Using an Interactive Digital Games Program to Enhance English Vocabulary Retention and Grammar Achievement

of Preparatory School Pupils

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Learning English has become a necessity during this century. Consequently, it is utilized in different institutions such as schools, universities, and hospitals, etc. Therefore, it is taught in schools by using different methods. Thus, to comprehend the language efficiently, it has to be taught using creative and interesting methods. Integrating digital games in classrooms is one of these methods. The study aims to investigate the effectiveness of using interactive digital games inside classrooms to enhance vocabulary retention and grammar achievement of preparatory school students. The study was conducted during the second semester of 2021/2022, in which 60 participants were enrolled 30 participants in the experimental group, whereas the other 30 participants were in control group. The researcher taught the experimental by using digital games, while the control group was taught by another qualified teacher. The data for this study was obtained using grammar pre posttest, vocabulary pre posttest and class observation documented by photos. The study lasted for two months and students were introduced to competitive and interactive online games for boosting vocabulary and grammar skills. It was deducted from the findings that there were statistically significant differences between mean scores of the posttests of both groups .

Keywords: vocabulary retention, educational games, online games, digital games, grammar achievement, English vocabulary, language learning

استخدام برنامج الألعاب الرقمية التفاعلية لتعزيز الاحتفاظ بالمفردات الإنجليزية والتحصيل النحوي لطلاب المرحلة الإعدادية

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مستخلص أصبح تعلم اللغة الإنجليزية ضرورة خلال هذا القرن. وبالتالي، يتم استخدامه في مؤسسات مختلفة مثل المدارس والجامعات والمستشفيات وما إلى ذلك. لذلك، يتم تدريسه في المدارس باستخدام طرق مختلفة. وبالتالي، من أجل فهم اللغة بكفاءة، يجب تدريسها بطرق إبداعية ومثيرة للاهتمام واستخدام الألعاب الرقمية داخل الفصل هي إحدى هذه الطرق. هدفت الدراسة إلى التحقق من فعالية استخدام الألعاب الرقمية التفاعلية داخل الفصول الدراسية وتعزيز الاحتفاظ بالمفردات والتحصيل النحوي لطلاب المرحلة الإعدادية. أجريت الدراسة في الفصل الدراسي الثاني ٢٠٢٢/٢٠٢١، حيث التحق ٦٠ مشاركا، و٣٠ مشاركا في المجموعة التجريبية، و٣٠ آخرين في المجموعة الضابطة. قامت الباحثة بتدريس المجموعة التجريبية باستخدام الألعاب الرقمية، بينما تم تدريس المجموعة الضابطة عن طريق مدرس اخر له نفس المؤهلات والخبرة. تم الحصول على بيانات هذه الدراسة باستخدام اختبار قبلي وبعدي للقواعد، اختبار قبلي وبعدي للمفردات وكذلك الملاحظة الموثقة بالصور. استمرت الدراسة لمدة شهرين . تم تعريف الطلاب على الألعاب التنافسية والتفاعلية عبر الإنترنت لتعزيز مهارات المفردات والقواعد. وقد استنتج من النتائج أن هناك فروق ذات دلالة إحصائية بين متوسطات الاختبارات البعدية.

الكلمات المفتاحية: الاحتفاظ بالمفردات، الألعاب التعليمية، الألعاب عبر الإنترنت، الألعاب الرقمية، التحصيل النحوي، مفردات اللغة الإنجليزية، تعلم اللغ

Introduction

Improving learners' language skills requires developing, modifying, or changing radically the regular methods used at schools to teach the language. Moreover, we live mostly in a digitalized world which tends to change learning and teaching approaches to be online that comes up with online teaching term such as using computer-assisted language learning (CALL) and mobile-assisted language learning (MALL). Nowadays, online materials have come into existence as a big number of educators realize the power of this medium specifically when it comes to acquire languages. However, language has many important sub skills, such as grammar and vocabulary that need to be introduced differently in the classroom as they were found to be obstacles to acquiring a foreign language. In turn, computer and multimedia technologies, educational computer games have been considered promising tools in recent years for encouraging students' learning and improving their academic performance which are effective, interactive, and fun at the same time.

