



GAME-BASED LEARNING AS A CORRELATE OF SECONDARY SCHOOL STUDENT'S PERFORMANCE IN VOCABULARY IN ONDO METROPOLIS IN 21ST CENTURY NIGERIA

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ABSTRACT

The study was conducted to ascertain game-based learning as a correlate of secondary school student's performance in English vocabulary in Ondo metropolis. The study adopted a quasi-experimental design using pretest and posttest one group and a control group. The population for the study comprised all junior secondary school students in Ondo West Local Government Area of Ondo state and the study sample comprised one hundred and sixty (160) JSS2 Students randomly selected from four schools from the local government area. The instruments used to guide the study included Test, puzzle game and lesson plan. The test was used to determine student's performance before and after instruction in the experimental and control groups while the puzzle games and lesson plan were used during instructions. Data collected were subjected to t-test. Findings revealed that there was no significant difference between the pretest scores of students in English vocabulary in the experimental and control groups, there was a significant difference between the pretest and post-test scores of students in English vocabulary in the experimental and control groups; and there was a significant difference between the post-test scores of students taught vocabulary with puzzle games and those in the control groups. The study therefore recommended that, junior secondary school students should be exposed to game-based method of instruction during English vocabulary lessons, in-service trainings, seminars and workshops be regularly organized for English language teachers so as to enhance their teaching methodologies and proficiency

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1. Introduction

The teaching process over the years has been teacher-centred, whereby the teacher, who is the custodian of knowledge, only engages the learners in listening in the classroom situation while the learners become passive. Agitations have been that learning could be best achieved and sustained when learners are actively involved. Given this, there have been various types of research into teaching methods that could enhance maximum student's achievement and performance in all subjects of study, including the English Language. English language is one of the prerequisites for admission into institutions of higher learning in Nigeria. English Language curriculum is structured into aspects such as oral, vocabulary, comprehension, grammar and essay writing. Students must have good performance in all these aspects to score good grades that would enable them to gain admission into tertiary institutions. For learners to achieve success in all aspects of the English language, there are so many factors that could be

considered, which include, among others, the teacher's competence, the teacher's methods and techniques, the availability of adequate resources, and the teacher-student ratio. Damir, Andrija and Robert (2018) maintained that teachers need a lot of techniques that are relevant to the topics they want to teach. They further explained that how a teacher teaches is as important as what he teaches because learning is the product that teachers are paid for. They explained further that teachers usually give very little thought to considering their teaching styles. Too much time is often wasted in the classroom by asking unnecessary questions and rambling comments. Frequently, the poor teacher who does not have enough preparation on the topic resorts to talks that have little educational significance. Iyewarun (2014) opined that teachers should employ a progressive approach rather than the traditional practice, which can no longer meet the need for modern instructional strategies. Vocabulary is an aspect of the English language that is very important. It is a gateway to connect the other four language skills. Oftentimes, language teachers impose learning new words on the students in traditional ways, which invariably leads to passivity and boredom. The English language learning process has been a traditional phenomenon over the years. However, in recent times, there has been a paradigm shift in the teaching and learning processes. Learning vocabulary is now considered as the primary activity of the students in the classrooms. To achieve greater success in the learning of vocabulary, the language teacher must create various types of attractive methods that could involve students' active involvement. One of which is the game-based learning. Given this, the study examined the use of game-based learning and conventional methods of teaching and its outcome on the performance of students in English vocabulary.

Game-based learning is a technique at the disposal of an English language teacher for teaching English vocabulary. According to Okeke (2011), a game is a form of play governed by certain rules or conventions. It is usually meant to be enjoyed. According to Rogers (2001), game-based learning is aim-oriented, rules-bound and competition-based, which would have an end line to win and connect the learners. A language game is, therefore, students' practice technique. Learning through games can be interesting, exciting and, at the same time, academically rewarding. Games not only improve the learners' command of language but also provide the learners with the opportunities to use the language. Language games include puzzles, pronunciation games, computer-assisted learning games, a game with minimal pairs, twenty questions, a desert island, a guessing game and memory games, among others. For this research, the emphasis would be on pronunciation games using puzzles.

