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EFFECT OF JIGSAW TEACHING STRATEGY ON UPPER BASIC II STUDENTS' ACADEMIC PERFORMANCE IN ENGLISH VOCABULARY AND READING COMPREHENSION SKILLS

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Abstract

This study examined the effect of the jigsaw teaching strategy on upper basic II students' achievement in English vocabulary and reading comprehension skills. The study adopted a quasi-experimental design involving pre-test and post-test with experimental and control groups. A total of 105 upper basic II students from selected secondary schools in Ankpa Local Government Area were sampled for the study. The experimental group was taught using the jigsaw teaching strategy, while the control group received instruction through the conventional method. Three research questions and three corresponding hypotheses guided the study. Data were analyzed using mean, standard deviation, and Analysis of Covariance (ANCOVA). The findings revealed that students taught using the jigsaw strategy performed significantly better in vocabulary and reading comprehension than those taught with the conventional approach. Based on the findings, it was concluded that the jigsaw teaching strategy is an effective, inclusive, and context-sensitive method for improving students' vocabulary acquisition and reading comprehension. The study recommends its adoption in English language classrooms, especially in underserved areas.

Key Words: Jigsaw teaching strategy, English vocabulary, reading comprehension skills, and students' achievement.

Introduction

Reading is a fundamental step to any formal learning situation. It is an act that is capable of transforming an individual's life and the entire society through the knowledge acquired. In the words of Sisulu (2004) reading is one of the fundamental building blocks of learning. In other words, it is a way of understanding letters, words and sentences to discern ideas expressed; reading should be a way of life for any student who aspires to excel in English language and have a mastery of the subject. Reading can be anchored on special skills and strategies which cannot be innately acquired. It must be taught, and that, in order for a student to be adequately empowered with reading as a lifelong skill, there must be a collaboration between the home, the school and the society.

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Reading comprehension is one of the most important academic exercises and is important to achieve the main objectives of the whole reading process. Reading comprehension has become a major characteristic of good readers who can be significant contributors to the development of society. It is an activity requiring accuracy, autonomy while reading, deep understanding, comprehension speed, enjoying reading, variation in reading purposes, being involved with the different events, giving opinions, and being critical, and creative. To facilitate reading, and to facilitate reading comprehension, children should be trained to identify and recognize words learned to the level where they can visually recognize them. Visual words are common words the reader can recognize at the first glance without the need for analyzing them to the syllabus of sounds they constitute. Children unable to form many visual words will never be good readers and will have a limited capacity in combining words in basic thinking units to reach reading fluency and comprehension. Furthermore, they will face serious problems in recognizing new or uncommon words (Khasawneh & Khawaldeh, 2018). One of the major problems a child could face with reading is when that child is impaired with a long-life developmental disorder.

The acquisition of vocabulary in a foreign language is a multifaceted process that involves the deliberate learning and integration of new words and phrases into one's linguistic repertoire. Traditional approaches to vocabulary instruction often relied on rote memorization and repetitive drills, focusing solely on the memorization of word lists. However, such methods have proven to be limited in their effectiveness, as learners may struggle to retain and apply the acquired vocabulary in real-life contexts.

In recent years, researchers and language educators have shifted their attention towards more dynamic and learner-centered strategies to enhance vocabulary acquisition (Nation, 2021; Schmitt, 2022). These strategies encompass a wide range of techniques, including contextualized, and the use of technology-assisted. By incorporating these innovative approaches, educators aim to foster deeper understanding, retention, and meaningful use of new vocabulary, ultimately leading to more proficient language skills. Understanding the effectiveness of these strategies is crucial for both language learners

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and instructors. Learners can benefit from insights into which techniques are most effective, enabling them to optimize their study habits and achieve better results (Goulden et al., 2020; Nation, 2018). For educators, a comprehensive understanding of vocabulary acquisition strategies can inform instructional practices, curriculum development, and the design of learning materials. Furthermore, insights into the effectiveness of these strategies can contribute to the ongoing dialogue surrounding pedagogical approaches in foreign language learning, allowing for the refinement and improvement of teaching strategyologies. Generally, it is believed that vocabulary acquisition is greatly enhanced through constant engagement in reading activities.

