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SCHOOL LOCATION AS A CORRELATE OF MATHEMATICS STUDENTS ACHIEVEMENT IN A COOPERATIVE LEARNING CLASS

Chianson, Mimi Martha
Department of Curriculum and Teaching
Benue State University, Makurdi
E-mail: Searchhbk@yahoo. Com

ABSTRACT
The study was carried out to ascertain if school location has an effect on mathematics students achievement in a cooperative learning classroom. Students are made to believe that where their school is being located (rural or urban settlements) affects their performance in mathematics. It is the researchers believe that, if the appropriate teaching strategy is implemented, students may find mathematics more enjoyable not minding their various school location. This research was carried out on 174 SS2 students in government co-educational secondary schools in Benue State, who were taught circle geometry. The study was that of a quasi-experimental design. One research question and one hypothesis were formulated for the study. The mean and standard deviation was used in answering the research question and ANCOVA was used in testing the hypothesis. The findings of the research revealed that students in the urban schools performed better than students in the rural schools. This may be as a result of lack of funding to provide these schools with necessary instructional aids, well qualified teachers, lack of in-service training of teachers to keep them abreast with knowledge of relevant teaching strategies and building facilities. If the government pays close attention and provides intensive monitoring for funding in schools in rural areas, these schools may also be in a better position to utilize an appropriate classroom strategy to enhancing a better achievement in mathematics at large and geometry specifically. Based on level of improvement of the funding of rural schools, more parents may be encouraged to send their children to rural schools.
Keywords: *Rural schools, urban schools, Environment factors, schooling factors, cooperative learning strategy.*

INTRODUCTION
In Nigeria today, society, parents and students seem to associate better performance and achievement in mathematics to a variety of factors for which school location is inclusive. School location simply describes the settlement or area in which a school is situated. This settlement could either be urban or rural. Student achievement may be greatly influenced by the area in which the students live or where the school is situated. Brown and Swanson (2001) assert that the reasons for variation in achievement can be as a result of geographic location of school, resources, availability of technology and quality of teachers. They also identified that low performing youths are mostly in public rural schools. Lackney (1999) stated that school buildings, classroom housing the students, the physical and environmental conditions, could cause poor students' achievement in mathematics. Lackney (1999) points out that school building which are located near factories, poorly ventilated, having large class size and school size and failure of embedding schools within their community, can cause poor

achievement in mathematics. Most of these factors are visible in the urban and rural areas where schools are situated. Thomson, Cresswell and DeBortoli (2004) reports after carrying out a research on Australian schools that, the mean score for students in remote Australian schools for scientific and mathematical literacy was below the international mean of 500.Australian students in metropolitan schools significantly outperformed those in provincial schools who in turn had higher mean achievement than students in remote schools. William (2005) reported that much of the rural-urban variation in mathematics achievement for PISA 2000 could be explained by the socio-economic backgrounds of students and school in the different regions. A systematic analysis of the National Assessment Education Progress (NAEP) in Washington comparing rural and non-rural students' achievement in the nation and states took place in 1992 and 1996. NAEP discovered that eighth grade mathematics assessment showed that while rural and non-rural students had comparable levels of mathematics achievement in 1992, by 1996 rural students overall had began to out perform their non-rural counter parts. However the achievement varied considerable from state to state with rural students performing better in some states and significantly poorer in others. The difference in gains could be explained by variance in a broad range of schooling factors (instructional resources, progressive instructions, professional training, safe/orderly environment and collective support (Lee & Mcintire, 2000). Suzanne and Lauren (2012) have it that students in rural schools perform poorly in mathematics because they do not always have access to the same level of federal funding as urban and suburban school s and this can limit the opportunity students have for learning mathematics. Despite the challenges of rural schools, many offer unique factors that are associated with mathematics achievement such as smaller size and community cohesiveness

For the most part, people think of rural schools as being detrimental to student achievement. Though these schools have proven to be advantageous for some reasons first, the small size of rural schools helps assuage and combat poverty. Since there are fewer students in rural schools, their funding does not have to be comparable to schools, with thousands of students. Additionally, rural schools tend to have low student/teacher ratio, which allows more individualized attention and assistance in areas of student difficulty. One strategy that rural schools are inclined to use is group learning. This strategy allows the students to work with one another and benefit from group discussion (Brown & Swanson (2001).Many rural schools have strong ties with their community because of this, students feel comfortable in their school and are at their maximum potential for learning. Schools that make provision for or encourage use of cooperative small group instructional mode no matter the location may be in a better position to enhance students' achievement in mathematics. The concept of cooperative learning involves a small number of students working together on a common task. They share resources, encourage each others efforts and assist each other in completing the task (Department for Children, School & Family, 2010). Cooperative learning has a number of potential benefits such as students feeling they are personally liked and that others care about their learning, feeling motivated to participate and achieve; learning different function for language in thinking and reasoning them in teacher led discussions. It engages students in higher order thinking skills and makes students aware than the teacher

