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The Effect of Games on Vocabulary Learning Retention: First Year Natural Science Students at Jimma University, Ethiopia in Focus

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ABSTRACT

Teachers of English as a Foreign Language (EFL) have problems of how to teach vocabulary to students in order to gain satisfying results. EFL learners also have challenges with effectively remembering, retaining and retrieving the newly learned English vocabulary. In addition, they have limited exposure to practicing English outside the classroom, as using the language is usually limited in the classroom. As a result, they have inadequate knowledge of vocabulary which impacts on students' inability to express themselves. Therefore, vocabulary has to be taught in schools using different creative and interesting methods, one of which is using games. This study aims to figure out the effect of games on vocabulary learning retention of First Year Natural Science Students at Jimma University in Ethiopia. The study was conducted during the first semester of 2021, in which 82 participants were enrolled, 41 in treatment group and 41 in control group using non-probability sampling. Data were collected using pretest proficiency test, immediate posttest and delayed posttest. The study lasted for one and half months in which the students were taught unfamiliar vocabulary from their Communicative English Skills course material. The experimental group was taught the target vocabulary through games, while the control group was taught using the conventional method. An independent samples t-test was run, and findings of both the immediate posttest and delayed posttest revealed significant differences between the treatment and control groups with p-values of .0001 for the immediate posttest and .029 for the delayed posttest, respectively. Accordingly, it can be concluded that games help students to retain unfamiliar vocabulary.

Key Words: games, retention, vocabulary, short-term memory, long-term memory

INTRODUCTION

For an effective vocabulary learning to take place, learners need to be able to retain it for a long time the vocabulary they have learned. Information is held first in short-term memory and by lack of attention, it is quickly lost. In order for the information in the short term memory to be retained, enough rehearsal and elaboration is needed, and this can be facilitated by the use of games. To be able to use the vocabulary they have learned, students need to retain it in their minds. In order to retain the words, they need to be taught through methods that facilitate retention. One of these methods is using classroom games. That is why Chow, et al. (2011) state that students' understanding and retention can be enhanced and improved by providing alternative learning activities and environments. Hence, education theory recognizes the value of incorporating alternative activities such as games and simulations to stimulate student interest in the educational environment, enhance transfer of knowledge, and improve learned retention with meaningful repetition (Chow et al., 2011).

Moreover, a study by Sitzmann (2011) reiterates that games are the best way to learn vocabulary. According to the author, when compared with traditional learning, game-based learning (GBL) has the following advantages: It increases the self-confidence of the learner by 20%, improves conceptual knowledge by 11%, ensures learning retention up to 90%, and generates roughly 300% more of completed tasks. This implies that games play a great role in learning in general and in knowledge retention in particular. Research shows that games boost retention, increase engagement and promote academic success. This suggests pedagogical implications for the incorporation of games as an effective way of teaching the meanings of vocabulary items in English in the courses offered in Ethiopian

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universities. That is why this study intends to identify the effect of games on vocabulary learning retention of students with a focus on first year Natural Science students at Jimma University, Ethiopia.

This study is based on Communicative English Skills I (FlEn 1011), a course commonly offered to all first year students of Ethiopian federal universities. The course is prepared to enable the students to communicate in English with acceptable accuracy and fluency by using English appropriately in different contexts. It aims to develop the learners' English language proficiency through language learning activities designed to help them use English for their academic and social needs. However, vocabulary learning games are not incorporated in the material.

Vocabulary learning is a learning load. "Learning load" is the amount of effort that a learner puts in learning the word," (Nation, 2003, p. 23). Knowing the different aspects of vocabulary makes vocabulary learning a learning load. For Nation, various terms have different learning burdens for learners with different backgrounds, and each factor of knowing a word can affect its learning burden. Therefore, Schmitt (2000) asserts that students are encouraged to use basic vocabulary learning strategies. One of these strategies is using games in teaching and learning, which is the main concern of this article. Games are believed to ease vocabulary learning load through promoting learning retention.

