

Mathematics Teachers' Quality: A Sine Qua Non For Enhanced Primary Education in Oyo State, Nigeria

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Abstract: The study investigated the essence of mathematics teachers' quality in the provision of enhanced primary education in Oyo State. Four hundred and thirty five public primary school mathematics teachers who were randomly selected from ten local government areas of the state participated in the study. The study adopted the descriptive research design. The instrument used for data collection was Teachers Classroom Performance Observation Instrument (TCPOI). Descriptive and inferential statistics were used to analyze the data obtained. The findings of the study showed that majority of mathematics teachers at the primary school level had low academic qualifications: 355 (81.6%) had NCE, 69 (15.5%) had B.Ed/B.Sc, 11 (2.5%) had M.Ed/M.Sc; large proportion of the mathematics teachers possessed the measured teacher quality traits (Achievement of set objectives, use of teaching aids, time distribution by teacher, classroom management and teachers' evaluation of lesson taught) in a little extent and there is a negative relationship between the academic qualification and years of teaching experience of primary school mathematics teachers' and their quality based on Use of teaching aids, time distribution by teacher and Classroom management. However, the mathematics teacher quality traits such as achievement of set objectives and teachers' evaluation of lesson taught had a low positive relationship with their academic qualification while teachers' use of teaching aids, teachers' time distribution and evaluation of lesson taught, have a high positive relationship with the teachers' years of teaching experience. As a result of the findings, it was recommended that government and other education stakeholders provide an enabling environment for mathematics teacher training and retraining; encourage mathematics teachers' academic qualification upgrade; as these would foster the mathematics teacher quality and improved primary education in the state and country at large.

Keywords: Mathematics Teachers' Quality, Teacher Classroom Performance, Teacher academic qualification, Teacher training, Primary Education.

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I. Introduction

Education and its benefits remains the bedrock of the development of the various sectors of any nation. It is one of the vital developmental machinery of nations. Educational system at all level depends greatly on teachers for the implementation of its programmes, as they are so essential for the successful operation of the system. An essential parameter of any functional educational system entails quality teachers. Teachers' teaching skills, content knowledge and their impact on pupils learning outcomes seems to be a function of the quality of such teachers. Hence, for a robust educational structure to be in place at the basic level of education, the interplay of teacher quality characteristics is paramount. The worth of any teacher is an important indicator in the measurement of the efficiency of the school system and thus imparts greatly on the quality of educational output. Teachers at all levels of education play the decisive role in pivoting the growth and the direction of education, representing a large proportion of the input of an educational system. Teachers stand in the interface of the transmission of knowledge, values and skills in the learning process. If the teacher is ineffective, students under the teacher's tutelage will achieve inadequate progress academically. Fage (2000) reaffirmed that teachers are the pivot of the educational system, their value and devotion is a predictor of the success of the system. In their study, Wright, Horn and Sanders (1997) concluded that the most important factor influencing student learning is the teacher.

Blumende (2001) observed that the fall in the quality of education cannot be ignored by anyone who is conscious of the significant role of education as an instrument of societal change and development. There is utmost need to focus on teachers' adequacy and proficiency in respect to their pedagogical practices and strategies and mastery of the curriculum and the subject content (Chall & Popp, 1990; Stuart, 2004; Rodgers,

2001). Ijaiya (1998) affirms that enhancing the quality of the teaching force in schools is seen as the key to raising students' academic achievement. Thus, raising educational standards should be the government's top agenda. Similarly, Lassa (2000) and Guga (1998) was of the view that education cannot be provided by just anybody, it requires a capable teacher who plans and delivers the lessons or instruction in such a way that the aims and objectives can be achieved.

Teacher qualifications entails many variables that could affect teacher quality including: type of teaching certification, undergraduate minor or major, institution(s) attended by the teacher, advanced degree(s), type of preparation programme and years of teaching experience, to mention but a few. A qualified teacher can be viewed as one who holds a teaching certificate and/or licensed by the state, possesses a minimum of a Bachelor's degree from a four-year institution and is well qualified in his/her area of specialization. The Federal Government of Nigeria therefore stated in the National Policy on Education (FRN, 2014) that "teachers in the teaching profession without the pre-requisite qualifications must qualify within a slated period of time or vacate the profession and that National Certificate in Education (NCE) be the minimum entry qualification for teachers in Nigeria". Likewise, it restated that all teachers in the educational institutions at all levels be professionally-trained. The quality of students in schools can be the reflection of the quality of the staff of such schools. In the developed and developing nations, the quality of workers in an organization is usually measured through obtained certificates as epitomized by output (Asuku, 1999).