The Jigsaw teaching method has been widely recognized as an effective approach to improving academic performance and social skills in students. This method involves collaborative learning, active engagement, and personalized instruction, making it an ideal approach for addressing the challenges faced by upper basic II students in Kogi East Senatorial District. The Jigsaw teaching method is a cooperative learning strategy where students work together in groups to learn and understand material more effectively (Erdogan & Sengul, 2014). In the realm of education, where fostering collaboration, critical thinking, and empathy are paramount, the jigsaw teaching strategy stands out as a powerful tool for promoting active learning and inclusive classroom dynamics. At its core, the jigsaw strategy embodies the principles of cooperative learning, breaking down traditional classroom hierarchies and fostering a sense of shared responsibility among students (Fabiyi, 2021). By dividing a lesson into segments and assigning each segment to different groups of students, the jigsaw method encourages collaboration and interdependence, as learners must work together to master the material. One of the key advantages of the jigsaw approach lies in its promotion of active engagement and peer teaching (Hamza & Mohammed, 2023). As students become experts in their assigned segments, they assume the role of teachers within their groups, explaining concepts, answering questions, and facilitating discussions. This peer-to-peer interaction not only reinforces their own understanding but also enhances communication and interpersonal skills. Celik (2023) observe that the jigsaw strategy fosters a sense of inclusivity and

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appreciation for diverse perspectives. By bringing together students from various backgrounds and abilities, the jigsaw approach creates opportunities for dialogue and mutual respect, challenging stereotypes and fostering empathy. In a world marked by increasing cultural and ideological diversity, this emphasis on understanding and cooperation is invaluable for nurturing global citizens (Benjamin, 2019).

Moreover, Yahya (2020) states that teaching methods are deeply intertwined with theories of learning, drawing from disciplines such as psychology, sociology, and cognitive science. Understanding how students process information, construct knowledge, and engage with their environment informs the selection and implementation of effective teaching strategies. In today's educational landscape, the diversity of learners necessitates a flexible approach to teaching methods (Ziaul, 2021). Differentiated instruction, personalized learning, and culturally responsive teaching are increasingly recognized as essential practices to accommodate individual learning styles, backgrounds, and abilities. Furthermore, Mustafa & Ziya (2021) noted that the advent of digital technology has revolutionized teaching methods, offering new avenues for interactive learning, collaboration, and access to resources. Blended learning models, virtual classrooms, and educational apps are just a few examples of how technology is reshaping the educational experience, breaking down barriers to learning and fostering creativity and innovation. Ultimately, the synergy between education and teaching methods is essential for fostering lifelong learning and preparing individuals to navigate an ever-changing world. By continuously refining and adapting teaching methods to meet the diverse needs of learners, educators play a pivotal role in shaping the future of education and empowering individuals to realize their full potential (Fabiyi, 2021).

While jigsaw teaching strategy has demonstrated promise in various educational contexts, it is pertinent to explore how its application in upper basic schools in Ankpa Local Government Area can bring the needed change in vocabulary development and reading comprehension, hence this study investigated the effect of jigsaw teaching strategy on the academic performance in reading comprehension and vocabulary development in upper basic II students in Ankpa Local Government Area. Two research

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questions and two null-hypotheses guided the study. These are:

Research Question One:

What is the difference in the performance mean scores of students taught reading comprehension with jigsaw teaching strategy and those taught with the lecture strategy?

Research Question Two:

What is the difference in the performance mean scores of students taught vocabulary acquisition with jigsaw teaching strategy and those taught with the lecture strategy?

