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Harnessing Two Language Games to Enhance Students' Achievement in English Vocabulary: Implications for Innovation in Second Language Teaching

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Abstract

This study investigated the use of games strategies on Senior Secondary One (SS1) students' achievement in English vocabulary in Apa Local Government Area of Benue State. The study was carried out to determine whether puzzle and scramble games strategies would improve students' achievement in English vocabulary. The study was guided by five research questions and five hypotheses. A non-randomized pre-test and post-test quasi-experimental design was adopted for the study. A sample of 100 students was drawn from three secondary schools in the area. Three intact classes were used for the experimental and control groups. A researcher-made English Vocabulary Achievement Test (EVAT) was used for data collection. Mean and standard deviations were used to answer the research questions, while the null hypotheses were tested using Analysis of Covariance (ANCOVA) at 0.05 level of significance. The result showed that scramble and word-search puzzle games strategies had significant effects on students' achievement in English vocabulary. Findings further revealed that there was no significant difference in the mean vocabulary achievement scores of male and female students taught English vocabulary (Registers) using scramble and word search puzzle games strategies. Based on the findings, it was recommended

among other things that teachers of English language should adopt scramble and puzzle games strategies to enhance students' achievement in English vocabulary. Workshops and seminars should also be organized regularly by relevant educational agencies for teachers on the application of scramble and word search puzzle games strategies in the teaching and learning of English vocabulary in secondary schools.

Introduction

In the teaching and learning of English as Second Language (ESL), vocabulary plays a crucial role in enhancing learners' proficiency. Vocabulary knowledge entails learners' ability to recognize words and their meanings as well as pronouncing and using words effectively and appropriately to foster comprehension and communication. Jude (2016) notes that vocabulary is fundamental and critical to English language learning. Hornby (2010) explains that vocabulary is the totality of words in a particular language. Vocabulary knowledge enhances learners' proficiency in any language because it includes not just words in a language, but also their meanings, orthography, pronunciations, conjunction and context of usage (Gardner, 2009; Decarrico, 2001; Grave, 2000). In order to communicate effectively in foreign or second language, learners need to acquire adequate number of words in that language. However, students' poor proficiency in listening, speaking, reading and writing especially in spellings are as a result of inadequate knowledge of vocabulary (Woolfolk, Winne, Perry & Shapka, 2010). Azar (2012) asserts that vocabulary is an important element in second language (L2) acquisition. Luchini and Serati (2012) note that without grammar, very little can be conveyed, without vocabulary nothing can be conveyed. This is because ideas are expressed effectively only when one has sufficient vocabularies that link the four skills of language together. In order to communicate effectively in second language, students need to acquire adequate number of words and should know how to use them accurately. Vocabulary learning is therefore the heart of language learning and language use.

According to Nation and Meera (2010), vocabulary is part of everyday language skills as it connects both the listening and speaking skills or reading and writing skills. This means that vocabulary is the basic building blocks in the generation and understanding of a sentence in a language. This is because vocabulary of a language is not confined to just meaning of words, it also includes how words (registers) in a particular language are structured, how people use and store them, how they learn new words and the relationships between words in a language structure (Gardner, 2009).

In spite of the vital roles of vocabulary knowledge to students' proficiency and achievement in English language, students are unable to acquire proficiency in listening, speaking, reading and writing skills due to inadequate exposure to English vocabulary at home and in school (Nation & Meera, 2010). In an increasingly demanding world of literacy, the importance of ensuring students' proficiency in English vocabulary can never be overemphasized. Vocabulary development therefore, is crucial to students' cognitive growth and development in literacy skills (Oyetunde, 2013). To this end, developing learners' vocabulary in the language of instruction should be a top priority of a worthwhile education system.

Oyetunde (2013) notes that youngsters who do not learn vocabulary of a language of instruction are at a considerable disadvantage. The reason is that at school, listening, speaking, reading and writing tasks all involve the use of words. Thus, vocabulary should be taught to students meaningfully at all levels of education to enable them overcome academic tasks across all facets of life in school and later in life.

