

The Effect of Teaching and Learning Prepositions through Online Games on Iranian Elementary EFL learners

Khadijeh Jafarinejad *

Yasuj Branch, Islamic Azad University, Yasuj, Iran

Mohsen Shahrokhi

Department of English, Shahreza Branch, Islamic Azad University, Isfahan, Iran

Abstract

This research was carried out to find out whether using internet online game had any effect on Iranian EFL learners' preposition mastery. To do so, two samples of learners both male and female were selected as the control and the experimental groups. To check their homogeneity, a language proficiency test (preposition test) was administered as the pretest and it was proven that the students of both groups were at the same level of proficiency. Afterwards, the experimental group was taught through internet online game; while the control group was taught through ordinary method. There was a three-month treatment between the pretest and the posttest. When the three months of instruction ended, another preposition test, as the posttest, was administered to the participants of both groups to assess their preposition mastery. The results of independent samples t-tests showed that using internet online game was more effective than the other method of teaching preposition on the Iranian EFL learners. In addition, the obtained results showed that there was no difference between the performance of males and females after the treatment.

Key words: Preposition, EFL learners, Traditional methods of teaching

INTRODUCTION

Prepositions belong to a closed word class. They connect two parts of a sentence and show the specific relation between them (e.g., 'He was very grateful for her help' Greenbaum & Quirk, 1990). Prepositional phrases consist of a preposition and a complement, which usually follows the preposition, and it ordinarily functions as a post modifier. It may also function as an adverbial (e.g., 'Marry hurried across the room' Greenbaum & Quirk, 1990). Prepositions are notoriously difficult for English Language Learners (ELLs) to master due to the sheer number of them in the English language and their polysemous nature. Numerous analyses of the linguistic output of ELLs have discovered that prepositional errors of substitution, omission, and addition account for the majority of syntactic errors (Diab, 1997). Since prepositions present such an

immense challenge for language learners, it is vital that teachers develop effective instructional methods.

In order to determine what pedagogical methods are most effective, it is important to first understand what makes learning prepositions so difficult; this challenge can be attributed to several factors. First, prepositions are generally polysemous. Polysemy is “a semantic characteristic of words that have multiple meanings” (Koffi, 2010, p. 299). Essentially, the majority of prepositions in English have a variety of meanings depending on context. Thus, learners often become frustrated when trying to determine prepositional meanings and when trying to use them appropriately (Koffi, 2010, p. 299). Second, as Lam (2009) points out, prepositions can be difficult to recognize, particularly in oral speech, because they typically contain very few syllables.

Many English prepositions are monosyllabic, such as *on*, *for*, or *to*. As a result, language learners may not be able to recognize prepositions in rapid, naturally occurring speech. Moreover, the use of prepositions in context varies greatly from one language to another, often causing negative syntactic transfer (McKee, Williamson and Ruebush, 2007). The same prepositions can carry vastly different meanings in various languages. For instance, “a native speaker of Spanish would have difficulties translating the preposition *por* into English, since it can be “expressed in English by the prepositions *for*, *through*, *by*, and *during*” (Lam, 2009, p. 2).

DIFFERENT APPROACHES OF TEACHING PREPOSITION

Traditional Approach

The traditional method of teaching prepositions is through explicit grammar instruction. “Students focus on learning prepositions individually within context, with no further expansion. This approach assumes that there is no predictability in the use of prepositions, and that they must simply be learned context by context” (Lam, 2009, p. 3). Lam’s (2009) study revealed that students who were taught using this traditional method had little confidence in their ability to properly use prepositions, and had minimal retention rates. As Lam (2009) elaborates, “trying to remember a list of individual, unrelated uses is hardly conducive to increasing learners’ understanding of how the prepositions are actually used and why the same preposition can express a wide range of meanings” (p. 3). Thus, it is apparent that language instructors must explore more explanatory methods of teaching prepositions.

The Collocation Approach

Collocation is one of traditional method in teaching prepositions. Instead of teaching prepositions individually, students can be taught using “chunks,” or words that often occur together. Throughout various studies, the terms “chunk,” “formulaic sequence,” “word co-occurrence (WCO),” and “collocation” are used interchangeably. In the case of prepositions, many of these “chunks” are phrasal verbs. For example, instead of teaching *on* as a single entity, students can be taught the phrasal verbs *to rely on*, *to wait on*, *to walk on*, *to work on*, or *to pick on*. In addition to phrasal verbs, prepositional

phrases can also be taught as formulaic sequences, such as *on time*, *on schedule*, *on...screen*, or *on...leg* (Mueller, 2011, p. 484).

