AIJLLS |MARCH 2021 | VOL 5 ISSUE 11
مجلة اللسان الدولية / العدد الحادي عشر (مارس 2021م/ 1442 هـ)
الترقيم الدولي ISSN 2600-7398

JIGSAW IV COOPERATIVE INSTRUCTIONAL STRATEGY AS DETERMINANT OF READING COMPREHENSION ACHIEVEMENT OF NIGERIAN COLLEGE OF EDUCATION STUDENTS.

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Abstract

Reading comprehension is the hub that allowed other language skills to be taught communicatively, it is a learning strategy in itself and a means of instruction to examine students in formal classroom settings. Reading is a literacy skill that its comprehension enhances the understanding of other subjects. Despite various researches on reading instruction, the trend of low performance of Nigerian students in national examinations in English language still continues. This is a threatening inhibition to the attainment of the country's educational goals. Education planners and administrators have constantly and aptly expressed the view that no nation can rise above the quality of her educated citizens. This means that for any meaningful development, appropriate attention towards the growth of education is imperative, in view of this, the Nigeria government recognizes the pivotal roles of quality teachers in the provision of quality education at all levels. It therefore states that teachers' education shall continue to be emphasized in educational planning and development (FRN, 2013). Since teachers are the real implementers of educational policy, aims and curriculum goals, the aim of this study was to access Jigsaw IV cooperative instructional strategy (J4CIS) as a determinant of reading comprehension achievement of Nigerian college of education students. College of education is one of the institutions charged with the responsibilities of producing intermediate teachers in Nigeria. The objectives of this study were to: (a) examine the entry achievement level of College students in reading comprehension, (b) ascertain the effect of the strategy on the reading comprehension of college students, (c) assess the effect of gender on the reading achievement of college students exposed to the strategy. The study adopted the quasi-experimental research design. Purposive and simple random sampling techniques were used to select 60 participants from the two public colleges of education in Kwara State, Nigeria. Reading comprehension achievement tests (RCAT) were used for the data collection: items of the tests were adopted from recommended texts and were validated by language experts. Data collected were analyzed using Analysis of Covariance (ANCOVA) at 0.05 level of significance.

The findings of the study were:

i. Before the treatments, most college students could read orally but few comprehended effectively
ii. A significant difference exists in the reading comprehension of students taught with Jigsaw IV cooperative instructional strategy (J4CIS)
iii. Gender does not have any significant effect on the reading achievement of students when exposed to Jigsaw IV cooperative instructional strategy (J4CIS)

The study concluded that reading comprehension can be better enhanced when learners are exposed to Jigsaw IV cooperative instructional strategy (J4CIS) because it embraced communicative teaching. The study recommended among others that teachers should employ the use of the strategy in reading instruction so

ب- أثر الإستراتجية فى القراءة والفهم لدى طلاب كلية التربية

ج- تفحيص أثر الجنس فى قدرة التحصيل العلمى لفن القراءة والفهم لدى طلاب كلية التربية الذين عُرضوا للإستراتجية

واستخدم البحث تصميم شبه تجريبى والعينة الهدفية مع العينة البسيطة فى إختيار ستين متشاركين فى البحث من كليتى التربية فى ولاية كوارى النيجيريا.

وكذالك استخدم البحث الإختبارات التحصيلية للقراءة) (RCATلجمع البيانات. ومحتويات الإختبارات كانت منقولة من النصوص المقررة، وقُدِّمت للمتخصصين فى اللغة للتصحيح. واستُخدم (ANCOVA) لتحليل البينات. واستنبط البحث الآتى:

1- قبل إستعراض الطلاب للإستراتجية ، يستطيع طلاب الكلية أن يقراءوا قراءةً شفويةً بدون الفهم

2- هناك الفرق المهم فى قدرة القراءة والفهم لدى الطلاب الذين عُرضوا لاسترتجية التعلم التعاونى (J4CIS)

3- وليس للجنس أثر مهم فى قدرة القراءة والفهم لدى الذين عُرضوا لإسترتجية التعلم التعاونى (J4CIS)