Teacher quality especially in Nigerian school system could be assessed in various ways such as teacher's qualification and competence (Akinwumiju, 1995); teacher's integrity and job performance (Wilson & Pearson, 1993; Ayodele, 2000). The length of time of the teaching experience of a teacher has been an significant factor determining how effective the teaching-learning processes in a school is being achieved. The import of experienced teachers in schools has been averred by many researchers (Akinleye, 2001; Commeyras, 2003). Teacher Quality is a very influential predictor of the classroom environment (Lundberg & Linnakyla, 1993). The Federal Republic of Nigeria (FRN), 2014 stated that no educational system of any nation can be above the quality of its teachers.

Teacher quality is a significant variable that predicts learners' success (Angle & Moseley, 2009). A quality teacher ensures that his set objectives is achieved, makes proper use of teaching aids while teaching, appropriately distributes time during teaching, have a great grasp of classroom management and should evaluate the learners after teaching a topic. The reason why learners underperform in mathematics could be linked in Nigeria and the world in general is due to poor quality and low quantity of mathematics teachers (Ingersoll & Perda, 2009). The quality of mathematics teachers in the primary schools determines how successful learners learn, comprehend and perform in mathematics. Quality teachers are expected to teach effectively and efficiently which could lead to a successful learning, enhanced classroom interaction and improved learners' learning outcomes. A quality teacher is one who chooses the appropriate approaches to teaching a given subject/topic, intelligent, has subject content mastery, knowledgeable, efficient and hardworking, self disciplined, friendly but tolerant, serves as a role model, highly commitment, has respect for the profession, dedicated, loyal and responsible.

In the same vein, Umeasiegbu (1991) stated that "the level of performance in a school is linked to the quality of its teachers" while "the quality of a school system is the function of the aggregate quality of teachers who operates it." Quality teachers are seen as capable, exhibits desirable traits and uphold the standards and norms of the teaching profession. Oshodi (2007) stated that a quality teacher is one who has the power of influencing learners learning outcomes through the teaching-learning process. It is the driving force for enhancing learners' academic achievement and fostering a nation's economic status globally. Harris and Sass (2011) noted that improving teacher quality is key in improving education in the United States especially for the primary and secondary levels. Also, Leigh and Mead (2005) posited that teachers' quality means a lot since their knowledge and skills influences pupils' learning.

There seems to be a consensus that teacher experience is a determinant of teacher quality. Experienced teachers should be more effective and efficient in improving pupils' achievement. Many empirical studies have shown a strong and positive relationship between number of years a teacher has taught and learners' achievement (Rice, 2003). Teacher variables such as qualification, years of teaching experience, teacher competence (as measured by teacher achievement of set goals; use of teaching aids; proper time distribution during teaching; classroom management and teacher evaluation of lesson taught), has to be looked into as these may be posing a great threat to enhancing the nature and stature of primary education in Nigeria; Oyo state especially.

The fall in the standard of education especially in government owned primary schools in the state and Nigeria in general is a source of concern to stakeholders. The primary school pupils seem to be performing below expectation in their academic disciplines; their continuous assessment is poorly implemented; their terminal examination results are equally very disappointing especially in subjects such as mathematics. In view of these prevailing problems, the study re-evaluated the impact of mathematics teachers' quality characteristics

(achievement of set objectives, use of teaching aids, teachers' time distribution during teaching, classroom management and teachers' evaluation of lesson taught) to which these pupils are exposed to on a daily basis. Moreover, the study investigated the relationship among mathematics teachers' quality, qualification and years of teaching experience.

Research Questions

1. What is the profile of primary school mathematics teachers in Oyo State in terms of their gender and academic qualification?
2. What is the quality of primary school mathematics teachers in terms of achievement of set objectives, use of teaching aids, teachers' time distribution during teaching, classroom management and teachers' evaluation of lesson taught in Oyo State?
3. Is there a relationship between primary school mathematics teachers' academic qualification, years of teaching experience and their quality?