The Prototype Approach

Both Lindstromberg (1996) and Lam (2009) argue that teaching prepositions in an explanatory, semantically-based manner allows for deeper learning, increased learner confidence, and longer rates of retention. Both of their studies are based on Lakoff's prototype theory. This theory claims that prepositions have multiple meanings, but one meaning is thought to be the most dominant, or prototypical. In the case of prepositions, the spatial, physical meaning is considered to be the prototype. For example, the preposition *on* has multiple meanings, but the prototypical definition is "contact of an object with a line of surface" (Lindstromberg, 1996, p. 229). The prototype theory contends that the polysemous nature of prepositions can be explained through analysis of the prototypical meaning; all non-prototypical meanings are thought to be related to the prototype, often through metaphorical extension (p. 228). Looking again at the preposition *on*, Lindstromberg (1996) explains that non-prototypical meanings like *come on* can be understood by extending the prototypical meaning. This means that teachers must first teach the prototypical meaning, often through the use of Total Physical Response (TPR), and only then begin to branch out to more abstract meanings. To extend the semantic mapping even further, comparison and contrast to other prepositions can be useful. Lindstromberg (1996), for example, explained the concept of *come on* by contrasting it with *come back*. Not only do semantic-based approaches unify various meanings of each preposition, but they also provide connections between prepositions that are otherwise considered only individually.

Among the elements of English grammar, articles and prepositions have often been claimed as the most common grammatical errors made by non-native speakers and may apparently be the most difficult elements of English for non-native speakers to master (Chodorow, Gamon, & Tetreault, 2010). In written discourse, articles and prepositions altogether account for 20% to 50% of all grammar errors made by second language learners (Dalgish, 1985). Chodorow, Gamon and Tetreault (2010) found that prepositions are among the most common type of usage error in writings of English as second language (ESL) learners in China. These claims have proved evident in many EFL learners' writings. Previous studies have also verified these claims. For example, Barrett and Chen (2011) investigated the potential errors made by Taiwanese college students and found that learners encountered problems using English articles in terms of distinguishing between a definite and indefinite noun phrase. Results also presented that more errors were made with plural nouns than with mass/non-count nouns. In the current teaching methods little work has been done on preposition. Teachers often find prepositions hard to teach, since several of them are multi-meanings. When they want to explain a preposition, they use one or two other prepositions to give the definition. Thus they have to give the definitions of the other prepositions used. The mentioned situation is not only confusing for teachers but also for the students, who find themselves in a "pool" of prepositions with still vague meanings. Many English

course books have just a general overview of prepositions and do not provide specific rules on their usage. Therefore, most of the time important aspects of the acquisition of prepositions are not mentioned at all, such as when a certain preposition has more than one meaning depending on the context it is used in.

The aim of the present study is to identify the needs of English teachers to provide EFL learners with enough information on how to learn prepositions. It examines the importance of using internet online game techniques in learning the prepositions.

THE STUDY

This study intends to examine the role of the internet online game in learning preposition among Iranian EFL elementary learners and also to investigate the role of gender in learning preposition. One of the concerns of teachers, especially in teaching prepositions is how to convey the meanings of preposition and because prepositions have different applications, learners always have problem with understanding the meanings of the prepositions. This study will try to help both teachers and learners. For teachers, using internet games is a new tool for teaching prepositions and it also facilitates conveying the meaning of the prepositions. For learners, internet online games can facilitate comprehension of the prepositions' meaning.

Research Questions and Hypotheses

1. RQ1. Does using internet online games have any significant effect on the learning of the prepositions among Iranian EFL elementary learners?
2. RQ2. Does using internet online games make any significant difference on the learning of the prepositions among male and female Iranian EFL Elementary learners?

Research Null Hypotheses

- H01. Using internet online games does not have any significant effect on the learning of the prepositions among Iranian EFL elementary learners.
- H02. Using internet online games does not make any significant difference on the learning of the prepositions among male and female Iranian EFL elementary learners.

METHODOLOGY

Research Design

In order to test the hypotheses of the study, the researchers used a quasi-experimental design. Experimental design is experiment where the researcher manipulates one variable and controls the rest of the variables. It has a control group and an experimental group, the participants have been randomly assigned between the groups, and the researcher only tests one effect at a time.

