

Power of Online Games in Enriching EFL Learners' Vocabulary Knowledge



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Abstract

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Online games have been proven to be influential in escalating the learning rate of language. Many facets of language were investigated in the light of online games, but the vocabulary was not considered enough at different proficiency levels. Therefore, the present study aimed at inspecting the impact of online games on young EFL learners' vocabulary enhancement. For this purpose, following a true experimental design, a sample of eighty male and female learners took part in the study. They were divided into two control and experimental groups randomly. They were homogenized using OPT test. Then, they were pre-tested using an online vocabulary test. Later, the control group was taught using traditional methods of text-book and writing and the experimental group was treated using BINGO online game. Subsequently, the groups were post-tested through another online vocabulary test. Scores were entered into SPSS and the descriptive statistics were calculated and t-tests were run. The results revealed that the experimental group outperformed the control group in mastering specified vocabulary items, and there was a considerable difference between the two groups. The study has implications for teachers, curriculum designers, and students.

ثابت شده است که بازی های آنلاین در افزایش نرخ یادگیری زبان تاثیرگذار هستند. بسیاری از جنبه های زبان در پرتو بازی های آنلاین مورد بررسی قرار گرفته، اما واژگان به اندازه کافی در سطوح مختلف مهارت در نظر گرفته نشده است. بنابراین، مطالعه حاضر با هدف بررسی تاثیر بازی های آنلاین بر تقویت واژگان زبان آموزان جوان انگلیسی انجام شد. بدین منظور، در پی یک طرح آزمایشی واقعی، نمونه ای متشکل از هشتاد دانش آموز دختر و پسر در پژوهش شرکت کردند. به طور تصادفی به دو گروه کنترل و آزمایش تقسیم شدند. با استفاده از آزمون OPT همگن شدند. سپس، با استفاده از آزمون آنلاین واژگان، از قبل مورد آزمایش قرار گرفتند. سپس گروه گواه با استفاده از روش های سنتی کتاب درسی و نگارش و گروه آزمایش با استفاده از بازی آنلاین BINGO تحت آموزش قرار گرفتند. پس از آن، گروه ها از طریق یک آزمون آنلاین واژگان دیگر پس آزمون قرار گرفتند. نمرات وارد نرم افزار SPSS شده و آمار توصیفی محاسبه و آزمون t اجرا شد. نتایج نشان داد که گروه آزمایش در تسلط بر واژگان مشخص شده از گروه کنترل بهتر عمل کرد و بین دو گروه تفاوت قابل توجهی

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Introduction

Vocabulary is assumed to be one of the central components of language (Bagga-Gupta, 2022; Putri, 2022). It is learned both formally and informally (Carraro & Trinder, 2021; Temban et al., 2021). In both conditions, the children make attempts to find ways to make learning easier. In teaching language, the experts always examine different methods to put an eternal effect on the learners. The creation of such an effect is not easy and is troublesome for learners. Of the many suggested procedures which develop learning vocabulary, internet-based tools like games were confirmed to be effective (Ortiz-Martinez, 2022; Thai, 2022).

Human daily life is inevitably governed or affected by digital technologies (Pink, et al., 2022), and one cannot deny the time-consuming and amusing role of technologies (Davis et al., 2013). Recently, instructional media has received considerable attention (Apriyanti et al., 2020; Mahzum et al., 2020) in language learning. Through media, students can independently and consciously learn how to instruct and practice vocabulary (Febriani, 2020; Graves, 2016). Learning media plays an important role in conveying information and messages from resources to students (Haryana et al., 2022; Winarto et al., 2020).

Some new technologies, for instance, personal computer (PC) and play station (PS), games have been changing the learning-teaching of languages (Davis, 2012). For instance, new games have something more than entertainment for students. They have some impact beyond amusement. Additionally, recent research indicated that media can have positive effects on learners' engagement and motivation. Of the many types of instruction digital technologies which affected other components of language are a game or what has been called gamification in education.