II. Methodology

The study is a descriptive research design of the correlational type. It is a survey type which aims at collecting data in order to test hypothesis or to answer research questions concerning the current status of the subject of the study. The co-relational study form of the descriptive research method which seeks to establish the relationship that exists between two or more variables was adopted for the study. Hence, the survey tool: Teacher classroom performance observation instrument (TCPOI) developed by the researcher was used for data collection.

A total of four hundred and thirty five clustered primary school teachers randomly selected from ten local government areas of the state were used for the study. The teachers were individually visited and observed as they teach for a period of thirteen weeks in their respective schools by the researcher and eighteen research assistants. The TCPOI consists of two sections A and B. Section A contains demographic data of the respondents and section B contains nine traits or variables of interest which the researcher considers a determinant of teacher quality on a four point likert scale (4= Great extent, 3=Large extent, 2=Little extent, 1=No extent).

The Cronbach Alpha was used to determine the reliability coefficient of the instrument which yielded an index of 0.81. The data obtained from the instrument was analyzed using descriptive statistics of frequency counts and percentages; inferential statistics of correlation coefficient.

III. Results

Research Question 1: What is the profile of primary school teachers in Oyo State in terms of gender and academic qualification?

Table 1: Profile of primary school teachers' gender in Oyo State

Teachers Gender	Frequency	Percent
Male	148	34.0
Female	287	66.0
Total	435	100.0

Table 1 shows the profile of primary school teachers in Oyo State in terms of gender. The table indicates that 148 (34%) of the teachers are male while 287 (66%) are female. Therefore, it is evident from the table that majority of teachers in Oyo state primary schools are female.

Table 2: Profile of primary school teachers' academic qualification in Oyo State

Teachers Qualification	Frequency	Percent
NCE	355	81.6
B.Ed/BSc	69	15.9
M.Ed/Msc	11	2.5
Total	435	100.0

Table 2 shows the academic qualifications profile of primary school teachers in Oyo State. The table indicates that of the total number of teachers surveyed, 355 (81.6%) of the teachers had NCE, 69 (15.9%) had B.Ed/B.Sc, 11(2.5%) had M.Ed/M.Sc. Therefore, majority of primary school teachers in Oyo State have NCE (Nigeria certificate in Education) which is the lowest required qualification for teaching at that level.

Research Question 2: What is the quality of primary school teachers in terms of achievement of set objectives, use of teaching aids, teachers' time distribution during teaching, classroom management, and teachers' evaluation of lesson taught in Oyo State?

Table 3: Table showing teacher quality traits

Teacher Quality Traits	Great	Extent	Little Extent
Achievement of set objectives	196 (45.3%)		238 (54.7%)
Use of teaching aids	190(43.7%)		245 (56.3%)
Time distribution by teacher	187 (43.0%)		248 (57.0%)
classroom management	201 (46.2%)		234 (53.8%)
Teachers' Evaluation of lesson taught	176 (40.5%)		259 (59.5%)

Table 3 shows the quality of primary school mathematics teachers in Oyo State. It is clear from the table that of the teacher quality traits observed, large proportion of the teachers possessed the measured teacher quality traits (Achievement of set objectives, use of teaching aids, time distribution by teacher, classroom management and teachers' evaluation of lesson taught) in a little extent (54.7%, 56.3%, 57.0%, 53.8% and 59.5%) respectively, depicting that a large number of the teachers have the measured quality traits in little extent. Thus, the quality of mathematics teachers in the state as measured by the above listed traits is low.

Research Question 3: What is the relationship between primary school mathematics teachers' academic qualification, teachers' years of teaching experience and their quality?

Table 4: Table showing the relationship between primary school mathematics teachers' years of teaching experience and their quality

Correlation Matrix

Variables	1	2	3	4	5	6
1	1.00					
2	.233**	1.00				
3	-.121*	.366**	1.00			
4	-.172**	-.487**	.513**	1.00		
5	-.080	.462**	-.434**	.043	1.00	
6	.102*	-.572**	.816**	.692**	-.264**	1.00

****.** Correlation is significant at the 0.05 level (2-tailed).

- 1= Teacher qualification
- 2= Achievement of set objectives
- 3= Use of teaching aids
- 4= Time distribution by teacher
- 5= classroom management
- 6= Teachers' Evaluation of lesson taught.

