EFFECT OF STUDENT-TEACHER RATIO ON SENIOR SECONDARY SCHOOL STUDENTS' ACHIEVEMENT IN ECONOMICS

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ABSTRACT

This study examines the effect of student-teacher ratio on the academic achievement of public secondary school students in economics in Jos Metropolis, Plateau State. The study adopted an experimental research design with intact class arrangement. The study population comprised of all public secondary schools in the study area. A sample size of eighty (80) SSII Students were used for the study comprised 40 students for the experimental group and 40 for the control group The instrument used for the collection of data was titled "Students' Economics Achievement Test (SEAT). The instrument was validated using a test blue print and its reliability was measured using the Kuder Richardson (K-R20) method of reliability which yielded a reliability coefficient of 0.92. The mean score and standard deviation was used to answer the research questions while the hypotheses were tested using the t-test statistic at 0.05 level of significance. The result showed a significance difference in the pretest and post test mean score achievement of students in the control group and those in the Experimental group, while the pretest and post test mean score achievement of students in the Experimental group do not differ significantly despite the treatment as the H_0 was retained. The study concludes that students in classes with high student-teacher ratio record low academic achievement, and recommends strict observance of ideal student-teacher ratio in secondary schools.

Keywords: Student-teacher Ratio, Students' Achievement in Economics.

1.0 INTRODUCTION

Economics is one of the social science which tries to draw up theories of human behaviour, because it deals with people and not lifeless objects. Thus, Economics is said to be a living subject. Robbins in Oleabhiele (2012) defines Economics as a science that studies human behaviour in relationship to ends and scarce means which have alternative uses. Economics

studies how mankind organises productive resources like land, capital and labour, how and why production of goods and services takes place and in what manner goods produced are to be distributed to satisfy human wants.

Economics is so vast that its specialised branches have grown tremendously in the present century. Economics have devised basic principles and concepts in each branch on the basis of specialised studies of facts and figures of human needs after assessing human efforts made for their satisfaction in different countries from time to time. Similarly, economists make observation about human behavior: and they subject them to test though not in a laboratory, but in the environment and make logical conclusion.

According to Adu (2001) the inclusion of economics in the Secondary School Curriculum is to achieve the following objectives:

i. To equip students with the basic principles of economics necessary for useful living and for higher education,

ii. To prepare students to have respect for the dignity of labour and appreciate economic, cultural and social values of the society,

iii. To prepare and encourage students to be prudent and effective in the management of scarce resources

iv. To enable students acquire knowledge for practical solutions to economic problem of the society and the world at large.

Buttressing this, Obemeata (1991) opined that the essential values of economics to learners are: cultural values, intellectual training and vocational training. And stress that it is a method, not a doctrine, an apparatus of the mind, and a technique for thinking and drawing logical conclusions on societal issues. Unfortunately, secondary school students' academic achievement in economics has not being encouraging. According to the chief examiner's report cited in Mawak and Ugodulunwa (2011) students' achievement in economics on the average especially in graphical elements of economics has continued to be poor.

Academic achievement according to Idowu and Oluwole (2014) is the knowledge and skills gained by a learner as measured through formal examination. Academic achievement of students is the yardstick for testing educational quality of a nation (Nwokocha and Amadike, 2014). Academic achievement is, no doubt the main focus of all educational activities in schools that has received tremendous attention from educationalists. However, predicting academic success or achievement is a difficult and complex task.

The high student-teacher ratio in secondary schools in Nigeria has placed both the economics teacher and the students on the disadvantage side. The consequences of this menace includes

high workload, indiscipline, poor assessment, and poor student-teacher relations due to the absence of personalized teaching, as noted by Huebler (2008) when he opined that in crowded classrooms with high student-teacher ratio, the quality of education suffers, as teachers find it difficult to meet the needs of each student, and it is often difficult for the students also to follow the subjects and understand its contents.

In schools with high student-teacher ratio, the overburdened teachers may teach, but the quality of what they deliver in most cases is below standards. As a result of this, most of them rely on multiple choice questions as means of evaluating their students, yet these students end up answering essay type questions in external examination

Kiumi, Kibe and Nganga (2013) see students-teacher ratio as the number of learners enrolled in a given level of education divided by the number of full time teachers in that school. The National policy on Education (2004) recommended that the student-teacher ratio should be 30:1. But, the realities on ground are that in most public secondary schools in the country, the student-teacher ratio is as high as 80:1.