Gibbs (2001) describes games as an activity cooperatively performed by competitors who are goal-oriented, following a set of rules. Games have also been defined as an activity that has a beginning and

an end, which would be defined by the winner. (Rixon 2001). Game-based learning demands cooperation and competition within and among the teams of players. While in the game, players would communicate among themselves using both verbal and non-verbal signs; verbal communication helps develop their competence in their target language and non-verbal guarantees joy and amusement (Rixon, 2001). A Game is a blended mixture of rules of many elements such as rules, oppositions, contests, recreation and learning all at the same time. Lee and Hao (2015). Even if teaching a second language seems a harder task, teachers create games in various contexts which may be utilised for teaching language skills and vocabulary items that could make language learning interest the learners. Shatz and Loschiavo (2005) explained that game-based learning does not only engage students in a fun way by offering interactive competitive learning environments but also provides many other positive features, such as lightening the mood, which boosts students' morale, interest as well as facilitates greater creativity. Wycoff and Pryor (2003) explained that a lightened mood can negate communication apprehension. Khuat & Nguyen (2003) also supported the use of games in teaching vocabulary. They said that games brought about relaxation and fun for students as they learned and retained new words easily. Moreover, games usually involve competition and could keep learners' attention. Vocabulary games brought real-world context into the classroom and encouraged students to use English flexibly and communicatively. Vernon (2009) claimed that games are effective tools to teach vocabulary to young learners. Shanahan, Hermans and Haytko (2006) identify five key characteristics of language learning games. They include:

- The game must relate to the learning outcomes
- The teacher and the students must quickly understand how to play the game
- The game must not become more important than the actual learning
- it must motivate students to perform better
- The students must be able to provide feedback to the teacher on the game

Kim (1995) highlighted the advantages of game-based learning:

1. Motivating and challenging
2. Learning a language which requires a great deal of effort
3. Helping students make and sustain the effort
4. Providing language practice in the various skills- listening, speaking, reading and writing
5. Encouraging students to interact and communicate
6. Creating a meaningful context for language use
7. Bringing real-world context into the classroom, increasing students' use of English in a flexible, meaningful and communicative way
8. Involving friendly competition

9. Keeping students interested in learning the language and;
10. Helping students to learn and hang on to new words more easily

Kahn, Ahmad and Malik (2017) found in their study that using the Applied Model, game-based learning instructional design can enhance students' engagement. They further described the six phases of game-based learning as follows:

1. Considering the needs and characteristics of the learners
2. Considering the objectives and the goals of the lesson or instruction
3. Considering what will be considered acceptable evidence for creating instruction to support the students in making progress towards meeting learning goals
4. Designing, conducting and evaluating the game, selecting games that meet the needs of the learners, planning and developing technical support, and introducing the game in the real-life setting where students will be when they play the game
5. Selecting strategies and resources for students
6. Planning and developing instruction, learning experiences, and reflection for games sessions.

There are various types of games used to teach vocabulary. They include, among others, Kim's game, Word square, Crossword Puzzle, Pelmanism, Bingo, Matching, Noughts and Crosses, and Jumbled words. However, the study adopts puzzle games. The aim of using puzzles in teaching vocabulary is to check students' knowledge about the meaning and spelling of the words.

The activities involved in puzzle games include;

1. Students are assigned to sit in pairs or groups;
2. The teacher prepares a poster with words in the vertical and horizontal rows;
3. The clues are numbered;
4. Students choose the number and use the clue to find out the word on the row that has the clue number;
5. There is a time limit to put words together;
6. The group or pair that put the words together first will be the winner.