Moreover, with the proliferation of these materials means, developers need to be aware of the material choices they are making. Moreover, online materials provide an opportunity for learners to reflect and learn interactively as vocabulary and grammar are needed to convey a clear sentence. It was indicated that game-based English learning has resulted in promoting vocabulary retention than traditional rote memorization (Flores, 2015). It was revealed that digital games increase positive attitudes towards learning. The design of digital games is a one of the methods of enhancing learning motivation. A learner's motivation to interact reciprocally is enhanced through gamed-based learning (Birk, Atkins, Bowey, & Mandryk, (2016) Ronimus & Lyytinen, 2015). Similarly, (Flicker and Hickey, 2014) pointed out the extent to which videogames increase students' degree of involvement in their tasks. The use of new technologies in language learning/teaching, such as vocabulary and grammar, is a realistic option, and a variety of multimedia applications can be used appropriately (Astika, 2015).

Vocabulary Retention

Vocabulary is a component of language skills: reading, speaking,

listening, and writing. Vocabulary knowledge enables language use, language usage enables the expansion of vocabulary knowledge, and understanding of the word enables the increase of vocabulary knowledge and language use, and so on. Vocabulary items are important in the acquisition of the four language skills in English as a Foreign Language (FLL) (Nation, 2013). On the other hand, Vocabulary retention refers to the ability to remember and recall words and their meanings over time. It is an important aspect of language learning and literacy development. Therefore, Semantic memory refers to the long-term memory of word meanings and their associations with other words and concepts. Semantic memory is a key component of vocabulary retention (Nation & Webb,2021). Vocabulary retention is important because it enables learners to effectively communicate their ideas and findings to others in their field. A strong vocabulary allows learners to use precise and descriptive language to convey complex concepts and ideas. Additionally, a broad vocabulary can help English language understand and analyze the language used in academic texts, which can be particularly important when reading and synthesizing information from multiple sources (Lewis & Hill ,2021).

Grammar Achievement

Grammar instruction for language learners has been a source of contention, for a long time among participants, including English language teachers and students, scholars, and practitioners. Some say that a special emphasis on grammar is unnecessary because children learn their first language without learning the rules of how words are combined and are nevertheless able to communicate with others.

In addition, Grammar teaching has long been regarded as critical to language proficiency. Furthermore, grammar is gaining relevance in language teaching, particularly in English as a foreign language (EFL) and English as a second language (ESL) contexts, because learners' language growth will be severely hampered without a thorough

understanding of grammar (Widodo, 2006). As a result, in order to get the optimal learning outcomes, several methods and approaches to teaching grammar have been offered.

Interactive Digital Games

Digital games help EFL learners to grasp most required targeted language inductively and serve all learning styles. It may help learners to reflect and do especially when teaching grammar. Likewise, it helps to retain a lot of information in long-term memory. For example, digital storytelling, cartoon movies, digital caricatures especially with (grammar) and some other digital games as kahoot Quizziz, bamboozle, and word wall as stated by Ibrahim, (2016) . Digital games are games that use various technologies to allow users to enter a visual environment (cetin, 2013).

Context of the Problem

In the meantime, the education concept has been changed over years so far. Moreover, technology and artificial intelligence have invaded the 21st century especially in teaching which integrated a lot of modern methods that can activate the students interactively in the classroom and involve them in a student-centered learning class. One of these methods is integrating interactive digital games (IDG). In order to profoundly investigate the problem of this study:

- The researcher developed an e- questionnaire which was administered to about thirty English language teachers about how far students needed a program of using an interactive digital game to enhance their vocabulary retention and grammar achievement. Consequently, the results of the questionnaire revealed that:
- 70% of EFL learners have a significant problem obtaining vocabulary.
- 80% of EFL teachers agreed that vocabulary affects sentence structure.
- 55 % said that Lack of other skills are due to vocabulary and grammar deficiency.
- 70% of children can't follow the lesson if it is conducted by classical methods.
- 70% of updated methods must be integrated in the

classroom.