Laamarti, Eid, and Saddik (2014) described a game as being a contest that is ruled \-governed, goal-oriented, amusing, and entertaining. In addition, According to Vagna (2022), a game is defined as “an enjoyable activity that gets people engaged for great amusement. Most of us play fun games because it is simply fun and happy; it enhances the function of our brain, cognitive skills as well as release serotonin in our brains” (p. 16). Based on the internet need, educational games are either online or offline (Hsu & Chang, 2022). Online games are played through mobiles and computers and use the internet (Pajarillo-Aquino, 2019). According to Vena and Chen (2017), gamers are of certain types which are competitors, explorers, collectors, achievers, jokers, directors, storytellers, performers, and craftsmen. Each player has a specific goal for playing games and this causes them to spend hours watching or staring at a screen.

After their introduction to education, online games were examined in terms of their merits and demerits. There are plenty of games that have audio-visual objects in them also animated characters are contained. This feature can increase learners' interactivity (Confos & Davis, 2016). Moreover; pc games are intelligent and can specify understudies and objective study settings. As a result of the increasing engagement of students in games, gamification has appeared. Gamification is an approach to engaging students by using games in the learning environment (Davis et al., 2021).

From one side, they are used as a tool to facilitate learning, provide a stress-free environment, motivate learners and bring about a sense of freshness. On the other hand, the other side of online games which some researchers like Chatterjee (2020) called it dark side of online games, causes depression, loss of eyesight, and loss of weight or overweight

The effectiveness of online games in various areas of language learning was examined and proved positive. Yolageldili and Arikan (2011) inspected the efficiency of exploiting games in instructing grammar to young learners. Besides, Castillo-Cuesta (2020) found that digital games are of use in improving grammatical structures and modes. However, as studies indicated, scores of aspects of language like grammar, pronunciation, collocations, etc. were investigated under the effect of media and digital/online games; but one area which received less attention by researchers is learning vocabulary through online games. Therefore, this has been felt as a problem in the literature, and the current study targets it.

Research Questions

The objective of the current study was to investigate the impact of online games on EFL learners' vocabulary enhancement. To attain this aim, two research questions are put together:

RQ 1: To what extent does implementing online games have any statistically significant effect on enriching EFL learners' vocabulary?

RQ 2: Does implementing online games have any statistically significant effect on enriching EFL learners' vocabulary?

Literature Review

Vocabulary is among the challenging issues of language learning; and this is due to the large number of them plus their variety (Raw & Ismail, 2021). According to Nejati et al. (2018), one

of the building blocks of language is vocabulary, and vocabulary forms the kernel of skills of language. EFL/ESL language learners rely seriously on the development of vocabulary knowledge (Alqahtani, 2015). As Afzal (2019) reported non-native speakers of English experience troubles concerning the meanings of the new lexical items and their characteristics like spelling, pronunciation, and meaning. Sidek and Rahim (2015) stressed the fact that poor vocabulary contributes to ineffective communication. According to Alamri and Rogers (2018), students not only have problems learning vocabulary but also recalling them.

Scores of studies (Afzal & Mansoor, 2019; Alamri & Rogers, 2018; Chong & Kee, 2019) indicated the concern of teachers about the students' recall of vocabulary. For example, Afzal and Mansoor (2019) stressed the unproductive teaching methods used in vocabulary teaching and learning. Solhi Andarab (2019) noted that learning vocabulary is a difficulty and such difficulty reside in the problem of anchoring the new vocabularies to the earlier related learned items.

The problem of learning and recalling vocabulary was promoted to some extent by using computer-assisted language learning (CALL) and Mobile assisted language learning (MALL). Inspired by CALL and MALL, educational tools or authentic tools were introduced to pedagogy. Gangaiamaran and Pasupathi (2017) and Klimova (2019) showed that MALL and CALL advanced and facilitated language experience. Nasir (2020) reported that language learning indicated a great demand for internet-based platforms and this issue has motivated the teachers. Mobile learning is believed to optimize the potential or power of mobile devices as learning means in language learning contexts (Hasram et al., 2021). Of the instruments which have been indicated to contribute greatly to language learning, especially vocabulary learning is games (Ara, 2009; Wang et al., 2011).