واختتم البحث أنّ تطوير القراءة والفهم سيكون ممكنا ومسهلا عن طريقة استرجية التعلم التعاونى (J4CIS) لأنّها تتيح الفرصة للتدريس الإتصالى ومن الإقتراحات الصادرة اثر نتائج البحث هو على المدرسون أن يستخدموا هذه استراتجية فى تدريس القراءة والفهم لكى يسهل إندماج بين المهارات اللغوية الآخرى وتدقيق التحصيل العلم لدى الطلاب.

as to integrate other language skills and improves students' achievement levels.
Keywords: Jigsaw cooperative strategy, instructional strategy, Determinant, reading comprehension, college of education

ملخص البحث

إنّ القراءة هي صرة التى تساعد فى تدريس بقية المهارات اللغوية الأخرى، وهى بنفسها استيراتجية التعلم وأداة لإستخبار التلاميذ فى هيكل الفصل الدراسى الرسمى. القراءة هي مهارة تفيد إجادةالكتابة واتقانها تساعد فى فهم المواد الأخرى. برغم عن الأبحاث العديدة على تعليم القراءة، مازال فشل الطلاب فى الإنكليزية فى الإمتحانات العامة يستمرّ. وكانت هذه من المعاوقات التى تعوق تحقيق الأهداف الوطنية للتربية. ومازال المخططون والمدراء فى ميدان التربية يستقرّون أنّ ليس من ممكن لأي وطن أن يريقى فوق مدى علم سكانه. فهذ يدل على أنّ لكل من أنواع تربية مهمة فى المجتمع ولابدّ أن يتيح للتربية اهتمام مناسب. وبالنسبة لهذا، تعترف حكومة النيجيريا بألعاب مهمة تلعبها المدرّسون الأكفاء فى تزويد التربية الكافية عبر المراحل العلمية وتقرّ بأنّ تربية المعلمين ستستمرّ تقبل العناية فى التخطيط التربيوي وتنميته. (الحكومة الفيدراليةالنيجرية 2013). ومهما كان المعلمون هم الذين يقومون بتنفيذ خطة وأهداف التربية، هدف هذا البحث أن يبحث أثر استرجية التعلم التعاونى (J4CIS) كالمقاومة للقدرة القراءة والفهم لدى طلاب كليات التربية فى النيجيريا. إنّ كلية التربية هي إحدى الكليات والمعاهد التى تقوم باستعداد المدارسين فى المرحلة المتوسطة فى نيجيريا. والأغراض الخاصة للبحث هي الآتية :

أ- تفحيص مدى قدرة التحصيل العلمى لفن القراءة والفهم لدى طلاب كلية التربية عند القبول

Introduction

Reading is a purposive mental activity that is targeted towards extracting messages from written or printed text through the interaction of the text, the reader and the knowledge of languages variables. The reading rocket (2015) notes that reading is a selective process that involves partial use of available minimal language cues selected from perceptual input on the basis of the reader's experience. The goal of reading is comprehension although some scholars describe it has a construct that cannot be directly observed. Block (2002), however, defines comprehension as intentional thinking during which meaning is constructed through interaction between the text and the reader. Reading comprehension on the other hand, refers to the act of understanding and constructing meaning from written words which includes all of the process related to deriving meaning from written language and "Deriving meaning" indicates that there is meaning in texts which needs to be understood "constructing meaning" indicates that readers often go beyond the meaning explicitly contained in the text and add to the meaning based on their own experience and their ability to infer an additional or deeper meaning. Thus, reading comprehension is much more than the ability to read individual words and know what those words mean, but to understand the meaningful message sent by the author.

Strategy is a term that originated from the Greek word "Strategia" which means "generalship" (William, 2005), Yunusa (2012) refers to strategy as a plan, that is, a means of getting from here to there. Fakeye (2002) opines that strategy consists of the important actions necessary to realize direction. She further states that strategy answer questions on what are the ends one seeks and how should one achieve them.

Instructional strategies can be thought of, as teaching techniques, but sometimes these strategies involve more input from students (Adebiyi, 2002). Smith and Dryer (1995) describe instructional strategy as the approach taken to facilitate learning. Olorundare (2009) points to reading, itself as a strategy for teaching and learning all subjects. Cooperative strategy is an instructional strategy in which some team with students of different learning abilities use a variety of activities to improve their understanding of a subject. Jigsaw is a developed model of cooperative strategy. It was developed by Eliot Aronson and his

associates in 1978 at the University of Texas. It was originally designed to breakdown stereotypes and prejudice among classmates. Jigsaw strategy is similar to the structure of a game that carries the same name "Jigsaw". Though Aronson (1978) was the pioneer of the strategy, it was later modified by other researchers. Jigsaw II by Slavin (1987), Jigsaw III by Stahl (1994), Jigsaw IV by holliday (2002), reverse Jigsaw by Heeden (2003) and subject Jigsaw by Doymons (2007): So, there are six Jigsaw cooperative models.

