Effect of Professionally Qualified Teachers on Academic Performance of Junior Secondary School Students in Mathematics: A Case Study of Ikere Local Government Area of Ekiti State

Dele-Rotimi, A. O.
Mathematics Department, College of Education, Ikere Ekiti, Nigeria
E-mail: delerotimi@ymail.com

Oyinlana, O. P.
Mathematics Department, Demonstration Secondary School, Ikere Ekiti.
E-mail: oyinlanapeter@yahoo.com

ABSTRACT

This study adopts an ex-post-factor and survey research designs in which there were no treatment and manipulation of the subject. Instead, it involves the collation of data from the records. The study aims at examining the effect of Teachers' Qualification (TQ) on academic performance of Junior Secondary School Students in Mathematics. The target population consisted of all Junior Secondary School Students and Mathematics teachers in Ikere Local Government Area of Ekiti State. Random sampling technique is used to select six secondary schools out of which 100 students were sampled. Three hypotheses were analyzed using correlation matrix and t-test statistics at the 0.05 level of significance. The results show a significant relationship between JSS 1, JSS 2 and JSS 3 mathematics performance. At the same time, significant correlation between Teachers' Qualification (TQ) and Junior Secondary School Students' performance in mathematics. Based on the results of the findings, it is recommended that government should always enforce professionalism in teaching. Employment of professionally trained, competent and qualified teachers should be ensured by the government, while in-service training should be conducted to no-professional teachers who also assist in teaching.
Keywords: Teachers' Qualification (TQ), professionalism, Students' performance, mathematics

INTRODUCTION

Mathematics is a very desirable tool in virtually all spheres of human technology and endeavour, be it science, engineering, industrial technology and even the arts. Adesida (2000) describes mathematics as a precision tool used by all scientists in their search for a clear understanding of the physical world. So it is much more than arithmetic, the science of number and computation; it is not enough with algebra, the language of symbols and relation and far more than geometry, the study of shapes, size and space. According to Plassa and Parting (2003), when we begin to think about what mathematics is, we find out that it is not easy to give one simple straight forward answer. Therefore our idea of mathematics depends so much upon our experiences and on our knowledge of the subject. The implication of Plassa and Parting statement is that some of us may think about

calculations involving addition, subtraction, multiplication and division. However, it is ideal that most of us would agree that mathematics is used in finding answers to questions and problems which arise in everyday life, trades and professions. Mathematics has held its leading position among all other school subjects because it has been considered an indispensable tool in the formation of the educated man. Alfred-Hooper (2008), is of the opinion that mathematics is the only subject that can be used in all cultures of the world to produce the educated man. Teachers' qualification is one of the academic and professional prerequisites needed to enable a person become a teacher in primary or secondary school. Such qualification include but are not limited to the Postgraduate Diploma in Education (PGDE), the Bachelor of Education (B.Ed) and the Nigeria Certificate in Education (NCE). It is a clear-cut belief that the availability of professionally qualified teachers, who are academically and professionally competent who are able to motivate learners with the fact of using relevant teaching facilities will aid positive reaction of learners of mathematics. It will also facilitate effective teaching and learning of mathematics.

Ebietomiye (2009) notes that the success of any human endeavour especially in the field of teaching is closely related to the quality of personnel who perform the tasks in the organization. Therefore the need to recruit and utilize professionally qualified teachers in enhancing good performance in Junior Secondary School education is imperative. Effective teaching is enhanced by well-trained and qualified teachers. The word "teacher" crudely connotes undifferentiated meaning to the extent that any individual that transmits ideas of whatever nature that cause a change or influence the behavioural pattern of the recipient is called a "teacher". In a strict professional sense, Orstein (2005) sees a teacher as someone that must be professionally trained in a teachers' training institution or faculty of education in the university, at the end of which he/she is certified to teach and is actually engaged in teaching. Ebietomiye (2009) corroborates this fact on who a professional teacher is. The implication is that, for a qualitative learning and improved academic performance to be ascertained, a qualitative teacher is imperative.

Orstein (2005) notes that to be a teacher, one must be vested with the objective and skill of teaching acquired through teachers' institutions and through years of on-the-job experience. It is therefore imperative that for any success to be recorded in the mathematics performance of Junior Secondary School students, the issue of teachers' professionalism and qualification must not be handled with levity. The purpose of this study therefore is to examine the effect of teachers' qualification on the academic performance of junior secondary schools students in mathematics in Ikere local government area of Ekiti State, Nigeria. To find out whether the students taught by National Certificate in Education (NCE) holders or Bachelor in Education (B.Ed) certificate holders performed better than their counterparts taught either by holders of Higher National Diploma (HND) or Bachelor of Science (B.Sc.) degree in their subject areas. It is hoped that the findings will go a long way to promote effective teaching and learning of mathematics in the areas. Based on these, three hypotheses were formulated in null forms to guide the study achieve its set objectives.

$H_0 1$: There is no significant relationship among JSS1, JSS 2 and JSS 3 mathematics performances in junior secondary school.

$H_0 2$: There is no correlation between teachers' qualification and mathematics performance of students in the junior secondary school.