The current researcher has been teaching the Communicative English Skills course at Jimma University for several years. As a practitioner who has been teaching such students, the researcher has noticed that their language proficiency is very limited. The most noticeable indicator of this limited proficiency is lack of vocabulary. The students lack even the very basic vocabulary. For this reason, a large number of students get low marks not only in the vocabulary section of exams and quizzes they take throughout the entire course, but also in the reading comprehension parts. The students' lack of vocabulary is also undoubtedly reflected on other aspects of the English language. The students can hardly express themselves whether orally or in writing. For example, when they are given an opportunity to talk about themselves and their families, they fail to do so. They also face comprehension difficulties when they read or listen to English materials. Thus, enriching those students' vocabulary and enhancing their ability to learn vocabulary on their own is supposed to have a good impact on their overall language proficiency. This study therefore attempted to investigate the effect of vocabulary learning games on students' vocabulary learning retention of first year Natural Science students of Jimma University, Ethiopia.

Recent researches indicate that teaching vocabulary may be problematic because many teachers are not confident about best practice in vocabulary teaching and at times do not know where to begin to form an instructional emphasis on word learning (Berne & Blachowicz, 2008). A study was conducted by Jahan (2011) to find out the difficulties that teachers and students face in teaching and learning vocabulary in English at tertiary level in Bangladesh. Because weak vocabulary knowledge causes learners' comprehension ability to suffer, this troubled comprehension creates barriers in achieving the target competence level in all the major skills (Jahan, 2011). The findings of the study showed that the problem primarily lies within the vicinity of teaching techniques. Games are incredibly valuable in a class because they provide many opportunities for learners to learn the language. They are one of the teaching techniques, and their benefits in teaching and learning have been identified by different scholars.

Comparative studies have revealed students' preference of game-based learning to traditional methodology. For example, participants in a study conducted by Anyaegbu et al. (2012) reported that they had preferred game-based learning to traditional instruction for second language learning. In addition, various researches were done to determine the effectiveness of game-based learning for vocabulary acquisition on university English language learners. Sobhani and Bagheri (2014) also found that games promote learning retention of what has been learned through activating learners' minds. A study conducted in different Palestinian institutions such as schools, universities, hospitals, etc. revealed that games help students retain unfamiliar vocabulary, associate new information with their surroundings, and develop their language and communicative skills (Shabaneh and Farrah (2019).

Research Objective
The objective of this study is to identify the effect of games on vocabulary learning retention of first year Natural Science students at Jimma University in Ethiopia.

Research Hypothesis
H1: There is a significant difference between the experimental group and control group in terms of vocabulary learning retention as a result of using games.

LITERATURE REVIEW
The objective of this study is to identify the effect of games on vocabulary learning retention with a focus on first year Natural Science students at Jimma University, Ethiopia. To be able to effectively use the new words they have learned, students need to retain the words in their memory. This literature review section focuses on

the discussion of the importance and role of games in vocabulary retention.

The ultimate goal of language learning is to be able to use it effectively in real-life communication. Equally important, the goal of university students' learning English as a Language (EFL) in general, and English vocabulary in particular, is also to succeed in their academic studies. To help the students achieve these goals, instructors should help them develop their communicative competence in the language at large and in their academic careers in particular. In doing this, teachers should not overlook the importance and role of vocabulary in promoting the learners' proficiency. Richards and Renandya (2002) stress that vocabulary is regarded as a key element of language proficiency and supplies much of the basis for how well students listen, speak, read and write. Therefore, increasing vocabulary knowledge is the basis of language learning (Sadeghi & Taghi, 2013). According to Qian (2002, p. 518), "having a larger vocabulary gives the learner a larger database from which to guess the meanings of unknown words or behavior of newly learned words; having deeper vocabulary knowledge will very likely improve the results of the guessing work." Therefore, vocabulary plays the most outstanding role in language learning(Nation, 2001).

Tuan (2012), points out that games make learning language easier and improve retention because students learn through practice. There is also a famous Chinese educational proverb: Tell me, and I forget; show me, and I remember; involve me, and I learn. This means that students learn when they involve /practice/experience something. Games are not only a pleasant way of practicing a language item, but they are also an effective way of remembering the language learned. Games in the learning process help students retain vocabulary more quickly and easily (Huyen & Nga, 2003;Derakshan, 2015 & Bavi, 2018). Research shows that learners are more likely to remember words when they pay attention to them and have to manipulate them (Zimmerman, 2014, p. 292). The fun and interesting nature of games hooks the learners' attention towards the target lesson and motivates them to practice the words through playing the games. This is likely to lead to retention of the vocabulary learned.

