

EFFECTS OF TEAM ASSISTED AND JIGSAW INSTRUCTIONAL STRATEGIES ON STUDENTS' ACHIEVEMENT IN IGBO GRAMMAR IN ENUGU EDUCATION ZONE, ENUGU STATE

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Abstract

The purpose of this study was to investigate the effects of team assisted and jigsaw instructional strategies on students' achievement in Igbo grammar in Enugu education zone. The study adopted pre-test post-test non-equivalent control group. Two research questions and corresponding hypotheses guided the work. The sample for the study was 106 SSII Igbo language students comprising of both males and females. The instrument for data collection was Igbo Grammar Achievement Test (IGAT), which was face-validated and tested for reliability. The Pearson product-moment correlation coefficient was used to establish the internal consistency of the instrument and the result was 0.76. The collected data were analyzed using mean and standard deviation to answer the research questions while Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. The results revealed that students taught Igbo grammar using team assisted and jigsaw instructional strategies demonstrated similar levels of content mastery. It further showed that females slightly achieved higher than their male counterparts, though the difference was not statistically significant. As such, it was recommended among others, that Igbo language teachers should employ team assisted and jigsaw instructional strategies to enhance students' achievement in Igbo grammar.

Keywords: Academic achievement, gender, grammar, team assisted instruction, Jigsaw

Introduction

Students' achievement in Igbo language especially in the area of grammar seems to be below expectation as portrayed by WAEC Chief Examiner's Reports of 2022, 2023 and 2024. This has been linked to some factors such as lack of interest on the part of the students, dearth of Igbo language teachers and non use of innovative instructional strategies. Studies (Chineke, 2024; Odoh & Onwuka, 2024) show that there is undue reliance on teacher-centered instructional strategies among the Igbo language teachers, which seem not to encourage active participation of the learners. This may not allow them to acquire some important skills (like critical thinking and problem solving) that would facilitate their learning of Igbo grammar. Undoubtedly, this suggests the need for a shift in the selection of appropriate instructional strategies for effective instructional delivery and enhancement of students' knowledge and understanding of lessons in Igbo grammar.

Igbo is the language predominantly spoken in the eastern part of Nigeria. Because of its position and role in the country, it is taught at all levels of education. As one of the three major Nigerian languages, Igbo is the language of instruction at the lower basic education, (Federal Republic of Nigeria (FRN, 2014). In other words, it is a means of transferring the content knowledge of other subjects to the young learners. Going further, Igbo language serves as a means of fostering unity in the country. It helps in promoting social interaction and national cohesion. Thus, Federal Republic of Nigeria (FRN, 2004) states it very clearly, that in the interest of national unity, it is expedient that every child should learn one of the three Nigerian languages which include Hausa, Yoruba and Igbo.

Learning of any of these languages implies learning its grammar because knowledge of grammar is central in the learning of any given language.

Grammar is the systematic study and description of a language. According to Nordquist (2024), it is a set of rules that governs a language. It involves the whole system and structure of a language consisting of phonology, morphology, syntax and semantics. Grammar teaches language learners how to use language correctly through rules. In the context of Igbo language, its grammar deals with the alphabets, orthography, sound system including vowel harmony and word formation. Adequate understanding of grammar rules will help the Igbo language learners to be more expressive, detailed, and on-point when speaking and writing. This may not be achieved if Igbo language teachers fail to employ teaching methods and strategies that would encourage active participation of the learners. Okoro and Ezegebe (2021) opine that a successful teaching and learning process is dependent on the type of teaching method or instructional strategies adopted by the teacher in the classroom.

Instructional strategies include all the approaches adopted by the teacher to enable learners to actively take part in the teaching and learning process. Many studies have shown that the role of instructional strategies cannot be overemphasized because it most often determines students' engagement, retention, interest, and achievement in any subject matter (Eze, 2018; Afifah, Isnani, & Wikan, 2019; Menakaya, Uzoegwu & Emelogu, 2024). Several instructional strategies are used by teachers to facilitate the teaching and learning process. These instructional strategies are categorized into student-centered and teacher-centered. The teacher-centered strategy is usually referred to as the conventional or traditional method which is characterized by the teacher dominating the classroom activities and making the students passive learners.

