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The Effect of Using Wordwall.net in Increasing Vocabulary Knowledge of 5th Grade EFL Students

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Research Article

Abstract

The use of ICT tools to teach vocabulary is a commonly researched topic in language teaching. Many popular web tools, such as Quizlet and Kahoot, are used as experimental tools with learners to investigate to what extent they are effective in enhancing learners' vocabulary knowledge. The present research, however, focused on a less known and researched web tool used for vocabulary practice with games namely, Wordwall.net. 2 groups of students in 5th grade in a state school in Turkey were placed in experimental and control groups. The treatment lasted for 3 weeks and a pre-test and post-test were used as data collection tools. Results of the comparisons between the groups' test results revealed significant differences between each group's own test results, yet insignificant difference between groups' post-test results. Therefore, it could be suggested that using Wordwall.net was effective on its own in enhancing the students' vocabulary knowledge.

Keywords: Digital game-based language learning, ICT, foreign language learning, wordwall.net, vocabulary.

1. Introduction

Since the advent of technology from the beginning of the 21st century, technology and language learning have become terms frequently encountering next to each other, therefore resulting in web-based tools being used in English language classrooms. The concept of including web-based tools in these classrooms is named as 'CALL', i.e. Computer Assisted Language Learning. Beatty (2013) defines CALL as the process during which a language learner makes use of a computer, therefore improving his or her language. Another related concept is DGBLL, i.e. Digital Game Based Language Learning, which is a term that came out after CALL. Although it resembles CALL, it has been brought forth with the addition of the concept of the game being greatly emphasized. DGBLL is defined as the design and use of various types of digital games for language learning and second or foreign language teaching purposes (Cornillie, et al. 2012).

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Many research studies have been conducted related to DGBLL in recent years. These studies have been conducted on two distinct subfields of DGBLL, which are COTS (commercial off-the-shelf) adventure-entertainment games, and educational games, in other words, edutainment (Prensky, 2001; Gerhardt, 2008; Squire & Klopfer, 2008; Thorne et al., 2009 as cited in Alyaz & Genç, 2016). Looking back into the literature of DBGLL, it's been revealed that the majority of the studies on this field have been made on adventure-entertainment games (ibid). Examples of COTS games the use of which have been researched are; World of Warcraft and Food Force (e.g. Sundqvist & Sylvén, 2012; Hitosugi et. al., 2014). Since the majority of research is on COTS games, more research studies are needed to be conducted on edutainment games.

Even though there are many research studies that have explored the use of some frequently used web tools such as Quizlet and Kahoot (Wright, 2016; Medina et al. 2017), there is a lack of research on specific web tools, like Wordwall.net. Hence, the present study aims to measure the effectiveness of a single educational game website; Wordwall.net on the vocabulary knowledge of 5th grade English preparatory class students. Wordwall.net is an edutainment website in which there are multiple game choices, all played interactively or individually, such as information matching, picture matching, quiz, wheel of fortune, puzzles, etc. designed for vocabulary practice. On this website, teachers either create their own games out of ready-made templates and add up content (words and images) in the games or they make use of games created by other teachers. Wordwall.net was previously designed as computer software, but since 2016 the website of the software was designed and ever since the website has been used more frequently than the software.

Therefore, in the following sections, previous empirical research on edutainment games and their uses for the purposes of teaching English and especially practicing vocabulary will be mentioned. Then, details about the procedure and findings of the study will be revealed.

2. Literature Review

As it is previously mentioned, empirical studies focusing on some popular educational web tools and educational games have been conducted, especially measuring the effectiveness of these web tools in improving language learners' vocabulary knowledge. One of these studies aimed to reveal the contributions of a digital game to the pre-service teachers' vocabulary knowledge and language competence and to provide the teachers with qualifications in terms of DGBLL (Alyaz & Genç, 2016). 60 second-year pre-service teachers studying German language teaching at a university in Turkey played the game; Adventure German-A Mysterious Mission for eight weeks. Teachers had a vocabulary test, a compensation strategy test, took diary notes, and were interviewed. The results of the tests revealed that there was a significant difference between pre and post-tests in terms of their vocabulary knowledge. Moreover; it is seen that age had positive effects on vocabulary knowledge, older participants being more successful than younger ones, though gender differences and gamer, non-gamer differences weren't significant.

In another study, the use of educational software designed for teaching vocabulary, DENIS, and computer games in teaching vocabulary was explored (Kocaman & Cumaoğlu, 2014). The participants in this study were 68 students in 6th grade at a state school in Turkey, comprising a single group. The data collection tools were 2 pre-tests, a mid-test, and 2 post-tests used for vocabulary learning strategies and an achievement test. During a time period of 9 weeks, first DENIS was implemented, then computer games were played for 2 hours a week. Regarding the results of the achievement tests, it was seen that DENIS and computer games were both useful in vocabulary learning, yet computer games leading more success on tests.

