



# **Effects of Gamification on EFL Learners' Vocabulary Achievement and Classroom Interaction: Grade 9 Students in Focus.**

**Kebede Hiluf Tafere, Associate professor Anegagregn Gashaw,  
Associate professor Dawit Amogne**  
TEFL/ELT at Wollo University, Ethiopia,

**Abstract-** The main purpose of this research was to check the effects of gamification on EFL learners' vocabulary achievement and classroom interaction. Quasi experimental was the research design used in this research and the method was mixed methods. It was conducted in 2025 at Korem secondary school, Ethiopia. As the study is quasi-experimental, non-equivalent design, 87 grade nine students: 45 as control group and 42 as experimental group participated. Thus, the experimental group learned vocabulary through gamification for two months while the control group attended the same lessons using the conventional method. The data was gathered using vocabulary tests, questionnaire, classroom observations and semi-structured interview. Paired sample t-test was applied to analyze the data collected through tests and questionnaire, and thematic analysis was used for the data obtained through observations and semi-structured interview. The mean variance, the p-value ( $p < 0.05$ ) and the data gained through observations and semi-structured interview indicated that the experimental group had significant higher levels of vocabulary retention and level of interaction compared to the control group. Thus, it is concluded that gamification significantly helps students to enhance their lexical competence and interaction.

**Keywords-** Gamification, Interaction, Conventional teaching, Vocabulary development.

## **I. Introduction**

### **Background to the Study**

Language is a structured system of communication that consists of grammar and vocabulary (McFarland, 2017). It is the primary means through which humans communicate (Teller, 2008). At this time, English language has become the main tool of communication in schools and offices. Thus, good English language competence is needed to compete. For this, having good stock of vocabulary is undeniably important.

Shintani (2012), Apriandari (2019) and Dessalegn (2015) put vocabulary as the core part of L2 acquisition as nothing can be conveyed without vocabulary. Accordingly, learners' ability of understanding and expressing ideas and concepts; exploring and solving academic problems; organizing their experience and knowledge; expressing and clarifying their thoughts, feelings, and opinions as well as guessing skill can be shaped with good vocabulary competence (Nation, 2001; Bintz, 2011).

In educational setting, vocabulary plays an important role for second language learners to master the four macro skills. Students' academic achievement also



depends on their level of vocabulary since they learn in English as a medium of instruction (Nation, 2001; Bintz, 2011). No matter how they are good at grammar and how idiomatic their pronunciation and tone may sound, if learners are not good at vocabulary, it is difficult for them to communicate well. That is why it is important to seriously consider the teaching and learning of vocabulary; especially, in the secondary level, as these level require high English proficiency to deal with academic studies, not only in the EFL classroom but also in all subject areas (Morris & Leavey, 2006). Studies by Booth (2014), Wang (2006) and Halpern (2001) also proved how vocabulary is vital for secondary school learners as they begin to transit from learning to read to reading to learn, and specifically, ELL's lack of vocabulary knowledge begins to affect comprehension of academic texts.

But, in Ethiopian educational context, the implementation of vocabulary teaching has been ineffective and given only little attention (Minda, 2003; Abiyot, 2006; Eshetu et al., 2016; Boersma & Manendante, 2016). This makes students' English vocabulary proficiency low at all levels despite they spent many years of learning it (Sileshi & Tamene, 2022). Abiy (2017)

associated this ineffectiveness mainly with the methodology of teaching vocabulary, the objective of teaching English, the design and implementation of vocabulary tasks in the classroom, and the way EFL teachers' measure learners' vocabulary proficiency. According to Abiy (2017), to involve in vocabulary lessons actively, students must be taught using appropriate techniques like gamification. Because, the conventional technique does not help learners to get more vocabulary learning immersion time. , and it reduces the learners' interaction.

Gamification is the utilization of games in teaching and learning process to encourage learners to engage in the desired behaviors by raising motivation and developing attachment to the environment (Biligin et al., 2015; Lee & Hammer, 2011). Hence, teachers should carefully design vocabulary lessons in gamified way and spend more time on such tasks to advance students' lexical competence and communication (Rohani & Pourgharib, 2013).

Teaching vocabulary using games help learners to remember and retain the target words easily (Braga, 2019). The technique provides students with a chance of learning vocabulary funnily than usual. Similarly, the students' interaction and learning motivation can be increased because they take part in learning activities (Soltanzadeh, Hashemi, & Shahi, 2013). However, games should be well-chosen and designed (Huyen & Nga, 2003).

Teachers can design vocabulary lessons using digital or non-digital games. But, this study stressed only on non-digital games since digital games are not always possible due to limited resources and logistical problems. The direct (visual, speech, body) contacts that non-digital games have is also another reason to focus on these games as these contacts affect the player and facilitate effective vocabulary teaching and learning more than the speech/audio contact in digital gamification (Rahutami et al., 2019; Zainuddin et al., 2020).



The study also focused on grade nine students as the researcher believe that students at this grade level have a unique experience with regard to the English language, because grade nine students in the research area start to use English to learn other school subjects and it is a new practice for them. Thus, ELL's lack of vocabulary knowledge begins to affect comprehension of academic texts. In addition, as the learners at this grade level are teenagers, they are likely to shy unless they are motivated to participate. As Halpern (2001), Booth (2014) and Wang (2006) mentioned, shyness, mistaken beliefs about the consequences of making errors, fear of sounding unwise, and the difficulty of learning a new language are vocabulary challenges that learners cope up with. So, examining the effect of gamification on secondary school students' vocabulary learning and classroom interaction is required. For this reason, the current study focused on effects of gamification on EFL learners' vocabulary achievement and classroom interaction to address this problem. Hence, the principles of both motivation and social constructivism theories together with Chou's Octalysis model are used as a foundation for the present research because it is greatly related with the research objectives of the study as it views on creating a full gameplay experience which improves individual inspiration, learner comprehension and the concept that positive interaction enhances learning.