Student-centered strategy on the other hand is more innovative and encourages active involvement of the learners in the teaching and learning process. Since the traditional way of teaching Igbo language grammar has not led to an increased students' achievement, this necessitates a shift from the teacher-centered to student-centered strategies where students are active participants in the classroom activities. One of such instructional strategies is cooperative learning strategy. A variety of cooperative learning strategies have been developed and this study identified team assisted and jigsaw as possible strategies that could be used in teaching Igbo grammar in senior secondary schools in Enugu education zone.

Team Assisted Instruction (TAI) is a form of cooperative strategy that provides space to build knowledge that allows students to collaborate and communicate with other students in groups that work together. According to Murphy (2021), in TAI, students are organized into groups of 5-6 individuals with varying backgrounds. These groups receive assignments to complete, with personalized guidance from the teacher, available to those who require it. Within these groups, students collaborate to tackle the assigned tasks. Those who may have encountered difficulty with problem-solving in the past receive assistance from their peers, resulting in each student's triumph being intimately connected to the collective success of the group. The TAI learning process comprises seven sequential steps, namely: placement test, teams, teaching groups, student creativity, study teams, fact tests, and team score and recognition. In this study, however, TAI is a strategy that involves the division of students into groups for the purpose of giving each group a task that would be presented by a group leader. It is pertinent to note that the success or failure of an individual in the task will determine the failure or success of the group.

The Jigsaw is equally a cooperative learning strategy that fosters teamwork, cooperation, and a deeper understanding of knowledge (Onuoha, Eneogu, Asogwa & Ngwuchukwu, 2016). This strategy allows learners to collaborate, share their knowledge, and take responsibility for their learning (Murphy, 2021). Jigsaw places the learner at the center of teaching and learning activities. It emphasizes group dynamism and social interactions among learners. It involves dividing an average-sized class of students into competency groups of 4-6 students, with each group assigned a specific topic to work on. The individual members of each group then collaborate with the members of other groups that exhibit better understanding of the task, to research a sub-topic of the main topic. Finally, they return to their starting group and teach the rest of the group members what they have learned. At the end, each group presents their learning outcome to the entire class, which serves as their level of achievement in the task given to them.

Sequel to the above, achievement could be perceived as the range to which an individual has fulfilled the stipulated objectives of a particular activity, event or task (Ikeh, Ugwuanyi & Orji, 2016). In this context, it implies that the student has acquired knowledge through the teaching and learning process. Similarly, Oladipupo (2015) sees students' academic achievement as an elicited response, showing performance in which, a learner is assigned a score representing his or her ability. The above definition means that academic ability is fundamental to students' academic achievement. Therefore, the success or otherwise of any student involved in an educational endeavor is determined through the student's academic achievement (Ekweoba, 2014).

Academic achievement of learners can as well be influenced by their gender. Olasehinde and Olatoye (2014) agree that gender bias is very prevalent in Nigeria whereby from family setting, down to school, more difficult tasks are assigned to males while females are given the relatively easy and less demanding tasks. This may have impact on the way students engage in learning tasks they perceive as being difficult or simple. Also, some researchers (Oludipe, 2012; Ibe & Abamuche, 2021) note that some instructional strategies are gender biased while some are gender friendly. As such, gender difference may affect students' achievement in learning Igbo grammar using TAI and jigsaw strategies respectively.

Research Questions

The following research questions guided the study:

1. What are the mean achievement scores of students taught Igbo grammar using team assisted and those taught using jigsaw instructional strategies in Enugu education zone?
2. What are the mean achievement scores of male and female students taught Igbo grammar using team assisted and jigsaw instructional strategies in Enugu education zone?

Hypotheses

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

H₀₁: There is no significant difference in the mean achievement scores of students taught Igbo grammar using team assisted and those taught using jigsaw instructional strategies in Enugu education zone.

H₀₂: There is no significant difference in the mean achievement scores of male and female students exposed to team assisted and jigsaw instructional strategies in the learning of Igbo grammar.