Regarding the comparison of paper flashcards (PF) vs. digital flashcards (DF), two studies have focused on this issue. In the first one, Nikoopour & Kazemi (2014) compared the effect of digital and non-digital flashcards on the vocabulary knowledge of 109 students in a university in Iran. The instruments used were a language proficiency test, vocabulary pre-test, post-test, attitude questionnaire, and interview. During a 10-week program, students studied a total of 700 words with three types of tools; paper-based, online and mobile-based flashcards. The results of the tests revealed a significant difference between the groups' scores, especially between paper and online group, while mobile and online group not differing so much. Moreover, the questionnaire analysis showed that students' attitude was different between mobile and online and mobile and paper. In the second study, Dizon & Tang (2017) compared the two kinds of flashcards, PF and DF, in terms of their effect on learners' receptive vocabulary (RV) and productive vocabulary (PV). 52 students at two universities in Japan were separated into two groups and while the 1st group used DF, Quizlet and Cram, the 2nd group used PF in a 12-week period for 15 minutes each week. The data was collected with the help of pre-test, post-tests, and surveys asking the learners to review the methods presented to them. In the test results, the PF group scored much lower than the DF group regarding both in RV and PV learning. In the results of the survey, the DF group had a more positive attitude.

In contrast to the two studies above, Chien (2015) explored the effectiveness of 3 educational web tools, Quizlet, Study Stack, and Flashcard Exchange, in vocabulary learning in an EFL context in Taiwan was explored. 64 university students as participants who made their own flashcards based on the vocabulary of the related unit, and studied them during a 3-month period. The data collection tools were in-class observations, learners own flashcards, learning records, and a group interview, conducted with 20 of the students. Although mentioning some technical or user-based problems, students also stated that the websites were helpful in increasing their motivation in learning English vocabulary. When comparing the 3 websites, Quizlet was the most preferred and Study Stack was the least preferred among them. Using such web tools was concluded to be practical and efficient for vocabulary learning.

Barr (2016) explored the effectiveness of Quizlet.com for vocabulary teaching between different learner types; kinaesthetic/visual learners and users/non-users of the application. 32 first-year students in a Japanese university studied flashcard sets on Quizlet for 15 minutes for 4 units in their textbooks. 4 vocabulary tests comprising of the vocabulary in these units and flashcards which were applied at the end of each session were involved. The results of the tests revealed that Quizlet users scored more than non-users. But, there was only a slight difference in scores between the kinaesthetic and visual learners, the former having higher results. Therefore, it could be observed that the use of Quizlet is effective in vocabulary learning, regardless of the differences in the learner styles.

Wright (2016) also explored the use of Quizlet to measure the easiness of preparing flashcards and its contribution to learner autonomy in an EFL context in Japan. Moreover, the time interval it took for students to prepare their own flashcards and the level of accuracy of these flashcards were explored. 106 university students in Japan studied 10 sets of ready-made flashcards during a 15-week period. In the 15th lesson, they were asked to create their own flashcard sets related to the vocabulary they had studied, during which the instructor set time to see how much it took them to create the sets. The results were that it took minimum 3 minutes, maximum 19 minutes and the average was 7 minutes between all students and the accuracy was 36.2%; the remaining 63.7% consisting of one or more mistakes. Hence, the researcher concluded that preparing Quizlet flashcards is not so time-consuming, which will be good for the students' own learning processes, but they need to be more careful about the accuracy of their content.

The degree of effectiveness of another flashcard web tool, Quizizz, was researched by Bal (2018). 60 pre-intermediate level students in a university in Turkey were divided into 2 groups, as experimental and control group. After the end of a 4-week treatment period, an achievement test was applied to compare both groups' final success. In the results, the experimental group's mean score was 84.66 and the control group's mean score was 81.58, revealing that the experimental group's performance was slightly

better than the other's performance, though not too much. In conclusion, it can be stated that using web tools may be effective in developing students' vocabulary knowledge, yet the positive effects cannot be observed to a great extent in a short time period.

Likewise, Medina and Hurtado (2017) explored the effectiveness of Kahoot on students' motivation and vocabulary acquisition with 3 groups of students in a university in Ecuador, 2 experimental and 1 control group; each containing 35 students. The application was used for 10 weeks, applying a 10 question game at the end of each week when a unit was covered. A pre-test was applied at the 5th week and a post-test was applied at the end of the treatment; besides, learners wrote diaries for self-assessment. The results of the tests revealed that learners' mean vocabulary scores increased in the final tests. Regarding the perception of the students, the majority of the students expressed a positive attitude towards the use of the application. In conclusion, the researchers stated that applications like Kahoot create efficient learning environments and increase students' motivation.

