INTERACTION EFFECTS OF JIGSAW STRATEGY AND LOCATION ON STUDENTS' ACHIEVEMENT IN ENGLISH STUDIES

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Abstract
This study investigated the interaction effect of location and jigsaw strategy on students' achievement in English Studies. The quasi-experimental non-equivalent control group design was adopted for this study. The population of the study comprised 620 JSS One students currently enrolled in the 2020/2021 session in 12 public secondary schools in Anyigba Education Zone of Kogi State. 120 students (66 from urban and 54 from the rural area) drawn from four intact classes using the multistage sampling technique constituted the sample for the study. One research question and two null-hypotheses guided the study. The instrument for data collection was a researcher-made English Studies Achievement Test (ESAT). The instrument was validated by three experts from Kogi State University, Anyigba. The reliability co-efficient was obtained through the Kudar-Richardson formula 20 which yielded a reliability coefficient of 0.85. Data collected was analyzed using mean, standard deviation and analysis of covariance (ANCOVA). Mean and standard deviation were used to answer the research question while analysis of covariance was used to test the hypotheses at 0.05 alpha level of significance ($P < 0.05$). The study found that the students attending school in the rural area achieved higher than their counterparts attending school in the urban area. There was significant difference in the achievements of urban and rural students in favour of the rural students. The findings also show that there was significant interaction effect of treatment and location. Based on these findings, it was recommended, among others, that the government should put mechanisms in place for equitable distribution of qualified teachers and learning materials irrespective of the location of a school to bring about equity in teaching and learning.

Key words: Jigsaw strategy, location, students' achievement, English Studies.

Introduction
Globalization has reshaped the world and the way we live, making the world a seemingly much smaller place (Altan, 2017). Globalization has created a world without boundary where people communicate, share and do business with the help of information and communication technology. According to the World Economic Forum cited in Ginting and Kuswandono (2020), 65% of students who are in elementary school now may work in professions that do not exist today. Therefore, one of the challenges of education is how to prepare students for critical thinking in anticipation of future job market. The responsibility of preparing students to meet up with these challenges rest squarely with the teacher. Unfortunately, the current trend of teaching English in secondary schools cannot inculcate critical thinking skills and competences in the learners to prepare them for the world of work and future job market.

The World Bank (2017) report has documented the existence of learning crisis in the low and middle income countries. The report showed that schools put a lot of emphasis on schooling without focusing on students' learning. While there are many students gaining access to education in secondary schools, many are not gaining basic skills. The skills that will confront today's world challenges will depend on the improvement of students' performance with the teacher being part of the process or the pathway to learning (Jepketer, 2017). Therefore, English Studies teachers should shift from the traditional approach of language teaching to equipping learners with communicative skills for interaction to meet global challenges. The classroom is but a rehearsal. The strength of language learning depends ultimately on the extent to which it reaches out to the world around it. To achieve success in this regard, language teachers should apply appropriate teaching methods that best suit specific objectives.

Poor academic performance by majority of students is fundamentally linked to application of ineffective teaching methods by teachers to impart knowledge (Adunola (2011). Coe, Aloisi, Higgins and Major (2014) posit that the two factors with strong research evidence that contribute to teaching effectiveness and increases improvement in students' performance are teachers' pedagogical content knowledge and quality instruction. In order for a method to be effective, teachers need to be grounded in the content knowledge and also be conversant with numerous teaching strategies that take cognizance of the magnitude of complexity of the concepts to be covered. Unfortunately, in Nigeria, teacher-centered instructions still dominate language teaching in the 21st century and the use of the lecture method is still the dominant teaching method. In the lecture method, the teacher is at the centre of teaching and learning processes while learners remain passive. There is therefore need to decentralize this situation in favour of the learners. The learners should be engaged in problem-solving exercises, which will allow them to take charge of the learning. One of the strategies that could make learners active participants in the language lessons is the jigsaw strategy which lays emphasis on the learners as central components of teaching and learning in the class. In the jigsaw strategy, the language teacher creates platforms and avenues for learners to learn independently and from one another while the teacher offers supportive supervision to the learners as they learn.