$H_0 3$: There is no difference in the mathematics performance of students taught by professionally qualified teachers and those taught by unqualified mathematics teachers.

METHOD

This is a survey and ex-post-facto research design which involves sampling of opinion and collation of data from the records. The targeted population consist of all Junior Secondary School students and mathematics teachers out of which 100 students and ten mathematics teachers were sampled using random sampling techniques from six selected secondary schools in Ikere Ekiti. A questionnaire was designed and students' mathematics scores were collected through inventory from the records. The face and content validity of the instruments were enhanced through the assistance of two test and measurement experts from Department of Mathematics, College of Education, Ikere Ekiti while the reliability of the instrument was obtained using split-half method of reliability and the r-pollen was 0.825 reliability coefficient which considered the instrument reliable, hence is used for the study. Pearson Correlation Matrix Coefficient was used to test the hypothesis at 0.05 level of significance.

RESULTS AND DISCUSSION

From table 1, JSS 1 and JSS 2 (0.62), JSS 1 and JSS 3 (0.87) and JSS 2 and JSS 3 (0.61) showed a high relationship and correlation. This result shows rejection of the hypothesis. Therefore, there is a significant relationship among JSS1, JSS 2 and JSS 3 mathematics performances in Junior Secondary School. Table 2 shows that the relationship between Teachers' Qualification (TQ) and JSS 1 mathematics performance (0.95) was highly correlated, Teachers' Qualification (TQ) and JSS 2 mathematics performance (0.68) was moderately correlated and Teachers' Qualification (TQ) and JSS 3 mathematics performance (0.49) was fairly correlated. This shows that there is a correlation between Teacher Qualification (TQ) and mathematics performance of Junior Secondary School students. Hence, teachers' qualification is sufficient to determine the performances of students in mathematics in Junior Secondary Schools. Table 3 reveals the mean and Standard Deviation (SD) for qualified teachers as 8.42 and 1.35 respectively while the mean and SD of unqualified teachers is 7.62 and 0.25 respectively. The t-calculated was 1.86 and t-table at 0.05 level of significance was 1.73. Comparing the result of t-test (1.86) and t-table (1.73), t-test > t-table which led to the rejection of hypothesis 3. Hence, there is a difference in the mathematics performance of JSS students taught by qualified teachers and those taught by unqualified teachers. The result of this study reveals

moderate and high relationship among JSS 2 and JSS 3 (0.61), JSS 1 and JSS 2 (0.62) and JSS 1 and JSS 3 (0.87) respectively. The implication of this relationship is that each of the performance of students in the Junior Secondary Schools can be used to determine the other. The result of the finding is in line with the finding of Ojo (2006) on continuous assessment scores as a correlate of academic achievement in Senior Secondary School Certificate Examination. Also, Teachers' qualification and students' Mathematics performance in Junior Secondary School were related. This was revealed as TQ and JSS 1 (0.95) are highly correlated, TQ and JSS 2 (0.68) were moderately related and TQ and JSS 3 (0.49) were being fairly related. This shows that the level of academic attainment of a teacher has great effect in affecting positively the mathematics performance of students in Junior Secondary School. Finally, there was a difference in the mathematics performance of students taught by professionally qualified teacher and those taught by unqualified teachers. This implies that trained teacher has sound knowledge of the subject matter and he/she is well equipped with teaching pedigree that can enhance better performance in mathematics.

Table 1: Correlation matrix for JSS 1, JSS 2 and JSS 3 Mathematics performance in Junior Secondary School

	JSS 3	JSS 2	JSS 1
JSS 3	1		
JSS 2	0.61	1	
JSS 1	0.87	0.62	1

p<0.05 (Result is significant).
Source: Survey, 2013

Table 2: Correlation matrix for Teacher's Qualification and Junior Secondary School Mathematics performance

	Teachers Qual.	JSS 1	JSS 2	JSS 3
Teachers Qual.	1			
JSS 1	0.95	1		
JSS 2	0.68	0.62	1	
JSS 3	0.49	0.87	0.61	1

At p<0.05 (Result is significant).
Source: Survey, 2013

Table 3: T-test statistics for mathematics performance of students taught by qualified and unqualified teacher.

Variables	N	SD	Df	t-cal	t-tab	Result
Qualified Teacher	10	8.42	1.35	18	1.86	1.73	Significant
Unqualified Teacher	10	7.62	0.25			

p<0.05 (Result is significant).
Source: Survey, 2013

CONCLUSION AND RECOMMENDATIONS

The three hypotheses tested at $P < 0.05$ were not accepted which implied that, students' academic performance in Mathematics were influenced by the professionally qualified teacher with the deep knowledge of training in Education. Therefore, professionalism should be enforced in the teaching of Mathematics at Junior Secondary School (JSS) level. Based on the findings of the study:

(i)   The government should always enforce professionalism in teaching at Secondary School level.

(ii)   Employment of professionally trained competent and qualified teachers**.**

(iii)   Thorough interview to be conducted for the non-specialists in Mathematics that are teaching the subject at secondary school level.

(iv)   Teachers conditions of service should be improved in terms of regular salary, promotion and in-service training.

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