- 80.8% said that digital games can be more interactive and enjoyable for teaching-learning English.
- A pre-diagnostic grammar test was developed to test students' grammar structures which showed that there is a statistically significant difference between the two assigned groups.
- A pre diagnostic vocabulary test was developed to test students' repertoire of vocabulary and vocabulary subskills which showed that there is a statistically significant difference between the two assigned groups.

On analyzing the results from the two pretests, some highlighted notes can be mentioned:

1- Students mentioned that grammar is difficult to study or grasp.
2- They hardly remember vocabulary easily.
3- They need more effective methods to learn grammar and vocabulary.

The Study Questions:

To tackle the above problems the following question needs to be answered:

What is the effectiveness of using interactive digital games to enhance prep school pupils' vocabulary retention and grammar achievement?

This question is branched out into the following sub-questions:

1-What is the effectiveness of using interactive digital games to enhance preparatory school pupils' vocabulary retention?

2- What is the effectiveness of using interactive digital games to enhance prep school pupils' grammar achievement?

Objectives of the Study:

The current study attempts to:

- Enhance Vocabulary Retention through Interactive Digital Games Program.
- Enhance Grammar Achievement through Interactive Digital Games Program.

Significance of the Study

 The significance of this study stems from the following points:

1- Adopting a new online method to teach language.

2- Familiarizing teachers with how to apply online materials using digital games.
3- Utilizing the class to be more interactive with digital games methods.
4- Turning the class to be student-centered learning.
5- Building up good rapport with the students.
6- Developing ideas using new vocabulary with simple clear sentence structures.
7- Enhancing pupils' vocabulary retention and grammar   a achievement.
8- Organizing an interactive teaching-learning environment.
9- documenting studies about integrating interactive digital videos in teaching-learning language skills.
10- Benefiting supervisors while conducting training materials and courses for English teachers to raise their awareness of the importance of using interactive digital games.
11- Enhancing students' other skills as speaking during class discussions and participation.
12- Developing commutation skills among students through interaction with their pairs.

Delimitations of the Study

This study is delimited to the following:

- The Experiment was carried out in the second term of the academic year 2021-2022. It lasted for two months, eight weeks, and two classes a week about four hours. Total 35 hours including testing time.
- Participants of the study were randomly selected from a governmental second preparatory school. Sixty students participated in this study (30 for the experimental group and 30 for the control one).
- The experiment included using Interactive digital games (Quizziz, bamboozle, and wordwall) with online streamed videos on a laptop in the classroom.
- Enhancing vocabulary skills such as expression, collocation, and synonyms.
- Enhancing grammar structures.

Definitions of the terms
Interactive Digital Games (IDG)

"Language game is: a game with rules that have linguistic aims and they are agreed with the participants" (Kapp, 2021). Digital games have many types and categories, from individual to large groups and from educational to fantasy respectively (Talmon, & Davidow, 2023).

Operationally, interactive digital games program is defined in this study as they are meaningful instructional online games that combine learning with competitive and enjoyable elements.

Vocabulary Retention (VR)

Vocabulary retention refers to the ability of an individual to remember and use words they have learned over time. It is a measure of how effectively a person can retain and recall the meanings of words they have encountered, and how well they can use those words in their written and spoken communication. (Coxhead ,2021)

Operationally, Vocabulary retention is defined as the ability to remember words that have been learned or encountered in a second language (L2) over time.

Grammar Achievement

Grammar is the basics of the English language, which allows ESL learners to read, write, speak and understand English effectively (Boots & Strobel, 2014).

Operationally, grammar is defined in this study as a complex component in a language which fosters other language skills and arranges words into well-organized of writing.

Literature review

Although it is obvious that involving games in education is no longer new, integrating digital games is brand new. Moreover, the use of web- based digital games recently presents us to a set of interactive tools according to the game mechanism like some are competitive, quests, quizzes and puzzles which has become more prominent with the emerge of the web- based services leaded to expansion of integrating online games.