The jigsaw strategy is a collaborative learning approach that allows learners become participating "experts" during the lessons (Wyk, 2017). In the strategy, learners are broken into groups – home groups and expert groups. The expert groups specialize in one component of a lesson's content and then share it with their home groups. At the same time learners learn the rest of the lesson content from the other group members who are also members of expert groups in other components of the lesson content. Thus, it could be concluded that each learner plays a vital role to complete the assignments given by the teacher by co-operating with other learners. Elliot Aronson, a social psychologist first developed the jigsaw learning strategy in 1971 to strengthen the bond among pupils regardless of their race, gender or locality. Since then various researchers (Walker, Olvet & Chandran, 2015; Aydin & Biyikil, 2017; Shahri, Mtlabi, Esmaeili & Kianmehr, 2017; Dhull & Verma, 2018) have experimented it in different fields of learning.

Efforts to improve students' performance have led to several studies to determine the predictors of academic performance. Some of the predictors are learning strategy, age, gender and school location (Christian, 2014). The focus of the current study is location. Location means the geographical environment in which schools are sited. The World Bank (2017) refers to school

location to be a school's site, type of building, usage, capacity, teachers, students, environment and other parameters for rationalization of both rural and urban school map. The difference in school location – urban or rural – could result in differences in students' achievement in language learning (Omachonu, 2018).

Studies that attempt to compare academic performance of urban and rural students have shown conflicting results. For instance, while Nworgu and Nworgu (2013); Ronfeldt, Kwok and Reininger (2016); and Umar and Samuel (2018) found substantial urban-rural disparities against the rural students in all areas of learning achievement, Faisal, Shinwari and Mateen (2016); and Omachonu (2018) established significant difference in favour of rural students. Alokan and Arijesuyo (2013); and Omachonu (2020) in other studies, however, found no significant difference in academic achievement between students from rural and urban environments. Since there are conflicting findings on location and achievement, it is necessary to research further to ascertain the interaction effect of jigsaw strategy and location on students' achievement in English Studies, hence the need for this study.

One research question and two null-hypotheses guided the study. These are:

Research Question

What is the mean achievement scores of students in urban and rural areas taught English Studies with the Jigsaw Strategy?

Hypotheses

HO_1: There is no significant difference in the mean achievement scores of urban and rural students taught English Studies with the Jigsaw Strategy.

HO_2: There is no significant interaction effect of method and location on the achievement scores of students taught English Studies with the Jigsaw Strategy.

Method

The quasi-experimental non-equivalent control group design was adopted for this study. Specifically, it is a non-randomized control group design. The population of the study comprised 620 JSS one students currently enrolled in the 2020/2021 session in the 12 public secondary schools in Anyigba Education Zone of Kogi State. 120 students (54 from rural and 66 urban) was drawn using the multistage sampling technique. In the first instance, stratified sampling technique was used to draw two schools from each strata –urban and rural area – making a total of four schools. Two intact classes in the sampled schools were then randomly assigned to treatment and control groups by balloting. The instrument for data collection was a researcher-made English Studies Achievement Test (ESAT). The instrument was validated by three experts from Kogi State University, Anyigba. The reliability co-efficient was obtained through the Kudar-Richardson formula 20 which yielded a reliability coefficient of 0.85. The instrument was administered as pre-test two weeks before treatment. The two groups were taught using the jigsaw learning strategy. Using the lesson plans prepared by the researcher, the regular English Studies' teachers taught their classes as research assistants. They teachers were earlier trained by the researcher on how to carry out the experiment. After six weeks of the experiment, the instrument for data collection was reshuffled and re-administered as posttest. Data collected was analyzed using mean, standard deviation and analysis of covariance (ANCOVA). Mean and standard deviation were used to answer the research question while analysis of covariance was used to test the hypotheses at 0.05 alpha level of significance ($P < 0.05$).