Learning Retention Pyramid, developed by the National Training Laboratory (Goga and Serban, 2018) estimates the following learning retention rates of the most popular methods of teaching and training: lectures: 5%, reading: 10%, audio/visual: 20%, demonstration: 30%, discussion: 50%, practice by doing: 75%, and teaching others: 90%. Active learning such as discussion, practice by doing and teaching others are tactics that can help ensure knowledge retention. Games fall into the "practice by doing" category because they are practical activities. Since games help students practice he language item by doing', the students retain 75% of what they learn. The practice by doing (gaming) method of study encourages students to take what they learn and put it into practice. Practice by doing also leads the learners to more in-depth understanding of material, greater retention and better recall. That is why Letrud (2015) contends that some version of the learning retention pyramid is associated with claims that the best way to learn and remember something is by doing and teaching. Game-based teaching engages learners, increases attention, and improves confidence and, ultimately, drives success.

In general, games play a pivotal role in helping learners retain, remember and use the new words they have learned. A number of researches have been conducted on the use of games in primary schools. However, the number of studies on the use of games in higher education globally is limited. Although some game-based studies have been carried out on Ethiopian elementary school pupils, the roles of games in supporting students' vocabulary learning in the federal universities of Ethiopia have remained unstudied. To the best of the researcher's knowledge, this study is the first attempt to link vocabulary games and vocabulary learning retention in Ethiopian higher education. Mainly intended to bridge the research gap, this study is hoped to be important in different ways. The findings of this research contribute to game-based learning, and offer direction in terms of selecting suitable vocabulary learning games for use in the Ethiopian federal universities. The findings also have relevance to learners, teachers, educators, and course designers. They help learners learn in a stress-free and motivating environment. They also help add variety and avoid monotony and boredom in teachers' methodology. Moreover, the findings enable teacher educators to use vocabulary games as warm-up activities or energizers to hook participants' attention and energize them in their training sessions. Finally, language scholars engaged in game-based learning research can use the findings as a springboard for further research.

RESEARCH METHODOLOGY
Study Setting

The present study aims at investigating the effect of games on vocabulary learning retention with a focus on first year students of the College of Natural Sciences in Jimma University. Jimma University (JU) is one of the public universities in Ethiopia located in Jimma Zone, West Oromia, in Ethiopia. There are four streams in Jimma University. These are Pure Natural Sciences Stream, Pure Social Sciences Stream, Natural Sciences Stream (Teacher

Education), and Social Sciences Stream (Teacher Education). Out of these, Pure Natural Sciences Stream students were chosen for the present study.

Research Design

In this research, quasi-experimental design was used. Quasi-experimental design involves an assignment of participants to groups, but it does not involve random assignment (Creswell, 2012). This is because the nature of this design does not allow the experimenter to artificially create groups by assigning them randomly for the experiment. On this basis, this research adopted quasi-experimental design because it used two natural (intact) groups that were assigned to treatment and control groups. Both the treatment group and the control group were taught vocabulary first as it is presented in the Communicative English Skills Part 1 module. Then, the vocabulary taught was revised for the treatment group through the non-digital vocabulary games: Board Bingo, Meaning Bingo, Charades and Post-it-Corners, and through exercises including matching the newly learnt words to their meanings, filling the words in gaps in sentences, etc., for the control group. The unfamiliar words were selected from the texts based on their suitability for each game. While the practical words were used with Charades, the abstract ones were used with *Board Bingo* and *Meaning Bingo*, and collocations were used with *Post-it-Corners.* In addition, these games, specifically the bingo games and Charades, are commonly used by other language researchers.

In addition, quasi-experimental study can utilize mixed methods (quantitative and qualitative). This article is taken from an on-going PhD study focusing on the effect of games on vocabulary learning motivation, engagement, retention, and perception of first year Natural Science students at Jimma University, Ethiopia. Therefore, it uses only the quantitative method. As a result, while the methodology of the entire PhD study is described in this article, the research objective, hypothesis, the findings, the discussions and the recommendations pertain only to vocabulary learning retention of the treatment and control groups.

After the intervention, the two groups were required to do immediate and delayed posttests. The immediate posttest was administered immediately after the intervention to both groups to determine the difference in the scores as well as to measure their short-term vocabulary learning retention. Then, after fifteen days, the delayed posttest was administered to both groups to see if there is a significant difference in the scores of both groups as well as to measure their long-term vocabulary learning retention. Delayed recall after *two weeks* under experimental conditions is normally referred to as "long-term retention" (Yongqi, 2003, p. 12).