Methods

The study adopted a quasi-experimental design; specifically, a pre-test post-test non-equivalent group design. The population consisted of 3,096 SSII students offering Igbo language in all the public secondary schools in Enugu education zone. (Source: P. P. S. M. B., Enugu education zone, 2024/2025). Out of the 3,096 students, 1,557 are males while 1,539 are females. The sample size consisted of 106 SSII secondary school students. Multi-stage sampling technique was adopted. In the first stage, purposive sampling procedure was used to select co-educational public secondary schools in Enugu education zone. Simple random sampling technique was used to select two public schools and four intact classes. The study used Igbo Grammar Achievement Test (IGAT) for data collection. The IGAT was adapted from WAEC past questions that are related to the topics and objectives of the lesson. IGAT was a 30-item multiple choice objective questions dichotomously scored. The instrument was validated by three experts, two from the Department of Arts Education and one from the Department of Science Education (Measurement and Evaluation Unit), all from the University of Nigeria, Nsukka. Pearson product-moment correlation coefficient was used to establish the internal consistency of the instrument and the result yielded a coefficient of 0.76. The sampled schools were visited and permission/consent granted by appropriate authorities before commencement of the study. The researcher trained the research assistants who were the students' regular teachers, intimating them on the modality of the experiment. Pre-test was administered to both the experimental and the control group before the teaching began. After instruction to both groups, IGAT was re-administered as post-test and later the scripts were collected from the regular teachers after grading for quantitative analysis. Data collected were analyzed using mean and standard deviation to answer the research questions. Any item that obtained a mean score of 2.50 and above was accepted while the items that obtained mean scores below 2.50 were rejected. The analysis of covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance.

Results

Table 1: Mean and standard deviation analysis of achievement scores of secondary school students taught Government using TAI and those taught using jigsaw instructional strategies in Enugu education zone.

Group	Pre-test		Post-test		Mean Score	Mean Gain Difference
	N	Mean	SD	Mean	SD	
Team Assisted	39	18.10	3.94	22.86	4.61	4.76
Jigsaw	67	18.11	4.52	28.07	5.64	9.96
						5.20

Result in Table 1 showed the mean achievement scores of secondary school students taught Igbo grammar using TAI and those taught using jigsaw instructional strategies in Enugu education zone. Students who were taught using TAI had mean achievement score of 18.10 with standard deviation of 3.94 at pre-test and 22.86 with standard deviation of 4.61 at post-test. The mean gain scores of the students exposed to TAI was 4.76. On the other hand, those exposed to jigsaw had a mean achievement score of 18.11 with standard deviation of 4.52 at pre-test and 28.07 with standard deviation of 5.64 at post-test. The mean gain score of students exposed to jigsaw was 9.96. The mean gain difference of 5.20 was recorded for the two groups in favour of the students exposed to jigsaw. The standard

deviation of each group from the mean ranged from 3.94 – 5.64; indicating that the mean responses of the respondents were not too far from one another, adding further validity to the mean.

Hypotheses

H₀₁: There is no significant difference in the mean achievement scores of students taught Igbo grammar using team assisted and those taught using jigsaw instructional strategies in Enugu education zone.

Table 2: Summary of the 2-Way Analysis of Covariance (ANCOVA) on the difference in the mean achievement scores of secondary school students taught Igbo grammar using TAI and those taught using jigsaw instructional strategies in Enugu education zone

Source	Type Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	426.515 ^a	4	106.629	3.996	.008
Intercept	957.981	1	957.981	35.901	.000
PreGAT	75.065	1	75.065	2.813	.101
Strategies	295.083	1	295.083	14.011	.002
Gender	14.577	1	14.577	.546	.464
Strategies*Gender	3.751	1	3.751	.141	.710
Error	1147.402	101	26.684		
Total	33504.000	106			
Corrected Total	1573.917	105			

Result of the analysis in Table 2 revealed that TAI and jigsaw have significant effect on the mean achievement scores of secondary school students in Igbo grammar. This is because the calculated F-value of 14.011 associated with the strategies has a probability value of .002 and therefore significant at .05 level of significance. This implies that exposing secondary school students to TAI and jigsaw significantly increased their achievement in Igbo grammar. Therefore, the null hypothesis of no significant difference in the mean achievement scores of students taught Igbo grammar using TAI and jigsaw in senior secondary schools in Enugu education zone is rejected. The inference drawn is that there is a significant difference in the mean achievement scores of students taught Igbo grammar using TAI and those taught using jigsaw instructional strategies in Enugu education zone.