Similarly, learning games have been found dynamic in promoting

students' knowledge and increasing motivation towards learning (Astika, 2015). Moreover, Games have the potential to offer a constructivist approach to learning that allows students to engage and practice learning tasks in a safe environment (Suwantara and Orawiwatnakul ,2015). Surely, Well-designed educational games also allow players to expose to exploration and collaboration(Wang ,2016) .Moreover, these games serve to develop domain-specific expertise based on complex problem solving and collaborative learning(Basoglu and Akdemir ,2010)

Then, games serve as spaces for collaborative learning and shared knowledge construction through social interaction, which is featured by the immersive nature of virtual environments (Lin, 2010).

Moreover, new digital technologies make it possible to devise ever more sophisticated and pedagogically precise educational games (Rieber & Noah, 2008). Also, Games provide engaging and enjoyable activities and the digital games market has expanded to become the fastest growing leisure market even during a worldwide recession (Chatfield, 2010).

Digital Games for Language Learning

Related studies in the area of (DG) digital games showcase how to integrate technology in language learning. Not to mention, utilizing technology in the classroom makes the teaching and learning process engaging, vibrant, visible, appealing, and motivating. Ghazi, Safdar Rehman (2013).

Over years technology gradually invaded the world; years later it has come into light wildly in many fields particularly in education. Moreover, children are growing up rapidly using hand held devices as laptops, tablets and smart phones more than before. Digital games are used for entertainment and facilitating the process of learning (Ilomaki & Kankaanranta, 2009). Parents become aware of using technology wisely avoiding its flaws.

Recently, numerous research in the field of EFL or in other domains have focused on online gaming or multiplayer online games (Hoy, 2011; Berns, Gonzalez-Pardo & Camacho, 2011; Rama, Black, Van Es, & Warschauer, 2012).

Digital Games for Teaching/Learning Vocabulary

Learning vocabulary through games had attained a lot of attention. Donmus (2010) believed that The value of educational games has been increasing in language education since they help to make language education entertaining. According to (Donmus, 2010) when games and education are combined, it can be educative and education environments can be entertaining. The learners who learned with the use of games, gain positive attitudes and can be more motivated while learning. It is proven by work from (Hopkins *et al* ,2018) that long -term memory of a learner can be improved by integrating the right technique fitting the right stage and age. According to (Chai Kar Ni *et al.,* 2020) games are a viable method to aid learners to retain and utilize new vocabulary in a more efficient way.

Digital Games for Teaching/Learning Grammar
Grammar Definitions

The importance of grammar in the English language cannot be ignored (Savignon, 2017) as it is relatively an essential language form (Alijanian, 2012) that learners need to master in order to create meaningful sentences. In a like manner, Grammar Is defined as the study of words operating together to form meaningful sentences (Thekes, 2011; Goodman & Goodman, 2014). When teachers conduct gamified grammar lessons, students seem eager to learn, motivated to participate during the class.

Grammar is a description of a language regularities, and mastery of these regularities allows the student to construct a potentially huge number of creative phrases (Zhang, 2009). Learning grammar can help youngsters develop their creativity, cognitive capabilities, and critical thinking abilities (Cameron, 2001).

Conclusion

To summarize, previous researches mentioned that learning grammar and vocabulary can be challenging and recommended utilizing games to make learning more enjoyable and motivating for most students. Their educational implications, however, only applied to games conducted the old-fashioned manner, with teachers using handouts and graphics rather than technology. As well games are one

of the best opportunities to devote young learners' energy not only to grammar learning, but add to many skills and areas of the language. However, it should be taken into consideration that as for young learners, teaching them through games requires special effort from the teacher. Likewise, there are two considerations to be explained, namely classifying which game to use and the specific time for using games to achieve the targeted development. Online digital games provide a spectacular real-life context especially for young learners.

Hypotheses of the study

Based on the reviewed literature and the administered questionnaire to some of EFL teachers. The following hypotheses are tested:

1-There would be a statistically significant difference (favoring the experimental group) between means of scores obtained by the treatment and the control group on the post vocabulary retention test.