Another study was about the use of two web tools; Duolingo and Kahoot on vocabulary building (Guaqueta & Castro-Garces, 2018). The context was a high school located in a rural area in Colombia, which is not a frequently encountered setting in ICT-related research. The participants were 20 students in tenth grade and the instruments were a pre-test, a post-test, research journal entries, and a final survey. For six months, each week Duolingo for lesson review, and Kahoot for performance assessment was used subsequently. In the results, the mean score of the pre-test was 36.7 and the post-test was 73.45, so, it was observed that students' vocabulary knowledge has improved. Furthermore, as the result of the final survey where they expressed their thoughts about the use of technology as a tool for language learning, all students made positive remarks about it. In conclusion, integration of ICT tools in learning environments has been proven to be efficient in both changing students' perspectives and success towards better.

As can be seen above, studies mentioned here have focused on measuring the effectiveness of either 1 or more than 1 web-tool, in vocabulary learning, as it is done in the present research. In addition, the majority of the above-mentioned studies resulted in the group using the web-tool being more successful than the group not using it, therefore leading to more success.

In the light of this, the research question this research aims to find an answer to is as follows:

1. How effective is the vocabulary practice website Wordwall.net in increasing 5th grade students' vocabulary knowledge?

3. Methodology

3.1. Context & Participants

The present research is an empirical study in which quantitative data collection method was applied. The study was conducted in a public secondary school in Turkey with 9-11 year-old 5th grade students in an English preparatory class. Two classes of 27(A) and 27(B) students were chosen since the researcher was also one of the English teachers of these classes. Students had 11 hours of English each week; classified as 5 main English lessons, 2 reading lessons, 4 skills lessons (listening, speaking, reading, and writing). Two classes with students having the same language levels, the same amount of English instruction, and same socio-economic conditions were chosen as participants. The researcher had 5 hours with class A and 4 hours with class B. One class (A) was chosen as a control group and the other (B) was chosen as an experimental group. It's important to note that the treatment for group A was given by another teacher because the researcher's lesson category wasn't suitable to teach the vocabulary chosen in the present study, but treatment for group B was applied by the researcher.

3.2. Procedure

The groups were given different treatments for three weeks; in the control group, the students did the activities on their textbook and studied vocabulary during the course of lessons. In the experimental group, students also used the same textbook. However, in addition to this, at the end of each week's final lesson students practiced vocabulary on Wordwall.net for approximately 15-20 minutes. Both groups were given the vocabulary lists with L1 equivalents before the post-tests.

3.2. Materials

As the data collection tool, a vocabulary knowledge test of 20 multiple-choice questions was used as pre-test and post-test. The pre-test was applied right before the treatment and the post-test was applied one week after the treatment, at the 4th week. The vocabulary topic taught during the treatments and presented in the tests was games and hobbies, which was present as a unit in the textbook.

As for the material used for vocabulary teaching, for the control group the exercises in the textbook were used such as; fill-in-the blanks, picture-words matching, and activities focusing on 4 skills. For the experimental group, games of different types that the researcher designed on Wordwall.net were used. The types of games played on the website were as in Figure 1.

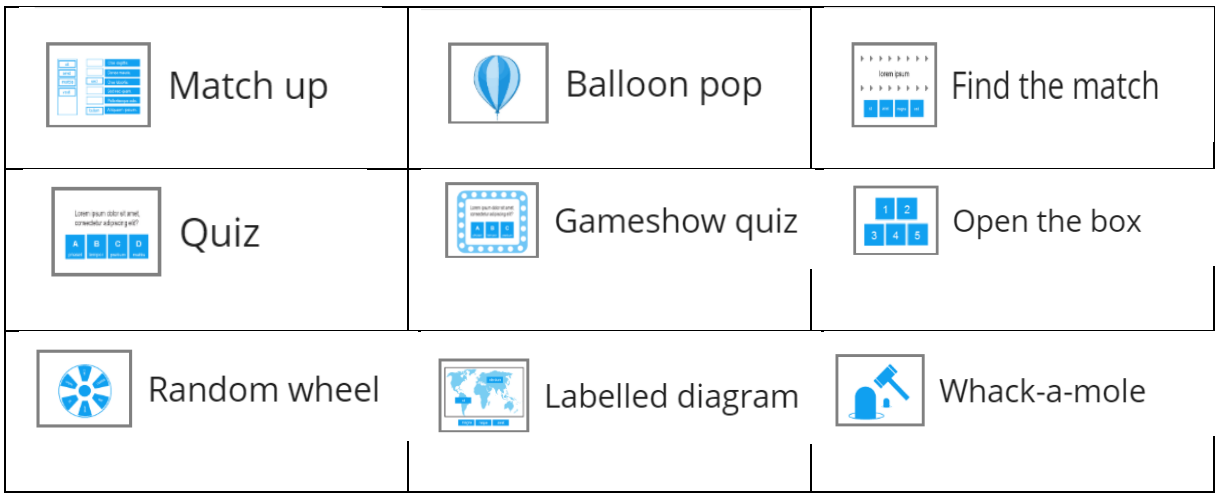

Figure 1. Games played on Wordwall.net during the treatment period.

