and effort to study novel words, they must be accountable for their own learning. In fact, the teaching method should aim at encouraging L2 learners to study and review the taught vocabularies on a more regular and systematic basis and take advantage of L2 learners' object of interest, for instance, mobile phones.

Another reason to justify the results is that L2 learners are able to practice the words and assess their own performance. This interactive self-assessment increases L2 learners' academic performance. Therefore, the results provide empirical support for the prediction that e-learning has appositive effects on L2 lexical knowledge of L2 learners.

Regarding the second research question, the results revealed that e-learning had a significant positive effect on the translation performance of the participants. The findings of are in line with those of Alshehab (2013) and Yumuk (2002) that e-learning had a positive effect on the participants' translation performance in that it promoted and upheld a change in the outlook of learning towards more autonomy and the learners began to view their learning more meaningfully.

Based on the results of the current study in this respect, it can be assumed that the knowledge and awareness of e-learning techniques is crucial for having better translation performance. Furthermore, to improve L2 learners' translation performance and to arouse their active involvement and participation and shift from the more traditional method into more attractive one, L2 teachers should use a variety of techniques in teaching any subject matter. Furthermore, it is essential to use the current and accessible technological devices in universities, public schools, and private language institutes.

The results of this study may further be justified regarding the notion of task-induced involvement; that is, the retention of unknown vocabulary words is dependent on the degree of involvement in processing these words. According to this model, words with higher involvement loads are retained better than those processed with lower involvement loads. *Need* is the requirement to determine the involvement load. According to this model, L2 learning activities with higher involvement load will be more effective for vocabulary retention than tasks with a lower involvement load (Laufer & Hulstijn, 2001). Therefore, the findings can be partially explained in terms of Laufer and Hulstijn's model (2001) in that the target lexical items in the lexical knowledge may have perceived a higher need. Accordingly, this has led to increase the experimental group participants' vocabulary development and translation performance.

The findings of the second research question provide empirical support for the prediction that e-learning has a positive effect on translation performance of Iranian intermediate L2 learners.

To sum up, the results of this study pointed to the importance of explicit instruction on lexical and translation performance. This suggests that modifications to language curricula are needed to increase the teaching of vocabulary and reduce the emphasis on traditional L2 classroom style.

5. Conclusion and Implications

The present study was an attempt to investigate the effect of e-learning on Iranian intermediate L2 learners' lexical knowledge and translation performance. The results revealed that e-learning positively affected the L2 lexical knowledge of the participants. Furthermore, the findings revealed that e-learning had a positive effect on translation performance of participants.

The findings primarily contribute to literature and to the field of the study. Because almost no empirical studies, to the best of researchers' knowledge, have directly investigated the effect

of e-learning on translation performance in the field of EFL learning, the results of the second research question seem to bring a new correlate and construct of e-learning into focus which can ignite further research in the field of L2 education.

The main implication of this study would be directed to educational policymakers, syllabus designers, and materials developers for lexical knowledge and translation studies to deem e-learning as an effective element in both academic and future career success.

Based on the results of the present study, it deems essential for L2 teachers to encourage L2 learners to use e-learning and nourish them with challenging opportunities to use various e-learning techniques whenever the need arises, especially in dealing with such challenging tasks as translation and L2 lexical tasks.

As for L2 learners, these findings might suggest that they become aware that e-learning would help them increase their language proficiency, particularly in L2 lexical knowledge as well as their translation performance.

However, like any other study, this study suffers from a number of limitations. This study was conducted with a small sample size only. Therefore, generalization of the findings must be treated with caution. Consequently, we propose that more studies need to be done to investigate the impacts of e-learning on L2 lexical knowledge of L2 learners and their translation performance in order to be confident of the generalizability. Furthermore, the L2 learners' overloaded work might have affected, to some extent, the results of the impact of e-learning on L2 lexical knowledge of senior translation students and their translation performance.