United Nation Education Scientific and Cultural Organization, UNESCO (2008) in its study on the Student-Teacher Ratio in some selected countries reported that over 84 of classrooms have over 40 students per teacher in Sub-Saharan Africa. The study reviewed that in Congo, it is 70:1, Rwanda 65:6, Mali 50:1, and Mozambique 67:1 while Ethiopia and Malawi has 70:1 each. Thus, Abagi and Olweya (1999) poist that the reality of teacher trying to teach over 100 students became too common in public schools and raised concern about academic standards and therefore questioned the effectiveness of public schools. Supporting this view also, Waiter (2012) argued that quality teaching may be eroded by poor achievement due to lack of observance on the ideal number of students per teacher resulting from high enrolments and declining number of teacher, stressing that if the class size is high, it becomes unimaginable to have a low student-teacher ratio, as the two are related significantly.

While most studies conducted related to this problem laid emphasis on class size and students achievement in subject like mathematics and English language among others, the effect of student-teacher ratio on students' achievement in economics has not received serious attention. This therefore is the gap that this study intends to fill.

1.2 Purpose of the Study

In general terms, the main purpose of this study is to ascertain the effect of student-teacher ratio on senior secondary school students' academic achievement in economics. In specific terms, the study intends to achieve the following objectives.

i.   To determine the extent of difference in the pretest mean achievements scores of students in classes with high student-teacher ratio and those with low student-teacher ratio.

ii. To find out the difference in the posttest mean achievement scores of students in classes with high student-teacher and those with low student-teacher ratio

iii. To ascertain the difference in the pretest and post test mean achievements scores of students in classes with high student-teacher ratio.

1.3 Research Questions

The study to provide answers to the following questions:

i.   To what extent do the difference in the pretest mean achievement scores of students in classes with high student-teacher ratio and those with low student-teacher ratio?

ii. To what extent do the post test academic mean achievement scores of students in classes with high student-teacher ratio differs from those in classes with low student-teacher ratio?

iii. To what extent do the difference in the pretest and post test academic mean achievement scores of students in classes with high student-teacher ratio?

1.4 Hypotheses

The following hypotheses were formulated and tested using the t-test statistic at Alpha (α) level of 0.05

i.   There is no significant difference in the pretest academic mean achievement scores of students in classes with high student-teacher ratio and those with low student-teacher ratio.

ii. There is no significant difference in the post test mean achievement scores of students in classes with high student-teacher ratio and those with low student-teacher ratio.

iii. There is no significant difference in the pretest and post test mean achievement scores of students in classes with high student-teacher ratio

2.1 Research Design

This study adopted the quasi-experimental research design. In specific terms, the non-equivalent group pretest-posttest design, that is, the "intact" system of class arrangement where randomization in the selection of the experimental and control groups is absent. The study considers a class with high student-teacher ratio as the experimental group while the one with low student-teacher ratio constitutes the control group.

To find out the presence or absence of difference in the academic achievement mean scores of students in the two classes, pretest was administered to the two groups after which the treatment of teaching was given to the experimental group only. To minimize the problems of recall, the multiple choice items where re-ordered and a post test was then given to the two groups to determine extent of difference in their level of academic achievement in economics.

2.2 Population of the Study

The population of this study consists of all public senior secondary school students II that offer economics as a subject in all public secondary schools in Jos metropolis, Plateau State.

2.3 Sample and Sampling Technique

The sample of this study is made up of two public (2) schools in the study area. The Study adopted simple random sampling technique in selecting the sampled schools. This technique helps to ensure equal representation as pointed out by Awotunde and Ugodulunwa (2004) that one of the conditions for using simple random sampling is that every element in the population has equal chance of being selected. Since the purpose of experimental research is replication. Government Secondary School, Kabong in Jos North and Government Secondary School, Kufang in Jos South were randomly selected and used as the sampled schools in line with the principle of matching associated with experimental research. The study uses Government Secondary School Kabong as the experimental group while Government Secondary School, Kufang served as the Control group. The Senior Secondary II students were used for the study because they are already exposed to core contents in the subject area (Economics) unlike senior secondary I students who are just being exposed to the introductory aspects of economics. However SSIII could not be used because they engaged in external examination at the time of this study. A total of eighty (80) students formed the sample.