Hypotheses

Ho_1: There is no significant difference in the performance mean scores of students taught reading comprehension with jigsaw teaching strategy and those taught with the lecture method

HO_2: There is no significant difference in the performance mean scores of students taught vocabulary acquisition with jigsaw teaching strategy and those taught with the lecture method

Methodology

The population of this study was all the upper basic II students registered in the 2024/2025 academic session in Ankpa Local Government Area of Kogi State. The study adopted the multi-stage sampling technique to sample 105 students from four intact classes. The study adopted the quasi-experimental research design, specifically, the per-test post-test non-equivalent control group design. The instrument for data collection was a 25 item English Performance Test (EPT) developed by the researcher. The instrument was validated by three experts from Prince Abubakar Audu University, Anyigba. To

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ensure the reliability of the instrument, it was trial tested by administering it to thirty (30) Upper Basic II students, that are outside the study area but had similar characteristics with the area of the study. The reliability of the EPT was determined using the Kudder-Richardson formula 20 (K-R_{20} and a reliability value of 0.88 was obtained. The research questions were analyzed using mean and standard deviation while the hypotheses were tested with Analysis of Covariance (ANCOVA) at 0.05 alpha level of significance.

Results

Research Question One:

What is the difference in the performance mean scores of students taught reading comprehension with jigsaw teaching strategy and those taught with the lecture strategy?

Table 1: **Pretest/Posttest Performance Mean Scores of Students Taught Reading Comprehension with Jigsaw Teaching Strategy and Those Taught with the Lecture Strategy**

		Pretest		Posttest			
Methods	**N**	$\bar{X}$	**SD**	$\bar{X}$	**SD**	**Mean gain**	**Mean Difference**
Jigsaw teaching strategy	55	43.35	8.94	62.96	6.31	18.96	10.75
Lecture Method	50	32.76	10.95	40.97	8.34	8.21	

Result in Table 1 showed that Upper Basic II students who were taught reading comprehension using Jigsaw strategy had mean score of (= 43.35, SD = 8.94) at the pretest and mean score of (= 62.96, SD = 6.31) at the posttest level while the mean gain score was 18.96. Furthermore, the students taught reading comprehension using lecture method had a pretest mean score of (= 32.76, SD = 10.95), and posttest mean score of (= 40.97, SD = 8.34) with mean gain of 8.21 and mean difference of 10.75. Meanwhile, the

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higher gain scores of 18.96 for Jigsaw teaching strategy showed that Jigsaw teaching strategy improved students' mean scores in reading comprehension more than lecture method with Jigsaw teaching strategy proving more efficacious. Implying that Jigsaw teaching strategy had positive effect on the mean scores of students in reading comprehension. This further implies that the treatment was effective. The closeness of SD varies in the two groups indicate that the respondents were homogenous in their responses to the English achievement test items.

Research Question Two:

What is the difference in the performance mean scores of students taught vocabulary acquisition with jigsaw teaching strategy and those taught with the lecture strategy?

Table 2: **Pretest/Posttest Performance Mean Scores of Students Taught Vocabulary Acquisition with Jigsaw Teaching Strategy and Those Taught with the Lecture Strategy**

Variable		Pre test		Posttest		Mean gain	Mean
Method of Teaching	N	$\bar{x}$	SD	$\bar{x}$	SD		Difference
Jigsaw Strategy	55	47.54	7.48	67.18	8.53	19.64	10.00
Lecture Method	50	46.61	8.35	56.25	9.06	9.64	

Table 2 indicates the mean performance scores of upper basic 2 students taught vocabulary acquisition using Jigsaw teaching strategy and that taught using Lecture method. From the results, upper basic 2 students taught vocabulary acquisition using Jigsaw teaching strategy had a mean performance score of ($\bar{X}$= 47.54, SD=7.48) for pre-test and ($\bar{X}$= 67.18, SD=8.53) for post-test with a mean gain of 19.64. Furthermore, Table 2 shows that students` exposed to lecture method had a mean performance score of ($\bar{X}$= 46.61, SD=8.35) for pre-test and ($\bar{X}$= 46.25, SD=9.06) for post-test with a mean gain of

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9.64. A mean difference of 10.00 was obtained from the result. This is an indication that Jigsaw and lecture methods are potent in improving the academic performance scores of upper basic 2 students in vocabulary acquisition. Nevertheless, Jigsaw strategy proved to be more potent in increasing the academic performance scores of students` more than lecture method.

