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Influence of Teachers' Qualification on Junior Secondary School Students' Academic Performance in Mathematics in Ekiti State, Nigeria

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Abstract- This study examined the influence of teachers' qualification on junior secondary school students' academic performance in Mathematics in Ekiti State, Nigeria. In this study, the descriptive type of survey design was used to obtain information about the subjects. The study covered six schools in the Local Government. A sample of one hundred students and twenty teachers were selected for the purpose of this study and questionnaires were administered to them. t-test statistics was used to analyze the responses of the respondents. Findings from the study revealed that: there is a significant difference in the performance of students in Mathematics between those taught by NCE teachers and B.Sc. Ed. teachers; there is significant difference in the performance of students taught by B.Sc and B.Sc. Ed. Teachers in Mathematics and there is a significant difference in performance of students taught by professional and non-professional teachers in Mathematics. Based on the findings of this study some recommendations were made by the researcher which include: Trained teachers with high qualification should teach Mathematics at JSS III class so that the students can be adequately prepared for Junior Secondary School Certificate Examination; Teachers should be motivated to participate actively in in-service training programmes and workshops to update their knowledge and pedagogical skills; And Mathematics teachers with low qualification level should be encouraged to undergo higher study through part time study or study leave.

1. INTRODUCTION

The quality of education of a nation could be determined by the quality of her teachers. The most important factor in improving students' achievement in mathematics is by employing seasoned qualified teachers in all schools (Abe and Adu, 2013). Okuruwa (1999) found that, policy investment on quality of teachers is related to improvement in students' performance. Specifically, the measurement of teacher's preparation and certification are correlates of students' achievement in science and mathematics. It is further reported that, teacher's characteristics such as certification status and degree in area of specialization are very significant and positively correlated with students learning outcomes in science and

mathematics. This report was in line with the findings of Salman (2009).

Abe and Adu (2013) and Wiki (2013) opined that, a teaching qualification or teacher qualification is one of a number of academic and professional degree that enables a person to become a registered teacher in primary or secondary school. Such qualifications include, but are not limited to, the Postgraduate Certificate in Education (PGDE), The Professional Diploma in Education (PDE), Bachelor of Education (B.Ed) and Nigeria Certificate in Education (NCE). In Ekiti State, teachers who are academically qualified and those that are professionally qualified are engaged to carry out instructional process (Ahiazu and Prince Will, 2011).

Academically qualified teachers refer to those who have academic training as a result of enrolment into educational institution and obtained qualifications such as HND, B.Sc, B.A, and M.A. and so on; while professionally qualified teachers are those who got professional training that gave them professional knowledge, skills, techniques, aptitudes as different from the general education (Edu and Kalu, 2012). They hold degrees like, B.Ed., B.Sc. Ed, B.A. Ed, and M. Ed and so on. On the other hand, there are studies that have found no significant relationship between teacher educational qualification and students' academic achievement. For instance, Igwe (1990) investigated the influence of teacher's qualification on academic performance of students in science subjects in Kano State. The Researcher found no significant relationship between teacher's qualification and students' performance. While Adeniji (1999), Osokoya (1999) and Oladele (1999) found out that teacher's qualification contributed minimally to the variance with students' cognitive achievement and Bilesanmi (1999) and Okonwa (1999) found that teacher's experience was highly significant on students' academic achievement in mathematics.

Coonery (1990) opined that students do not understand mathematics when it is taught by an ineffective teacher. Izumi and Evess (2002) buttressed this by saying that teacher quality is the most important

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among other critical factors like quality curricula, funding, small class size and learning situation. George (2004) attributed poor achievement of students in mathematics to teacher qualification, inadequacy of materials as well as administrative factors.

In teaching mathematics, Adesina (1982) and Fafunwa (1985) opined that with an exception of holders of minimum of B.Sc in mathematics, many other teachers would be confronted with problem of teaching secondary school mathematics syllabus effectively. Hence, Lussa (1985) argued that no one gives what he/she does not possess. He further said that no matter how good a course curriculum is, if we do not have well trained, qualified and motivated teachers, we may not achieve the desired goals.

In view of this, a teacher is someone who has been exposed to a good measure of training in a teaching subject area as well as in professional education: such professionally qualified teachers may according to the Federal Ministry of Education (2004) fall into a number of academic categories. Mkpa (1987) regarded the trained teacher as someone who underwent and completed his education in a formal teacher training institution or in a planned programme of training. Among such areas of training may include principles and practice of education as well as being exposed to an observed period of internship either after or as part of the period of training. People who fall within this category should under normal circumstances be able to fulfill the various functions expected of teachers within and outside the four walls of the classroom.

Furrugia (1987) perceived a professional teacher as one who possesses professionally based knowledge in the theory and practice of education as well as find job satisfaction in the belief that he/she is making an important contribution to the social, cultural and economic development of his/her country. Such a teacher should equally, be able to understand students' abilities to exploit educational benefits of the social context within which he/she lives. He/She should be able to assist Students to reach their full intellectual and social potentials.