Although there were many more game options available on the website, the ones that were best fit for the class environment were chosen and played.

4. Results

Due to the nature of the study being quantitative, the data analysis was done statistically. For the data analysis, SPSS 22 was used to calculate paired sample t-test comparison between the groups' test results. As can be observed in Table 1, the control group had higher means than the experimental group in the pre-test; however, in the post-tests the experimental group had higher scores than the control group.

Table 1.

The Pre-test and Post-test Results

	N	Mean	Std.Deviation
Experimental group pre-test	27	76,4815	13,57421
Experimental group post-test	27	94,8148	7,40082
Control group pre-test	27	81,2963	13,41588
Control group post-test	27	90,1852	13,96985c

Paired sample t-test results as revealed in Table 1 show that there are significant differences ($p<0.05$) between both groups' pre-test and post-test scores. Hence, it means that the teaching techniques used in both groups have been effective in their own context. However, when the two groups' post-test results are compared, the analysis reveals no significant difference ($p>0.05$) as shown in Table 2 and 3. In other words, the treatment applied for the experimental group was not more effective than the control group's treatment. Therefore, to relate this result to the research question, the web tool used for this study was not found to be as effective as it was supposed to be.

Table 2.

Paired Sample T-Test results

		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pair 1	a_pretest - a_posttest	-8,88889	10,31553	1,98523	-4,478	26	,000
Pair 2	b_pretest - b_posttest	-18,33333	11,18034	2,15166	-8,521	26	,000

Table 3

Groups' post-test results comparison

		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pair 1	a_posttest - b_posttest	-4,62963	14,99525	2,88584	-1,604	26	,121

4. Discussion

In this research, the effectiveness of a web tool in enhancing the vocabulary knowledge of 5th grade students was measured. Two classes with students having the same language levels, the same amount of English instruction, and same socio-economic conditions were chosen as participants. One group was taught vocabulary with textbook activities, and the other group was practiced vocabulary through the web tool, Wordwall.net. A pre-test before the treatment and post-test after the treatment was

applied to analyze the differences between the groups' scores. The result of the analysis revealed significant differences between each groups tests before and after the treatment. However, the post-test results between groups did not signal a significant difference.

The inexistence of significant difference between these results may have been caused by a lot of factors. The first of them might be that the treatment only lasted for 3 weeks due to the time available for the teaching of the unit's vocabulary. Therefore, such a short time might have not yielded fruitful results in identifying whether a teaching method was effective or not. The second reason might be that both groups' students were already highly motivated to learn English and they continued their self-studies outside school by going to after-school or weekend English courses. The final factor could be that as can be observed from the high pre-test results, the majority of the students were already familiar with some of the vocabulary chosen to be taught to them. So, because of their high levels of acquaintance, the possibility of both groups having also high results in the post-tests was predictable.

Comparing the results of this analysis with the research studies with similar designs, we can see that also in Bal's study (2018), in which the treatment period was also short, the mean scores between groups did not yield a significant difference. However, in the other studies with similar designs, the ICT tools or games used during the treatment were found to be effective since there were significant differences between groups' test results (Alyaz & Genç, 2016; Medina & Hurtado, 2017).

5. Conclusion, Limitations and Suggestions for Further Research

Through exploring the effectiveness of a web tool, Wordwall.net, this study aimed to fill a gap in the literature since no research studies have been found on this web tool's use in the field of ELT. To test the effectiveness of it on vocabulary teaching, two groups, users and non-users of the tool, were tested according to their vocabulary knowledge at the end of the treatments given to them. The results proved the effectiveness of the web tool; however, the web tool did not prove to be more effective than the traditional techniques used for vocabulary teaching.

The short length of the treatment time as well as the number of the groups might be suggested as the limitations of the present study. With these limitations, it can be concluded that in such a short time a comparison between two teaching materials or techniques will not provide the best results in terms of their effectiveness. In addition to this, more vocabulary should be added, preferably vocabulary previously unknown to students, to check observable and comparable changes in the level of improvement of their vocabulary. Thus, these factors should be taken into consideration in the further research focusing on this specific tool. Moreover, the impact of this web tool on other aspects of language learning, such as improvement of other language skills or the use of it as an assessment tool could be of possible research topics.

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