2-There would be a statistically significant difference (favoring the experimental group) between means of scores obtained by the treatment and the control groups on the post grammar test.

Experimental Design

This study was a quasi-experimental one which adopted the pre-posttest design. The participants of the study were divided into experimental and control groups. The experimental group was trained by using interactive digital games program. whereas, the control group was trained by regular methods. Pretests were given to both groups before the application of the experiment to assure that students have the same prior knowledge of English. Posttests were administered after applying the experiment to measure the effect of using online games on teaching the assigned participants. A pre-vocabulary retention test was given after a while of applying the post-test. After two weeks of the experiment, A delayed vocabulary test, the same as the post vocabulary test, was reapplied on the experimental group to assure the effectiveness of integrating digital games inside the classroom.

Participants

Sixty students were selected form the second preparatory school

enrolled in 2021-2022 in a governmental school. consequently, they were divided equally into two intact groups. The two groups were assigned to an experimental group, which consisted of 30 students, and a control group, which consisted of 30 students. The experimental group was taught by applying interactive digital games program, while the control group was taught following the conventional way of teaching by another qualified teacher, who has the same years of experience, according to the plan prescribed by the ministry of education in Egypt.

Duration of the Instruction

The experiment was carried out in the second term of the academic year 2021-2022. It lasted for two months: eight weeks, two hours a week; i.e., 35 hours including the testing time.

Variables of the Study

The Independent Variable

Applying digital games to second-year preparatory school pupils.

The instructor

The researcher herself taught the experimental group to ensure accurate application of the experiment, while the control group was taught conventionally by another qualified teacher.

The Independent Variable

Using the interactive digital games program

The dependent variables

- Vocabulary Retention
- Grammar Achievement

Control variables

- Sixty pupils aged between 11:12 years
- Students almost have 10 years of learning English

Instruments of the study

To achieve the objectives of the program, the following instruments were designed and used

    a. Vocabulary test
    b. Vocabulary retention test (delayed test)
    c. Grammar test

1.Vocabulary Test

To fulfill the purpose of the study, a test of vocabulary was

designed to assess students' vocabulary skills level. The following is a detailed description of the test.

A. Test Validity

After administering the pilot study, the data collected was used to calculate the statistical validity of the test, the internal consistency of 35 items in the test was applied on 30 students. Each of the test questions and the total test score were calculated by finding the correlation coefficients between the total scores of each dimension and the test total score, and the following table (1) shows the results

Table (1)

Correlation coefficients between the score of each test question and the total score for the dimension to which it belongs (n = 30)

Synonyms				Collocations		Expressions	
N	R	N	R	N	R	N	R
1	0.42*	14	0.48**	26	0.73**	31	**0.60****
2	0.49**	15	0.46*	27	0.66**	32	**0.63****
3	0.42*	16	0.51**	28	0.62**	33	**0.54****
4	0.46*	17	0.45*	29	0.52**	34	**0.70****
5	0.58**	18	0.55**	30	0.67**	35	**0.68****
6	0.47**	19	0.56**				
7	0.45*	20	0.66**				
8	0.44*	21	0.42*				
9	0.47**	22	0.49**				
10	0.53**	23	0.54**				
11	0.42*	24	0.56**				
12	0.41*	25	0.55**				
13	**0.50****						

* Significant at the level (0.05)   ** Significant at the level (0.01)

It is evident from table (1):

The correlation coefficients between the degree of each of the test questions and the total score of the dimension to which it belongs ranged between (0.41: 0.73), which are statistically significant correlation coefficients and indicated the internal homogeneity of the

dimensions.

B-Reliability

To calculate the stability of the test, the researcher used the method of test retest, where the researcher applied the test to a sample of the research community other than the original sample of the research consisting of (30) students, then retest on the same sample with an interval of ten days, and the correlation coefficients between the first and second applications were calculated.

