



TEACHER'S QUALIFICATION AND MOTIVATION AS DETERMINANTS OF JUNIOR SECONDARY SCHOOL STUDENTS' ACHIEVEMENT IN MATHEMATICS: A PANACEA TO EDUCATION REFORM

BY

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BEING A PAPER PRESENTED AT THE 10TH ANNUAL NATIONAL CONFERENCE OF COLLEGES OF EDUCATION ACADEMIC STAFF UNION (COEASU), SOUTH-SOUTH ZONE HELD AT SCHOOL OF SECONDARY EDUCATION (BUSINESS) HALL, FEDERAL COLLEGE OF EDUCATION (TECHNICAL), ASABA, DELTA STATE

BETWEEN 19TH -22ND APRIL, 2023

Abstract

This study investigated the effects of teacher's qualification and motivation on the academic achievement of Junior Secondary School students in Mathematics. A purposive random sampling technique was used to select forty-eight (48) Mathematics teachers from the twenty-four (24) Junior Secondary Schools in Iseyin Local Government Area of Oyo State. 2022 Junior Secondary School Certificate Examination (JSSCE) result and a constructed questionnaire were used to obtain information from the respondents. Two hypotheses were raised and tested at 0.05 level of significance using a t-test statistical analysis. The results showed that teacher's qualification and motivation were significantly related to students' achievement in Mathematics. It was recommended among others that qualified Mathematics teacher should be saddled with the responsibility of teaching Mathematics at the Junior Secondary Schools, and also those teachers should be adequately remunerated as a way of motivating them to impact the required Mathematical skills in students.

Keywords: *Academic Achievement, Mathematical skills, Methodology, Motivation, Teacher's qualification*

Introduction

The knowledge of Mathematics is not only necessary for successful schooling but also unavoidable for human survival in everyday life. There is hardly any field of study where Mathematics is not useful. Markarfin (2001) states that Mathematics is universal not only in the way it influences the basic sciences, applied science, engineering and technology but also, its influence on day today activities. The farmers, carpenters, hunters, housewives and so on make use of Mathematics even though they may not be aware of it. The importance of Mathematics in its ramification cannot be overemphasized in our present scientific and technological age. In recognition of the usefulness of Mathematics, the federal government of Nigeria through the national policy on education (FRN, 2004) made Mathematics one of the core subjects to be offered at both the primary and secondary school levels of education.

It is a reality today that the creation, mastery and utilization of modern science and technology that basically distinguishes the so called developing from the developed nation of the world. This simply means that the standard of living of a nation is largely dependent on the level of science and technology of that nation. Science being the bedrock that provides the spring-board for the growth of technology, Mathematics is the key and gate to science. In fact Mathematics is the language that science uses in expressing itself. The level of Mathematics in any nation determines the level and component of technological development of such a nation. Aguele (2004) observed that the world today is regarded as a global village characterized by computer and information technology. This age has brought with it lots of sophistication in Mathematics to be able to sustain these developments.

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 indicator for general health of schools as well as the nation general intellectual capacity. Indeed, teacher quality, motivation and other school factors together with resources have been found to be the real variables that have been contributing major constraint to poor academic performance in Mathematics. Popoola (2010) hold the view that, poor academic performance in Mathematics stemmed from anxiety, fear and Mathematics phobia or hatred for Mathematics. Fadara (2020) stated that self-concept and motivation are two factors among others that have immense impact on students' achievement in Mathematics.

The teacher can greatly influence the performance of children since their remarks, interest, attitude and methodologies affects students' performance at school (Fakinde, 1978). Farrant (1980) believes that for a teacher to be efficient at his work, he should have sound knowledge of all that the content, method and sequentially arrange work to meet the individual needs of his pupils, using the environment. The teacher is required to transmit what is spelt out in the curriculum content. Therefore, the teacher becomes the basis from which desirable experiences are made available to learners. Hence, teachers' must make it necessary to avail themselves of the fundamentals that are required in teaching if their activities in the classroom will be meaningful.

Qualification, Motivation and Mathematics Achievement

Qualification is a special skill or type of experience or knowledge that makes someone suitable to do a particular job or activity. Therefore teacher's qualification is a particular skill or type of experience or knowledge someone possesses to make him or her suitable to teach. Teachers' qualifications could, therefore mean all the skills a teacher required to teach effectively. Such skills include formal education, experience, subject matter knowledge,

pedagogy studies, duration of training, certificate/licensing and professional development (Zuzovaky, 2009). Someone might have a teaching certificate at hand but without adequate knowledge of subject matter, this individual has no teaching qualification yet. Similarly, someone without proper knowledge of pedagogy or someone who spent few years on training without completing the required years does not possess teacher qualifications, (Darling-Hammond Berry & Thoreson, 2001). Qualifications of a teacher tell much about his quality that is why (Akiba, Le Tendre & Scribner, 2007) observed that teacher quality is a crucial driving force for improving student achievement. For a good achievement in Mathematics, teachers of the subject must be adequately qualified to impact the required Mathematical skills to their students.