2.4 Instruments for Data Collection

Students' Economics Achievement Test (SEAT).developed by the researcher served as instrument for data collection. The instrument consists of two sections, A and B. section A contains students personal data such as class and name of school While section B contains twenty (20) multiple choice items developed by the researcher using a table of specification on topics taught during the period of the experiment. Each item have four options where the respondents were expected to pick the right option.

2.5 Validity and Reliability of Instruments

The content validity was used to validate the instrument. The instrument was validated by three experts. (Two in economics and one in measurement and evaluation). And their corrections, suggestions were utilised in the final instrument used for data collection for the study. The Kuder Richardson (K-R20) method was used to ascertain the reliability of the instrument. A reliability value of 0.92 was obtained, which indicated that the instrument was highly reliable to be used for data collection for the study.

2.6 Procedure of Data Collection

The pretest was administered before the teaching started. The pretest was administered to the subjects and their scores were recorded. After the teaching, which lasted for four weeks, the post test was administered

The researchers administered the instrument to the subjects used for the study with the help of research assistants (economics teachers) in the selected schools. The teachers served as research assistants were adequately trained by the researchers on how to administer the treatment in order to checkmate halo effect.

2.7 Method of Data Analysis

The mean score and standard deviations were used to answer the research questions while the t-test statistics were used to analysed the hypotheses formulated to guide the study.

3.0 RESULT

3.1 Research Question I

What is the extent of the difference in the pretest academic achievement mean scores of the students in a class with high student –teacher ratio and that with low student-teacher ratio?

Table 1.0: Pretest mean achievement scores of students for question one

Group	N	Mean	Std dev.
Control (low student-teacher ratio)	30	25.60	5.10
Experimental (high-student-teacher ratio)	50	21.28	3.47

Table 1.0 above shows that the control group's mean score is higher than the mean score of the experimental group. This means that students' academic achievement is higher in classes with low student-teacher ratio and lower in classes with student-teacher ratio.

3.2 Research question two

What is the extent of difference in the posttest academic achievement mean scores of students in classes with high student-teacher ratio and those with low student-teacher ratio?

Table 2.0: Posttest means achievement scores of students for question two

Group	N	Mean	Std. dev
Control (low student-teacher ratio)	30	26.60	3.79
Experimental (high-student-teacher ratio)	50	20.52	3.63

Table 2.0 above shows that even though the treatment of teaching was given to the Experimental group only, there was slight falls in the experimental group's posttest academic achievement mean score while the mean score for the control group improved.

3.3 Research question three

What is the extent of difference in the pretest and posttest academic achievement mean scores of students in classes with high student-teacher ratio?

Table 3.0: Pretest and posttest means achievement scores of students for question three

Group	Test	N	Mean	Std. dev
Experimental	Pretest	50	21.28	3.47
	Posttest	50	20.52	3.63

The result above shows that there is no significant difference in the pretest and posttest mean achievement scores of students in the experimental group. Higher standard deviation of the experimental group also shows lower academic achievement.

4.0 TEST OF HYPOTHESES

4.1 Hypothesis one

There is no significant difference in the pretest academic achievement mean scores of students in the experimental group and those in the control group.

Table 4.1:1: Summary of t-test statistic analysis for hypothesis one

Group	N	Mean	Std.dev	Df	t-cal	t-value	α	Decision
Control	30	25.60	5.10					
				78	4.504	1.96	0.05	H0 rejected
Experimental	50	20.52	3.46					

From the table above, the t- calculated which is 4.504 is greater than the t-value, at 0.05 level of significant thus we reject H_0, and conclude that there is significant difference in the pretest mean achievement scores of students in the control group and those in the experimental group.

4.2 Hypothesis two

There is no significant difference in the protest mean achievement scores of students in the control group and those in the experimental group.