Results

Table 1: Mean and Standard Deviation of Achievement Scores of Urban and Rural Students Taught English using Jigsaw Learning Strategy

Group	N	Pretest		Posttest		Gain Score	Gain Difference
		X	SD	X	SD		
Rural	54	28.54	9.90	40.60	2.14	12.06	6.08
Urban	66	30.48	6.60	36.46	6.60	5.98	

The results on Table 1 revealed that the students in rural area obtained a posttest mean of 40.60 while their counterparts in urban area obtained a posttest mean of 36.46. The mean gain of rural students is 12.06 while that of the urban students is 5.98. The gain difference is 6.08 in favour of the rural students. There is therefore a strong positive relationship between jigsaw strategy and location on students' achievement.

Table 2: Summary of Analysis of Covariance for Significant Difference in Students' Achievement in English Studies

Source	Type III sum of Squares	df	Mean Square	F	Sign
Corrected Model	11332.930[a]	8	1416.616	25.945	.000
Intercept	2347.979	1	2347.979	43.003	.000
Pretest	2168.188	1	2168.188	39.710	.000
Location	1382.405	1	1382.405	25.319	.000
Method and Location	838.079	1	838.079	15.349	.000
Error	5951.443	109	54.600		
Total	168060.000	120			
Corrected Total	17284.373	117			

Table 2 shows that the F- value for location is 25.31 which is significant at 0.00 (P=0.00<0.05). Since 0.00 is less than 0.05, there is a significant difference in the mean achievement scores of urban and rural students taught English Studies with the Jigsaw Strategy. The null-hypothesis claiming no significant difference is rejected.

On treatment and location, the result on Table 2 reveals that the calculated F-value of 15.34 for method and location is significant at 0.00; that is, (P=0.00<0.05). The implication of this finding is that there is significant interaction effect of method and location. We therefore reject the null-hypothesis which states that there is no significant interaction effect of method and location.

Discussion

The finding of the study revealed that the students in rural area achieved higher than their counterparts in urban area. This finding collaborates the study of Faisal, Shinwari and Mateen (2016 and Omachonu (2018) who reported that rural students who are adequately exposed to good learning instructions achieved higher than their urban counterparts. This finding is however at variance with the findings of Ronfeldt, Kwok and Reininger (2016) and Umar and Samuel (2018) who reported that urban students achieved higher than rural students in all areas of learning.

On whether there is a significant difference in the achievement of urban and rural students, results on Table 2 shows that there is a significant difference in favour of rural students. This is in agreement with Ellah and Ita (2017); Omachonu (2020) and Akogu (2020). The findings on Table 2 further shows that school location and treatment have effect on students' achievement. This is in line with the finding of Akinwunmi (2017) and Ajai (2018) who both reported that there was significant interaction effect of location and treatment on students' achievement in English.

The findings of this study have exposed the neglects and deprivations that are prevalent in rural schools in Nigeria. Most rural schools are understaffed and lack learning facilities. In addition, the teachers in rural schools are not committed to duty because there is no constant monitoring and supervision, hence the popular view of prevalent under achievements of students in rural areas. The commitment of the research assistants to this novel instructional strategy may have gingered the interest of learners. Moreover, the interactive nature of the jigsaw strategy may have energized the learners to be attentive and focused, hence the higher achievement of the rural students above their urban counterparts. English Studies' teachers should therefore make conscious efforts to ensure that no learner is left behind by creating a learning environment for all learners to be actively involved during lessons.

Conclusions

The findings of this study show that students attending schools in rural area achieved higher than their counterparts in urban area. School location has significant effect on students' achievement just as there was significant interaction effect of treatment and location on students' achievement. From the findings of this study one can conclude that the jigsaw strategy is more suitable for students in rural areas than those in urban areas.

Recommendations

1. Language teachers should create learning atmospheres that are conducive for learning in order to enhance the development of students' learning experiences irrespective of the location of a school.
2. Bias in selection of teaching methods in which teachers possess exclusive monopoly of knowledge should be avoided. Rather, teachers should strive to develop themselves in knowledge-diverse instructional strategies in order to keep learners engaged and motivated throughout the learning process.
3. Government should put mechanisms in place for equitable distribution of qualified teachers and learning materials irrespective of the location of a school to bring about equity in teaching and learning.

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