## II. Statement of the Problem

Vocabulary is important in language learning as it is a key for one's English proficiency (Schmitt et al., 2011). However, Ethiopian students, at all levels, have vocabulary problem (Abiyot, 2006). Sileshi and Tamene (2022) also found the vocabulary teaching and learning situations at elementary and high schools levels as very ominous, demotivating and non-interactive. Moreover, the preliminary observation that I made at Korem secondary school on how teachers teach vocabulary revealed that teachers' mode of teaching was totally conventional, and they did not use gamification to teach vocabulary. The students were also unmotivated and non-interactive. MoE (2017) and CIA (2017) associated this problem with the way of designing vocabulary tasks and implementing them in the classroom.

Effective vocabulary teaching and learning requires various interactive teaching techniques and strategies (Abiy, 2017). Yet, finding and practicing innovative teaching techniques that can encourage and motivate learners is not an easy task, because in Ethiopian schools, the method of vocabulary instruction is conventional for a long time (Sileshi & Tamene, 2022). So, studying gamification is pivotal as well-designed gamification in teaching vocabulary help learners remember and retain the target words easily, provide students a chance to learn vocabulary in funny way, and students' interaction and learning motivation can be increased because it offers more chance to take part in learning activities (Braga, 2019).

Studying the topic is also important because as to my review of related researches, it is a recent research area particularly in the field of TEFL, and only few studies have been conducted on it in Ethiopian context. But, Manendante (2018) studied "The effects of games on students' vocabulary learning motivation, achievement, and perception" in Primary Schools at Bahir Dar and found it was helpful to make most learners passionate, motivated and perceptive to learn vocabulary. Similarly, Yonas,



Tekle and Tesfaye (2022) studied the perception of first year Natural Science students towards learning vocabulary through games at Jimma University and showed games have a positive effect on learners' vocabulary learning and perceptions. Samuel (2017) also investigated the effect of digital games (the use of viber) on vocabulary learning of St. Mary's University under graduate students and explained digital games reinforce students' vocabulary retention and could remember and use new words more quickly.

Moreover, various international studies examining the effects of gamified vocabulary instruction confirms these findings. Solano (2022) studied the impact of online gamified strategies (using "Genially", a web-based media platform) on EFL learners' vocabulary performance, and revealed that it notably enhanced their acquisition and retention of vocabulary. Besides, Cancino and Castillo's (2021) conducted a study entitled "Learning Vocabulary through Games" in Vietnam: grade eight students. In this study, the findings confirmed that the positive impact of gamification on vocabulary learning outcomes and student motivation within language learning contexts. Another research conducted by Hartt et al. (2020) was also contrasted the English vocabulary learning results of two classes; one class learned the words through presentations and the other one learned them from gamified vocabulary lessons. The outcomes revealed that the group who learned English vocabulary through gamification prevailed over the conventional one.

Although the above researches were confirmed the positive effect of game-based instruction on vocabulary learning, to the best of my knowledge, gamification still needs further investigation as research on gamification is quite fragmented and more research is needed to explore its effectiveness. Likewise, disparate with the above studies, this study implemented multi-game design considering that different games are better to activate learners' comprehension and interaction than a single game (Legault, 2017). Hence, this study fills conceptual gaps. Correspondingly, in most researches gamified tasks are not designed based on the principles of the core motivation theories to foster students' vocabulary comprehension. So this study integrates the key principles of flow theory, self-efficacy theory and achievement goal theory during game designing and fills theoretical gap. Moreover, unlike with the most previous studies, it emphasized on the importance of non-digital games, since digital games have gained a place in language studies due to the rapid development of technology. Thus, the use of well-designed non-digital games can be an efficient way for learners to enhance their basic skills, without demanding electronic materials (Zainuddin, Perera, et al., 2020). Therefore, the study addresses practical knowledge gap. Similarly, most of the studies on gamification were not included game elements to increase competition and interest. Thus, the current study considers various game elements and the impact they have on the vocabulary learning outcomes since the benefits of gamification can only be realized when the games include the right elements (Buckley & Doyle, 2017; Bouchrika et al., 2021).

## **Objective of the Study**

### **General Objective**

The general objective of this study was to examine the effects of gamification on students' vocabulary achievement and interaction.



### **Specific Objectives**

The specific objectives of this study were:

- To determine if gamification significantly improves students' vocabulary achievement.
- To check if gamification has a significant effect on students' interaction.
- To identify the teacher's and students' views about learning vocabulary through gamification.
- To assess the challenges that students and teachers face in practicing gamification.

### **Research Questions**

The study tried to respond the following research questions:

- Does gamification notably affect students' vocabulary achievement?
- Does gamification significantly influence students' interaction?
- What are the students' and the teacher views on gamification used in teaching vocabulary?
- What are the challenges that students and teachers face in practicing gamification?

### **III. Significance of the Study**

This study can significantly contribute in several ways. As highlighted in the statement of the problem section, there is a dearth of research in the field of experimenting game-based English language teaching in Ethiopia. Thus, this study might showcase how gamification could particularly improve students' vocabulary achievement. The study can also be an important reference for future researchers who aspire to carry out studies in the same field. Material writers and policy makers may also take into consideration how gamification could be integrally employed to the existing practice of teaching English in the Ethiopian context. Students could also be benefited as this study may develop their retention by motivating them and meeting individual learning needs beyond conventional methods.

Above all, English teachers could benefit from this study as it provides them with a longitudinal examination of the effectiveness of gamification in the teaching of new words. Needless to say, researchers are deemed to continue to examine gamification of language skills in general and vocabulary lessons in particular.

#### **Theoretical Framework**

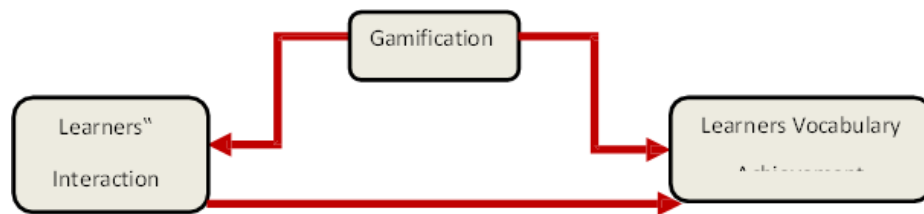
This study focused on effects of gamification on learners' vocabulary comprehension and classroom interaction. As the major consideration of gamification in teaching and learning process is its motivational and interactive power, the research was based on motivation and constructivism theories (Anthology, 2017; Ross, Perkins, Bodey, 2016 & Sun et al., 2017).