The teaching and learning of vocabulary has been considered as a boring process. The conventional way of teaching vocabulary entails the teacher transmitting information verbally to learners (Jude, 2016). This strategy entails a teacher writing out difficult words on the board before reading them aloud to students and explaining their meanings. This procedure involves vocabulary taught in isolation before meeting the words in a reading passage. Sometimes, the teacher stops students while reading a passage intermittently to correct word pronunciations or ask students to consult their dictionaries (Jude, 2017). These are unnecessary distractions that should be avoided. The use of games in vocabulary instructions could transform learning into a more collaborative and enjoyable process for students (Franklin, Peat & Lewis, 2003; Weisskrich, 2006). The authors further stress that game strategy could be an excellent technique for increasing and enhancing students' vocabulary achievement. According to Nation (2001), teaching vocabulary as a process involves teaching the meaning of the word, spelling, grammatical class and collocations.

The use of activity-oriented and learner-centred teaching strategies like games, according to Njoku (2008), helps teaching to be learner-based and enhance the practice of self-learning. This means that the use of games like scramble and puzzle could enable learners discover new and unfamiliar words in a language they are taught in. Obodo (2007) notes that language

games are strategies such as puzzles, magic tricks, fallacies, desert Island or guessing activity and they provoke excitements, spirit of competition and cooperation among learners.

Many reasons abound for using games in language instruction especially in the teaching of vocabulary. Game instruction adds flexibility and interest to the classroom teaching, learning activities are processed easily by allowing students adjust to ways in which they learn best (Moore & Dettlaff, 2005). Games help to reduce the level of abstraction involved in teaching and learning concepts by capturing t learners' interest and encouraging active participation in the learning process. The use of games do not only reduce tension and boredom in classroom instruction, it also provides an environment that allows students to work in groups or alone, be competitive, creative and have fun while learning (Davis, Shepherd & Zwuenfelhoger, 2009). Pham (2007) informs that there are several kinds of language games. These are the structure games which provide experience on the use of patterns of syntax in communication and vocabulary games focus mainly on words. Others are spelling games, pronunciation games, number games, listen-and-do games, writing games, minimal and note-taking games, discussion games, sorting and ordering games.

Puzzle game is a word activity for teaching English vocabulary. According to Cheng and Su (2012); Gardner (2009), puzzle game is a problem-solving activity that involves a list of words learners try to trace or locate in a square or rectangular maze of letters. The difficulty of this game is determined by the number of lexical items to be traced or located and the number of unrelated alphabetic distracters (random letters) –Thus, the number of words a student is able to trace correctly determines the extent to which the student's vocabulary level has developed. Cheng and Su report that puzzle games enhance learners' word retention and expedite their vocabulary achievement in English language.

Scramble game is a strategy that could be used for teaching and improving students' achievement in English vocabulary. Rahmawati (2012); Alemi (2010) report that scramble game is an effective strategy for teaching the grammar aspect of English language as it offers a new dimension in enhancing students' achievement in English vocabulary. It increases students' use of grammar, accurate organization of word order, structure, spellings and writing skills. Scramble game enhances learners' vocabulary achievement by helping them to link new information with previous experiences. It is played by making a re-arrangement of words altered into the right order (Rahmawati, 2012). A number of researches have found the

effectiveness of language games that have equally contributed to vocabulary development. Jude (2016) established that students exposed to Electronic Instructional Games (EIG) achieved higher than those exposed to the conventional strategy in English vocabulary. Binderita and Rofiq (2013) found in their study that using crossword puzzle game had a significant effect on achievement in vocabulary of eight grade students in Indonesia. Keshta and AL-Faleet (2013) established in a study that tenth grade Palestinian students exposed to puzzles game strategy significantly achieved higher than those exposed to the traditional method of teaching vocabulary. Al-masri and Al Najar (2014) also reported in a study that there was a significant difference in the achievement scores of students exposed to word games in English vocabulary. There was also no significant difference of achievement across gender.