Population and Sampling Technique

This research was conducted on first year natural science students in Jimma University. Two intact groups from eleven groups were selected non-randomly. Then, one group was assigned to experimental group and the other to control group using a lottery method. The natural science students were chosen based on convenience sampling because the college, (College of Agriculture and Veterinary Medicine) where they were assigned, is relatively nearer to the researcher's house. Typically, convenience sampling tends to be a favored sampling technique among researchers as it is inexpensive and an easy option compared to other sampling techniques (Ackoff, 1953). According to Dörnyei (2007), convenience sampling (also known as Haphazard Sampling or Accidental Sampling) is a type of nonprobability or nonrandom sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included in the study. Dörnyei adds that convenience sampling technique is applicable to qualitative and quantitative studies, although it is most frequently used in quantitative inquiries.

Thus, based on the above scholars' ideas, convenience sampling was used in this study for two basic reasons. The first reason is that the study used mixed methods (quantitative and qualitative). The second reason is that the researcher's house is near the College of Agriculture and Veterinary Medicine (JUCAVM) where the study participants were assigned and thus makes the process of the research easier, more cost-effective and time-effective. The samples consisted of 82 students, 41 in experimental and 41 in control groups. The experimental group was taught vocabulary with games while the control group was taught vocabulary through the without games, by the researcher, respectively. Then, posttests were given after the treatment.

Data Collection Instruments

Data were collected using pretest vocabulary proficiency test, immediate posttest, and delayed posttest. Each of these tools is described below.

Pretest Vocabulary Proficiency Test

The pretest vocabulary proficiency test consists of 36 items. Twelve questions, all multiple choices, were taken from the vocabulary section of the Nelson 350A English Proficiency standardized Test, and the remaining twenty-four questions were based on the vocabulary randomly selected from the sections of the Ethiopian English textbooks of grades 9-12. The questions from the Nelson test measure general knowledge of vocabulary. The types of items based on the vocabulary lessons in the textbooks included matching

meanings to their corresponding words such as 'keep on', 'craving' and 'bow'; writing "Do" and "Make" before the words or phrases they collocate with, completing sentences with words provided such as 'withdraw', 'orphans' and 'symptoms', adapted from the textbooks mentioned earlier. The test was administered to 82 students to determine the similarity in the proficiency level of the experimental and control groups. The reason for adapting the twelve questions from the Nelson 35A standardized proficiency test was to keep the novelty and consistency of the questions. Similarly, the reason for basing the remaining twenty-four questions on the vocabulary contents of the grades 9-12 textbooks was to avoid setting questions based on the vocabulary below or beyond the level of the students. This test was administered for the purpose of homogenizing the sample of the study and to make sure that the study includes homogeneous participants in the treatment and control groups with respect to their English language proficiency. The validity and reliability of the test were checked through piloting the research.

Immediate Posttest Vocabulary Test

Immediately after finishing the teaching phase, the immediate posttest was administered to the treatment and control groups to determine the effect of the games on the learners' short-term memory. The items were based on the words and phrases taught from the five units of the Communicative English Skills Course (FLEN 1011) to both experimental and control groups.

The test consists of seventy questions. The types of items for the test included sixteen matching verbs that collocate with their corresponding nouns, as *pay attention*, *have lunch*, and *make a promise*; eleven sentence completion items involving completing sentences with the given collocation words, such as *did, paid,* and *came;* seventeen questions based on completing sentences with the given options of words taught through the *Charades* game, such as *take a photo*, *ping pong,* and *get the hell out of*; and twenty-four questions based on words selected for *Bingo* for intervention. These are words that are difficult to teach through "*Charades"* because they are mostly abstract, and they include words like *invaluable*, *diligent* and *alleviate*.

Therefore, they were included in the "Quick Bingo" and "Extended Bingo" games, as any type of word can be used in a bingo game. An hour was allotted for the students to complete the test. The objective of the delayed posttest was to discern to what extent the students had retained the words and again what method had worked better in terms of vocabulary retention. In other words, the delayed posttest aimed at determining the effect of the games on the learners' long-term memory.