Participants

The participants of this study were 100 Elementary male and female learners within the age range of 10-13 studying at a language institute in Shiraz. They were selected non-randomly from among 132 available learners. In order to homogenize the students, an English preposition test as a pretest was administrated. After pretest, they were randomly divided into four identical groups. Two groups of males and two groups of females and each group included 25 students; there were two classes available at that time two groups were exposed to the traditional method of teaching and the other groups were exposed to teaching with Internet Online game. The teaching in either the traditional class (control group) or the instructional class (experimental group) was carried out by the researchers. All of participants were native speakers of Persian. The study was carried out during the spring of 2016. The participants attended English classes two sessions per week, each for an hour and a half.

Table 1. The Distribution of the Sample According to the Groups

Group 1		N	Group 2		N
Male	Experimental	25	Female	Experimental	25
	Control	25		Control	25

Instruments

The instruments in this study included a general test of preposition as a pre-test so that the researchers could divide them into four groups. The posttest was the reshuffled order of the pretest and it was administrated in order to be compared with pretest and measure the effectiveness of using internet based games on preposition. Both pretest and posttest contained 40 multiple choice items.

Internet online games

In order to teach preposition through online games a few websites were used for experimental groups. The websites were 'Preposition Maze', 'Learn Prepositions' and a few others whose snapshots are provided below. The sites used animation and caricatures to facilitate the concepts prepositions presented.





Validity and reliability of the Preposition Test

Validity is arguably the most important criteria for the quality of a test. The term validity refers to whether or not the test measures what it claims to measure. On a test with high validity the items will be closely linked to the test's intended focus (Mackey & Gass, 2015). There are several ways to estimate the validity of a test; in this study the researchers used some of the experts' judgment in order to gain the validity of the test. In order to gain reliability of the test KR-21 was used and the reliability turned out to be about .85.

Procedure

After conducting the pretest and according to the results of the test, participants were divided into 4 groups, 2 groups of boys and 2 groups of girls. The pretest was administrated at the beginning of the course and the posttest was administrated at the end of the course. Each course lasted 3 months. Four groups had classes twice a week; each class was about an hour and a half. For the experimental groups (one group of boys and one group of girls) during the course the researchers used internet games. Internet online preposition games included a variety of tasks, namely completing sentences with prepositions, identifying prepositions in sentences, matching sentences with correct prepositions, and finding prepositions. In the traditional class (control group) no internet game was used and they were taught through explanations provided by the instructor and through using prepositions in examples to clarify the use of prepositions. The lesson was given on the same day for the two groups. The control group took the lesson in their ordinary classroom, while the experimental group had the lesson in the institute's language laboratory. At the end of the term, the students were required to take a posttest which assessed their preposition knowledge via the same test used. The results of the groups were recorded and the data taken from them was subjected to statistical analysis.

Data Analysis

The data were collected through a pre- and post-test in order to answer the research questions. The results of both tests were analyzed using SPSS program. First, the data of the pretest for each group was inserted and analyzed in order to find the mean and standard deviation of the scores of each group. Paired and Independent Samples t-test was employed to see if there are significant differences between the control and experimental groups.

RESULTS

Answering the First Research Question

To answer the first research question addressing the effectiveness of internet online games preposition on participants' improvement of prepositions sample t-test was run. The first one was run between the male participants' scores of experimental and control group on the pre and posttest. The second one was run between female participants' scores on pre and posttest. The descriptive statistics of males pre-test are presented in Table 2.

Table 2. Descriptive statistics of the males' participants' performance on the preposition pretest

Group Statistics				
Group	N	Mean	Std. Deviation	Std. Error Mean
Pretest of male's experimental group	25	26.3200	4.02823	.80565
Pretest of male's control group	25	26.8800	3.12677	.62535

According to the table above, the mean of the control group was higher than the experimental group and the standard deviation of two groups were also different. After collecting the data, an independent sample t-test was performed using SPSS to analyze the possible difference between the two groups which were involved. The results are showed in Table 3.

Table 3. T-test results for participants' performance on the preposition pretest

Independent Samples Test									
Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	3.199	.080	-.549	48	.585	-.56000	1.01987	-2.61058	1.49058
Equal variances not assumed			-.549	45.218	.586	-.56000	1.01987	-2.61385	1.49385

According to Table 3, the mean differences between the two groups were not significant ($t = -.549$, $sig = .585$). This shows that the students in the two groups were at the same level of proficiency. Figure 1 shows the graphical comparison of the two groups on the pretest.