Gender is an important focus in the learning of a language. Santrock (2004) reports that during the elementary and secondary school years, there is significant evidence that female students outperform male students in listening comprehension, speaking, reading and writing. This is attributed to the fact that females often acquire new vocabulary and use them due to constant engagement in reading extensively and exposure to different writing styles and languages. Uzun (2013) found in a study that there was no significant difference in the mean achievement scores of male and female students exposed to vocabulary acquisition and retention level of students. Jude (2016) on the other hand found in a study that female students achieved higher mean achievement scores in English vocabulary than male students who were exposed to non-electronic instruction games. It is left to be seen if gender has any effect on students exposed to puzzle and scramble games strategies in the current study.

Research Questions

The following research questions guided this study:

1. What would be the difference in the mean vocabulary achievement scores of students taught vocabulary development using scramble game strategy and those taught using the conventional strategy?
2. Would there be any difference in the mean vocabulary achievement scores of students taught vocabulary development using puzzle game strategy and those taught using the conventional strategy?
3. Would there be any difference in the mean vocabulary achievement scores of male and female students taught vocabulary development using scramble game strategy?

4. Would there be any difference in the mean vocabulary achievement scores of male and female students taught vocabulary development (register) using puzzle game strategy?
5. What will be the comparative difference in the mean vocabulary achievement scores of students taught vocabulary development using scramble game strategy and those taught using puzzle game strategy?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

1. There is no significant difference in the mean vocabulary achievement scores of students exposed to scramble games and conventional strategies.
2. There is no significant difference in the mean vocabulary achievement scores of students exposed to puzzle games and conventional strategies
3. There is no significant difference in the mean vocabulary achievement scores of male and female students taught vocabulary development using scramble game strategy.
4. There is no significant difference in the mean vocabulary achievement scores of male and female students taught vocabulary development using puzzle game strategy.
5. There is no significant comparative difference in the mean vocabulary achievement scores of students taught vocabulary development using scramble game strategy and those taught using puzzle game strategy.

Research Method

This study adopted the non-randomised pre-test, post-test quasi-experimental design. The design was adopted because it was the most appropriate in determining the effects of games teaching strategies on students' achievement in English vocabulary. The population of this study comprised all the 1,870 SS1 students in Apa Local Government Area of Benue State during the 2015/2016 academic session (Statistics Section, TSB Makurdi, 2016). The sample consisted of 100 senior secondary 1 (SS1) male and female students selected from three intact classes in three secondary schools using simple random sampling technique. Three intact classes selected from the three schools and were assigned to experimental and control groups using simple random sampling. The researchers organized a uniform training programme for the research assistants so as to control the errors that might arise as a result of teacher variables.

Data were collected using English Vocabulary Achievement Test (EVAT). The instrument (EVAT) consisted of 25 item multiple choice objective questions. The pre-test and post-test questions were the same except that the questions in the post-test were reshuffled. The pre-test was administered to the students in both groups prior to the treatment to ascertain the cognitive level of the students in vocabulary before the intervention programme. Afterwards, the experimental groups were exposed to games teaching strategies of scramble and puzzle games, while the control group was taught using the conventional strategy. The treatment lasted for four weeks. After the treatment and in the fourth week, the post-test was administered to the groups (experimental and control).

Four lesson plans for teaching English vocabulary were prepared by the researchers based on SS 1 curriculum for English language. Students in all the groups were taught synonyms antonyms, homonyms and homophones. The experimental groups were exposed to games strategies (scramble and puzzle), while the control group was taught using the conventional strategy. The groups were all taught by their regular English language teachers who acted as research assistants in the selected schools.

Data collected were analysed using mean and standard deviation to answer the research questions, while One-way Analysis of Covariance (ANCOVA) was used to test the four null hypotheses at 0.05 level of significance. The analysis and interpretation of data were done according to the research questions and null hypotheses.

Results (Analysis and Interpretation)

Research Question 1:
What would be the difference in the mean vocabulary achievement scores of students taught vocabulary development using scramble strategy and those taught using conventional strategy?