Delayed Posttest Vocabulary Test

The delayed posttest vocabulary test was administered to the experimental and control groups fourteen days after the immediate posttest was conducted to determine their long-term retention of the target vocabulary. The delayed posttest was identical to the immediate posttest, and it was undertaken by both groups under the same circumstances. The experimental groups' scores on the delayed posttest were compared with those of the control group. The long-term vocabulary retention of both groups was measured and compared based on the mean scores of the delayed posttest.

RESULTS AND DISCUSSION
Results
The difference between the experimental group and control group in terms of vocabulary learning as a result of using games, which is the objective of this study, is presented in three phases: Pretest Vocabulary Proficiency test, Immediate Posttest, and Delayed Posttest or Follow-up phase.

Table 1: Mean, SD, t and p values for proficiency score in vocabulary in the pretest for the treatment and control groups

Groups	N	Mean	SD	df	t	P
Treatment	37	38.60	12.10	71	1.278	.206
Control	36	42.02	10.79			

A proficiency test was administered to the treatment and control groups to check the homogeneity of both groups before the intervention. Accordingly, as table 1 *(see appendix)* shows, the mean score on the proficiency test for the treatment group was 38.60 with a standard deviation of 12.1, while the mean score on proficiency test for the control group was 42.03 with a standard deviation of 10.79. The difference between the two mean scores (42.03-38.60=3.43) is small suggesting that the two groups were not much different on their vocabulary proficiency before the intervention. In addition, an independent t-test was run to check the difference on mean scores of proficiencies between the treatment and control groups. Before running the analysis, assumptions for the tests were checked and found fulfilled. The independent sample t-test revealed that there was no statistically significant mean difference between the treatment and control groups in mean scores of proficiency (t =1.278, df = 71, p=.206). As a result, it was found that the two groups had comparable level of proficiency in vocabulary ability before the intervention.

Table 2: Mean, SD, t and p values for proficiency score in vocabulary in the immediate posttest for the treatment and control groups

Groups	N	Mean	SD	df	t	p
Treatment	36	53.72	11.49	72	4.98	.000
Control	38	36.18	17.92			

The researcher intended to see the difference on mean score of immediate and delayed posttests between the treatment and the intervention groups just after the intervention, i.e., to measure the immediate effect of vocabulary games on vocabulary learning retention. Accordingly, as Table 2 indicates, the mean score on proficiency test for the treatment group for the immediate posttest was 53.72 with a standard deviation of 11.49, while the mean score on proficiency test for the immediate posttest test for the control group was 36.18 with a standard deviation of 17.92, respectively, implying a relatively big difference between the two groups.

An independent t-test was also run to check the observed difference on mean scores of vocabulary retention between the treatment and control groups, and it was found that the difference was statistically significant. Before running the analysis, assumptions for the test were checked. The assumptions of the independent t- test were tenable. The independent sample t-test indicated that there was a statistically significant mean difference between the two groups on mean scores of vocabulary retention (t =4.98, df = 72, p=.001, d= 1.16, which means a large effect. As a result, we can conclude that the treatment or teaching students with games resulted in a better vocabulary retention. In other words, the intervention resulted in increasing students' vocabulary learning retention immediately after the intervention. On this basis, the hypothesis that "There is a significant difference between the experimental group and control group in terms of vocabulary learning retention as a result of using games" is accepted.

Table 3: Mean, SD, t and p values for proficiency score in vocabulary in the Delayed posttest (follow-up) phase) for the treatment and control groups

Groups	N	Mean	SD	Df	t	p
Treatment	34	51.21	14.18	63.803	2.232	.029
Control	37	41.84	20.81			

The researchers also intended to see the difference on mean score of the delayed posttest between the treatment and the intervention groups after the intervention or the delayed effect of vocabulary games on vocabulary learning retention. Accordingly, the mean score on proficiency test in the follow-up stage for the treatment group was 51.21 with a standard deviation of 14.18 while the mean score on proficiency test for the control group was 41.84 with a standard deviation of 20.81, respectively. The researchers

ran independent t-test to check the observed differences on mean scores of proficiency between the treatment and intervention groups, and they found that the differences were statistically significant. Before running the analysis, assumptions for the test were checked. The assumptions of the independent t-test were acceptable. The independent sample t-test indicated that there were statistically significant mean differences between the two groups on mean scores vocabulary retention in the follow-up stage (t =2.23, df = 63.803, p=.001, d=.522, which means a medium effect. As a result, we can conclude that the effect of the treatment or teaching students with games sustained students' gain in vocabulary after the intervention had stopped. This shows that the hypothesis stated as "There is a significant difference between the experimental group and control group in terms of vocabulary learning retention as a result of using games" should be accepted.