Jigsaw Instructional Strategy

Generally, in Jigsaw class, students were assigned to different "home groups" each member of a "home group" would be assigned a different material or topic. After that, members of the different home groups who have the same learning materials or topic gathered together to form "expert group" to discuss and communicate with each other until they master the material or topic. Later, the students will return to their original "home group" to turn-teach the material or topic to other members of their group. (Heeden, 2003).

Jigsaw IV models includes three additional features; an introduction, quizzes and re-teaching of material or topic after individual assessment. It confirms whether the expert members are specialized by testing them. The result of these tests determines the missing parts of the learning and would be completed by the teacher. The same implementation is repeated to the home group after the expert members have carried out their topic presentation in the home group. (Holiday, 2002).

Ige (2015) outlined the implementation of the strategy as follows:

a. Introduce the strategy and topic to be studied to the students
b. Assign each student to a "home group" of 3-5 students who reflect a range of reading abilities
c. Determine a set of reading selections and assign one selection to each student.
d. Create "expert group" that consist of students across home group who will read the same selection
e. Give all students a framework for managing their time and the various parts of the Jigsaw task
f. Provide key questions to help the "experts group" gather information in their particular area.
g. Provide materials and resources necessary for all students to learn

about their topic question and become experts

h. Discuss the rules for reconvening into "home groups" and provide guidelines as each "expert" reports the information learned

l. Prepare a summary chart or graphic organizer for each "home group" as a guide for organizing the "experts" information report

i. Remind students that "home group" members are responsible to learn all contents from one another

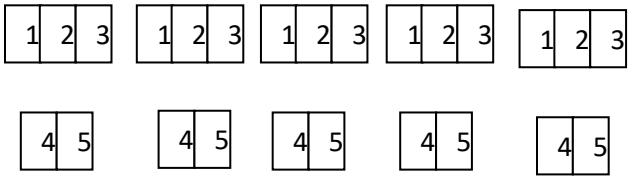
j. Have students fill all graphics organizers in the home group to gather all the information presented by each "expert"

k. Inform "home group" that they will present to the entire class or may participate in some assessment activities

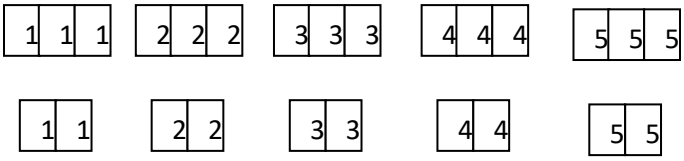
l. Circulate to ensure that groups are on task and manage their work well as group, to stop and think about how they are checking for everyone's understanding, and ensure that everyone's voice is heard.

FIGURE A: THE THREE PHASES OF JIGSAW GROUPING (ACCORDING TO MADEN 2010)

Phase I: students are assigned to (heterogeneous) "home group" based on their scores in pretest



Phase II: students meet in "experts' group" (homogeneous)



Phase III: students return to "home group" to teach one another.

Figure A shows that jigsaw classroom reduces student's reluctance and anxiety to participate in the classroom activities, while it increases self-esteem and self-confidence. It equally improves students' academic performance because each student is attached to a concept and referred to as an expert to teach his/her group mates.

Statement of the Problem

Reading is a tool for learning all other subjects in the curriculum; it is one of the basic medium of examining students in formal classroom setting. Many researches have been conducted on reading instruction using various strategies; yet slight improvement is recorded on students' performance. Adegbite (2003) lamented that reading comprehension has been misunderstood in secondary school classrooms because the skill is learnt by mere intensive individual work in which textual passages are read orally or silently by learners and mainly literal questions are thrust upon them to test their comprehension.