Table 1: Mean ($\bar{X}$) and standard deviation (SD) of students' achievement in English vocabulary based on scramble and conventional strategies

		Pre-Test		Post-Test		Mean
Method	**N**	$\bar{X}$	**SD**	$\bar{X}$	**SD**	**Gain**
Scramble	32	25.69	6.74	39.25	6.28	13.56
Conventional	40	20.50	7.07	28.25	6.63	7.75
Mean Difference		5.19		11.00		5.81

Table 1 shows the difference in the mean vocabulary achievement scores and standard deviations of students in the experimental group taught using scramble game and those in the control group exposed to conventional strategy. The table reveals that the experimental group has a post-test mean gain of 13.56 while the control group has a post-test mean gain of 7.75. The mean difference between the groups is 5.81 in favour of the experimental group taught using scramble game strategy.

Research Question 2

What would be the difference in the mean vocabulary achievement scores of students taught vocabulary development using puzzle game strategy and those taught using conventional method?

Table 2: Mean and standard deviation of students' achievement scores in English vocabulary based on puzzle and conventional strategies

		Pre-Test		Post-Test		Mean
Method (Group)	**N**	**$\bar{X}$**	**SD**	**$\bar{X}$**	**SD**	**Gain**
Puzzle game	28	24.36	7.12	36.79	6.85	12.43
Conventional	40	20.50	7.07	28.25	6.63	7.75
Mean Difference		3.86		8.54		4.68

Table 2 presents the mean achievement scores and standard deviations of students in the experimental group taught using puzzle game strategy and the control group. The table reveals that the experimental group has a mean gain of 12.43 while the control group has a mean gain of 7.75. The mean difference between the groups is 4.68 in favour of the experimental group taught using puzzle game strategy.

Research Question 3

What would be the difference in the mean vocabulary achievement scores of male and female students taught vocabulary development using scramble game strategy?

Table 3: Mean and standard deviations of students achievement scores in English vocabulary based on gender

		Pre-Test		Post-Test		Mean
Gender	**N**	**$\bar{X}$**	**SD**	**$\bar{X}$**	**SD**	**Gain**
Male	14	25.57	4.52	40.43	5.39	14.86
Female	18	25.78	8.20	38.33	6.90	12.55
Mean Difference		0.21		2.10		2.31

Table 3 reveals the mean and standard deviations of male and female students in the experimental group taught using scramble game strategy.

The table shows that male students have a mean gain of 14.86 while their female counterparts have a mean gain of 12.55. The mean difference between male and female students is 2.31 in favour of males.

Research Question 4

What would be the difference in the mean English vocabulary achievement scores of male and Type equation here.female students taught vocabulary development using puzzle game strategy?

Table 4: Mean and standard deviations of students' achievement scores in English vocabulary based on gender

		Pre-Test		Post-Test		Mean
Gender	**N**	$\bar{X}$	**SD**	$\bar{X}$	**SD**	**Gain**
Male	16	23.75	6.69	37.50	6.42	13.75
Female	12	25.17	7.88	35.83	7.55	10.66
Mean Difference		1.42		1.67		3.09

Table 4 shows the mean achievement scores and standard deviations of male and female students taught using puzzle game strategy. The table reveals that the post mean gain of male students is 13.75 while female students' post-test mean gain is 10.66. The mean difference of 3.09 between them is in favour of male students.

Research Question 5

What would be the comparative difference in the mean English vocabulary achievement scores of students taught vocabulary development using scramble game strategy and those taught using puzzle game strategy?

Table 5: Comparative mean and standard deviation of students' achievement scores in English vocabulary based on teaching strategy

		Pre-Test		Post-Test		Mean
Method	**N**	$\bar{X}$	**SD**	$\bar{X}$	**SD**	**Gain**
scramble	32	25.69	6.74	39.25	6.27	13.56
Puzzle game	28	24.36	7.11	36.78	6.84	12.42
Mean Difference		1.33		2.47		1.14

Table 5 presents the comparative mean achievement scores and standard deviations of students taught using scramble game strategy and those taught using puzzle game strategy. The table reveals that the post mean gain of students exposed to scramble game is 13.56 while those of puzzle game is 12.42. The mean difference of 1.14 is in favour of the scramble game strategy.