Motivational theory was chosen, for it emphasizes motivation: the main characteristic of games that could keep the students on the track and as it has the potential to create an enjoyable learning environment. Constructivism learning theory was also used as it emphasizes the role of social interaction in learning since learning is a social activity and gamified lessons are important to lead students to interact with each other and support each other.

### Conceptual Framework

Conceptual framework is a structure of interrelated concepts that provides broad understanding of phenomena based on the theory explained in the theoretical framework (Trybus, 2015). In a conceptual framework, researchers present the relationship among the variables of the research in figure or graph form. Thus, the conceptual framework of this study is centered on the research variables: gamification, vocabulary learning and interaction.



### Research Methodology

#### Research Paradigm

The focus of the study was to check if gamification has significant effect on students' vocabulary achievement and classroom interaction. Thus, pragmatism was used, because it permits using mixed methods to triangulate the data. Likewise, it emphasizes on the research problem than the method to seek a solution. Hence, it enables researchers to focus on the research problem and it does not compel them to choose a particular research method, technique or procedure (Creswell & Clark, 2007).

#### Research Design and Method

This study examined the effects of gamification on students' vocabulary achievement and classroom interaction. To do this, a quasi-experimental, non-equivalent design was chosen. According to Mills and Gay (2016), non-equivalent design is a quasi-experiment used to assess the relative effects of treatments that have been assigned to groups of participants has similar background. It also helps the researcher to afford cause-effect interpretations by using pre- intervention and post-intervention measurements. Moreover, as pragmatism was utilized in this research, „mixed methods“ was applied since this method is vital to improve the credibility of the research findings (Muijs, 2004).

In this study, gamification was the independent variable; the dependent variables were the students' vocabulary achievement and level of interaction; the teaching materials,



motivation and classroom environment were the variables that intervened during the practice of gamification.

#### **IV. Samples, Sampling Techniques and Sampling Procedure**

Among the six government secondary schools in and around Korem in 2025, Korem secondary school was selected using convenient sampling technique and one grade 9 EFL teacher, who taught grade 9 students in the selected school, was purposively chosen based on his experience and commitment which was confirmed by the school heads. This technique was chosen because it is helpful to select participants based on their easy accessibility (Yalew, 2006; Kothari, 2004).

To select the sample students, from the 4 sections (9th E-H) that the selected teacher taught, I selected 2 sections (9th F and G) using simple random sampling technique as it is simple, has minimum bias and provides equal chance to every item in the population to be selected (Yalew, 2006; Kothari, 2004). In these sections, there were 87 (N=49 males & N=38 females) students. To assign the control and the experimental groups, I used lottery method and 42 students in 9th "G": 25 males and 17 females were assigned in the experimental group whereas 45 students in 9th "F": 24 males and 21 females were the control group. To do this, I extolled the name of the sections on pieces of paper and conducted a lottery.

#### **The Intervention Procedure**

This study is non-equivalent quasi-experimental design, and an experiment was conducted in order to examine whether or not gamification can improve learners' vocabulary skill and interaction. Initially, I prepared a training material including basic concepts of gamification, gamification elements, the reason for using game-based vocabulary teaching, the rules to practice different games, and how games develop interaction with different illustrations to make the participant teacher clear on how to design gamified tasks and teach vocabulary in a gamified way. In doing so, I referred the current grade 9 English textbook published by MoE; "Check Your Vocabulary for Academic English" by Porter (2008); Learning Vocabulary in Another Language (Nation, 2001), Test your English Vocabulary (McCarten, 2007); types of classroom interaction (Brill & Park, 2008) and the strategies of promoting classroom interaction (Aldabbus, 2008) to prepare the material. In the material, multi games (word association, whisper, word chain, memory challenge, bingo, word train, Pictionary and vocabulary board games) were included to enhance learners' vocabulary skill. In addition, training was also given for the participant teacher on the rules and procedures of the selected games and on how to employ it in the classroom to teach vocabulary during the treatment period.

During the intervention, different games focused on meaning, language, encouragement and practice were employed to the experimental group students. Meaning-focused games focus on various meanings a single word can have. Through these games, learners get an opportunity to learn different meanings of a word. Language-focused games, on the other hand, deal with how word meaning is contextually different regarding to grammar rules. Likewise, encouragement- focused



games stress on encouraging learners to memorize new words by showing how they were important in the game. Besides, Practice-focused games emphasize on teaching what meanings the new word has and what part of speech it is; in order that, students could apply it to a real-life situation. Hence, students can practice the new words effectively and could spell, pronounce, and write the contextual meaning of different words passing through the following four stages.

During the intervention, students learned vocabulary through three vital stages. At the presentation stage, the teacher should gamify words before students practice it. Then clues are given on how to practice the game and writes basic procedures of the game on the board. Later students are encouraged to engage in the game. In order to make students understand well about the selected game, the teacher guides the students through the game, access to relevant materials provide explanations, ensuring that the selected words presented in a clear and understandable manner, support students understanding of the game and the contents) and motivation.

In the second stage called practice stage, the planned game comes to life. Thus, learners are exposed to game-based lesson using effective procedures and materials in order to improve their problem solving and vocabulary recalling skills. Hence, students are asked to practice the game together with their members and repeat the action. After practicing the game, students could spell, pronounce, and write the contextual meaning of different words. Moreover, in the third stage called practice stage, tasks that are different from the ones used for practice will be used. As a result, students are involved in the game to enhance their vocabulary skill. In this stage, learners could learn the form, meaning and function of words in order that, students could apply it to a real-life situation.

After the intervention held for 8 consecutive weeks, the students' vocabulary achievement and level of interaction was checked through classroom observation, questionnaire, tests and an interview.