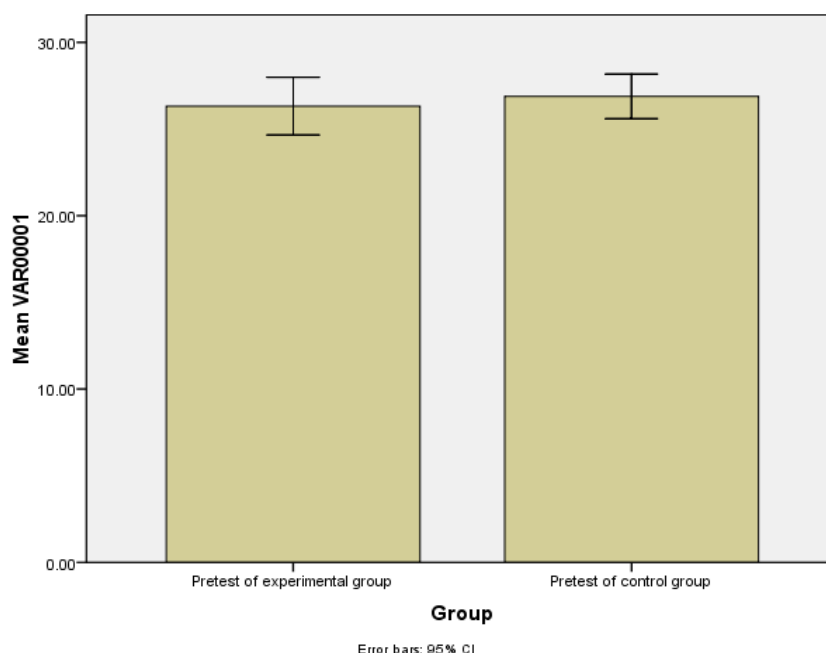


Figure 1. The graphical representation of the groups' performance on the preposition pretest

The same statistical procedure was used for the posttest results. All the scores were analyzed by the software (SPSS). The statistical analysis of the posttest for the experimental and the control group is presented in Table 4.

Table 4. Descriptive statistics for the males' participants' performance on the preposition posttest

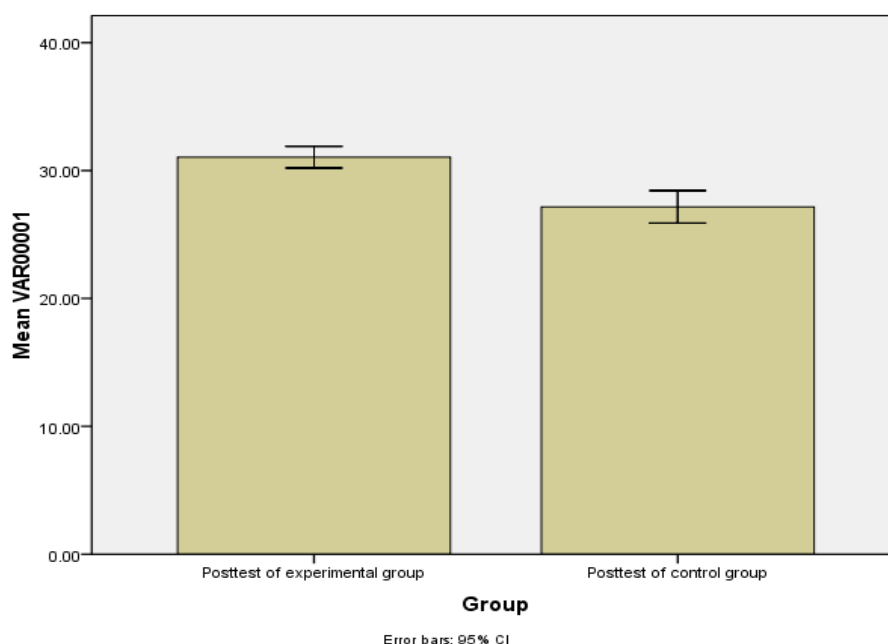
Group Statistics				
Group	N	Mean	Std. Deviation	Std. Error Mean
Posttest of male's experimental group	25	31.0400	2.05102	.41020
Posttest of male's control group	25	27.1600	3.07788	.61558

As presented in Table 4, there is a difference between the two means of the posttest performance of the experimental and the control groups (31.04 and 27.16, respectively). Besides, the standard deviations of the two groups were also different (2.05 for the control group and 3.07 for the experimental group) to see if the difference between the participants performance after the explicit teaching was statistically significant or not, a T-test was conducted and the results are shown below in Table 5.

