

TEACHER QUALITIES AND SCHOOL FACTORS AS CORRELATES OF ACADEMIC PERFORMANCE OF SECONDARY SCHOOL STUDENTS IN MATHEMATICS IN EKITI STATE, NIGERIA

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ABSTRACT

This study aimed at investigating the effects of teacher qualities and school factors on the academic performance of secondary school students in mathematics. A purposive random sampling technique was used to select 150 teachers from 75 secondary schools in Ekiti State. May/June, 2011 WAEC result and a constructed questionnaire were used to obtain information on these factors. Three hypotheses were raised and tested at 0.05 level of significant using a t-test statistical analysis. The results showed a no significant different in the academic performance of students in mathematics from either urban or rural areas. And from those schools established before 1980 and those after 1980; the results were the same for those taught by mathematics teacher specialists and the non-specialist. These results showed that students in the rural areas performed likely as those in urban areas, and those taught by the non-specialist were at par with those taught by specialist and that year of establishment of a school did not have much effect on the students academic performance. Government is therefore advised to make facilities available for all schools irrespective of their location or year of establishment. Workshops, seminars and conferences should be organized for all mathematics teachers without using any selective approach.

Keywords: *Teacher quality, school factor, urban and rural specialists and non-specialists, year of establishment.*

INTRODUCTION

In virtually all the third world countries today, Nigeria inclusive tremendous efforts have been taken to address the issue of poor academic performance of students in public schools. And in the whole world today also, students are taught in a variety ways by teachers using different resource materials which are often based on teacher quality and other school factors. Bidya Raj (2003) opines that a lot of factors influences the academic performance of students teacher quality and non - teacher quality such as school factor are part of these factors. He went further to say that, student performance may indeed be shaped by the extent of the use of creative teaching materials, quality of such materials, effective teaching techniques employed by the teachers, resources available during the teaching and learning processes. Numerous perennial problems plaguing our educational system today in Nigeria are indeed the school system itself and the dearth of teacher quality.

Wenglinshy (2000) opined that, teachers input influences professional

development, professional development influences classroom practice, while classroom practice influences student achievement. Suffice to say therefore, that all these factors one way or the other takes their roots from both teacher quality and school factor. Hence, teacher quality determines the type of input he/she put in which is said to have an impact on level of academic achievement. It will also have an impact on his classroom practice which in turn will influence student performance.

The gross endemic poor academic performance of students in mathematics at public examinations could therefore be said to be a direct reflection of teacher quality and some inhibiting school factors. It is therefore important to employ some influential factors that could aid and assist students academic performance. Based on this premise, Simplicio (2000) suggested that, teachers must be willing to utilize different methods, strategies and approaches to instruction and be ready and willing to change their assessment tools and evaluation criteria. It needs further reiterated that, enough motivation should be provided for teachers to enable them put in extra commitments in order to achieve the desired results.

The field of mathematics today has been valued for its application in national defense, industrial processes, finance, management, machine and technology. In the light of this, students academic performance in mathematics have often been used as an indicator for general health of schools as well as the nation's general intellectual capacity. Indeed, teacher quality and school factor together with resources have been found to be the real variables that have been contributing major constraint to poor academic performance in mathematics. Other variables such as examination related variables, poor background, lack of incentive or interest, incompetent teacher, class size etc. are subset variables of these major ones. Many authors and professionals, such as Bry (1983), Busari (1988), Popoola (2010), hold the view that, poor academic performance in mathematics stemmed from anxiety, fear and mathematics Phobia or hatred for mathematics.

Sanders and Rivers (1998) attested that the influence of teachers is the most single important factor in determining students achievement. National Commission on Teaching and America's future (2004) was of the view that the one factor that makes the most difference in improving students academic performance is a knowledgeable, skillful teacher in front of the classroom. Teacher quality is therefore of great interest to all educational researchers apart from the general premium placed on them by the ethic of teaching as a profession. The characteristics of teacher quality include, his experience, preparation programme, his classroom work, test scores, his certifications, his disposition to work etc.