Table (2)
Correlation coefficients of the application and re-application method of the test (n = 30)

Variables	Test		Re-Test		R-value	P-value
	Mean	SD	Mean	SD		
synonyms	13.03	6.12	13.27	5.64	0.91**	0.000
collocations	2.77	1.61	2.60	1.40	0.89**	0.000
expressions	2.57	1.55	2.70	1.26	0.87**	0.000
Total	18.37	8.74	18.57	7.67	0.91**	0.000

* Significant at the level (0.05)   ** Significant at the level (0.01)

It is evident from table (1):

- The correlation coefficients between the first and second application of the test ranged between (0.87: 0.91), which are statistically significant correlation coefficients, which indicate the stability of the test.

2.Vocabulary Retention Test

To fulfill the purpose of the study, a delayed vocabulary test (Appendix B) was conducted to assess second preparatory school students' knowledge of vocabulary retention skills. *The following is a detailed description of the test for **Test** **Validity and reliability** (see tables 1 and 2)*:

Table (3)
The significance of the differences between the means of the post and Retention results of the Experimental group in the vocabulary test (n = 30)

Variables	Post Testing		Retention Testing		t-value	P-value
	Mean	SD	Mean	SD		
synonyms	17.53	2.39	17.63	1.87	0.59	**0.557**
collocations	3.43	0.90	3.60	0.81	1.72	**0.096**
expressions	3.83	0.87	3.77	0.86	0.57	**0.573**
Total	**24.80**	**2.83**	**25.00**	**2.03**	**0.71**	**0.483**

It is evident from table (3):
-There were no statistically significant differences between the mean of the post and retention measurements of the experimental group in the vocabulary test. This indicated the effectiveness of the proposed program in improving vocabulary retention skills.

3. The Pre-Post Grammar test
To fulfill the purpose of the study, a test of grammar (Appendix B) was designed to assess second preparatory school students' knowledge of grammar. The following is a detailed description of the test.

A- The validity
After administering the pilot study, the data collected was used to calculate the statistical validity of the test, the internal consistency of 30 items in the test was examined. Each of the test questions and the total test score were calculated by finding the correlation coefficients between the total scores of each dimension and the test total score, and the following table (4) shows the result.

Table (4)

Correlation coefficients between the score of each test question and the overall test score (N = 30)

N	R	N	R	N	R
1	0.62**	11	0.58**	21	0.53**
2	0.49**	12	0.48**	22	0.51**
3	0.53**	13	0.43*	23	0.48**
4	0.41*	14	0.49**	24	0.54**
5	0.45*	15	0.45*	25	0.62**
6	0.47**	16	0.65**	26	0.51**
7	0.44*	17	0.49**	27	0.61**
8	0.47**	18	0.58**	28	0.55**
9	0.52**	19	0.65**	29	0.52**
10	0.48**	20	0.60**	30	0.52**

* Significant at the level (0.05)   ** Significant at the level (0.01)

It is evident from table (4):

The correlation coefficients between the score of each test question and the total score of the test ranged between (0.41: 0.65), which are statistically significant correlation coefficients, which indicate the internal homogeneity of the test.

B- Reliability

The collected data were used to calculate the test's reliability, which was calculated using the mean scores of test-retest with an interval of two weeks. The correlation coefficients between the first and second applications were calculated using Pearson formula. (See, table5).

Table (5)

Correlation coefficients of the application and re-application method of the test (n = 30)

Variables	Test		Re-Test		R-value	P-value
	Mean	SD	Mean	SD		
Grammar	14.73	7.77	15.03	5.89	0.94**	0.000

* Significant at the level (0.05)   ** Significant at the level (0.01)

It is evident from the following table (5):

-The correlation coefficient between the first and second application of the test was (0.94), which is a statistically significant correlation coefficient, which indicates the stability of the test.

Hypotheses of the study

Hypothesis One

To test the first hypothesis of the study which predicted that "there was a statistically significant difference at (0.05 level) between means of scores obtained by the experimental group pupils and those of the control group pupils in the vocabulary retention posttest." (Favoring the experimental group) both the control and the experimental groups' mean scores on the vocabulary retention posttest were compared using an independent sample *t-test*.