Table 5. T-test results for the participants' performance after treatment

Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.435	.125	5.245	48	.000	3.88000	.73973	2.39267	5.36733
Equal variances not assumed			5.245	41.804	.000	3.88000	.73973	2.38696	5.37304

Based on Table 5, it can be argued there is a significant difference between the performances of the two groups. In other words, the learners who were instructed through the internet online game had significantly performed better than the group instructed through ordinary methods. These results support the positive effectiveness of using internet online game in teaching preposition. This information is presented in Figure 2.

**Figure 2.** Graphical representation of experimental and control groups performance on posttest

In order to address the effectiveness of internet online games on participants' improvement another independent sample t-test was run between female participants' scores on pre and posttest.

Table 6. Descriptive statistics of the females' participants' performance on the preposition

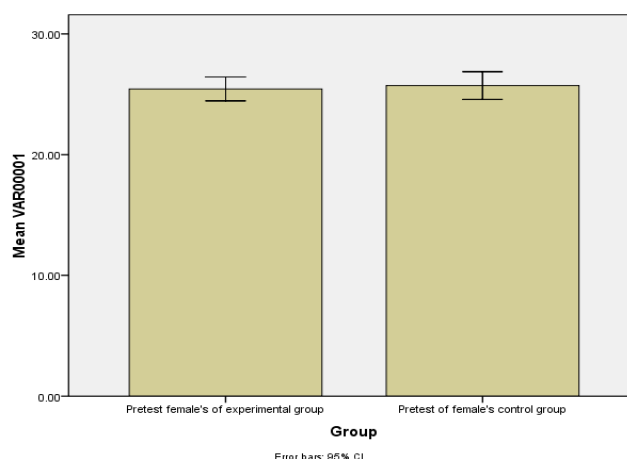
	Group	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	Pretest females of experimental group	25	25.4400	2.39931	.47986
	Pretest of female's control group	25	25.7200	2.79165	.55833

According to the table above the mean of the control group was higher than the experimental group and the standard deviation of two groups were also different. After collecting the data, an independent sample T-test was performed using SPSS to analyze the possible difference between the two groups which were involved. The results are showed in Table 7.

Table 7. T-test results for participants' performance on the preposition pretest

Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper
Equal variances assumed		2.368	.130	-.380	48	.705	-.28000	.73621	-1.76024 1.20024
Equal variances not assumed				-.380	46.940	.705	-.28000	.73621	-1.76111 1.20111

According to Table 7, the mean differences between the two groups were not significant ($t = -.380$, $sig = .705$). This shows that the students in the two groups were at the same level of preposition. Figure 3 shows the graphical comparison of the two groups on the pretest.

**Figure 3.** The graphical representation of the groups' performance on preposition

Differences between performance of females posttest scores in control and experimental group

According to Table 8 between the two means of the posttest performance of the experimental and the control groups there is a difference (32.52 and 26.60, respectively). In addition, the standard deviations of the two groups were also different (2.16 for the control group and 2.56 for the experimental group).

Table 8. Descriptive statistics for the females' participants' performance on the posttest

Group Statistics				
Group	N	Mean	Std. Deviation	Std. Error Mean
Posttest females of experimental group	25	31.5200	2.16256	.43251
Posttest of female's control group	25	26.6000	2.56580	.51316

In order to compare the mean scores of female's posttest in experimental and control group another independent sample t-test was conducted in order to find if the difference between the participants performance after the treatment was statistically significant or not, the results are shown in the following table.

Table 9. T-test results for the participants' performance after treatment

Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Equal variances assumed	.933	.339	7.331	48	.000	4.92000	.67112	3.57063	6.26937
Equal variances not assumed			7.331	46.662	.000	4.92000	.67112	3.56963	6.27037

As it can be seen in the above Table, there is a significant difference between the groups. In other words, the experimental group had a better performance significantly and effectiveness of internet online game was confirmed again. This information is presented in Figure 4.