Gee (2005) argued that games are either educational or non-educational, that is, some are authentic and some are created for non-educational use. A game is a play between two or more players or even one player plays it to reach an aim (Kostikova, 2017). He added that a game is a potential learning activity, has an objective, the players have control over it, has challenges, is motivating, is fun, and requires interaction between the players. They are either online or offline. Numerous scholars describe online games in learning as the incorporation of game thinking and game mechanics (Yamaguchi et al., 2011; Chapman & Rich, 2018). Authentic games often increase students' motivation, since they have communicative aims and practices (Warschauer & Healey, 1998, as cited in Sorensen & Meyer, 2007). Games create a fun milieu, persuade learners

and provide leisure activities (Sorensen & Meyer, 2007). For many classrooms, games are considered to be tasks (Warschauer & Kern, 2000). According to Kostikova (2017), some of the most effective games are “(1) information gap, (2) guessing games, (3) search games, (4) matching games, (5) matching-up games, (6) exchanging games, (7) collecting games, and (8) arranging games” (p. 174). According to Sorensen and Audon (2004), children usually appreciate and use games as a communicative tool, collecting information and gaming at home and in schools, the learners use games to solve problems and do tasks. Wu et al. (2011) in their study on the impact of games on motivation, confidence, and ability of students, showed that games are vital in escalating learning variables.

In line with the purpose of the study, online games are games that are played and used using the internet (Shamsiddinovna, 2022). Hasin and Nasir (2021) reported that online games have acceptance among learners disregarding their age and gender. Online games have different multimedia capacities which promote learning (Deris & Shukor, 2019). Further, Arikan (2011) found that online games provide instructional benefits for EFL/ESL teachers and students. Yip and Kwan (2006) showed that online games help learners learn more words and remember new items more than other activities.

Method

The present part of the study is devoted to the method of the study in which participants, design, instruments, the procedure of data collection, and the procedure of data analysis are dealt with.

Participants and Setting

Several 86 intermediate EFL students learning English at Safir English Institute of Sharyar ranging from 12 to 16 were selected to form the population of the study. The Oxford Proficiency Test (OPT) was administered to them homogenizing them and selecting the participants. At last, based on the scores of OPT, 60 learners formed the participants. However, 60 students were divided into two equal control and experimental groups randomly. The study took place during the 2022 summer semester of the mentioned institute in Iran.

Instruments

OPT, pre-test, and post-test were the tools used in the study. To check the level of general language proficiency of the participants at the beginning of the study and form a homogenous sample, OPT was utilized. The items of the OPT test were taken from ‘Longman Complete

Course for the TOEFL Test by Philips (2011). The internal consistency of the test was calculated and reported to be (0.76), which was fairly satisfactory. Furthermore, to ensure its validity, it was reviewed by two language experts and their comments were utilized in the follow-up version of the main study. The OPT consisted of three parts: vocabulary test, reading comprehension, and grammatical structures. This test included 40 vocabulary tests, 40 grammar tests, and 20 reading comprehension tests.

The second instrument was a 30 items multiple choice vocabulary test which was withdrawn from <https://www.english-testsonline.com>. This kind of test was used to ensure the participants' homogeneity.

The post-test or third instrument was obtained from <https://www.grammarbank.com/> and included 30 items thoroughly different from the pre-test.

Design

In line with the nature of the research questions, the study followed the true-experimental method in which the population was randomly divided into control and experimental groups, and then they were tested and treated through pre-test and post-test. The dependent variable was vocabulary learning and the independent one was an online game.