Hypothesis 1

There is no significant difference in the mean vocabulary achievement scores of students taught vocabulary development using scramble game strategy; puzzle game strategy and conventional method.

Table 6: One-Way ANCOVA Report on the Effect of Game Strategies on Students' Achievement on English Vocabulary

Source	Type III Sum of Square	df	Mean Square	F	Sig
Corrected model	4927.77	3	1642.59	93.10	0.00
Intercept	2444.40	1	2444.40	138.55	0.00
Pre-EVAT	2508.55	1	2508.55	142.19	0.00
Group	949.15	2	474.57	26.90	0.00
Error	1693.65	96	17.64		
Total	123312.00	100			
Corrected Total	6621.44	99			

Table 6 presents one-way ANCOVA analysis on the effect of games teaching strategies on students' achievement in English vocabulary. The table reveals that F (2,96) = 26.90, P (Sig.) = 0.00 (P<0.05). Since the probability level (P<0.05) is less than the significant level, the null hypothesis is rejected. This indicates that the students exposed to games strategies attained higher mean scores compared to those in the control group.

Hypothesis 2

There is no significant difference in the mean vocabulary achievement scores of male and female students taught vocabulary development using scramble game strategy.

Table 7: One-way ANCOVA Report on the Effect of Scramble Game on Students'' achievement based on Gender.

Source	Type III Sum of Square	df	Mean Square	F	Sig
Corrected model	624.94	2	3122.47	15.18	0.00
Intercept	1036.48	1	1036.48	50.34	0.00
Pre-EVAT	590.37	1	590.38	28.67	0.00
Gender	39.11	1	39.11	1.90	0.18
Error	597.05	29	20.58		
Total	50520.00	32			
Corrected Total	1222.00	31			

Table 7 presents one-way ANCOVA report on the effect of scramble game on students' achievement based on gender. The table shows that F(1,29) = 1.90, P = 0.18. Since probability is greater than the significant level (P>0.05), the null hypothesis is therefore not rejected. This implies that there is no significant difference in the mean English vocabulary achievement scores of male and female students taught vocabulary development using scramble game strategy.

Hypothesis 3

There is no significant difference in the mean English vocabulary achievement scores of male and female students taught vocabulary development using puzzle game strategy.

Table 8: One-Way ANCOVA Report on the Effect of Puzzle Game on students' achievement based on Gender

Source	Type III Sum of Square	df	Mean Square	F	Sig
Corrected model	705.51	2	352.75	15.71	0.00
Intercept	775.61	1	775.61	34.55	0.00
Pre-EVAT	686.47	1	686.47	30.58	0.00
Gender	48.57	1	48.57	2.16	0.15
Error	561.19	25	22.44		
Total	39156.00	28			
Corrected Total	1266.71	27			

Table 8 shows one-way ANCOVA report on the effect of puzzle game strategy on students' achievement in English vocabulary based on gender. The table reveals that F(1,25) = 2.16, P = 0.15. Since P>0.05, the null hypothesis is not rejected. This implies that there is no significant difference between male and female students exposed to puzzle game strategy.

Hypothesis 4

There is no comparative difference in the mean English vocabulary achievement scores of students taught vocabulary development using scramble game strategy and those taught using puzzle game strategy.

Table 9: One-Way ANCOVA Report on the Comparative Effect of Games Teaching Strategies on Students' Achievement in English Vocabulary.

Source	Type III Sum of Square	df	Mean Square	F	Sig
Corrected model	624.949	2	312.475	15.178	0.00
Intercept	1036.480	1	1036.480	50.344	0.00
Pre-EVAT	590.378	1	590.378	28.676	0.00
Methods	39.111	1	39.111	1.900	0.52
Error	597.051	29	20.588		
Total	50520.000	32			
Corrected Total	1222.000	31			

Table 9 shows that F(1,29) = 1.90, P = 0.52. Since P>0.05 significant level, the null hypothesis is therefore not rejected. This implies that there is no significant comparative mean difference between scramble game strategy and puzzle game strategy in improving students' achievement in English vocabulary.