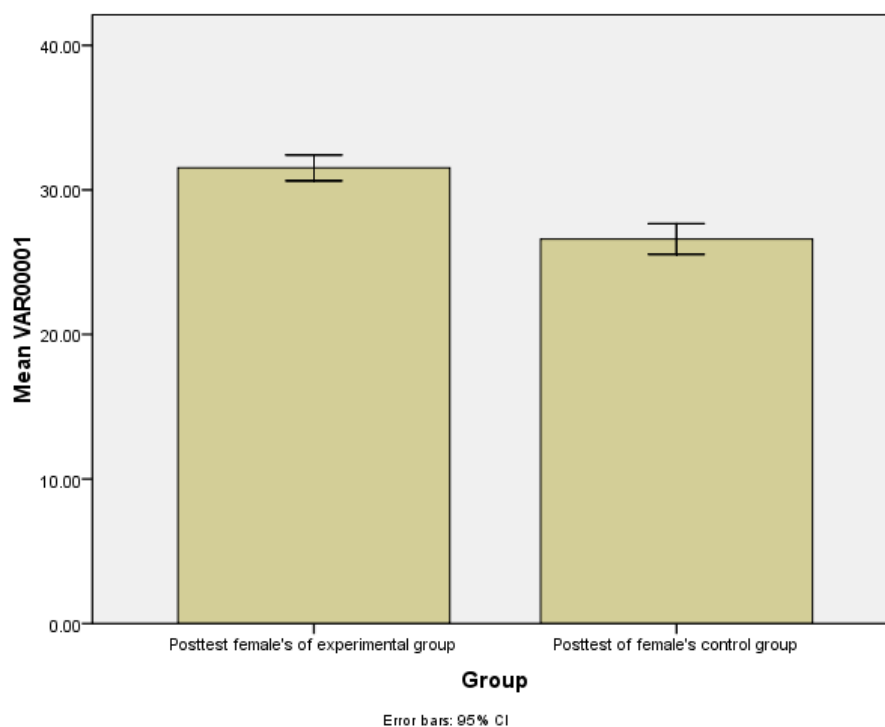


Figure 4. Graphical representation of experimental and control groups performance on posttest

Answering the Second Research Question

As presented in Table 10, there is a difference between the two means of the posttest performance of the male and female experimental groups (31.52 and 31.04, respectively). Besides the standard deviations of the two groups were also different (2.16 for males and 2.05 for females).

Table 10. Descriptive statistics for the males and females participants' performance on the preposition posttest

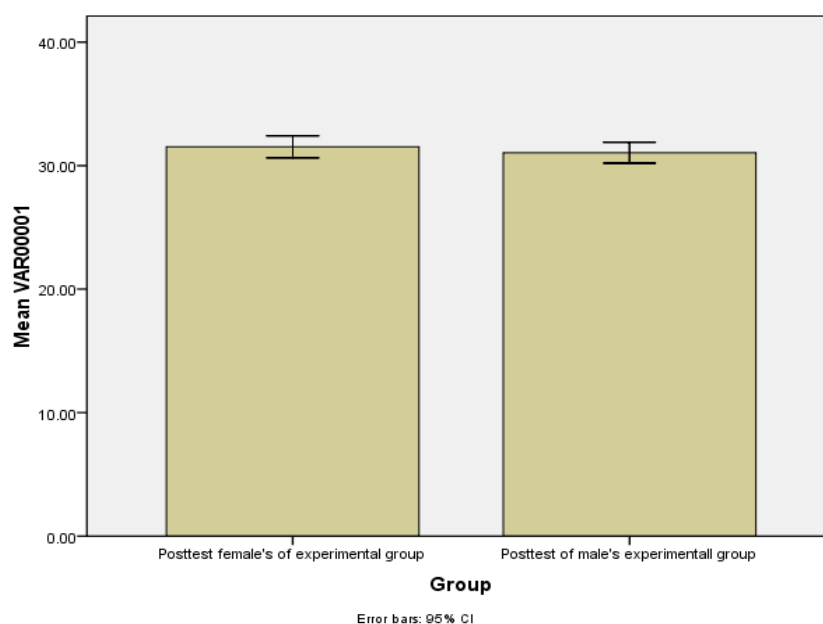
group Statistics					
	Group	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	Posttest females of experimental group	25	31.5200	2.16256	.43251
	Posttest of male's experimental group	25	31.0400	2.05102	.41020

In order to answer the second research question addressing the effectiveness of preposition on males' participants compared to females' participants, an independent sample t-test comparing posttest scores of male and female's experimental group was conducted and the as displayed below in Table 11.

Table 11. T-test results for participants' performance on the preposition

Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.001	.972	.805	48	.425	.48000	.59610	-.71854	1.67854
Equal variances not assumed			.805	47.866	.425	.48000	.59610	-.71862	1.67862

According to the Table 11 the mean differences between the two groups was not significant ($t=.805$, $\text{sig}=.425$); this shows that effectiveness of the internet online game on male and female's performance was same. Figure 5 shows the graphical comparison of the two groups on the posttest.