### **Data Gathering Instruments**

In this study, both quantitative and qualitative instruments were applied to overcome the limitation of using one type of instruments. According to Patton (2002), Valerie and Magdalena (2008), multiple instruments of gathering information are required to provide a deep outlook. Therefore, the quantitative data was collected using tests and questionnaire. Besides, the qualitative data was obtained through semi-structured interview and classroom observations.

Classroom observation was conducted at the pre-, while and post-intervention stages. Pre- intervention observation was done to see how the teacher assisted the students and how they interact with him and classmates during vocabulary teaching. The while-intervention observation aimed to check how the teacher implemented gamification in teaching vocabulary and how the students reacted to the games. Besides, this stage observation was to crosscheck if the teacher did the same in the classroom as what he said when interviewed. The post-treatment observation was to observe the impacts of gamification on students' lexical skill and interaction. I



collected observational data using the check list I adapted from the work of Holmes (2013).

Tests were given to both groups to assess students' word recognition, understanding, usage, and context application skills before and after the intervention. Thus, Six vocabulary tests: three at pre- and three at post-intervention phases were administered. The pre- and the post tests were similar in content, number of items, instruction, type, difficulty level and weight. Besides, all questions were constructed from the text book based on the standards of vocabulary levels test (VLT). Vocabulary Levels Test is the most widely used measure of L2 lexical knowledge (Read, 2000). Each test had 20 questions and four parts: multiple-choice, fill-in-the-blank, matching and word association. But, the questions for the pre- and the post tests were different. The tests were reviewed by colleagues.

Semi-structured interview was also implemented with the participant teacher and the eight randomly selected students since it is one of the main data collecting tools in experimental research (Leech, 2002). In the interview, ten questions (five for the teacher and five to the students) were included. The interview was to review what the students and the teacher viewed about gamification; how they practiced it; what challenged them and how they solved it. The interview with the teacher was conducted before the intervention to avoid bias. However, the interview with the selected students was done after the practice of gamification.

Likewise, questionnaire was used in this study since it is vital to provide more information and meaning to the rater, and increases reliability (Kothari, 2004). Hence, one set of questionnaire (Likert scale questionnaire) was employed since it is easily understood by the respondents, and it is not difficult to draw conclusion from the responses (Kothari, 2004). The Likert scale was adapted from Koivisto and Hamari (2019) and comprised 10 items; the items were interrelated and focused on teachers and learners' views of gamification, vocabulary comprehension, and level of interaction. For these questions, respondents were asked to express their degree of agreement on a 4 point likert scale from 1 (strongly disagree) to 4 (strongly agree). In questions 1-4, subjects were asked to evaluate their view towards gamification. Respondents were asked to express their level of agreement on how gamified vocabulary learning enhances their vocabulary comprehension in questions 5-7. Following this, the last three questions (items 8-10) asked respondents to express their level of interaction. The questionnaire was administered to the participant students at pre-and post-intervention stages. (See the table below)

4= Strongly Agree 3= Agree 2= Disagree 1 = Strongly Disagree

| No. | Items                                      | Scales |   |   |   |   |   |   | Total |    |   |
|-----|--------------------------------------------|--------|---|---|---|---|---|---|-------|----|---|
|     |                                            | 4      | % | 3 | % | 2 | % | 1 | %     | No | % |
| 1   | Games motivate me to progress in learning. |        |   |   |   |   |   |   |       |    |   |



|    |                                                                                |  |  |  |  |  |  |  |  |  |  |
|----|--------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|
| 2  | Learning games help develop English vocabulary skill.                          |  |  |  |  |  |  |  |  |  |  |
| 3  | Games give me the feeling that time passes quickly.                            |  |  |  |  |  |  |  |  |  |  |
| 4  | Games cause me to stop noticing when I get tired.                              |  |  |  |  |  |  |  |  |  |  |
| 5  | Gamification really helped me learn the vocabulary sets more and better.       |  |  |  |  |  |  |  |  |  |  |
| 6  | Gamification enabled me to practice on vocabulary exercises more.              |  |  |  |  |  |  |  |  |  |  |
| 7  | My scores on vocabulary tests increased since learning through gamification.   |  |  |  |  |  |  |  |  |  |  |
| 8  | Gamification impacts my desire to interact with others.                        |  |  |  |  |  |  |  |  |  |  |
| 9  | Gamification allows me frequently work with classmates and the teacher.        |  |  |  |  |  |  |  |  |  |  |
| 10 | Gamification encouraged us to collaborate and discuss ideas during activities. |  |  |  |  |  |  |  |  |  |  |

Table 1: participants' viewpoints on Gamification

#### Data Collection Procedure

The quantitative data was gathered at the pre- and post- treatment phases using vocabulary tests and questionnaire in the following processes. At the beginning, we arranged time, informed the participant students and gave them the tests at different days. The three pre-tests were administered a week before the treatment to see if there had any significant difference in vocabulary mastery between the two groups. After the pre-tests, the experimental group got two months treatment. Then, immediate post-tests were offered to both groups to check if the students' vocabulary comprehension skill significantly improved after the intervention. I made the tests marked by one randomly selected independent rater (one grade 9 EFL teacher) in



order to avoid bias and the average score was taken. To collect data using the questionnaires, first, we translated the questions in Amharic and administered to the participant students. Then, after the participants replied, we collected the papers to calculate and compare the pre- and the post- treatment results. The collected data was compared using paired samples t-test and percentages to explore the effects of the treatment.

The qualitative data was collected through classroom observation and semi-structured interview for the teacher and students. To collect data through observation and semi-structured interview, at the beginning, I made the participants clear on how and why they were observed and interviewed. To conduct the observations, I prepared observation check list that focused on the variables of the research and made classroom observations using the prepared checklist. Likewise, to collect data through semi-structured interview, I prepared the interview questions; then after, consent was made with the interviewee and time was arranged. At last, the teacher and selected students were interviewed and the data was recorded and analyzed.