Hypothesis Two

To test the second hypothesis of the study which predicted that "there was a statistically significant difference at (0.05 level) between means of scores obtained by the experimental group pupils and those of the control group pupils in the grammar achievement posttest." (Favoring the experimental group) both the control and the experimental groups' mean scores on the post grammar test were compared using an independent sample *t-test*.

Participants

- The sample of the study is confined to be suitable to second preparatory school pupils who were divided into two groups; experimental and control group. Each group has 30 students.

The method

- Interactive digital games (Quizziz, bamboozle, and wordwall) with online streamed videos
- This study used various assessing instruments; some used in the present study as administered questionnaire for the EFL teachers, a vocabulary test, and a grammar test.

Findings and discussions

The outputs of this study included statistical analysis done on the participants' mean scores on the English vocabulary and grammar pretests and posttests. Along with the results of these investigations, an explanation of the findings was also provided. The Statistical Package

for the Social Sciences (SPSS 22), Mann-Whitney, T-test, and Eta-squared calculation were used to assess all the data that had been gathered. The (0.05) threshold of significance has been specified.

On the other hand, the results of this study showed that the suggested program using games aid in the growth of pupils' vocabulary and using grammar structures. Additionally, playing games fosters a sense of teamwork that aids students in interacting with others.

Hence, it can be inferred from the results that the group who received the training had a different learning environment when games and activities were included in the class. additionally, the class turned to be more active than the traditional one. The students' collaboration while working as teams fosters the learning process. According to the students' remarkable responses, they had fun, playful, fruitful class even though if they still don't like grammar structures or vocabular, but they still learning. According to the students' feedback about using games and activities, they enjoyed how class was active and fun. They understood well and remembered vocabulary easily by competing in teams, pairs taking part in the game, and visualizing the material through gaming and online videos. Students expressed their satisfaction with how the input session went. They participated in competitive groups as there was win and loss between each team. This experiment achieved the target which is expanding the degree to which learners can recall or recognize previously learned vocabulary items after a certain period of time that was shown from the delayed test results.

On grammar level, students found out grammar learning much easier than before as they started to understand the rule easily and memorize it

relating it with the digital games used. Digital games enhanced students' learning motivation and performance and provided exposure to the target language, increased engagement, and enhancement of learners' involvement in communication with progress monitoring, feedback, and differentiation of instruction.

Recommendations

Based on the results obtained from the present study, a number of recommendations are proposed as following:

- It is highly recommended to have EFL teachers trained on using engaging activities or integrating technology during the class to have fruitful learning outcomes.
- It is better to learn or teach in a fully suitable and equipped environment with all needed equipment in which serve the class such as projector, computer lab, or smart boards to make the class easy- going and interactive.
- English as a foreign language course should include more grammar and vocabulary activities especially in the early stages of education due to its ability to develop them.
- EFL teacher should be intensively trained to use online interactive digital games inside class.
- students should be trained on how to handle the games interactively by orientation sessions for both teachers and students.
- It is necessary to use technology in a fully ready and equipped learning- teaching environment.
- It is essential for EFL teachers to choose activities or games whether online or onsite which fit students' age and interests to have a successful learning- teaching time.

Suggestion for further research

- The current study can be assigned to primary, preparatory stages on both online or onsite schools.
- Further research can relate more in using gamification approach especially online games part.
- Further research should be assigned to EFL teachers who want to teach interactively in the class.
- Further research may look more to engage more extended games to develop communication skills in any stage to have fun and learn at the same time
- Further research may relate to encourage students on team work
- Further research may look more to engage online learning platforms with using online digital games.

- Further research may look more for other techniques in using interactive games and applications such as bamboozle or word wall games to be engaged during class.

Conclusion

The present study was conducted to investigate the effectiveness of using interactive digital games to enhance English vocabulary retention and grammar achievement of preparatory school pupils. In particular, it showed the related studies which agreed with the effect of involving digital games in the class rooms and its effect on teaching grammar and vocabulary. The immersive collaborative environment provided by online digital games for EFL learning provides numerous possibilities for players to engage in authentic dialogue with other speakers by listening, speaking, reading, and writing in the target language.

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