Ho_1: There is no significant difference in the performance mean scores of students taught reading comprehension with jigsaw teaching strategy and those taught with the lecture method.

Table 3: Analysis of Covariance (ANCOVA) of Difference in the Performance Mean Scores of Students Taught Reading Comprehension with Jigsaw Teaching Strategy and those taught with the lecture strategy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Dec.
Corrected Model	1128.947[a]	4	94.079	102.555	0.00	0.24	
Intercept	135.160	1	135.160	147.337	0.00	0.78	
Pretest	30.828	1	30.828	33.605	0.00	0.00	
Methods	270.245	3	54.049	58.919	0.00	0.13	S
Error	107.300	96	.917				
Total	145992.000	105					
Corrected Total	1236.277	104					

Note: S = Significant, NS = Not Significant and η^2_p = partial eta squared

With respect to hypothesis one (H_{01}), Table 3 shows the ANCOVA result for the significant difference in the performance mean scores of students taught reading comprehension with jigsaw teaching strategy and those taught with the lecture method. The result shows that an F-ratio 58.919, $p<0.000$ was obtained. The associated exact probability value of 0.000 obtained is less than 0.05 level of significance set for decision

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making. Hence, the null hypothesis was rejected. Inference drawn is that, there is a significant difference in the performance mean scores of students taught reading comprehension with jigsaw teaching strategy and those taught with the lecture method in favour of jigsaw strategy with higher mean score. More so, Table 7 shows a partial eta square (η^2_p) of 0.13. This means that 13% of the increase in the mean performance scores of students in reading comprehension was due to the effect of the teaching method.

HO2: There is no significant difference in the performance mean scores of students taught vocabulary acquisition with jigsaw teaching strategy and those taught with the lecture method

Table 4: Analysis of Covariance (ANCOVA) Of Difference in the Performance Mean Scores of Students Taught Vocabulary Acquisition with Jigsaw Teaching Strategy and those Taught with the Lecture Method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared	Dec.
Corrected Model	1841.297[a]	4	141.638	16.685	0.00	0.24	
Intercept	50.641	1	50.265	5.921	0.16	0.78	
Pretest	298.828	1	298.641	35.180	0.00	0.00	
Methods	55.034	2	54.049	6.483	0.01	0.23	S
Error	984.711	95	19.681				
Total	496735.000	105					
Corrected Total	2826.008	104					

Note: S = Significant, NS = Not Significant and η^2_p = partial eta squared

With respect to hypothesis two (H_{02}), Table 4 shows the ANCOVA result for the significant difference in the performance mean scores of students taught vocabulary acquisition with jigsaw teaching strategy and those taught with the lecture strategy. The result shows that an F-ratio 6.483, $p<0.01$ was obtained. The

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associated exact probability value of 0.01 obtained is less than 0.05 level of significance set for decision making. Hence, the null hypothesis was rejected. Inference drawn is that, there is a significant difference in the performance mean scores of students taught vocabulary acquisition with jigsaw teaching strategy and those taught with the lecture strategy in favour of jigsaw strategy with higher mean score. More so, Table 8 shows a partial eta square (η^2_p) of 0.23. This means that 23% of the increase in the mean performance scores of students in vocabulary acquisition was due to the effect of the teaching method.