#### **Methods of Data Analysis**

The pre-test and the post- test results were analyzed using a paired sample t-test. Paired sample t- test was chosen as it enables to test the same individuals at different point of time to check what difference is found on the dependent variable before and after the experiment. Moreover, since the participants are the same in the pre- and post-tests, it is more powerful in terms of reducing further causes of sample dissimilarity other than the independent variable (Braun & Clarke, 2006) (Kothari, 2004). Likewise, the data from the Likert scale questionnaires was explored using percentage. This method was applied to check if learners' vocabulary comprehension and level of interaction differs before and after implementation of gamification.

The qualitative data obtained from the interviews and the classroom observations was analyzed using thematic analysis. It is a common method for analyzing qualitative data in order to gain insights and understanding of the participants' perspectives through segmented, classified, summarized and reconstructed the data (Braun & Clarke, 2006; Patton, 2002). I preferred this analysis method because it is flexible and can be used with various research methods by identifying codes, descriptive themes and patterns from the original data and developing new concepts and explanations that are related with them.

#### **Results and Discussion**

The aim of this study was to examine if gamification could considerably affect students' vocabulary achievement and classroom interaction, and the pre- and the post-treatment result of the experiment are summarized below.

#### **V. Effects of Gamification on Students' Vocabulary Achievement**

To address the first research question of what is the effect of gamification on students' vocabulary achievement, test was utilized. Hence, three consecutive tests were administered for the two groups as a pre-test to find out if there was any



significant difference between the two group students' level of vocabulary at the beginning of the study. As indicated in the table 1 below, the independent sample T-test analysis indicated that the participants were not significantly different in terms of their vocabulary levels across the three pre-tests.

Thus, the resulting p-values were 0.291 and 0.286 ( $> 0.05$ ), for the control and experimental groups respectively, indicating that the similarity of the two groups' vocabulary comprehension before the intervention. As well, in order to test the assumption that gamification has a significant effect on student vocabulary achievement, the researcher utilized a post-test after the 8 weeks treatment given for the experimental group. Hence, three post-tests were administered to both groups and the P-value was 0.00 which is  $< 0.05$  (see table 4.2). This revealed the experimental group significantly did better than the control group, and teaching vocabulary through gamification was significant to the students' vocabulary achievement. (See tables 2 & 3).

| Group                  | N  | Mean  | Std. Deviation | Std. Error Mean |
|------------------------|----|-------|----------------|-----------------|
| Pretest1 Control       | 36 | 8.42  | 2.500          | .417            |
| Pretest1 Experimental  | 38 | 8.13  | 2.315          | .376            |
| Posttest1 Control      | 36 | 12.36 | 1.659          | .276            |
| Posttest1 Experimental | 38 | 9.39  | 1.346          | .218            |
| Pretest2 Control       | 36 | 8.69  | 1.431          | .238            |
| Pretest2 Experimental  | 38 | 8.50  | 2.345          | .380            |
| Posttest2 Control      | 36 | 12.44 | 1.539          | .256            |
| Posttest2 Experimental | 38 | 9.97  | 1.652          | .268            |
| Pretest3 Control       | 36 | 8.67  | 1.757          | .293            |
| Pretest3 Experimental  | 38 | 9.08  | 1.617          | .262            |
| Posttest3 Control      | 36 | 13.03 | 1.383          | .231            |
| Posttest3 Experimental | 38 | 10.05 | 1.451          | .235            |

Table 2: Paired Sample Statistics on Students' Pre- & post-intervention tests results

|          |                 | Levene's Test for Equality of Variances |      | t-test for Equality of Means |    |                 |                 |                       |                                           |       |
|----------|-----------------|-----------------------------------------|------|------------------------------|----|-----------------|-----------------|-----------------------|-------------------------------------------|-------|
|          |                 | F                                       | Sig. | T                            | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference |       |
|          |                 |                                         |      |                              |    |                 |                 |                       | Lower                                     | Upper |
| Pretest1 | Equal variances | .407                                    | .525 | .509                         | 72 | .612            | .285            | .560                  | -.831                                     | 1.401 |



|           |                             |       |      |        |        |      |       |      |        |       |
|-----------|-----------------------------|-------|------|--------|--------|------|-------|------|--------|-------|
|           | assumed                     |       |      |        |        |      |       |      |        |       |
|           | Equal variances not assumed |       |      | .508   | 70.781 | .613 | .285  | .561 | -.834  | 1.404 |
| Posttest1 | Equal variances assumed     | 1.254 | .267 | 8.467  | 72     | .000 | 2.966 | .350 | 2.268  | 3.665 |
|           | Equal variances not assumed |       |      | 8.419  | 67.465 | .000 | 2.966 | .352 | 2.263  | 3.670 |
| Pretest2  | Equal variances assumed     | 4.869 | .031 | .428   | 72     | .670 | .194  | .455 | -.712  | 1.101 |
|           | Equal variances not assumed |       |      | .433   | 61.712 | .666 | .194  | .449 | -.703  | 1.092 |
| Posttest2 | Equal variances assumed     | .002  | .962 | 6.648  | 72     | .000 | 2.471 | .372 | 1.730  | 3.212 |
|           | Equal variances not assumed |       |      | 6.661  | 71.981 | .000 | 2.471 | .371 | 1.731  | 3.210 |
| Pretest3  | Equal variances assumed     | .163  | .688 | -1.051 | 72     | .297 | -.412 | .392 | -1.194 | .370  |
|           | Equal variances not assumed |       |      | -1.049 | 70.671 | .298 | -.412 | .393 | -1.196 | .372  |
| Posttest3 | Equal variances assumed     | .013  | .910 | 9.018  | 72     | .000 | 2.975 | .330 | 2.317  | 3.633 |
|           | Equal variances not assumed |       |      | 9.030  | 71.996 | .000 | 2.975 | .329 | 2.318  | 3.632 |

Table 3: Statistical Analysis of Independent Samples T-test

The data from the students and the teacher interview also indicated the students' vocabulary skill improvement. Through the interview, the students claimed gamification helped them to remember and understand words better, since it incorporated elements such as visuals and interactives. Moreover, learners' lexical achievement was assessed before and after the intervention through Likert scale questionnaire. From the 10 items, items from no. 5 to 8 concerned about the role of gamification towards students' vocabulary comprehension; and the percentage



statistics indicated strong agreement of 54% of respondents and the agreement of 31% of respondents. This illustrates that students' interest in vocabulary achievement may be provoked and sustained by playing games that they help in the improvement of English-lexical skill. (See table 4 below).