Data collection

Before everything else, the researcher attended Safir English Institute of Shahryar County of Tehran province to talk about the study, get the permissions, the number of students, their gender, and the time of participation. After primary speculations and getting the permissions, the researcher got the list of intermediate male and female learners on different days. Then selected 80 learners based on availability sampling. Then the researcher attended the institute on different days to explain the nature of the study and the time plan of participation in the study. Then the students were invited to attend the institute on a working day to sit for OPT. When the scores of OPT were interpreted, the 60 remaining learners were divided into two control and experimental groups randomly. Moreover, both groups were pre-tested to assure their homogeneity before treatment. In the next phase, the control group was instructed through the traditional system of teaching vocabulary and grammar, i.e. the conventional method, paper, and pencil method, was employed to teach new words to the participants of the control group. This group learned new

words in sentences, texts, and passages. The course lasted for fifteen weeks, 2 sessions per week. Then, the experimental group was instructed through the instruction of the BINGO game. The game was run by writing 10 words on the board and every student selected five words and wrote them down. After that, the teacher randomly selected one word without saying it and gave the students its definition or synonym. If a student guessed the right word, he or she should shout BINGO and wins the round. When the game was played within two sessions in a week, then both control and experimental groups were post-tested. The scores obtained from the pre-and post- tests were analyzed statistically.

Data analysis

The scores obtained from pre-tests and post-tests were entered into 'SPSS 1.0. 0.1275' version. Then, the descriptive statistics of the data including mean, mode, median, range, and SD were calculated to answer the research questions. Then, **paired samples t-test** was run to estimate the differences between the two groups.

Results

The present part of the study is devoted to the presentation of the results. The results are presented through tables and graphs.

Results of pre-tests

Table 1

Descriptive statistics of groups at pre-test

Summary		
	Control group	Experimental group
Mean	22.1667	20.6333
Variance	34.6722	53.9656
Stand. Dev.	5.8883	7.3461
N	30	30
T		0.9593
d.o.f		29
critical value		2.045

Based on Table 1, the Control group mean is considered to be equal to the Experimental group mean. In other words, the difference between the means of the Control group and the Experimental group is not big enough to be statistically significant. The p-value equals 0.3534, ($P(x < -0.9432) = 0.1767$). It means that the chance of type I error, rejecting a correct H_0 , is too high: 0.3534 (35.34%). The larger the p-value the more it supports H_0 .

The test statistic T equals -0.9432, which is in the 95% region of acceptance: [-2.0452, 2.0452]. The 95% confidence interval of the Experimental group minus the Control group is: [-4.8584, 1.7917]. The observed effect size d is very small, 0.17. However, this demonstrates that the extent of the difference between the mean of the differences and the expected average of the differences is not remarkable.

Results of post-tests

Table 2

Descriptive statistics of groups at post-test

Summary		
	Control group	Experimental group
Mean	24.2	27.5333
Variance	39.8267	49.1822
Stand. Dev.	6.3108	7.013
n	30	30
t		-4.246
d.o.f		29
critical value		2.045

As table 2 shows, the mean score of the control group is 19.2 and that of the experimental group is 27.53. Since the p-value $< \alpha$, H_0 is rejected. The control group's means are considered to be not equal to the experimental group's mean. In other words, the difference between the averages of control and experimental is big enough to be statistically significant. The p-value equals 0.0002485, ($P(x < 4.1747) = 0.9999$). It means that the chance of type I error (rejecting a correct H_0) is small: 0.0002485 (0.025%). The smaller the p-value the more it supports H_1 .

The test statistic T equals 4.1747, which is not in the 95% region of acceptance: [-2.0452, 2.0452]. The 95% confidence interval of control minus experimental is: [4.2507, 12.4159]. The

observed effect size d is medium, 0.76. This shows that the enormity of the difference between the average of the differences and the expected average of the differences is medium.

Comparing pre-test and post-test of the control group

Table 3

Comparison of pre and post-tests of the control group

Group	Co-pre-test	Co-post-test
Mean	22.1667	24.02
SD	34.67	39.82
Differences in the means	2.033	

As Table 3 shows, the mean of the Control-pre-test minus the control-post-test equals 2.033 which is not high enough to mark the difference between the pre-test and post-test of the control group to be significant.