Discussion of Findings

The findings of this study and discussion are based on the research questions that guided and hypotheses that were formulated and tested at 0.05 level of significance. The findings revealed that there is a significant difference in the English vocabulary achievement scores of students exposed to game strategies (scramble and puzzle) and the conventional strategy. The significant mean difference was in the favour of the games strategies (scramble and puzzle). This finding is in agreement with that of Jude (2016) who found that students exposed to electronic instructional games strategies outscored those exposed to the conventional strategy in English vocabulary. The finding also affirms the reports of Ratnawati (2013); Atawi (2011); Binderti and Rofiq (2013) who found that there was a significant effect of using scramble and word-search puzzle games strategies on students' achievement in English vocabulary. The findings of this study is also in agreement with the findings of Keshta and AL-Faleet (2013) who reported that tenth grade students exposed to puzzle games significantly achieved higher than those taught with the traditional method in English vocabulary. The finding is again in consonance with the findings of Al-Masri and Al-Najar (2014) who reported a significant difference in the mean achievement scores of students in English language vocabulary in favour of the experimental group who were exposed to word games. Game-based learning makes learning instruction processess easy, interesting and effective (Cheng & Su, 2012). This implies that games teaching strategies (scramble and puzzle) are effective strategies for improving students' achievement in English vocabulary and learning generally. Games contribute to vocabulary learning

in the sense that learners are given opportunities to learn and practice English language in a pleasant and playful atmosphere.

The findings of this study also revealed that there is no significant difference in the mean English vocabulary achievement scores of male and female students taught English vocabulary using scramble and puzzle games strategies. This means that both scramble and puzzle games instructional strategies are effective processes and learner-based method for improving students' achievement in English vocabulary for all gender without any form of disparity. This finding is in consonance with Uzuni (2013) who found no significant difference in the achievement of male and female students exposed to vocabulary learning. The finding of this study also agrees with that of Al-Masri and Al-Najar (2014) who found no significant effect of gender in English vocabulary exposed to word game strategy. On the contrary, Jude (2016) established that female students achieved higher than male students in English vocabulary in Non-Electronic games strategy.

The findings further revealed that there was no comparative difference in the mean English vocabulary achievement scores of students taught vocabulary development using the scramble game strategy and those taught using puzzle game strategy. This implies that the two strategies were effective as they enhanced students' achievement in vocabulary. Moore and Dettlaff (2005) assert that games help to reduce the level of abstraction involved in teaching and learning concepts especially vocabulary by capturing learners' interest and encouraging active participation of students in the learning process. This way, students' achievement would improve. This therefore implies that both puzzle and scramble games strategies are effective and learner-based strategies for improving students' achievement in second language learning skills especially in English vocabulary.

Conclusion and Recommendations

Vocabulary development plays a key role in the learning of a second language especially English language. The study proved that using games in teaching enhanced students' achievement in English vocabulary. The finding also revealed that games teaching strategies facilitated the development of English vocabulary skills in all gender and therefore improved their achievement in vocabulary. These strategies have proven to boost vocabulary development in second language teaching and learning. Based on the findings of this study, the following recommendations are made:

1. Government through the Ministry of Education should promote the use of games strategies like scramble and puzzle games in the teaching of English vocabulary to improve students' achievement. In-service teachers can be exposed to these strategies at seminars, workshops, conferences and symposia.
2. Curriculum designers and planners should incorporate the use of games instructional strategies into the secondary school English language curriculum for the teaching of English vocabulary.
3. Publishers of English textbooks should include the use of game strategies like scramble and puzzle games in English language texts for secondary schools. This way, language teachers would use the strategies in English instruction especially in the teaching of vocabulary.

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