Discussion of Finding

The findings of the study showed that jigsaw teaching strategy is more effective in improving students` performance in reading comprehension more than lecture method. However, the analysis showed that there is a significant difference between the two groups. Hence, the null hypothesis of no significant difference was rejected. The reason for this result could be due to the fact that jigsaw teaching strategy gives students the opportunity to share ideas, detect and correct each other's mistakes, seek explanations and explain ideas. Also, taking a hands-on approach to learning often results in more ingrained knowledge, with the ability to retain information quickly and for longer periods of time. The reason being that when learning with a lecture method the students tend to be passive and will not remember what the teacher taught them. The finding is consistent with Hamza and Mohammed, (2023) who examined the effect of interactive teaching strategy on EFL learners' reading comprehension and found significant difference between the experimental and control groups with the experimental proved to be more

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potent by improving students' performance in reading comprehension. The study is in agreement with the finding of Fabiyi, (2021) who examined jigsaw teaching strategy and its effects on learner' reading comprehension and speaking development and found that there is a significant difference between the performance of students in reading comprehension when exposed to the same teaching strategy. The result agrees with Ahmed, (2021) who research and found significant difference between the performance of those exposed to experimental and control groups with the experimental proved to be more effective in reading comprehension. The study agrees with Nissien (2007) who asserted that the cause of poor reading culture or skills in students is as a result of; slow comprehension rate, slow reading rate, difficulty in distinguishing main ideas from irrelevant details, inadequate vocabularies or word power, inadequate reading interest and habits, distraction from irrelevant reading materials. Chen (2015) who research and found significant difference between the performance of students taught with experimental and those with control groups. This finding is so because of the effectiveness of the method of teaching. Reasons had been that jigsaw teaching strategy is more exciting and interacting, whereby students require working as my turn-together toward a common goal.

The findings of the study also showed that jigsaw teaching strategy is more effective in improving students` performance in vocabulary acquisition more than lecture method. However, the analysis showed that there is a significant difference between the two groups. Hence, the null hypothesis of no significant difference was rejected. The reason for this result could be due to the fact that jigsaw teaching strategy gives students

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the opportunity to share ideas, detect and correct each other's mistakes, seek explanations and explain ideas. Also, Brady (2022) posits that Jigsaw teaching strategy provides opportunities for students to enhance their writing skills, including grammar, vocabulary, organization, and coherence. The reason being that when learning with a lecture method the students tend to be passive and will not remember what the teacher taught them. The finding is consistent with Yahya, (2020) examined the effect of jigsaw teaching strategy on writing and vocabulary acquisition performance and found significant difference between the experimental and control groups with the experimental proved to be more potent by improving students' performance in vocabulary acquisition. The study is in agreement with the finding of Mustafa and Ziya (2021) who researched and found that there is a significant difference between the performance of students in vocabulary acquisition when exposed to the same teaching strategy. The result agrees with Bada and Olusegun (2022) who research and found significant difference between the performance of those exposed to experimental and control groups with the experimental proved to be more effective in reading comprehension Ziaul (2021) who research and found significant difference between the performance of students taught with experimental and those with control groups. This finding is so because of the effectiveness of the method of teaching. Reasons had been that jigsaw teaching strategy is more exciting and interacting, whereby students require working together toward a common goal.

Conclusion

Based on the findings of the study, it can be concluded that there was a significant difference in the performance mean scores of students taught reading comprehension with

jigsaw teaching strategy and those taught with the lecture method in favour of jigsaw teaching strategy with higher mean score. There is also a significant difference in the performance mean scores of students taught vocabulary acquisition with jigsaw teaching strategy and those taught with the lecture method in favour of jigsaw teaching strategy with higher mean score.

Recommendations

Based on the findings of this study, the following recommendations were made.

1. In other to enhance students' academic performance in English Studies, the use of jigsaw teaching strategy should be encouraged in English Studies classes in upper basic education schools.
2. Seminar and workshops should be organized for teachers so as to; update their knowledge in the use of jigsaw teaching strategy in teaching and learning of English of Studies.
3. Teachers should manage the time allocated well to accommodate the use of jigsaw teaching during teaching-learning process so as to foster proper comprehension.
4. Schools' curriculum should be overhauled to accommodate jigsaw teaching and learning in English Studies.

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