Series of research work such as Rice (2003), Provasink and Young (2003), Goldhaber (1996) have advanced a positive relationship between teacher experience and student outcome. Findings have also indicated that teacher course work has a positive relationship with student performance, Rice (2003). It is equally of note that school factor and availability of resources and their uses by teachers have been found to have a positive effect on student achievement. To improve learning outcome

therefore it is imperative to attest empirically the effect these variables - teacher quality and school factor could have on the academic performance of student statement of the problem. The aim of this study was to assess the relationship between teacher qualities, school factors and the academic performance of students in mathematics. In doing this, the following research questions were raised.

1. What effect does teacher quality have on the academic performance of students in mathematics.
2. What effect does the time of school establishment, grading of school and school location have on the academic performance of students in mathematics.
3. What effect does the teacher experience and qualification have on the academic performance of students in mathematics.

Based on these research questions, the following null hypotheses were drawn.

- Ho₁ There is no significant difference between the academic performance of students in mathematics in the Urban and Rural areas.
- Ho₂ There is no significant difference between the academic performance of students in mathematics from schools established before 1980 and those established there after.
- Ho₃ There is no significant different between the academic performance of students in mathematics from those taught by mathematics teacher specialists and those taught by non - specialist.

METHODOLOGY

This research study is both an ex-post facto research design and a survey research design. It is an ex-post facto because the May/June, 2011 WAEC results were collected for use. In this case, the researcher has no direct control and the result cannot be manipulated. A questionnaire was also drawn to collect information based on the research hypotheses. The population for this study comprised of all Senior Secondary School Mathematics Teachers taken Senior Secondary School 3 in Ekiti State, Nigeria. There are presently 175 secondary schools in the state. A total of 75 secondary school comprised of 150 Mathematics teachers were selected using a purposive random sampling technique. The selection of both the schools and the teachers were based on location, year of establishment, school size or grade, experience, etc. The 75 school comprised of (15) fifteen schools randomly selected from each senatorial districts of the state based on the aforementioned criteria. The two most senior mathematics teachers were selected from each of the 75 schools to make up the 150 teachers.

Two instruments were used for the study. The first is the May/June 2011, WAEC result of students from the selected schools. The other one is a designed questionnaire inventory. The questionnaire comprised of two sections, A and B. Section A is on the Bio-data of the respondents, while Section B contains two parts. Part A is on teacher quality and Part B is on School Factor. A total of 30 items were

drawn for the two parts. These Mathematics teachers responded to the two parts.

The instruments were given to these teachers by hand and a period of two weeks interval was allowed after which the instruments were collected along side with the May/June, 2011 WAEC results of these schools. After scoring, a t-test statistical analysis were carried out based on the research questions and the hypotheses raised.

RESULTS AND DISCUSSION

Table 1: Academic performance of Students in Mathematics between those in Urban Schools and the Rural Schools.

	No of teachers	X	SD	DF	t-cal	+ -value
Urban	98	9.65	4.45	148	1.45	1.98
Rural	52	8.66	4.1			

P > 0.05: (No significant different)

The table showed the result of the findings on the academic performance of students in mathematics as revealed by the teachers. The result of the findings showed that the t - calculated value of 1.45 was less than the table value of 1.96. Hence, the null hypothesis that there is no significant difference between the academic performance of students in mathematics in the Urban and Rural areas is accepted.

Table 2: Academic performance of students in Mathematics from those schools established before 1980 and those established after 1980.

Schools	No	X	SD	DF	t-Cal	t-value
Before 1980	41	2.08	1.44	73	0.595	1.98
After 1980	34	1.89	1.32			

P > 0.05: (No significant different).

The result of findings as stated on table 2 showed that the t-calculated of 0.398 was less than the table value of 1.98. Hence, the null hypothesis that there is no significant difference between the academic performance of students in mathematics from schools established before 1980 and those established there after is accepted at 0.05 level of significant.

Table 3: Academic performance of students in mathematics from those taught by mathematics specialists and those taught by non-specialists.

Subject	No	X	XD	DF	t-value	t-value
Specialists	132	5.73	1.21	148	1.43	1.98
Non-Specialists	18	4.56	1.34			

P > 0.05: (No significant different).

