

Class Size and Academic Achievement of Secondary School in Ekiti State, Nigeria

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Abstract

The study looked at the class size as it relates to academic performance of students in Ekiti state of Nigeria between 1990 and 1997. The study population was the results of the West African School Certificate Examinations (WASCE) conducted between 1990 and 1997 in 50 secondary schools in both rural and urban areas of the state. One validated instrument Students' Class Size Questionnaire (SCSQ) was used for data collection. One hypothesis was formulated and answered. Data were analysed using mean and *t*-test. The result showed that there was no significant difference in the academic achievement of students in small and large classes from urban schools ($t = 1.49$; $p < 0.05$); there is no significant difference between performance of students from rural large and rural small classes ($t = 0.58$; $p < 0.05$). It was recommended that policy makers and government should ensure that more classrooms are built and number of students in a class should not be more than 30. The Parent Teacher Association (PTA), philanthropist and other charitable organizations are also implored to compliment the effort of the government to boost the performance of students in SSCE by building more class rooms and buildings.

Keywords: Class size, Academic achievement, Secondary school, Ekiti state

1. Introduction

As school population increases class sizes also increase, the performances of students become an issue. According to Dror (1995), class size has become a phenomenon often mentioned in the educational literature as an influence on pupil's feelings and achievement, on administration, quality and school budgets. In his words he noted, that class size is almost an administrative decision over which teachers have little or no control. Most researchers start from the assumption that size of the class would prove a significant determinant of the degree of success of students. In fact, with the exception of a few, many studies have reported that under ideal situation, class size in itself appears to be an important factor. The first issue that calls for immediate clarification is what number of students should constitute a large group and what should be described as a small group? In describing a small group, Bray (1990) observed that they have few teachers with small pools of talent; offer limited range of subjects and characteristically finding it hard to justify costly investment on libraries... their pupils lack competition and interest with relatively few peers as they get stucked with same teacher for an entire school career.

The description appears to be an anti-type of what obtains in large group. Large school/class size on the other hand are often impersonal, having broader curricula with teachers being given wider support, while students may suffer discipline problems as teachers cannot get to know their students very easily. They find it easy to stream students according to ability while commitment to work may stand a test of time. In terms of numerical strength, the National Policy on Education (1977 revised in 1981) specified 20 in pre-primary, 30 in primary and maximum of 40 in secondary schools. These directives appear unrealistic in urban areas as a result of high population. From studies conducted, the size of large classes range from 30-336 and small from 8-45 (Kolo, 1991). The empirical literature on class size and its relationship to academic achievement has been unwieldy and

confusing. According to Jordan (1964), in his analysis of the inter-relationship of intelligence, achievement and socio-economic status of high schools, concluded that School Location among other variables was directly related to mean achievement level of students in all the sampled subjects. However, the report by some researchers on elementary school pupils revealed that the size of school and length of attendance have little or no effect upon pupils' achievement when educational opportunities are comparable. In his conclusion, he asserted that teachers generally, have definite preference for the size of schools in which they wish to teach and that the larger the size, the lower the level of students' achievement will tend to be. The observation which agrees with the findings of Sitkei (1968) and Walberg (1969) that a significant and consistent relationship exist in the achievement of students in small classes of about 1-20 pupils that obtained higher scores in science tests than their counterparts in large classes are necessary for student achievement.

Expressing a divergent view, Silver as cited by Bolton (1988) found that there was no significant difference in post test achievement scores between large classes and small classes control groups; he concluded that larger is sometimes better. Earlier, Keeves (1978) acceded that type of school did not make a contribution to academic achievement, however, Carpenter and Western (1984) found that school type makes a difference in students academic achievement. Hatis and Spay citing Smith and Glass and Glass et al as a corollary to the above statement indicated through meta-analyses that, compare to larger classes, small classes lead to higher pupils achievement, more favourable teacher effects (e.g morale, attitude towards students) greater attempts in individualized instruction, a better classroom climate and more favorable student effects (e.g self concept, participation). In another development, Finn and Achilles (1990) observed in a longitudinal analysis of a portion of their large scale experiment (describing Kindergarten and teachers) that students in small classes out-perform their peers in kindergarten classes of regular size... (regular class size here means large classes). According to a study conducted in United States, Campbell (1980) remarked that students from large schools were exposed to large number of school activities and the best of them achieved standards that were unequaled by students in small schools. However, he observed that students in small schools participated in more activities, (both academics and extra- curricular activities). The study concluded that the versatility and performance of pupils in small schools were consistently higher. The assertion made by Campbell appears confusing as he failed to pin-point the one that is more reliable.