Adebiyi (2012) subscribed to the fact that reading instruction in schools has not fully utilized students' prior knowledge or involve active participation of students in classroom. The continuous low academic performance of students in English language and specifically reading could amount to lack of active involvement of students in reading. Based on this, there is the need to assess the effect of jigsaw IV cooperative instructional strategy on the reading achievements on Nigerian college of education students since the strategy embraced team learning and made students active participants in the teaching and learning process also, the study sought to ascertain the influence of gender on the strategy.

Purpose of the Study

The purpose of this study was to examine Jigsaw IV cooperative instructional strategy in determining the reading achievement of Nigerian College of Education students. The study also sought to find out the entry performance of college students in reading comprehension and to ascertain the influence of gender on college students reading achievement upon exposure to the strategy.

Research Hypotheses

The following hypotheses were formulated and tested in this study:

H_{01}: There is no significant effect of J4CIS on the reading achievement of Nigerian college of education students

H_{02}: There is no significant effect of gender on the reading achievement of students in Nigerian college of education students exposed to J4CIS

Research Design

The study was a quasi-experimental design which involves non-randomized Pretest-posttest experimental control design. It adopted a 2 x 2 x 4 factorial design. The study involved two groups: one experimental and one control of which gender occurring at two levels (Male and Female) was considered as a moderating variable and four levels of academic achievement (high, average, low and poor) as the dependent variable

Table 1: Research design layout

Group	Pre-test	Treatment	Gender	Post-test
Experimental group (J4CIS)	**O_1**	**X_1**	**M/F**	**O_2**
Control Group (CIS)	**O_2**	**-**	**M/F**	**O_2**

NB: O_1 = Pretest

O_2= post test

- = non randomization

Table 1 shows the research design layout. The experimental group is represented by J4CI, while CIS is the control group.

O_1 serves as the pretest, O_2 is the posttest and X_1 serves as the treatment received by the experimental group.

Population, Sample and Sampling Techniques

The total population for this study comprised all students of Kwara State Colleges of Education. The target population was all the students in the second year (N.C.E II) of their study. This class was purposively selected to participate in the study because they had already spent one year in the college; and they consisted of both male and female students. Two equivalent Colleges of Education established by the Kwara State government were selected using purposive sampling techniques. The technique was employed to ensure spread among the academic divisions (schools) in the Colleges. Though the population of students in each school was taken into account, none of the

schools (Vocation, Sciences, Arts and Languages) had less than six (6) participants for the study in each of the selected Colleges, thirty students were randomly selected to take part in the study. A total of sixty students participated in the study.

The Reading Comprehension Achievement Tests (RCAT) was used to stratify the students into achievement levels; high, average, low and poor. These helped to ensure that students whose scores are within 35 to 50 were regarded as the high achievers, the average achievers' students were those whose scores were within 25-34, the low achievers were those that scores within 19-24 while the poor achievers are those that scored within 0 to 18 marks.

Instrumentation

The research instruments used for data collection were the Reading Comprehension Achievement Test (RCAT). An instructional guide on Jigsaw IV Cooperative Instructional Strategy (J4CIS) package was also used. To ensure the face and content validity of the RCAT. The passages were adapted from recommended English language textbooks that were validated by language expert. It was also subjected to the opinions and suggestions of experienced English language lecturers from the selected Colleges and from the University of Ilorin and equally to some Test and Measurement experts from the same University. There contributions, observations and amendments were effected before the administration of the instruments, The RCAT were five paragraph passages; all the passages contained seven (7) related questions that were generated to test students' reading comprehension.

The researchers-designed instructional guide on J4CIS served as treatment for the experimental group. Test re-test method was used to obtain a reliability coefficient of 0.78 using Pearson Product Movement Correlation (PPMC) statistics at 0.05 level of significance.

Procedure for Data Collection

Prior to the administration of the experiment, the researchers visited the authorities of the selected Colleges of Education to seek for their consent and support to involve their students in the study. The researchers personally administered the treatment on the experimental group and taught the control group conventionally. The study lasted for three weeks of which pre-test was administered to both groups and after which the experimental group were exposed to the J4CIS. Participants in the class were

heterogeneously divided into groups with five members each; each group was divided according to the number of paragraphs in the passage. The groups were referred to as "home groups", each student was assigned to a paragraph and was given a specific task in the group. Each student was given a J4CIS paragraph inquiry sheet to respond to the specification task. Later, students were directed to form homogeneous groups known as "expert groups" members of this group consisted of students assigned to the same paragraph; they meet and deliberated on their specific tasks, made corrections and modifications, and attend to the researchers' quiz, then fill the J4CIS inquiry sheet together and returned to their different "home groups" as expert in his/her own task. Each member then taught his/her own paragraph to the home group and the group filled the J4CIS passage inquiry sheet together that was presented to the entire class.