Comparing pre-test and post-test of the experimental group

Table 4

Comparison of pre and post-tests of the experimental group

Group	Ex-pre-test	Ex-post-test
Mean	22.16	27.53
SD	34.67	49.18
Differences in the means	5.3700	

As Table 4.4 shows, the mean of experimental-pre-test minus experimental-post-test equals 5.3700 which is high enough to mark the difference between pre-test and post-test of the experimental group to be significant.

Discussion

Within the current part of the study, the results are discussed and conclusions are drawn. Before dealing with the discussion, the research questions are re-stated and answered to pave the way for discussion. The posed research questions of the study are as follows:

RQ 1: To what extent does implementing online games have any statistically significant effect on enriching EFL learners' vocabulary?

RQ 2: Does implementing online games have any statistically significant effect on enriching EFL learners' vocabulary?

Regarding the first research question, as the results indicated, exercise in online games improves EFL learners' vocabulary to a great extent. Regarding the second research question, online games have a significant effect on enriching EFL learners' vocabulary. The strong point of this study was that traditional methods of teaching vocabulary are not enough to rely on, and there should be motives to exercise technology-based methods of teaching and learning vocabulary.

The results of the study are in line with Ashraf et al. (2014). They studied the influence of online games on EFL learners' vocabulary with a population of 24 intermediate learners and found that online games are more effective in learning English vocabulary. In comparing these two studies, however, it should be said that our study participants were more than Ashraf et al. A study by Hasram et al. (2021) also supports the results of the current study. In their study, they inspected the degree of improvement of vocabulary performance with a population of 121 pupils. The findings of this study showed significant development in the student's vocabulary marks after using WordWall (WOW) as a vocabulary learning additional tool. The strong point of Haram et al. study was that it used a mixed methods design cross-sectionally. The results are consistent with Derakhshan and Davoodi Khatir's (2015) suggestions for the implementation of online games in learning vocabulary. They suggested that game-based learning activities and techniques in the classroom attract more attention to learning and teaching new vocabulary more effectively. The weak point of this study was that it reviewed other studies and did not conduct an experimental study. These results support the claim of Freeman (1986), based on which if learners enjoy language games, they will enjoy communicative aspects of the classroom. This means that games are entertaining for learners and as a result of which the input could be processed more easily. The results are supported by Stockwell (2014). He proposed that learning should take a technological aspect to itself; because it leads to a deeper understanding of language as mediated by technology in the language learning process.

All in all, getting rid of conventional methods of vocabulary learning, paves the way for internet and computer-based methods. The most possible justifications are that they motivate learners, make the language attractive, and are programmed. According to Yip and Kwan (2006), games improve learners' performance. Besides, Ashraf et al. (2014) argued that the use of

computer-oriented technologies facilitates learning. Besides, they noted that internet-based activities have timetables, colorful windows, and musical patterns.

Conclusion

The study set out to investigate the effect of online games on the improvement of learning vocabulary. However, the experiment confirmed that the implementation of online games has a statistically significant effect on learning vocabulary. This means that the exercise of games, especially the online ones, creates permanent learning and leads to an increase in the breadth of vocabulary in EFL contexts.

In terms of implications, an implication of this study is the possibility of providing teachers with insights to allocate pieces of time to games while working with vocabularies. This means that learners undoubtedly react positively. Besides, the evidence from this study suggests that in overcoming psychological barriers when learning grammatical and lexical items, the use of the internet and computer-based activities motivate and encourage learners. Taken together, these findings suggest a role for both offline and online games in promoting all facets of language learning.

This study suggests the following future research directions. Further research is needed to combine offline games and online game to see which type improve facets of language learning. In addition, other researchers may wish to choose more participants and exercise the use of online games across more advanced levels of language learning. We encourage others to carry out further research on the effect of using games in reducing anxiety and increasing motivation.

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