It is against this background that the study seeks to find out the effectiveness of game-based learning and conventional methods on secondary school student's performance in English vocabulary in Ondo state. Game-based in the context of this study involves a puzzle game.

2. Statement of the Problem

English vocabulary is an important aspect of the English language. Studies revealed that English language teachers engage in teacher-centred methods, the result of which makes students to be inactive in learning activities. Mobark (2014) declares that teachers do not utilise teaching methods that would enhance student's academic success. The resultant effect is that the subject becomes difficult, and learners become passive, which could invariably lead to poor academic performance in the English language. Observations also revealed that English language teachers shy away from engaging learners in game-based learning because the requirement could be more financially and physically demanding than many other methods. Also, the economic considerations of purchasing the game and the time taken by the instructor to design, pilot and update the material could be highly demanding. Given this, the study sets out to find out the influence of game-based learning *vis-a-vis* puzzle games and conventional methods on secondary school students' performance in vocabulary in the Ondo West Local Government area of Ondo state.

3. Objectives of the Study

The purpose of the study was to:

1. Determine the significant difference between pre-test mean scores of students taught vocabulary with puzzle games in the experimental and control groups.
2. Determine the significant difference between pre-test and post-test mean scores of students taught vocabulary with puzzle games in the experimental and control groups.
3. Find out the difference between the post-test scores of students taught vocabulary with puzzle games in the experimental and control groups.

4. Research Hypotheses

The following research hypotheses were raised to guide the study

1. There is no significant difference between the pretest mean scores of students taught vocabulary development with the puzzle games in the experimental and control groups
2. There is no significant difference between the pretest and posttest mean scores of students taught vocabulary with the puzzle games in the experimental and control groups
3. There is no significant difference between post-test scores of students taught vocabulary with the puzzle games in the experimental and control groups

5. Methodology

The research design adopted for the study involved a quasi-experimental using pre- test–post-test one group and a control group

The design is shown below:

Experimental group 01 x 02

Control group 03 - 04

O1 03 = Pre-test

O2 04 = Post-test

X = Treatment (Game-based learning)

- = Conventional (No treatment)

The independent variable in the study consisted of the method vis a vis game-based learning, while the dependent variable is the performance of the students.

The population of the study consisted of all public junior secondary students in Ondo West Local Government Area of Ondo state. The study sample comprised one hundred and sixty (160) junior secondary school 2 (SS2) students randomly selected from four schools in urban and rural areas of Ondo West. One experimental and one control group were selected from urban and rural areas of the local government area, respectively.

The instrument used to guide the study was the English Vocabulary Performance Test (EVPT), which was designed to determine students’ performance in vocabulary. The instructional package used for the study was puzzle games, and a lesson plan was developed to bring out some vocabulary from the puzzle games. The face and content validity of the instruments were ascertained by experts in the field of education, and the reliability of the instrument (test) was established using a test-retest on twenty students who were not part of the study. This was carried out within two weeks, and data collected were subjected to statistical testing using Pearson Product Moment Correlation Coefficient, and the result yielded 0.85, which was considered adequate for the study. The exercise was carried out for six weeks. A pre-test was conducted during the first week on the sampled schools, after which treatment were given using puzzle games to teach vocabulary for the experimental group in the urban and rural areas while the control group were left with their normal classroom teaching. Thereafter, a post-test was administered to both experimental and control groups to determine students’ performance in vocabulary. Data collected were subjected to statistical analysis using a t-test.

6. Testing of Hypotheses

Hypothesis one

There is no significant difference between the pre-test scores of students in English vocabulary in the experimental and control groups.

Table 1: Independent T-test summary of the difference in the pre-test mean scores of students in English vocabulary in the experimental and control groups

	Variable	N	Mean	St.D	df	t	Sig	P
Pretest	Experimental	80	3.54	3.40	158	0.033	.995	>.05
	Control	80	3.53	3.40				

Table 1 reveals that there was no significant difference between the pre-test scores of students in vocabulary in the experimental and control groups; $t(158) = .033, p > 0.05$. Thus, the null hypothesis was accepted.