The control group was taught reading comprehension using the conventional instructional strategy and the same test items used as pretest were restructured and administered to the students as post-test. The result of the second test served as the post test scores. The data collected from the pretest and posttest scores were analyzed using ANCOVA (Analysis of Covariance) statistical tools.

Data Analysis and Results

The two research hypotheses were tested using mean and standard deviation statistics.

Hypotheses Testing

$H0_1$**:** There is no significant effect of J4CIS on reading achievement of COED Students.

Table 2: Effect of J4CIS on the reading achievement of college students

Source	**Type III sum of squares**	**df**	**Mean square**	**F**	**Sig**
Corrected model	19314.205[a]	2	9657.103	63.727	.000
Intercept	59099.953	1	59099.953	390.002	.000
Pretest	53.789	1	53.789	.355	.554
Groups	19038.374	1	19038.374	125.635	.000
Error	8637.645	57	151.538		
Total	243592.000	60			
Corrected total	27951.850	59			

a. R Squared = .691 (Adjusted R Squared = 6.80)

Table 2 indicates that the calculated F- value is 125.635 with 1/59 degree of freedom computed at 0.5 level of significance. Since the calculated level of sig. (0.000) is less than the critical level of significance (0.05), it implies that there is a significant effect of J4CIS on reading achievement of college Students. The result therefore showed that J4CIS is more effective than the conventional instructional strategy in improving college students reading comprehension.

$H0_2$**:** There is no significant effect of gender on the reading achievement of COED Students exposed to J4CIS.

Table 3: Effect of Gender on the reading achievement of college students exposed to J4CIS.

Source	Type III sum of squares	Df	Mean square	F	Sig
Corrected model	423.956[a]	2	211.978	.439	.647
Intercept	62011.904	1	62011.904	128.404	.000
Pretest	312.787	1	312.787	.648	.424
Groups	148.125	1	148.125	.307	.582
Error	27527.894	57	482.946		
Total	243592.000	60			
Corrected total	27951.850	59			

a. R Squared = .015 (Adjusted R Squared = -.019)

Table 3 reveals that there was no significant effect of gender on the reading achievement of college students exposed to J4CIS. This is reflected in the result obtained: the calculated F-value is .307 with 1/59 degree of freedom and computed at 0.05 level of significance. Since the calculated level of significance 0.53 is greater than 0.05, hypothesis two is therefore accepted.

Discussion

The study examined Jigsaw IV cooperative instructional strategy as determinant of the reading comprehension achievement of college students. The finding on the general entry achievement level of college students in reading comprehension reveals that student has a problem of effective comprehension of reading texts. This is because all participants in the pre-test recorded low and poor results.

This is in line with the finding of Ofodu (2009) who discovered that the conventional strategy result in rote-learning because students are passive recipients of instruction, non-thinking readers instead of being thoughtful readers. The finding of this study also indicated a significant difference in the reading achievement of the college of education student exposed to jigsaw IV cooperative instructional strategy (J4CIS). The experimental group performed better than those in the conventional instructional strategy (CIS). The higher achievement could be attributed to active learners' involvement

in the reading process occasioned by the team involvement in J4CIS.

This finding is in tandem with the submission of Ige (2015) who observed that learning accomplished through team activities is more beneficial and effective than other forms Mahmoud (2015) also notes that cooperative learning improves the creative and logical thinking abilities of students and help them solve their learning problem because it requires them to diversify learning sources, encourage team reaction and exchange of experiences, provide student with learning incentives and create self-confidence that require them to practice high level of organized thinking skills.

The study also revealed that, there was no significant difference between the reading achievement of the college of education male and female students exposed to J4CIS.This finding is similar to that of Maden (2010) Who revealed that no significant difference was revealed in the performance of male and female Turkish pre-service teachers of language teaching methods and techniques when exposed to jigsaw instructional strategy. thus, this finding suggests that the strategy is gender-friendly and is consistent for both male and female with the same measure of instructional advantage because it can be used to arouse and sustain the interest of learners and would lead to improving their learning achievement regardless of gender.