Table 3: Mean and standard deviation analysis of the influence of gender on students' achievement when taught Igbo grammar using TAI and jigsaw instructional strategies in Enugu education zone

Gender	Pre-test		Post-test		Mean Score	Mean Gain Difference
	N	Mean	SD	Mean	SD	
Male	58	17.02	5.43	24.30	3.36	7.28
Female	48	19.19	4.21	26.63	2.42	7.44

Result in Table 3 revealed the influence of gender on students' achievement when taught Igbo grammar using TAI and jigsaw instructional strategies in Enugu education zone. The male students had mean achievement score of 17.02 with standard deviation of 5.43 at pre-test and 24.30 with standard deviation of 3.36 at post-test. The mean gain score of male students was 7.28. On the other hand, female students had mean achievement score of

19.19 with standard deviation of 4.21 at pre-test and 26.63 with standard deviation of 2.42 at post-test. The mean gain score of the female students was 7.44. The mean gain difference of 0.16 was recorded for the two groups in favour of the female students. The standard deviation of each group from the mean ranged from 2.42 – 5.43; indicating that the respondents were not too far from the mean and from one another in their responses, adding further validity to the mean.

H0₂: There is no significant difference in the mean achievement scores of male and female students exposed to TAI and jigsaw instructional strategies in the learning of Igbo grammar. Result of the analysis in Table 2 above revealed that gender as a factor in the study does not have a significant effect on the mean achievement scores of secondary school students in Igbo grammar. This is because the calculated F-value of 0.546 has a probability value of .464, which is greater than the 0.05 level of significance. This implies that gender does not have a significant influence on the mean achievement scores of students taught using TAI and jigsaw instructional strategies. Therefore, the null hypothesis of no significance difference in the mean achievement scores of male and female students taught using TAI and jigsaw instructional strategies is accepted. Therefore, the researcher concluded that there is no significance difference in the mean achievement scores of male and female students taught Igbo grammar using TAI and jigsaw instructional strategies in Enugu education zone based on gender.

Discussion

The finding of the study indicated that the mean and standard deviation of secondary school students taught Igbo grammar using TAI and those taught using jigsaw are closely related, showing that the respondents demonstrated similar level of understanding despite being taught with two different instructional strategies. This finding is in line with Anagrolia, & Muneja, (2020) who found that students' attitude, achievement, and retention in Literature in English improved when they were exposed to Computer-assisted Jigsaw II, TAI, and Learning Together Cooperative Instructional Strategies. The finding is also in tandem with Afifah, Isnani and Wikan (2019). They discovered that the proportion test on students using the TAI instructional strategy is effective in improving problem-solving skills, learning effectiveness, and mathematics learning achievement of students. Further finding showed that gender has no significant influence on students' achievement when taught Igbo grammar using TAI and jigsaw. This implies that the two strategies are efficacious across gender. This finding aligns with the findings of Menakaya, Uzoegwu and Emelogu (2024) which showed that males and females did not differ when taught with student-centered instructional strategies. Thus, TAI or jigsaw instructional strategies can be applied effectively in classes involving male and female students.

Conclusion

This work examined the effectiveness of team assisted and jigsaw instructional strategies on students' achievement in senior secondary school Igbo grammar in Enugu education zone. The mean achievement scores of male and female secondary school students taught Igbo grammar using TAI and jigsaw instructional strategies was equally investigated. The findings showed that students taught with Jigsaw showed slightly higher mean achievement than those taught with TAI. Further findings revealed that gender is not a significant factor in the use of both Jigsaw and TAI in enhancing students' achievement in Igbo grammar contents. It was therefore concluded that both TAI and jigsaw instructional strategies are effective in engaging students irrespective of their gender differences.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. The use of team assisted instruction and jigsaw should be encouraged by the curriculum planners for use in Igbo grammar lessons.
2. Schools and Teachers of Igbo language should adopt TAI and jigsaw instructional strategies so as to improve students' academic achievement in Igbo grammar.
3. There should be prompt supervision of teachers to ensure compliance with the appropriate instructional strategies.

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