References

- Alshehab, M. (2013). The impact of e-learning in students' ability in translation from English into Arabic at Irbid National University in Jordan. *Journal of Education and Practice*, 4(14), 123-133.
- Alsultanny, Y. A. (2006). E-learning system overview based on semantic Web. *The Electronic Journal of E-Learning*, 4(2), 111-118.
- Barcroft, J. (2004). Second language lexical knowledge: A lexical input processing approach. *Foreign Language Annals*, 37, 200-208.
<https://doi.org/10.1111/j.1944-9720.2004.tb02193.x>
- Bleimann, U. (2004). Atlantis University: A new pedagogical approach beyond e-learning. *Systems*, 21(5), 191-195.
<https://doi.org/10.1108/10650740410567536>
- Çakmak, F., & Erçetin, G. (2018). Effects of gloss type on text recall and incidental vocabulary learning in mobile-assisted L2 listening. *ReCALL*, 30(1), 24-47.
<https://doi.org/10.1017/S0958344017000155>
- Derakhshan, A., & Kaivanpanah, S. (2011). The impact of text-messaging on EFL freshmen's lexical knowledge. *EUROCALL*, 39-47.
- Fahim, M., Motallebzadeh, K., & Sazegar, Z. (2011). The effect of e-mailing on vocabulary retention of Iranian lower intermediate EFL learners. *Journal of Language Teaching and Research*, 2(6), 1385-1391.
<https://doi.org/10.4304/jltr.2.6.1385-1391>
- Folse, K. S. (2006). The effect of type of written exercise on L2 vocabulary retention. *TESOL Quarterly*, 40, 273-293.
<https://doi.org/10.2307/40264523>
- Fry, K. (2000). The business of e-learning: Bringing your organization in the knowledge economy. *Education and Training*, 43(45), 233-239.
<https://doi.org/10.1108/EUM0000000005484>
- Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice*. UK: Taylor & Francis.
<https://doi.org/10.4324/9780203838761>
- Hashemian, M., & Farhang-Ju, M. (2017). Differences in EFL learners' requests to faculty in synchronous computer-mediated communication: The case of gender and proficiency. *Research in English Language Pedagogy*, 5(2), 181-202.
- Hsu, C. L. (2007). The study of computer assisted instruction and e-learning in instructional design perspective in the future. *Educational Resources and Research*, 78, 21-40.
- Hubbard, P., Coady, J., Graney, J., Mokhtari, K., & Magoto, J. (1986). Report on a pilot study of the relationship of high frequency vocabulary knowledge and reading proficiency in ESL readers. *Working Papers in Linguistics and Language Teaching*, 8, 48-57.
- Hulstijn, J. H. (1997). Mnemonic methods in foreign language lexical knowledge. In J. Coady & T. Huckin (Eds.), *Second language lexical knowledge: A rationale for pedagogy* (pp. 203-226). Cambridge: Cambridge University Press.
- Hulstijn, J. H. (2001). Intentional and incidental second language lexical knowledge: A reappraisal of elaboration, rehearsal, and automaticity. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 258-286). Cambridge: Cambridge University Press.
<https://doi.org/10.1017/CBO9781139524780.011>
- Hulstijn, J. H. (2009). Intentional and incidental second language lexical knowledge: Incidental and intentional. In C. J. Doughty & M. H. Long (Eds.), *The handbook of second language learning* (pp. 202-214). Malden, MA: Blackwell.
- Jheng, M. W. (1999). The exploration of distance education. *Audio-Visual Education Bimonthly*, 41(3), 20-35.
- Kılıçkaya, F., & Krajka, J. (2010). Collaborative usefulness of online and traditional lexical knowledge. *The Turkish Online Journal of Educational Technology*, 9(3), 55-63.
- Krashen, S. (1989). We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis. *The Modern Language Journal*, 72, 440-464.
<https://doi.org/10.1111/j.1540-4781.1989.tb05325.x>

- Laufer, B., & Hulstijn, J. (2001). Incidental lexical knowledge in a second language: The construct of task-induced involvement. *Applied Linguistics*, 22, 1-26.
<https://doi.org/10.1093/applin/22.1.1>
- Laurillard, D. (2007). *Pedagogical forms of mobile learning: framing research questions*. London: WLE Center.
- Lee, L. (2016). Autonomous learning through task-based instruction in fully online language courses. *Language Learning and Technology*, 20, 81-97.
- Liaw, M. L. (2006). E-Learning and the development of intercultural competence. *Language Learning & Technology*, 10(3), 49-64.
- Maghsoudi, M. (2012). The effect of text-generation on EFL and ESL learners' performance in incidental lexical knowledge. *International Journal of English and Education*, 1(1), 28-42.
- Maurer, H., & Sapper, M. (2001). E-learning has to be seen as part of general knowledge management. In *EdMedia, World Conference on Educational Media and Technology* (pp. 1249-1253). Norfolk, VA USA.
- Mirzaei, A., Hashemian, M., & Azizi Farsani, M. (2016). Lexis-based instruction and IELTS candidates' development of L2 speaking ability: Use of formulaicity in monologic versus dialogic task. *Journal of Teaching Language Skills*, 35(2), 69-98.
- Mirzaei, A., Rahimi Domakani, M., & Rahimi, S. (2016). Computerized lexis-based instruction in EFL classrooms: Using multipurpose Lexis BOARD to teach L2 vocabulary. *ReCALL*, 28(1), 22-43.
<https://doi.org/10.1017/S0958344015000129>
- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.
<https://doi.org/10.1017/CBO9781139524759>
- Nation, I. S. P., & Webb, S. (2011). Content-based instruction and lexical knowledge. *Handbook of research in second language teaching and learning*, 2, 631-644.
- Nguyen, C. D., & Boers, F. (2019). The effect of content retelling on vocabulary uptake from a TED talk. *TESOL Quarterly*, 53(1), 5-29.
<https://doi.org/10.1002/tesq.441>
- Pecherzewska, A., & Knot, S. (2007). Review of existing EU projects dedicated to dyslexia, gaming in education and m-learning. *WR08 Report to CallDysc Project*. Retrieved March 10, 2018, from the World Wide Web: <http://www.docstoc.com/docs/40115316/WR08-Existing-EU-Projects- review>
- Postman, L., & Keppel, G. (1969). *Verbal learning and memory: Selected readings*. US: Penguin Books.
- Rassaei, E. (2017). Video chat vs. face-to-face recasts, learners' interpretations, and L2 development: A case of Persian EFL learners. *Computer-Assisted Language Learning*, 30(1-2), 133-148.
<https://doi.org/10.1080/09588221.2016.1275702>
- Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.
- Shi, W. L. (2008). Digital teaching strategies based on learning theory. *Living Technology Education*, 40(2), 32-41.
- Yumuk, A. (2002). Letting go of control to the learners: The role of the Internet in promoting a more autonomous view of learning in an academic translation course. *Educational Research*, 44(2), 141-156.
<https://doi.org/10.1080/00131880210135278>

Appendix

Vocabulary and Idiom Test Samples

Instructions: Write the meanings of the expressions in bold in Persian.

1. Bill was upset and your making fun of his mishap just added fuel to the fire.

2. At the critical moment, the watchman was asleep at the switch and only called the fire department when it was too late.