Human beings are said to be extrinsically or intrinsically motivated. Intrinsic motivation is said to be derived internally in the job itself. It is that which occurs while a person is performing an activity in which he takes delight and satisfaction in doing. Intrinsic motivation is seen as internal reward, while extrinsic motivation is incentive or reward that a person can enjoy after he finished his work. Okoye (1983) opined that motivation holds the key to the understanding of human behaviour. According to him, motivation explains why one individual dodges work, another works normally satisfactorily enough to reach the height, while yet others resort to illegal and unconventional methods of achieving social, academic, economic and political recognition. He added that motivation should be carefully manipulated whether in the work situation or study situation, so that an individual is neither under motivated or over motivated but appropriately motivated so as to be useful to himself in the society and the world at large. Studies (Ilori, 2004, Yewarde, 2015, Fadara, 2020) have shown that motivation greatly influences academic achievement of students in Mathematics.

Statement of the Problem

(Ayinla, 2011 and Adeniyi, 2012) in their different researches had traced students' poor performance in Mathematics to teachers' inability to adequately pass Mathematics instruction to students. The success or failure of any academic programme depends largely on the teacher who is a major factor in implementing the contents of the curriculum. In view of this important role of the teacher in impacting the Mathematical skills on the students, this study examined teacher's qualification and motivation as determinants of junior secondary school achievement in Mathematics in Iseyin Local Government Area of Oyo State.

Research Design

This research adopted both an ex-post facto research design and a survey research design. It is an ex-post facto because the 2022 Junior Secondary School Certificate Examination (JSSCE) results were collected for use. The researcher has no direct control and the result cannot be manipulated. The researcher used questionnaire to collect information from the respondents based on the research hypotheses. Both the JSSCE (2022) and designed questionnaire were used in the data analysis by the research.

Research Questions

1. What is the effect of teacher's qualification in students' achievement in Mathematics?
2. How does teacher's motivation determine students' achievement in Mathematics?

Research Hypotheses

Based on the research questions the following null-hypotheses were formulated.

Ho₂: There is no significant relationship between teacher’s qualification and students’ achievement in Mathematics.

Ho₂: There is no significant relationship between teacher’s motivation and students’ achievement in Mathematics.

Sample and Sampling Technique

The target population for this study involved all the eleven thousand eight hundred and thirty-three (11,833) students that sat for the 2022 Junior Secondary School Certificate Examination (JSSCE) and the sixty-eight (68) Mathematics teachers in all the twenty-four (24) Junior Secondary Schools in Iseyin Local Government Area of Oyo State. A purposive random sampling technique was used to select forty-eight (48) teachers that either teach Mathematics in Junior Secondary 2 or Junior Secondary 3 (JS 2 or JS 3 Mathematics teachers). These teachers are purposively selected because of the 2022 JSSCE results that will be used in the study. Also the 2022 JSSCE results of the students of the selected schools were used in data analysis.

Data Collection and Validity

Two instruments were used in collecting data for the study. The first is the 2022 JSSCE results of the students from the study area. The second 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 I comprised 20 structural items on teacher’s qualification while part II contained another 20 structured items for motivation. The selected Mathematics teachers were made to respond to all the 40 structural items on both teacher’s qualification and motivation as related to students’ achievement in Mathematics.

The instrument was validated by experts who have been teaching and researching in Mathematics for more than twenty years. The reliability of the instrument was determined using test-retest method of reliability. The instrument was first used on ten (10) members of the population who are not part of the sample and after one week same instrument was administered to the same people. The two results were correlated and the result found was 0.87. This makes the instrument very reliable since it measured what it was meant to measure at different times.

Data Presentation and Analysis

Table 1: Relationship between teacher’s qualification and students’ achievement in Mathematics

Variable	Numbers	\bar{x}	SD	Df	t-cal	t-tab
Teacher Qualification	48	3.16	1.89	8,740	3.68	1.96
Achievement Score	8,694	17.82	8.66			

Table 1 showed the result of the findings on the academic performance of students in Mathematics as revealed by the qualification of the teachers. The t-cal value of 3.68 is greater than the table value of 1.96. This indicates that the null hypothesis is rejected. Hence the result of the findings has shown that there is significant relationship between teacher’s qualification and students’ achievement in Mathematics.

Table 2: Relationship between teacher's motivation and students' achievement in Mathematics

Variable	Numbers	\bar{x}	SD	df	t-cal	t-tab
Teacher Qualification	48	4.23	2.14	8,740	3.98	1.96
Achievement Score	8,694	17.82	8.66			

The result of table 2 showed that the t-cal of 3.98 is greater than the t-table value of 1.96. This implies that the null hypothesis is rejected, hence teacher's motivation is significantly related to students' achievement in Mathematics.

Discussion of Results

Result of the study revealed that a significant relationship exist between teacher's qualification and students' achievement in Mathematics. Teacher's qualification greatly affects students' performance in Mathematics, so teachers' qualification is a determinant of students' performance in Mathematics. In the same manner, teacher's motivation is significantly related to students' achievement in Mathematics. That is a highly motivated teacher will greatly affect the students' performance in Mathematics. This agrees with Adeniyi, Ogundele & F Odetola (2011) that teachers' satisfaction, motivation, teaching qualification determine the achievement of students in Mathematics to a large extent.

Conclusion

The result of the findings of this study indicated that teacher's qualification and motivation are determinants of students' achievement in Mathematics. Thus when qualified teachers are adequately motivated in terms of adequate and prompt payment of salaries coupled with other incentives students will perform better in Mathematics.

Recommendations

- i. Qualified teachers should be saddled with the responsibility of teaching Mathematics at the Junior Secondary Schools.
- ii. Teachers should be adequately remunerated as and when due.
- iii. Incentives like seminars, workshops, car loan and so on should be provided for motivating them to impact the required mathematical skills in the students.

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