In his contribution, Ornstein (1990) discovered that in a 10-year study of high schools in Illinois, the lowest achievement on three separate standard tests occurred in schools with fewer than 495 students. The highest achievement, however, was found in schools with 495 to 1,280 students. The situation was slightly different from this in Ekiti State where schools with fewer students recorded better results, than schools with larger students' population (Owoeye, 1991) factors such as socio-economic status and geographical location were accounted for but these were eliminated as possible explanations. Similar view had earlier been expressed by George (1958) when he reported in his research on high school class rank and academic performance that graduate from high school seem to perform better academically in college when the high school from which the student graduated has a large graduating class. Edge (1980) identifies two problems that are posed by large class teaching; (a) the provision of an opportunity for discussion or for any kind of oral input to the written work is difficult...and; (b) the amount of marking involved can dissuade even the most enthusiastic teacher from setting the amount of written work that he feels would benefit the students.

In another development, a comprehensive study conducted by Glass and Smith (1979) on the relationship between class size and achievement gathered 80 studies, read and separated their results to meta-analysis procedures. He concluded from the results he obtained that reduced class size and greater pupil achievement are related. Researchers using meta analysis to integrate research findings of Glass and Smith meta-analytical techniques to describe relationship between class size and academic achievement or classroom processes, their analyses never suggested substantial changes in conclusions originally drawn in Glass and Smith (1979) and Smith and Glass (1980). Similarly, Tupen cited in Onocha (1985) reported that the possession of larger and better equipped laboratories, libraries and opportunity for collaboration between two or more teachers may be some of the major reasons accounting for the variance in achievement between large and small schools. This statement has only established that differences exist between large and small schools without actualizing the particular one.

The Encyclopaedia research on class size opined that whether the benefits of reducing class size are regarded as worth their cost or a second choice in improving education depends almost entirely on how the outcomes of pupil achievement, pupil's attitude and teacher's satisfaction are weighed in arriving at a general measure of utility. Clearly, different groups of individuals weigh these factors differently. Most tax-payers are likely to minimize considerations of teacher satisfaction and argue that class size reductions are not worth the price.

Teachers are likely to disagree ... that smaller classes produce more learning and provide the environment in which teachers can become more creative and not burn out so early in their careers...p.1156.

The conclusion is that the controversy over class size has not subsided, academic quibbling about statistics aside. Ajayi and Ogunyemi (1990) in their study of the relationship between instructional resources and student's academic performances in Ogun State, found no significant relationship between class size and students' academic performance. Pitts (1977) on school location issue, reveal that school location whether large or small high school, was not related to academic achievement of pupils in a standardized achievement test in Mathematics, reading and language. However, Aluko (1992) observed that many schools nowadays are more than 20 per cent short of staff and at the mercy of Parents Teachers Association (PTA) to hire teachers even in the sensitive subject areas like English Language, Mathematics and some of the science subjects. He concluded that with a crowd of 70 per cent in a class, records of continuous assessment are often unreliable. In their contribution Bryk and Driscoll (1988) found that small school location contributed to higher Mathematics achievement in a National survey sample. They attributed the advantage to a greater sense of commitment in the small school including shared beliefs, values and collegiality among staff members.

Researchers (NCTE Secondary Section, 1990) have identified the following encouraging results from reducing class size and improving instructional methods:

- Smaller classes result in increased teacher-student contact.
- Students in smaller classes show more appreciation for one another and more desire to participate in classroom activities.
- In smaller classes, more learning activities take place.
- Smaller classes foster greater interaction among students, helping them understand one another and increasing their desire to assist one another.
- Smaller classes allow for potential disciplinary problems to be identified and resolved more quickly.
- Smaller classes result in higher teacher morale and reduced stress.
- Less retention, fewer referrals to special education, and fewer dropouts are the ultimate rewards of class-size reduction.

Adeyela (2000) found in her study that large class size is not conducive for serious academic work. In the same vein, Afolabi (2002) found no significant relationship among class size and students' learning outcomes. Yara (2010) in his study on class size and academic achievement of students in mathematics in Southwestern Nigeria found out that the performance of students in large classes was very low (23%) compared to those students in smaller classes (64%). There was difference in the performance of male and female students in either group. He therefore recommended that policy makers and government should ensure that more classrooms are built and number of students in a class should not be more than 30. The foregoing differing findings, opinions and observations call for further investigation into the relationship between class size and student academic achievement in Ekiti State, which this present study was out to do.

2. Method and material

2.1 Research questions

The study answered the following research hypothesis.