The result of the finding showed that there is no significant difference in the academic performances of students in mathematics taught by either mathematics specialist or non-mathematics specialists (May/June 2010 WAEC result). However findings from hypothesis 1 show that the issue of a school in a rural area or in an

urban area as a factor to determine academic performance of students is fast waning nowadays. Ekiti as a more or less Cosmopolitan and highly homogenous state have very few rural areas depending on the concept of ones definition of rural areas. The result of this findings showed that high premium is usually placed on the education of the rural dwellers by the state government than those from Urban areas. It needs further reiterated that almost all factors that usually encouraged teachers to agitate for their posting to urban areas are now readily available in the rural areas. There is therefore no justification for the academic performance of students in Mathematics in the Urban areas to be better than those in rural areas.

Unlike the findings of Raven (1990) that the urban area students exhibit greater academic performance than the rural area students. Also, the 1994 WAEC result of students in the then old Ondo State showed a negative correlation between the academic performance of students in the urban area from those in the rural areas. However, the time lag between then and now could indeed have about this changes as presently showed from the findings. Another contributing factor is the government policy on the development of rural areas as a means of reducing rural-urban migration. It must also be reaffirmed that most schools in the rural areas are highly prone to examination malpractice. High level of aiding and abetting, cheating during examination and other examination vices are much more pronounced and prevalent in the rural areas. The term 'MIRACLE CENTRE' is the new coinage for the schools in the rural areas where their results are found to be good. Hence the result of this findings is indeed justifiable as any of these factors could have made it so. The question to be asked now is - Have the results of schools in Lagos, Abuja, Port-Harcourt etc always the best?

Findings from hypotheses 2 showed that the time of establishment of a school does not determine the level of academic performance of students in mathematics. Out of the 75 sampled school, 41 of them were founded before 1980, while 34 were founded after 1980. The result of the findings revealed that, most of these old schools are only carrying their old aged face. Respondents from these schools relating to year of establishment revealed that the performance of students were not only very poor but were indeed not better than the newly established schools. Findings also showed that some of these old schools run boarding system, which expectedly could have influence their academic performance for better. This finding was at variance from the finding of Olutola (1986) who found out that boarding schools provide better quality of instructions and better academic performance in public schools than day schools.

It needs reiterated further that other reasons that could be adduced for this result here, was that, boarding schools nowadays are no more what it used to be precisely up till 1980. It should be recalled that, almost all schools were taken over by the state government and become more or less a community schools in 1980 during the Unity Party of Nigeria (UPN) regime, of free education policy. Boarding system were then abolished, so the present situation in schools whether established

before 1980 or after 1980, are all the same. Thus the not significant result obtained is indeed justifiable.

Findings of the third hypothesis indicated that, there is no significant difference between the academic performance of students in mathematics between those taught by mathematics specialists and the non-specialists. Tahir (2006) avowed that, efficient and effective teachers who are professionally and academically qualified must be produced to promote mathematics learning in schools. This assertion must have indeed be one of the reasons for arriving at this result. This researcher was also made to know that virtually all secondary schools whether in the urban area or rural areas are well staffed with well qualified mathematics teachers. Report of findings from the "State Teaching Service Commission "Ado-Ekiti" has collaborated this result. The researcher was made to understand that the high level of graduate unemployment do not give room for either employing a non-qualified mathematics teachers into the secondary schools or for any of these employed to reject their posting to anywhere be it rural or urban. The non-specialist so identified has been on the job for quite a number of years. Hence, they are better termed to be non-specialists but highly experienced.

CONCLUSION AND RECOMMENDATIONS

The result of the findings of this study indicated that whether in urban or rural areas the academic performance of students remain the same. There is no significant difference between their academic performances. The result is the same as the findings on the year of establishment of schools, and those schools with specialist or non-specialist mathematics teacher. Based on these findings therefore, teachers as catalyses towards positive change in Education Sector, should be well motivated and encouraged. Government should continue to furnish schools in both the rural and urban areas with necessary facilities that can aid learning and equally maintain and sustain factors that have contributed positively towards the result of the findings of this research work.

An old school or newly established schools or issues of a school be a grade A, B, C or D rural or urban should not be the yardstick for fundings. Mathematics teachers should see these findings as a motivational factor and should therefore arise their interest toward been more efficient and effective during their teaching and learning processes. Above all, all secondary school mathematics teachers should be specialists and professionals in their own right. By that teacher quality could be enhanced. Induction courses, seminars, and regular workshop should always be organized for all mathematics teachers and not just the selected few.

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