Conclusion

The finding from this study has established that Jigsaw IV cooperative instructional strategy (J4CIS) has positively enhanced the reading achievement of college students.

Finding on gender as a variable in educational researches are inconclusive, although this study found that gender had no significant effect on J4CIS in reading comprehension

Recommendations

Based on the findings of this study, the following recommendations are made:

1) Considering teachers as the real implementers of the country's education policy, aims and curriculum goals, teachers could employ J4CIS to facilitate reading instruction in class.
2) Pre-service teachers training institutions should re-orientate their students to embrace the learner-centred approach of teaching. The authorities of the institutions should acquaint their students with current research findings in

education, especially on instructional strategies.

Control and jigsaw data

	Groups	Gender	Pretest	Posttest
1	1.00	1.00	4.00	49.00
2	1,00	2.00	.00	35.00
3	1.00	2.00	.00	33.00
4	1.00	1.00	8.00	30.00
5	1.00	2.00	8.00	47.00
6	1.00	2.00	10.00	42.00
7	1.00	1.00	.00	29.00
8	1.00	2.00	10.00	30.00
9	1.00	2.00	5.00	36.00
10	1.00	1.00	10.00	35.00
11	1.00	2.00	2.00	40.00
12	1.00	2.00	12.00	31.00
13	1.00	1.00	10.00	32.00
14	1.00	2.00	4.00	31.00
15	1.00	2.00	10.00	67.00
16	1.00	1.00	10.00	53.00
17	1.00	2.00	4.00	66.00
18	1.00	2.00	10.00	29.00
19	1.00	1.00	4.00	40.00
20	1.00	2.00	10.00	32.00
21	1.00	2.00	4.00	59.00
22	1.00	1.00	5.00	43.00
23	1.00	2.00	4.00	43.00
24	1.00	2.00	10.00	50.00
25	1.00	1.00	5.00	57.00
26	1.00	2.00	10.00	22.00
27	1.00	2.00	4.00	69.00
28	1.00	1,00	2.00	30.00
29	1.00	2.00	2.00	56.00
30	1.00	2.00	6.00	45.00
31	2.00	1.00	7.50	77.00
32	2.00	2.00	5.00	87.00
33	2.00	2.00	5.50	80.00
34	2.00	1.00	6.00	70.00`
35	2.00	2.00	6.50	68.00
36	2.00	2.00	2.00	97.50
37	2.00	1.00	1.00	82.50
38	2.00	2.00	12.50	81.00
39	2.00	2.00	5.00	69.00
40	2.00	1.00	1.00	76.50
41	2.00	2.00	4.50	73.00
42	2.00	2.00	5.50	75.00
43	2.00	1.00	4.00	90.00
44	2.00	2.00	4.00	90.00
45	2.00	2.00	6.50	80.00
46	2,00	1.00	6.00	95.00
47	2.00	2.00	14.00	95.00
48	2.00	2.00	3.00	85.00
49	2.00	1.00	3.50	81.00
50	2.00	2.00	3.00	87.50
51	2.00	2.00	10.00	78.00
52	2.00	1.00	.00	60,00
53	2.00	2.00	6.50	82.50
54	2.00	2.00	6.50	85.00
55	2.00	1.00	7.00	78.00
56	2.00	2.00	4.50	60.00
57	2.00	2.00	3.50	52.50
58	2.0	1.00	14.00	52.50
59	2.00	2.00	6.00	67.00
60	2.00	2.00	5.00	80.00

Group (Jigsaw)	Gender	Pretest	Posttest
2	Male	7.5	77
2	Female	5	87.5
2	Female	5.5	80
2	Male	6	70
2	Female	6.5	68
2	Female	2	97.5
2	Male	1	82.5
2	Female	12.5	81
2	Female	5	69
2	Male	1	76.5
2	Female	4.5	73
2	Female	5.5	75
2	Male	4	90
2	Female	4	90
2	Female	6.5	80
2	Male	6	95
2	Female	14	95
2	Female	3	85
2	Male	3.5	81
2	Female	3	87.5
2	Female	10	78
2	Male	0	60
2	Female	6.5	82.5
2	Female	6.5	85
2	Male	7	78
2	Female	4.5	60
2	Female	3.5	52.5
2	Male	14	52.5
2	Female	6	67
2	Female	5	80