The table 4 indicates the relationship between primary school mathematics teachers' academic qualification and their quality. From the table, it is evident that there is a negative relationship between the academic qualification of primary school mathematics teachers' and their quality based on Use of teaching aids, time distribution by teacher and Classroom management ($r = -.121, -.172, -.080$ respectively); although, some of the teacher quality traits such as achievement of set objectives and teachers evaluation of lesson taught had a low positive relationship with the academic qualification of the teachers ($r = .233$ and 0.102) respectively.

Table 5: Table showing the relationship between primary school mathematics teachers' years of teaching experience and their quality

Correlation Matrix

Variables	1	2	3	4	5	6
1	1.00					
2	-.771**	1.00				
3	.788**	-.809**	1.00			
4	.500**	-.487**	.513**	1.00		
5	-.716**	.462**	-.434**	.043	1.00	
6	.667**	-.572**	.816**	.692**	-.264**	1.00

**** Correlation is significant at the 0.05 level (2-tailed).**

1= Teachers' years of teaching experience

2= Achievement of set objectives

3= Use of teaching aids

4= Time distribution by teacher

5= classroom management

6= Teachers' Evaluation of lesson taught.

Table 5 shows the relationship between primary school mathematics teachers' years of teaching experience and their quality. It is evident from the table that the quality of primary school mathematics teachers based on achievement of set objectives, Classroom management and their years of teaching experience have a negative relationship ($r = -.771, -.716$) respectively; however, some of the teacher quality traits such as teachers' use of teaching aids, time distribution by teacher and teachers' evaluation of lesson taught, have a high positive relationship with teachers' years of teaching experience ($r = .788, .500, .667$) respectively.

IV. Discussion

The results of this study show that a large number of Oyo state primary school teachers are mainly females. The result also reveals that majority of the teachers have the Nigeria certificate in Education (NCE) as their academic qualification. The result indicates low teacher quality based on achievement of set objectives, use of teaching aids, time properly distributed, classroom management and teachers' Evaluation of lesson taught; among teachers in the state. The result reveals that there is no relationship between teacher qualification and teacher quality, this finding is in congruence with studies that showed that teachers with graduate-level training in a content area do not performed better than teachers having an undergraduate degree in their content area (Rivkin, Hanushek, & Kain, 2005; Ferguson & Ladd, 1996). The finding also negates that of Aghenta (2000), Omoifo and Okaka (2010) which claimed that teachers' academic and professional qualification degrees have influence on teacher quality. In the same vein, the result revealed that there is no relationship between teacher quality and their years of teaching experience.

V. Conclusion And Recommendations

The study was aimed at finding out the essence and relationship between teachers' qualification, teachers' years of teaching experience and mathematics teachers' quality. The result of the study indicated that most of the mathematics teachers in primary schools in Oyo state have the Nigeria certificate in Education (NCE) as their academic qualification and low teacher quality as based on achievement of set objectives, Use of teaching aids, Time properly distributed, Classroom management and Teachers' Evaluation of lesson taught. Moreover, the result also revealed that there is negative relationship between mathematics teachers' qualification, teachers' years of teaching experience and their quality. Hence, for a robust and enhanced primary education in Oyo state, there should be a continuous review and upgrade of the quality and qualification of the teachers in the state as their interplay is a function of the nature and quality of the primary education system. The National Policy on Education postulated that "No Education could rise above the quality of its teachers". Thus, poor performance of pupils in Oyo State could be attributed to lack of quality teachers in our primary schools. Based on the proceeding conclusion, the following recommendations were made:

- (1) Primary school mathematics teachers should be encouraged and allowed to pursue higher academic qualifications so as to improve their competence and quality;
- (2) Government should recruit competent and qualified teachers (mathematics teachers especially) into primary schools to ensure absolute quality across board;
- (3) The Teachers' Registration Council (TRCN) should introduce tests and examinations, organize training workshops and seminars for mathematics teachers at regular intervals. This is to ensure that teachers are up to date with what is needed of them.

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