**Figure 5.** Male and female experimental groups' performance on the preposition posttest

DISCUSSION

The purpose of the present study was twofold: firstly, it investigated the effectiveness of using internet online games on the learning of the prepositions among Iranian EFL elementary learners, and secondly, it examined the effect of using internet online games on the learning of the prepositions among male and female learners. The summary of

the results is once again touched upon here: (a) there was a significant difference between performances of the EFL learners in both experimental and control groups on posttest of preposition, (b) it was also determined that there was not any significant difference between males and females' performance in learning preposition after using internet online game. The findings of this study are consistent with following ideas and studies:

Miftahudin (2011) conducted a study which tried to examine the use of songs in enhancing students' mastery of prepositions. It was in contrast with the use of traditional method for teaching prepositions. The results showed that there was a significant difference between students who were taught prepositions using songs and students who were taught without it. According to Windeatt et al. (2000) the Internet is a strong tool in order to transform language learning. To support his expression he mentions different reasons. First, it helps teachers and learners access to a lot of information on different topics and continuously developing resources such as literary works, articles, video and audio files or a lot of images. Then he mentions the communicative role of the Internet permits interaction among students throughout the world. In addition, he centers the accessibility of sources for learning and teaching for both teachers and students. So, the results obtained in this study could be due to the above opportunities that the internet provides with learners.

The second research question of the current study asked "Does using internet online games make any significant difference on the learning of the prepositions among males and female's learners?" and it was revealed that there was not any significant difference between males and females among Iranian EFL learners. As indicated earlier, there was not a significant difference between the two means of the posttest performance of the experimental groups of males and females.

The finding was similar to the results of a study conducted by Abo Oda (2010) that indicated the effectiveness of computer based learning on developing fourth graders' English language achievement. As the findings of the study showed computer-based learning method seemed a better strategy compared to other method. The study also revealed that there were not statistically significant differences at ($\alpha \leq 0.05$) in the mean scores of the experimental group due to gender.

CONCLUSION AND IMPLICATIONS

The purpose of this study has been to raise some awareness concerning prepositions. Prepositions are quite difficult for the ELL to grasp for many reasons. The nature of second language acquisition creates certain clash points. Prepositions are part of these clash points because there is a mismatch between languages and because there is a perceived inconsistency in English (Celce- Murcia & Larsen-Freeman, 1999). Yet, even though prepositions are one of the most difficult points in the English language, few textbooks address the problem. The current study is a good strategy for addressing this grammatical point.

It can be concluded that using internet online game can enhance students' mastery of prepositions and there is a significant difference between the students who are taught by using internet online game and those who are taught by conventional teaching in enhancing the mastery of prepositions.

The findings of the present study suggest that there was a significant relationship between internet online game and development of preposition. Consequently the following implications for curriculum designers, administrators, teachers and learners could be taken into account. Curriculum designers should make sure that the curriculum has integrated courses with appropriate internet applications. Moreover, they should remind the teachers to teach course contents along with technology and software to achieve this aim.

Administrators should also recognize the significance of integrating software in EFL classes. Therefore, they should equip classes with facilities; they are also advised to the latest technology. Software should be analyzed in detail and among them the most appropriate ones related to the course contents and objectives should be selected. To this end, a team of software experts can help. It is also important that administrators consider teacher training courses for teachers to improve their computer literacy. These courses can be incorporated in teacher training programs. Furthermore, the English language institutes of Iran can apply the methods of teaching through software in their courses. By using internet online game as a modern tool of teaching preposition, they can make their students' progress in using technology in preposition learning. The findings of this research are also helpful for the students who have experienced the tedious and non-creative English courses and need to learn English language in a modern and fresh atmosphere.

LIMITATIONS OF THE STUDY

This study, as is the case with any other study, is bound to have its own limitations. Since this study was carried out in Shiraz province and it was difficult for the researchers to do it in other places, other researchers can do it in other parts of the country. Second, sample selection was restricted to just one language institute; choosing sample from different institutes could have different outcome. Third, the students' level of proficiency was limited to Elementary learners while it can be conducted with students at different levels of language proficiency.

SUGGESTIONS FOR FURTHER RESEARCH

In the end of this study, the researchers would like to offer some suggestions that might be useful to English teachers in Iranian context or English teachers in general, for the students and also for the researchers. Those suggestions are given by considering the result of the study. The suggestions for English teachers are as follows.

- Researchers could conduct deeper research by developing all various kinds of media in teaching prepositions or other materials of English.

- Eager researchers can examine the effectiveness the different kinds of software on preposition
- Another suggestion for further researchers is to investigate the effect of using internet online game on preposition learning of participants with different English proficiency levels.
- To what extent does using internet online game improve students' grammar knowledge is another suggestion.