Table 4.2:2 Summary of posttest t-test statistic analysis for hypothesis two

Group	N	Mean	Std.dev	Df	t-cal	t-value	α	Decision
Control	30	26.60	3.79					
				78	7.129	1.96	0.05	H0 rejected
Experimental	50	20.52	3.63					

The result above shows that the t-calculated is greater than the t-value we reject H_0, and conclude that there is significant difference in the posttest mean achievement scores of the control group and the experimental group. The posttest mean scores for the control group is higher.

4.3 Hypothesis three

There is no significant difference in the pretest and posttest mean achievement scores of students in the experimental group.

Table 4.3:1 Summary of the pretest and posttest students'-test statistic analysis for Hypothesis three

Group	Test	N	Mean	Std. dev	Df	t-cal	t-value	α	Decision
Experimental	Pretest	50	21.28	3.47	49	1.072	1.96	0.05	H0 accepted
	Posttest	50	20.52	3.62					

The result shows that that t-value calculated is less than the t-value at alpha level of 0.05. That is, 1.072<1.96. We accept H_0, and conclude that there is no significant difference in the pretest and posttest academic achievement mean scores of students in the experimental group. That is, the pretest and posttest mean achievement scores of students in classes with high student-teacher ratio do not differ significantly.

5.0 DISCUSSION OF FINDINGS

It is evident from the findings that the student-teacher ratio in secondary schools has significant effect on student's academic achievement in economics. The study revealed that the pretest mean score of students in classes with low student-teacher ratio (25.60) was higher than the mean for those in classes with high student-teacher ratio (21.28). This implies that students in the control group performed better than those in the experimental group. This supports the view of Emmanuel (2013) that schools with high student-teacher ratio records poor performance, while better academic performance is associated with schools with lower student-teacher ratio.

The result of research question two shows an academic achievement mean scores of 26.60 and 20.52 for the control group and experimental group respectively. This shows significance difference in their mean scores, meaning that though the treatment of teaching was given to the experimental group only; there was no any significant effect of the treatment on students' mean achievement scores in the posttest. Similarly, the results of research question three shows that the difference in the pretest and posttest mean achievement score in the experimental group, that is 21.28 and 20.52 respectively, is insignificant. This supports the findings of Alderman, Orazem and Paterno (2001) that higher student-teacher ratio had a consistent negative effect on student achievement.

Furthermore, the results of the t-test statistic for hypothesis one and two shows that the value of the Alpha(α) 0.05 is greater than P-value computed for the groups pretest and posttest. The implication of this is that students in classes with low student-teacher ratio would perform better

academically than those in classes with high student-teacher ratio. The results for hypothesis three revealed that the H_0 was retained or accepted since the computed value of Alpha (α) 0.05 is greater than the computed p-value (0.289>0.05). This implies that there is no significant difference between the mean scores of the two tests administered to the experimental group. That is, the test score of students in classes with high student-teacher ratio was low despite the treatment of teaching given to the students. This is in line with Idowu and Oluwole (2014) findings relating student-teacher ratio with student performance in mathematics, that there is a significant relationship between student-teacher ratio and academic achievement of students.

6.0 CONCLUSION

To achieve quality education and higher academic achievement in economics at the secondary school level in particularly, the menace of high student-teacher ratio should be nipped in the bud. This study revealed that high student-teacher ratio in secondary school has a significant negative effect of students' academic achievement in economics. Thus, maintaining an ideal student-teacher ratio if observed will have significant positive effect on students academic achievement in quantitative subjects like economics.

7.0 RECOMMENDATIONS

The following recommendations were made based on the findings of the study:

i.   Government should ensure the implementation of the law that will ensure that the ideal student-teacher ratio in secondary school is adhere to.
ii.   Adequate school infrastructures and instructional materials should be provided in all public secondary school to accommodate the growing students' enrolment
iii.   School administrators should ensure that classrooms are divided into sections based on the recommended student-teacher ratio
iv.   Government should ensure that qualified and adequate economics teachers are employ to teach in secondary schools.
v.   Secondary school economics should always vary their methodology of teaching, and used relevant instructional materials in delivering their lessons for maximum students' achievement.

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