According to Adieze (1986) non qualified and non-professional teachers in teaching profession are killing the profession because they are not really teachers. He regarded them as "bird" of passage that create unnecessary vacuum whenever they see greener pasture and better prospect in the profession they are originally trained for. The comparison of students' scores in mathematics achievement test based on teachers' qualifications becomes necessary in order to know if formal teaching methods has any significant effect/influence on students' performance in mathematics or not.

II. STATEMENT OF THE PROBLEM

Teaching and learning of Mathematics depends to a large extent on teacher's own knowledge of the content and ability to adequately deliver the instruction to the students. However a lot of variables may inhibit or hinder effective dissemination of knowledge to the understanding of the content by the students, such variables may be lack of qualified teachers, teachers' qualification, experience, inadequate use of instructional materials among others. While the present study sought to determine the effect of teachers' qualification on secondary school students' performance in mathematics. Therefore the study is designed to find out the influence of Teachers' qualification on Junior Secondary School students' Academic performance in Mathematics.

a) Hypotheses

- 1) There is no significant difference in performance of students taught by National Certificate in Education (NCE) and Bachelor of Science Education (B.Sc.(Ed.)) in Mathematics.
- 2) There is no significant difference in performance of students taught by Bachelor of Science in Education (B.Sc. Ed.) and Bachelor of Science (B.Sc.) in mathematics.
- 3) There is no significant difference in performance of students taught by Professional and non-professional teachers in mathematics.

b) Significance of the Study

The teachers do teach but some produce better learning outcome than others, since the teacher is central in the educational system, only teacher who can motivate students with adequate learning resources is said to have a better learning outcome.

This study will help them to see the relationship between teachers' years of experience and students' academic performance in the selected public secondary schools, it will also enable;

- i. It will make teachers to know that teaching Mathematics requires specific qualifications and basic knowledge of education to be able to arouse the interest of the students in Mathematics class.
- ii. This study will also make government and principals know what qualifications to look at when hiring Mathematics teachers in both primary and secondary schools in Nigeria.

III. METHODOLOGY

This study is basically descriptive survey to assess the influence of teachers' qualification on Junior Secondary School students' Academic performance in Mathematics in selected secondary schools in Ado-Ekiti Local Government of Ekiti State. The population for this study is made up of the entire teachers and students in

all the secondary schools in Ado Local Government area of Ekiti State.

For the purpose of the study, the sample consisted of 126 respondents. The sample was chosen from six secondary schools, randomly selected out of the secondary schools in Ado-Ekiti Local Government. From the selected schools, a Mathematics teacher was purposively selected from each of the six schools making six teachers altogether forming the sample for this study. Twenty students were randomly selected from the Junior Secondary Schools chosen for the study making the total of 120 students. The instruments used for this study was Mathematics teachers' Inventory Questionnaire and Students' Achievement Test. The Teacher questionnaire investigates information about the teachers' like personal information concerning their qualifications and their experience while the Student Mathematics Achievement Test consisted of 15 items to measure the students' ability in Mathematics.

The content validity of the questionnaire was determined by experts in the department of Science

Education and the researchers' supervisor. They were requested to assess the quality and give necessary suggestions on the items of the questionnaire. Their suggestions helped in restructuring the questionnaire.

The reliability of the questionnaire was tested by the researcher who administered the questionnaires for Mathematics teachers and then tested by split-half method of testing for reliability. The instrument consistently measures what is ought to measure because a correlation co-efficient of 0.68 was derived.

a) Procedure for Data Collection and Analysis

The questionnaire was administered personally by the researcher. The researcher collected the questionnaire after the completion. The data obtained from selected school were gathered through questionnaire and this formed the reference point of this data analysis. The data collected were analyzed inferentially using t-test statistics at 0.05 level of significance.

IV. RESULTS

Research Hypothesis 1: There is no significant difference in performance of students taught by National Certificate in Education (NCE) and Bachelor of Science Education (B.Sc. Ed.) in Mathematics.

Table 1: t-test Summary of Students' Mean Scores between NCE and B.Sc. Ed Teachers

Variables	N	Mean	SD	df	t_{cal}	t_{tab}
NCE	39	6.0769	2.986	77	3.142	1.98
B.Sc. (Ed.)	40	8.3000	3.291			

$p < 0.05$

Table 1 above shows that t_{cal} (3.142) is greater than the t_{tab} (1.98). Hence, the null hypothesis is rejected. This means that there is a significant difference

in the performance of students in Mathematics between those taught by NCE teachers and B.Sc. Ed. teachers

Research Hypothesis 2: There is no significant difference in performance of students taught by Bachelor of Science in Education B.Sc.(Ed.) and Bachelor of Science (B.Sc.) in Mathematics.