4= Strongly Agree 3= Agree 2= Disagree 1 = Strongly Disagree

| Items | Pre-intervention |    |    |    |    |    |    |    | Total |     | Items | Post-intervention |    |    |    |    |    |   |   | Total |     |
|-------|------------------|----|----|----|----|----|----|----|-------|-----|-------|-------------------|----|----|----|----|----|---|---|-------|-----|
|       | Scales           |    |    |    |    |    |    |    |       |     |       | Scales            |    |    |    |    |    |   |   |       |     |
|       |                  |    |    |    |    |    |    |    | 4     | %   |       |                   |    |    |    |    |    |   |   | 3     | %   |
|       | 1                | 4  | 10 | 8  | 21 | 13 | 34 | 12 | 31    | 38  |       | 100               | 1  | 21 | 55 | 13 | 34 | 3 | 7 | 1     | 3   |
| 2     | 6                | 16 | 10 | 26 | 11 | 29 | 11 | 29 | 38    | 100 | 2     | 19                | 50 | 12 | 31 | 5  | 13 | 2 | 5 | 38    | 100 |
| 3     | 3                | 7  | 9  | 23 | 12 | 31 | 14 | 37 | 38    | 100 | 3     | 23                | 60 | 13 | 34 | 1  | 3  | 1 | 3 | 38    | 100 |
| 4     | 4                | 10 | 7  | 18 | 13 | 34 | 14 | 37 | 38    | 100 | 4     | 20                | 52 | 10 | 26 | 6  | 16 | 2 | 5 | 38    | 100 |
| 5     | 5                | 13 | 8  | 21 | 13 | 34 | 12 | 31 | 38    | 100 | 5     | 22                | 58 | 11 | 29 | 4  | 10 | 1 | 3 | 38    | 100 |
| 6     | 7                | 18 | 9  | 23 | 12 | 31 | 10 | 26 | 38    | 100 | 6     | 22                | 58 | 13 | 34 | 1  | 3  | 2 | 5 | 38    | 100 |
| 7     | 4                | 10 | 7  | 18 | 11 | 29 | 16 | 42 | 38    | 100 | 7     | 17                | 45 | 11 | 29 | 7  | 18 | 3 | 7 | 38    | 100 |
| 8     | 3                | 7  | 8  | 21 | 10 | 26 | 17 | 45 | 38    | 100 | 8     | 19                | 50 | 14 | 37 | 4  | 10 | 1 | 3 | 38    | 100 |
| 9     | 5                | 13 | 10 | 26 | 12 | 31 | 11 | 29 | 38    | 100 | 9     | 21                | 55 | 13 | 34 | 2  | 5  | 2 | 5 | 38    | 100 |
| 10    | 7                | 18 | 9  | 23 | 10 | 26 | 11 | 29 | 38    | 100 | 10    | 18                | 47 | 15 | 39 | 2  | 5  | 3 | 7 | 38    | 100 |

Table 4: Percentage Statistics



## **VI. Effects of Gamification on Students' Classroom Interaction**

The second research question of this study was to examine the effect of gamification on students' classroom interaction. It was checked using questionnaire, classroom observations and semi-structured interview. Thus, it has been discussed and suggested that gamification can help students become more interactive since they receive encouraging feedback, which leads them forward and increases their level of concentration and inspiration to interact and achieve their vocabulary. From the classroom observations in the pre-, while, and post-intervention phases, most students in the experimental group showed greater improvement in their interaction due to the teacher's improvement to direct the teaching-learning process, identify the level of students, the way he correct students' mistakes, motivate students to participate in the teaching-learning process, and due to the elements of gamification like leaderboards, badges, and points; this can improve their confidence and level of interaction.

The students' interview also verified the experimental group's higher level of interaction due to the cooperative atmosphere created by gamification. Hence, 87% of the interviewee students said gamified lessons enhanced their confidence, interaction and vocabulary learning experience. The results of this study were also supported by the study conducted by Law et al. (2020), which concluded that the use of games in the classroom encourages students to participate actively in the lesson and supports a deep learning approach due to its interactive and competitive nature.

Moreover, the EFL teacher responded: "Gamification is an effective technique of teaching that greatly improves the ability of students to interact. This method fosters constant practice, which is essential for making students active, participatory, alert and ready to suggest their brilliant ideas. Because games can be used to develop interaction among the learners since the learners are supposed to interact with each other when they are playing and trying to achieve learning goals. Furthermore, gamification offers instant feedback and self-assessment possibilities, enabling students to provide needed information on the challenges the students are encountering in the lesson so that they will be able to provide diagnostic measures to address the challenge."

The findings from the questionnaire also revealed that gamification boosts interaction by changing tasks in to engaging, game-like experiences through the game elements. In the questionnaire, items from no. 8 to 10 concerned about the role of gamification towards students' classroom interaction; and the percentage statistics indicated strong agreement of 51% of respondents and the agreement of 37% of respondents. This illustrates that gamification positively influences positive interaction by making tasks fun and rewarding. (See table 4 below). From the above evidences, one can conclude that gamification significantly improved learners' lexical skill competition and interaction.

## **Students' and Teacher's Views on Gamification**

The third research question of this study was to examine grade 9th students and teachers' views towards the use of gamification in English vocabulary teaching. To



check how the students and the teacher viewed gamification, interview and questionnaire were made. Through the teacher's interview, gamification can help students become more motivated to study since they receive encouraging feedback, which pushes them forward and increases their level of interest and stimulation to learn. In explaining this, he put: "gamification has a good benefit for students' vocabulary achievement as well as effective interaction. It made me more motivated to design tasks in a gamified way and to do my best to teach the vocabulary."