There is no significant difference in the performance of students in rural and urban secondary schools in term of whether they are in small or large classes.

2.2 Research design

The research design for this study is descriptive survey design of the ex-post facto type. This is because the researchers will not be able to manipulate the variables for simple reason that they have already occurred.

Population and sampling procedure

The research respondents for this study were final year students of schools in the rural and urban areas of Ekiti state, Nigeria. A total of 50 secondary schools formed the target population comprising 4 Federal unity schools and 64 public schools. The schools were those that sat for the West African School Certificate Examinations (WASCE) between 1990 and 1997.

2.3 Instrument

The research instrument was Student Class Size Questionnaire (SCSQ) designed by the researchers. It has section A with seven items dealing with profile of the respondents such as gender, age, school type (rural/urban), grade among others. Section B has eight items that measured the number of students in class in rural and urban schools, number of periods taught by teachers among others. The respondents were asked to respond to the questions on a four point Likert Scale of strongly agree, agree, disagree and strongly disagree.

3. Results

The results of the findings are discussed in relation to tables 1 and 2.

Tables 1 and 2 attempted to establish whether or not a significant difference exists between urban large and urban small; rural large and rural small classes in relation to academic achievement in SSCE as indicated in the hypothesis. In Table 1, the result showed that all urban small classes had mean achievement core of 1.4000 while the urban large classes had mean achievement score of 1.7765 with the t-value of 1.49. The result showed that there was no significant difference in their achievement scores. Table 2 compared the school certificate examination achievement score between rural large and rural small classes and also established the significant difference or otherwise in their scores. The result of the t-test statistic employed showed that the rural large and rural small classes were not significantly different with their respective mean scores of 1.4737 and 1.5300 at t-value of 0.58. Therefore the hypothesis was accepted at alpha level of 0.05.

4. Discussion

In discussing the findings emanating from the two hypotheses, two important facts were revealed. First and as indicated in Table 1, that there was no significant difference in the achievement scores of both urban large and urban small classes. Actually, one would expect that one should perform better than the other but with the findings of Obe (1984) that a lot of coaching experienced in urban pupils, who culminated in spirit of competition and rivalry is relevant. Two, some findings have established that small class size performed better than larger counterpart but the findings in tables 1 and 2 established that there was no significant difference in the achievement scores not only in urban set up but also in rural locations. The result of the findings also agrees with the findings of Ajayi and Ogunyemi (1990) and Pitts (1977) that School Location whether large or small high school, was related to academic achievement of pupils. The finding of Howells (1982) is also relevant that there was no evidence to support the view that small schools were any less educationally viable than large schools. These findings also tend to agree with Bolton (1988) who found no significant difference in post-test achievement scores between large classes and small classes control groups. The finding is also consistent with Ayodele (1988) who claimed that in the location of schools, the severely disadvantaged and heavily congested urban schools produce better results than the relatively disadvantaged rural schools.

However, the findings disagree with the earlier findings of Harold (1958) and Kolawole (1982) who observed that the relationship between class-size and students' academic achievement was negative such that the larger the size, the lower the level of students' achievement, assertion which is in agreement with Sitkei (1968) and Walberg (1969).

5. Conclusion

From the results, it can be seen that there is no difference in the performance of students in rural and urban schools. Even though research findings showed that there are no difference in the performance of students in agricultural science from both rural and urban schools there is the need to make the number of students to be taught in our agricultural science classes to be moderate so that the teacher can be able to manage the class effectively and be able to give individual attention to students who may have problem of assimilating the concepts of what has been taught. The issue of class size has been addressed in some states of Nigeria like in Oyo state who made an educational policy that the maximum number of students in a class should be 20. It is therefore recommended that our educational policy makers should formulate policies that will ensure that the number of students in a class should not exceed 30 students. This in turn will make the government to provide enough classrooms for the schools. The Parent Teacher Association (PTA), philanthropist and other charitable organizations are also implored to compliment the effort of the government to boost the performance of students in SSCE by building more classes.

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Table 1. Comparison of Academic Achievement of Urban large and Urban small classes.

Variable	N	Mean	SD	DF	T-value	Sig T	P
Rural	29	1.7207	0.201				
				48	2.73	0.009	S
Urban	21	1.9619	0.414				

*sig at $p < 0.05$

Table 2. Comparison of Academic Achievement of Rural Large and Rural Small Classes

Variable	N	Mean	SD	DF	T-value	Sig T	P
Rural Small	19	1.4737	0.256				
				27	0.58	0.556	NS
Rural Large	10	1.5300	0.231				

*sig at $p < 0.05$