Hypothesis Two

There is no significant difference between the pre-test and post-test scores of students taught vocabulary with puzzle games and those in the control group.

Table 2: Paired samples t-test summary of the difference in the pre-test and post-test scores of students taught vocabulary with puzzle games and those in the control group

	Variable	N	Mean	St.D	df	t	Sig	P	η^2
Score difference	Experimental	80	5.97	1.960	158	13.565	.000	<.05	.536
	Control	80	3.53	2.389					

Table 2 reveals that there was a significant difference between the pre-test and post-test scores of students taught vocabulary with puzzle games and the control groups; $t(158) = 13.565, p < 0.05$. Thus, the null hypothesis was rejected.

Hypothesis Three

There is no significant difference between the post-test scores of students taught vocabulary with puzzle games and those in the control group.

Table 3: Paired samples t-test summary of the difference in the post-test scores of students taught vocabulary with puzzle games and those in the control group

	Variable	N	Mean	St.D	df	t	Sig	P	η^2
Post-test	Experimental	80	8.01	1.95	158	6.282	.023	<.05	.199
	Control	80	5.32	1.98					

Table 3 reveals that there was a significant difference between the post-test scores of students taught vocabulary with puzzle games and those in the control groups; $t(158) = 6.282, p < 0.05$. Thus, the null

hypothesis was rejected. The table further reveals that the mean rating of students' performance in the experimental group (mean = 8.01) differs greatly from and higher than their counterparts in the control group (mean = 5.32). The effect ($\eta^2 = 0.199$) reveals that puzzle - games had a large effect. The puzzle games accounted for just a 19.9% change in the academic performance of students in vocabulary.

7. Discussion of Results

The result presented in Table 1 showed that there was no significant difference between the pre-test scores of students in vocabulary in the experimental and the control groups. This showed that students were at the same understanding level in vocabulary due to the same method they were initially exposed to. (the conventional method). The result supports the claim of Damir, Andrija and Robert (2018) that teachers need a lot of techniques that are relevant to the topics they want to teach because how a teacher teaches is as important as what he teaches.

The result in Table 2 revealed that there was a significant difference between the pre-test and post-test scores of students in vocabulary in the experimental and the control groups. The findings are in tandem with the findings of Chen, Tseng and Hsiao (2018) that game design has a larger effect on learning in studies where the game was an adventure versus non-adventure. Also, Kirkland and O'Riordan (2020) in their study found that the class that was exposed to the game performed better than those who did not. The main result of this meta-analysis was a large overall effect size ($d=1.027$) for digital game-based learning on vocabulary acquisition.

The result in Table 3 revealed that there was a significant difference between the post-test scores of students in vocabulary in the experimental and the control groups. The findings are in support of Mayer (2014) that learning with games contributed to the cognitive processing of the learning contents.

8. Findings

The findings of the study revealed that there was no significant difference between the pre-test scores of students in vocabulary building in the experimental and control groups, there was a significant difference between the pre-test and post-test scores of students in vocabulary in the experimental and control groups; and that there was a significant difference between the post-test scores of students in vocabulary in the experimental and control groups.

9. Conclusion

The study concluded that if students are exposed to better methods of teaching, there would be

improved students' performance in vocabulary and overall good performance in examinations.

10. Recommendations

Based on the findings of the study, it was recommended that;

1. Junior secondary school students should be exposed to game-based methods of instruction during vocabulary lessons.
2. English language teachers should embrace the use of game-based learning methods that could enhance students' interest and understanding of vocabulary.
3. Government and philanthropists are encouraged to provide adequate modern instructional resources that could enhance students' maximum involvement and performance in vocabulary.
4. Ministries of Education should organise in-service training, seminars and workshops regularly for English language teachers to enhance their teaching methodologies and proficiency.

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