Moreover, from the students' interview; they viewed that gamification has the potential to significantly increase their motivation to learn and read more. Strengthening this idea, S4 said, "I was excited to learn vocabulary through gamification, because I could learn the skill and answer questions easily and funnily. Similarly, it highly attracted my attention in class throughout the lesson and at the same time increased my interaction in class which fostered my motivation and interest that plays an important role in my lexical competency." The results of the interview were also supported by the study conducted by Maji et al., (2022), which concluded that gamification facilitates students' performance in vocabulary achievement.

The findings from the questionnaire also revealed that most of the respondents (74%) perceived it positively. This clarifies that gamification positively influences both the teacher and the students as it fosters a cooperative atmosphere where students are motivated to practice and advance their vocabulary competency.

#### **Challenges Students and Teachers Faced in Practicing Gamification**

The fourth research question was to explore and analyze the challenges associated with employing a gamification technique to the achievement of lexical competency among students. To assess the challenges in practicing gamification, interview and observation were made. As it was discussed in the interview with the teacher, he explained that many students felt it was taking them away from the focus on vocabulary learning. They more focused on the game and earning points than on comprehending the vocabulary. However, it could be improved by having more balance between the gamification and the actual lesson. Likewise, the inability to finish games in the allotted time, noisy environment and difficulty of some games were the other challenges that encountered both the teacher and students.

Besides, both the teacher and students were seen facing challenges in using gamification during the classroom observations. For example, the teacher was sometimes seen unable to properly apply the games and manage the time and the classroom. This sometimes made the students move a lot and talk too much when they engaged in a game. In addition, some of the selected games would sometimes not be motivating, or would take too long time. Yet, it could be improved by selecting appropriate games, making it more attractive, rewarding, and balance the level of the game challenge.

### **VII. Conclusions**

Gamification has a noticeably progressive impact on achieving students' vocabulary skill, as it improves motivation, interaction, and confidence in the teaching/learning



process. By integrating the key game elements such as points, levels, leader boards, badges, and challenges, gamified learning environments create a more interactive atmosphere where students feel encouraged to enhance their vocabulary skill. Several studies have revealed that game-based way of teaching lead to substantial improvements in students' lexical competence. This is basically important for grade nine students as it is the transitional level to English as the primary medium of instruction in the research area and has triggered challenges.

### Recommendations

To enhance students' vocabulary skill, it is recommended that EFL teachers should include gamification in teaching vocabulary; so that, they could get chance of engagement, interaction and motivation to learn. Moreover, teachers should realize the difficulty level of the games since games are likely to be demotivating if they are too difficult. The teachers should also present learners with different types of vocabulary games; in order that they could get variety of vocabulary learning experience.

### REFERENCES

1. Abiy, Zewdu. (2017). Challenges in Ethiopian teacher education pedagogy: Resistance factors to innovative teaching-learning practices. *A Journal of Spread Corporation*, 6 (1), 39-55.
2. Abiyot, Eshetu. (2006). Factors influencing academic performances of trainees in Kotebe College of Teacher Education. Unpublished M.A. Thesis, Addis Ababa: Addis Ababa University.
3. Aldabus, S. (2008). An investigation in to the impact of language game on classroom interaction and pupil learning in Libyan EFL primary schools. Unpublished PhD Thesis, New-castel University.
4. Anthology, T.B.V. (Producer). (2017, May 17, 2018). Self-Determination Theory. Retrieved from <https://www.com/watch?v=m6fm1gt5YAM>.
5. Apriandari, Tessa. (2019). Improving Students' English Vocabulary Through the Use of Riddles Technique (an Expermental Research for the Second Year of Students at Mts DarulIhsan Aceh Besarin Academic Year 2018/2019).
6. Bilgin, C. U., Baek, Y., & Park, H. (2015). How debriefing strategies can improve student motivation and self-efficacy in game-based learning. *Journal of Educational Computing Research*, 53(2), 155–182.
7. Bintz, W.P. (2011). Teaching Vocabulary across the Curriculum. *Middle School Journal*.44-52.
8. Boersma, E., & Manendante Mulugeta (2016). Teachers' Perceptions towards using language games in teaching EFL to young learners in two primary schools in Bahir-Dar, *Ethiopian Journal of Language, Culture, and Communication*. 1 (2), 105-124.
9. Braga, P.H.C. (2019). Game Concepts in Learning and Teaching Process. In *Handbook of Research on Immersive Digital Games in Educational Environments* (pp. 1-34). IGI Global.



10. Booth, D. W. (2014). Scaffolding content-area vocabulary instruction for English learners (Doctoral dissertation). Retrieved from Pro-Quest Dissertations & Theses Global (Order No. 3621157)
11. Bouchrika, I., Harrati, N., Wanick, V., & Wills, G. (2021). Exploring the impact of gamification on student engagement and involvement with e-learning systems. *Interactive Learning Environments*, 29(8), 1244–1257. <https://doi.org/10.1080/10494820.2019.1623267>.
12. Braun, V. & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative research in psychology*. Vol.3. 77-101.
13. Buckley, P., & Doyle, E. (2017). Gamification and student motivation. *Interactive Learning Environments*, 24(6), Article 6. <https://doi.org/10.1080/10494820.2014.964263>
14. Cancino, M., & Castillo, G. (2021). “Gamification: How does it impact L2 vocabulary learning and engagement?”, *Electronic Journal of Foreign Language Teaching*, 18/2, 156–171. <https://doi.org/10.56040/ghcc1824>.
15. Central Intelligence Agency (CIA). (Accessed 2017, February). Ethiopia. The World Factbook. Retrieved from <https://www.cia.gov/library/publications/resources/>.
16. Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: SAGE.
17. Dessalegn, Oljira (2015). Study on problems of vocabulary teaching techniques. English teachers use in Holeta Primary Schools: Grade seven in focus. *International Journal of Science and Research*, 6 (6), 497-505.
18. Eshetu Mandefro, Mebratu Mulatu, Tesfaye Abebe, and Yohannes Yona (2016). Perception of students and English language teachers towards English language instruction: The case of schools in Sidama Zone, Ethiopia. *International Journal of Humanities and Social Sciences* 8(4), 1-9.
19. Halpern, H. (2001). Identity and language learning: Gender, ethnicity, and educational change. *Journal of Adolescent & Adult Literacy*, 44(8), 743-745. Retrieved from <http://onlinelibrary.wiley.com/journal>
20. Huyen, N., & Nga, K. (2003). Learning vocabulary through games. *Asian EFL Journal*. 5 (4), 90 105.
21. Kothari, C. (2004). *Research Methodology Methods and Techniques*. 2nd Ed. Mumbai: New Age International (P) Ltd., Publishers.
22. Koivisto J., Hamari J. Demographic differences in perceived benefits from gamification. *Computers in Human Behavior*, 2014, vol. 35, pp. 179–188.
23. Law, L., Lau, M., Leung, Y. W., Kwong, T., & Wong, E. Y. W. (2020). Gamification for team work skills: can a challenge-based online tournament help students learn new knowledge collaboratively in teams? *Global Research in Higher Education*, 3(2), 63. <https://doi.org/10.22158/grhe.v3n2p63>
24. Lee, J.J.; Hammer, J. Gamification in education: What, how, why bother? *Acad. Exch. Q.* 2011, 15, 146.
25. Leech, B. L. (2002). “Asking Questions: Techniques for Semi structured Interviews.” *PS: Political Science & Politics*, 2002, 35, 665–668.