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Groups	1.00	Control Group	30
	2.00	Jigsaw Group	30

Descriptive Statistics

Dependent Variable: Post-test scores

Groups	Mean	Std. Deviation	N
Control Group	42.0333	12.79139	30
Jigsaw Group	77.8667	11.66555	30
Total	59.9500	21.76603	60

Levene's Test of Equality of Error Variances[a]
Dependent Variable: Post-test scores

F	df1	df2	Sig.
.695	1	58	.408

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Pretest + Groups

Tests of Between-Subjects Effects

Dependent Variable: Post-test scores

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	19314.205[a]	2	9657.103	63.727	.000
Intercept	59099.953	1	59099.953	390.002	.000
Pretest	53.789	1	53.789	.355	.554
Groups	19038.374	1	19038.374	125.635	.000
Error	8637.645	57	151.538		
Total	243592.000	60			
Corrected Total	27951.850	59			

a. R Squared = .691 (Adjusted R Squared = .680)

Total	243592.000	60			
Corrected Total	27951.850	59			

a. R Squared = .015 (Adjusted R Squared = -.019)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Gender	1.00	Male	20
	2.00	Female	40

Descriptive Statistics

Dependent Variable: Post-test scores

Gender	Mean	Std. Deviation	N
Male	58.0250	21.85326	20
Female	60.9125	21.93636	40
Total	59.9500	21.76603	60

Levene's Test of Equality of Error Variances[a]
Dependent Variable: Post-test scores

F	df1	df2	Sig.
.152	1	58	.698

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
a. Design: Intercept + Pretest + Gender

Tests of Between-Subjects Effects
Dependent Variable: Post-test scores

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	423.956[a]	2	211.978	.439	.647
Intercept	62011.904	1	62011.904	128.404	.000
Pretest	312.787	1	312.787	.648	.424
Gender	148.125	1	148.125	.307	.582
Error	27527.894	57	482.946		

REFERENCES

Heeden, T. (2003) The revearse Jigsaw; a process of cooperative learning and discussion. Teaching sociology. 31, 3, 325-332

Holiday, D. C. (2002) Jigsaw IV; using students/teachers concerns to improve jigsaw III. Lanham, M. D.; University of America, retrieved from http://www.sfsu.ed/testing/mctest/testcontruction.html

Ige, A. O. (2015) Effect of two cooperative instructional strategies on Nigerian Secondary School Chemistry Students' achievement in electrolysis. (Unpublished Ph.D thesis) University of Ilorin, Ilorin, Nigeria

Maden, S. (2010) The effect of jigsaw on the achievement of course of language teaching methods and techniques. Journal of Educational research and review. 5. 12, 216-226

Mahmoud, J. A. (2015) the effectiveness of jigsaw strategy on the achievement and learning motivation of the primary grade students in Islamic education. International journal of humanities and social science 5, 4, 111-118

Ofodu, G. O. (2009) comparative effects of two cooperative instructional methods on reading performance of secondary school students in Ekiti state, Nigeria. (unpublished Ph.D thesis) University of Ilorin, Ilorin, Nigeria

Olorundare, A. S. (2009) philosophical foundations of instrument. In I. O. Abimbola and A. O. Abolade (eds). Fundamental principles and practice of instruction (revised edition)

University of Ilorin; Bamitex Printing Press Ilorin

Slavin, R. E. (1987) cooperative learning; studies teams; what research says to teachers (2nd edition) Washinton D.C: National educational association

Stahl, R. (1994) cooperative learning in social studies: A handbook for teachers: Menlo Park, C. A. Addison Wasley Publishing Company

The reading Rocket (2015) essential of teaching reading. Retrieved from www.readingrockets.org

William, J. (2005) interactive instructional strategy and reading comprehension for higher college students; a focus on text structure. Journal of special education 39, 6, 222-228

Yunusa, A. O. (2012) two models of reading comprehension instruction strategies and students achievement in prose-literature in English in some secondary schools in Odeda local government area; (unpublished M.Ed thesis) University of Ibadan, Ibadan, Nigeria