of what other students do not understand and often providing explanations. These explanations help in clarifying their fellow students' misconceptions sometimes even better than the teachers' explanation. In rural or urban classrooms where instructional materials are few, mathematics teachers could use the opportunity to utilize the cooperative learning strategy, so that students share the materials and give explanations where necessary. The mathematics teacher may want to introduce the cooperative learning strategy in his/her class and make students realize that failure of high achievement from their various groups, they will be held responsible. With these facts made known to them by the teacher, students who regard a mathematics class as a competitive environment especially with regards to their school location, will concentrate more on group achievement rather than individualized achievement. This study is aimed at finding out if school location has effect on students' achievement in a cooperative learning class. For the purpose of the study, the following research question will be answered.

- What is the difference in the mean achievement scores of students taught circle geometry using the cooperative learning approach in urban and rural schools.

The following hypothesis will be tested.

- There is no significant difference in the mean achievement scores of students taught circle geometry using the cooperative learning approach in urban and rural schools.

MATERIALS AND METHODS

The instrument used in the collection of data is called the Geometry Achievement Test (GAT). The instrument is a 25 item, with 4 option multiple choice objective test. The study adopted a quasi experimental design. The instrument was constructed to test students' knowledge and ability in circle geometry after utilizing the instructional strategy. The GAT has alpha reliability coefficient of 0.73, $P<.05$. The GAT was administered to students as a pretest and posttest. The post test was administered six weeks after the students had been taught using the cooperative learning approach. The population for the study consisted of all Senior Secondary II students in government co-educational secondary schools in Benue State. A sample of 174 SS II students from three local government areas from the three education Zones in Benue State where selected for the study. The three education zones are Zone A, Zone B and Zone C and the selected local governments are Kwande, Gboko and Otukpo respectively. From each local government selected two coeducational schools were selected using purposive sampling such that rural and urban schools where selected from each of this local government areas. In total six schools were selected for the study.

RESULTS

Table 1 displays the mean scores obtained by location in a cooperative learning class.

Table 1: Table Showing Mean Scores per Location

	Location	**Mean**	**SD**	**N**
Cooperative Learning	**Urban**	**40.7738**	**17.2799**	**84**
	Rural	**25.0556**	**14.3099**	**90**
Total		**32.6429**	**17.6239**	**174**

Table 2 display the analysis of students location in a cooperative learning class

Table2: ANCOVA table of students scores on achievement based on location

Source	Type III Sum of squares	df	Mean Square	F	Sig.	Eta Squared
Corrected model	20717.3875	2	10358.674	87.524	0.001	0.253
Intercept	11413.354	1	11413.354	96.435	0.001	0.181
Pre-test	11534.449	1	11534.449	97.458	0.001	0.182
Location	730.228	1	730.228	6.169	0.006	0.175
Error	20238.374	171	118.353			
Total	192162500	174				
Corrected Total	40955.761	173				

The result in Table 2 indicates a significant difference by location in achievement in GAT since P = 0.006 which means P<0.05.that is (F (I, 173) = 6.169, P<0.05, eta = 0.75).

DISCUSSION

The study investigated school location as a correlate of mathematics students' achievement in a cooperation learning class. It was revealed from Table 1 that students in urban schools with a mean (x) of 40.77 effectively utilized the cooperative learning strategy as compared to those in rural schools with a mean score of (x) of 25.06. This result gave a mean difference of 15.71 in favour of students in urban schools. The result also reveals from Table 2 that there is a significant difference in the mean achievement scores of students taught circle geometry in urban and rural schools using the cooperative learning strategy (F (I, 173) = 6.169, P<0.05). This result reveals that students in urban schools have a higher achievement in circle geometry when taught using the cooperative learning strategy as compared to students in rural schools. The result could be aligned with the findings of William (2005), Suzanne & Lauren (2012) who have it that students from urban schools perform better than those in rural schools because of the level of federal funding and socio-economic background. The fact that urban schools have access to more funding, they may also be able to equip the mathematics class with more instructional aids, more qualified teachers, better ventilated classrooms and better physical and environmental conditions which will motivate them to concentrate and perform better in a cooperative learning class. Therefore it is suggested that rural schools can also perform and achieve better in a cooperative learning class if the government (state and federal) gives proper attention to the funding of schools in these areas; provide necessary infrastructure and post more qualified teachers to these areas.

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