REFERENCES

- Abdurrahman, A. (2006). The effect of computer assisted language learning (CALL) on United Arab Emirates English as a foreign language (EFL) school students' achievement and attitude. *Journal of Interactive Learning Research*, 17(2), 121.
- Abo Oda , A. (2010). *The Effectiveness of Computer-Based Learning on Developing the Fourth Graders' English Language Achievement in Gaza UNRWA Schools*. (Unpublished M.A. Thesis). Al-Azhar University, Gaza.
- Maclin, A. (1987). *Reference guide to English: A handbook of English as a second language*. US: Harcourt School.
- Barrett, N. E., & Chen, L. M. (2011). English article errors in Taiwanese college students' EFL writing. *Computational Linguistics and Chinese Language Processing*, 16(3-4), 1-20.
- Boquist, P. J. (2009). *The second language acquisition of English prepositions*. (unpublished thesis). Liberty University.
- Brender, A. (2002). *The effectiveness of teaching articles to ART students in EFL classes using consciousness raising methods*. (Doctoral dissertation). Temple University.
- Brala, M. M. (2003). *Understanding and translating (spatial) prepositions: An exercise in cognitive semantics for lexicographic purposes*. Retrieved July 19, 2003, from: www.rceal.cam.ac.uk/Working/Papers/brala.pdf
- Celce-Murcia, M. & Larsen-Freeman, D. (1999). *The grammar book: An ESL/EFL teacher's course* (2nd Ed.). Heinle & Heinle Publishers.
- Cheng, T. Y. (1993). *The syntactical problems Chinese college students meet in reading English technical textbooks* [Microfiche]. Available: ERIC Document (ED 364 096).
- Chodorow, M., Gamon, M. & Tetreault, J. (2010). The utility of article and preposition error correction systems for English language learners: Feedback and assessment. *Language Testing*, 27(3), 419-436.
- Dalgish, G. (1985). Computer-assisted ESL research and courseware development. *Computers and Composition*, 2(4), 45-62.
- Diab, N. (1997). The transfer of Arabic in the English writings of Lebanese students. *The Especialist*, 18(1), 71-83.
- Dudeney, G., & Hockly, N. (2007). *How to teach English with technology*. USA: Pearson Education.

- Evans V. & Tyler A. (2005). Applying cognitive linguistics to pedagogical grammar: The English prepositions of verticality. *Revista Brasileira de linguística aplicada*, 5(2), 11-42.
- Greenbaum, S., & Quirk, R. (1990). *A Student's Grammar of the English Language*. Harlow: Longman.
- Harty, H, Al-Faled, N. (1983). Saudi Arabian students' chemistry achievement and science attitudes stemming from lecture demonstration and small group teaching methods. *Journal Research of Scientific Teaching*, 20, 841-861.
- Huang, Y. C. & H. J. Chen. (2011). A study on prepositional errors in Taiwanese and Chinese learners' English corpora. (Unpublished master thesis). National Taiwan Normal University, Taiwan.
- James, M. (2007). Interlanguage variation and transfer of learning [Electronic version]. *International review of applied linguistics in language teaching*, 45, 95-118.
- Koffi, E. (2010). *Applied English syntax: Foundations for word, phrase, and sentence analysis*. Dubuque, Iowa: Kendall Hunt Publishing Company.
- Lam, Y. (2009). Applying cognitive linguistics to teaching the Spanish prepositions *por* and *para*. *Language Awareness*, 18 (1), 2-18.
- Lindstromberg, S. (1996). Prepositions: Meaning and method. *ELT Journal*, 50 (3), 225-236.
- Mackey, A., & Gass, S. M. (2015). *Second language research: Methodology and design*. USA: Routledge.
- Miftahudin, M. (2011). *Teaching preposition by using song (an experimental research at eight grade of SMP Hj. Isriati Baiturrahman Semarang in the academic year of 2010/2011)*. IAIN Walisongo.
- Mueller, C. M. (2011). English learners' knowledge of prepositions: Collocational knowledge or knowledge based on meaning? *System: An International Journal of Educational Technology and Applied Linguistics*, 39 (4), 480-490.
- McKee, E, Williamson, V. M. & Ruebush, L. E. (2007). Effects of demonstration laboratory on student learning. *Journal of Science Education and Technology*, 16, 5, 395-400.
- Windeatt, S., Hardisty, D., & Eastment, D. (2000). *The internet*. Oxford: Oxford University Press.