Table 2: t-test Summary of Students' Mean Scores between B.Sc and B.Sc.(Ed.) Teachers

Variables	N	Mean	SD	df	t_{cal}	t_{tab}
B.Sc.	41	4.024	2.139	79	6.95	1.98
B.Sc.(Ed.)	40	8.3000	3.291			

$p < 0.05$

Table 2 reveals that t_{cal} (6.95) is greater than t_{tab} (1.98). The null hypothesis is therefore rejected which implies that there is significant difference in the performance of students taught by B.Sc and B.Sc. Ed. Teachers in Mathematics.

Research Hypothesis 3: There is no significant difference in performance of students taught by Professional and non-professional teachers in Mathematics

Table 3: t-test Summary of Students' Mean Scores between Professional and Non-Professional Teachers

Variables	N	Mean	SD	df	t_{cal}	t_{tab}
Professional	79	7.20	3.318	118	5.56	1.98
Non-Professional	41	4.02	2.139			

$p < 0.05$

Table 3 shows that t_{cal} (5.56) is greater than t_{tab} (1.98). Thus, the null hypothesis is rejected. Therefore, there is a significant difference in performance of students taught by professional and non-professional teachers in Mathematics.

V. DISCUSSION OF THE FINDINGS

From Table 1 it is seen that t_{cal} (3.142) is greater than the t_{tab} (1.98). Hence, the null hypothesis is rejected. Therefore, there is a significant difference in the performance of students in Mathematics between those taught by NCE teachers and B.Sc. Ed. teachers. A research carried out by Peter Lassa (1983) in a survey study on the poor performance of students in Mathematics in the Ten Northern states of Nigeria in view of the falling standard; show that the over-all performance of the students on the basic Mathematics content is very low and discouraging. It is asserted that if the terms used in Mathematics are clearly understood there will be improvement in the students understanding and their level of performance will improve. In Table 2 it is seen that t_{cal} (6.95) is greater than t_{tab} (1.98). The null hypothesis is therefore rejected which implies that there is significant difference in the performance of students taught by B.Sc and B.Sc. Ed. Teachers in Mathematics. In a study carried out by Ibe-Bassey George (1982) on patterns of selection of instructional materials by N.C.E teachers within the process of lesson planning, he concluded that teachers did not have adequate knowledge about the selection of instructional materials. The study also found a significant relationship between the availability of instructional materials and the frequency of the selection and use of instructional materials.

Finally, Table 3 reveals that t_{cal} (5.56) is greater than t_{tab} (1.98). Hence, the null hypothesis is rejected. Therefore, there is a significant difference in performance of students taught by professional and non-professional teachers in Mathematics. According to Piaget, early childhood (3 to 6 years) is the period which children are capable to learning very actively some essential and perhaps advanced concepts in elementary mathematics. It is likely, therefore, that under

good conditions, children who are exposed to mathematical situations at home and in the immediate environment can gain accelerated knowledge of mathematics before school age. Unfortunately, most of the children that go to school in Nigeria come from poor homes and environment devoid of materials, educative toys and situations that are conducive to mathematical learning. Majority of our children do not attend pre-primary schools before proceeding to primary schools. Most primary schools in which they attend are poorly maintained no form of enrichment is present for the teaching of mathematics. As a result, the pre-primary school years are a period in which accelerated mathematics learning is not enhanced. One model of school learning formulated by Carroll (1963) that has been the basis for looking at individual rates of learning is based on the analysis of instructional task and the time it takes to master them.

VI. CONCLUSION

This study examined the Influence of teachers' qualification on Junior Secondary School students' academic performance in Mathematics in Ekiti State secondary schools. It can be concluded from the result of the study that teacher's academic qualification only is not enough to positively affect student's achievement in Mathematics, but a professionally trained teacher who had acquired a pedagogical skills in teaching in a specified field of study. The study also revealed that experience played a significant role in teaching/learning process. Teachers have an important role to play in stimulating and maintaining interest, he/she should guide and direct the students' work, encourage evaluate their progress always and do all he/she can to get them to put their best effort.

VII. RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made;

1. Trained teachers with high qualification should teach Mathematics at JSS III class so that the students can be adequately prepared for Junior Secondary School Certificate Examination.

2. Teachers should be motivated to participate actively in in-service training programmes and workshops to update their knowledge and pedagogical skills.
3. Mathematics teachers without teaching qualification should be encouraged to undergo study in Post Graduate Diploma in Education (PGDE) for effective discharge of their duties.
4. Also, Mathematics teachers with low qualification level should be encouraged to undergo higher study through part time study or study leave.
5. Efforts should be made by the government to train and employ more Mathematics teachers in order to limit the number of pupils/students per teacher to the minimum so as to make the workload of Mathematics teachers to be lightened, so that they will be able to work more effectively and thoroughly.

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