Generally, the significant difference in the mean scores of the treatment and control groups in the immediate and delayed posttests indicated that, as a result of learning vocabulary with games, the participants in the treatment group could store and retain vocabulary items in their memories better than the participants in the control group who were taught vocabulary without games. As a result, the results confirmed that game-based vocabulary instruction proved to be effective in retention time of the learned items, thus, retaining the hypothesis "There is a significant difference between the experimental group and control group in terms of vocabulary learning retention as a result of using games".

Discussion

This study aimed at investigating the effect of games on vocabulary learning retention among first year Natural Science Students of Jimma University in Ethiopia. To measure the short-term changes in the students in control and experimental groups, immediately after finishing the teaching phase, the first posttest was administered to both groups. The test was different from the vocabulary proficiency pretest. While the purpose of the vocabulary proficiency (vocabulary knowledge) test was to determine the homogeneity of the subjects in terms of their vocabulary knowledge, the objective of the posttests was to measure the students' vocabulary learning retention.

The data from the tests were analyzed for mean differences using independent sample t-tests. The analyses revealed two important facts. Firstly, the independent samples t-test results indicated that the mean difference between the treatment and control groups was not statistically significant suggesting that the two groups were comparable in their vocabulary proficiency before the intervention. Secondly, the differences in mean scores on vocabulary retention between the treatment and control groups were found statistically significant for the immediate and delayed posttests (i.e., after the intervention). This indicates that

game-based vocabulary instruction has a positive effect on vocabulary learning retention.

The findings thus proved the hypothesis that there is a significant difference between the experimental group and control group in terms of vocabulary learning retention as a result of using games. In other words, the participants who were taught vocabulary through games proved to be more successful not only in remembering the meaning of the items that are still in their short-term memory, but also in retaining the meaning of the items in their long-term memory.

Shabaneh and Farrah (2019) conducted a study on the effect of games on vocabulary retention during the first semester of 2018/2019, in which 20 participants were enrolled. The researchers collected data using pretest, posttest, and class observation. The study continued for two months. Students were introduced to unfamiliar vocabulary through games. The findings of the research revealed the efficiency of utilizing games in the educational process. Accordingly, games help students retain unfamiliar vocabulary, to associate new information with their surroundings and to develop their language and communicative skills.

Similarly, Khoshsima and Yazadi (2015) conducted a quasi-experimental study to determine whether teaching vocabulary through instructional games can affect the vocabulary enhancement of students. The participants were 40 pre-intermediate EFL students who were equally divided and assigned into control and experimental groups. The control group was exposed to textbook teaching and the experimental group was exposed to instructional games. A delayed post-test was conducted to see the retention of learners' knowledge of vocabulary. In the end, although both groups had changed positively, a significant change was seen in the retention of learners' knowledge of vocabulary in the experimental group.

Other studies such as those conducted by Khan, et al. (2017) and Plass, et al. (2015) concluded that games appeared to be successful in improving vocabulary learning, especially retention. In general, the findings of the current study is supported by the findings discussed above, all of which prove the effectiveness of games on promoting vocabulary learning retention.

CONCLUSION AND RECOMMENDATIONS
Conclusion

The objective of this study was to measure the difference in vocabulary learning retention between the treatment and control groups as a result of using games. The findings indicated that there is a statistically significant difference in mean scores between the treatment and control groups. This implies that game-based vocabulary instruction helps students retain the vocabulary they have learned.

Recommendations

Based on the findings provided above, the following recommendations are forwarded. First, since games are proven to be useful and effective in this study, they should be used for teaching to first year university students. Therefore, they should be incorporated in the Communicative English Skills course, Part One (FLEN 1011). Second, not only vocabulary games but also language games of all kinds should be included in all the English courses offered to first year students in the Ethiopian universities. Third, all university instructors of English should be trained to teach English language using games including digital/online games. Finally, Moreover, the current researcher should conduct the research on a bigger sample of participants to elicit more information about their performance and attitudes to improve this innovative method of teaching vocabulary. In fact, future studies should also focus on online games especially in the Ethiopian context.

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