26. Legault, L. (2017). Self-Determination Theory. In Encyclopedia of Personality and Individual Differences (pp. 1-9).
27. Manendante, Mulugeta. (2018). Effects of Vocabulary Games on Primary School Students' English Vocabulary Learning (A PhD Dissertation) in Teaching English as a Foreign Language, Bahir Dar University.
28. McCarten, J. (2007). Teaching vocabulary lessons from the corpus lessons for the classroom (1st ed.). New York: Cambridge University Press.
29. McFarland, J. (2017). The Condition of Education. 2017 (NCES 2017-144). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from <https://nces.ed.gov/pubsearch/pubsinfo.asp>.
30. Mills, G. E., & Gay, L. R. (2016). Educational Research, 11th Edition Competencies for Analysis.
31. Minda Mamo. (2003). The effectiveness of current vocabulary teaching techniques in facilitating production in junior schools: Grade seven in focus. Foreign Language and Literature: Addis Ababa: Addis Ababa University.
32. Ministry of Education (MoE). (2017). Ethiopian Education Development Roadmap: An integrated Executive Summary. Education Strategy Center.
33. Morris, T., & Leavey, G. (2006). Promoting phonological awareness in nursery-aged children through a Sure Start Early Listening programme. International Journal of Early Years Education, 14(2), 155-168.
34. Muijs, D. (2004). Doing Quantitative Research in Education. 1 Oliver's Yard 55 City Road London EC1Y 1SP: SAGE Publications.
35. Nation, P. (2001). Learning vocabulary in another language. Cambridge: Cambridge University Press.
36. Patton, M. Q. (2002). Qualitative research and evaluation methods (3rd ed.). Sage Publications, Inc.
37. Porter, D. (2008). Check your vocabulary for academic English. A & C Black Business Information and Development.
38. Rahutami, R., Suryantoro, S., & Rohmadi, M. (2019). Traditional Games versus Digital Games: Which is superior?. In INCOLWIS 2019: Proceedings of the 2nd International Conference on Local Wisdom, INCOLWIS 2019, August 29-30, 2019, Padang, West Sumatera, Indonesia (p. 207). European Alliance for Innovation.
39. Read, J. (2000). Assessing vocabulary. United Kingdom: Cambridge University Press.
40. Rohani, M. & Pourgharib, B. (2013). The effect of games on learning vocabulary. International Research Journal of Applied and Basic Sciences, 4 (11), 3540-3543.
41. Ross, M., Perkins, H., & Bodey, K. (2016). Academic motivation and information literacy self-efficacy: The importance of a simple desire to know. Library & Information Science Research, 38(1), 2-9. doi:10.1016/j.lisr.2016.01.002
42. Samuel H. (2017). Investigating the effects of digital game (Viber-enhanced Vocabulary Teaching) on undergraduate students' Vocabulary Retention. Addis Ababa: St Marry University.
43. Shintani, N. (2012). Repeating input-based tasks with young beginner learners. RELC Journal: a Journal of Language teaching and Research, 43(1), 39-51.



44. Sileshi, C. and Tamene K. (2022). Learners' Needs Analysis for English for Academic Purpose in Ethiopian Higher Education Institutions: The case of Wachemo University Freshman Students. *Cogent Education*, 9 (1), 2026190 DOI: 10.1080/2331186X.
45. Solano, P. (2022). "Game-based learning in higher education: The pedagogical effect of Genially games in English as a foreign language instruction", *International Journal of Educational Methodology*, 8/4, 719–729. <https://doi.org/10.12973/ijem.8.4.719>.
46. Sun, H., Li, W., & Shen, B. (2017). Learning in Physical Education: A Self-Determination Theory Perspective. *Journal of Teaching in Physical Education*, 36(3), 277-291. doi:10.1123/jtpe.2017-0067.
47. Teller, M. (2008). The effect of gestures on 2nd language memorization by young children. *Gesture*, John Benjamins Publishing, 8 (2), pp.219-235.
48. Trybus, Jessica. 2015. "Game-Based Learning: What it is, why it Works, and Where it's Going." New Media Institute. Accessed April 6. <http://www.newmedia.org /game-base learning- what it-is-why-it -works-and-where-its-going.html>.
49. Wang A. (2006). The effect of using Kahoot! For learning—A literature review. *Comput. Educ.* 2006, 149,103818.
50. Yalew Endawoke (2006). *Basic Principles and Applications of Research Methodology*. Third Ed. Addis Ababa: Commercial Press.
51. Yonas, B., Tekle, F., & Tesfaye, G. (2022). First year students' perception of learning vocabulary through games: The case of Jimma University. *Ethiop.j.soc.lang.stud.* Vol. 9.No.2, pp.149-164.
52. Zainuddin, Z., Perera, C. J., Haruna, H., & Habiburrahim, H. (2020). Literacy in the new norm: Stay- home game plan for parents. *Information and Learning Sciences*, 121(7– 8), 645– 653.