RESEARCH ARTICLE

TEACHERS' PERCEPTION ON THE CAUSES OF STUDENTS' POOR MATHEMATICS PERFORMANCE IN SECONDARY SCHOOLS OF KEBBI STATE, NIGERIA

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ARTICLE INFO	ABSTRACT
	Poor academic performance is any performance that falls below a desired standard of education. Education at secondary school level is the bedrock and the foundation towards higher knowledge in tertiary institutions. The role of secondary education is to lay a foundation for further education and if a good foundation is laid at this level, there are likely to be no problem at subsequent levels. However, different people at different times opines several reasons as to why students fail in mathematics, but most of the reasons are related to curriculum and methods of teaching rather than the students' lack of capacity to learn. It is against this that the study investigates teachers' perception on the causes of students' poor academic performance in Kebbi state secondary schools. Three research questions were formulated to guide the study. The study adopted a descriptive survey design that employs mean and standard deviation for data analysis. Reliable and validated questionnaire was used to elicit information on the research questions. The population consisted of 2,157 mathematics teachers out of which 120 were sampled. From the findings, it was observed that teachers' qualification, teachers' method of teaching and students' environment have influence on students' poor academic performance. The study recommends among others that government should provide qualified mathematics teachers so as to make mathematics teaching interesting and also; extensive training, seminars and workshops should be organized for mathematics teachers of secondary schools on how to employ different teaching method in the classrooms for the success of their students.

INTRODUCTION

More than any time in the past, the future of every country depends on the quality and type of education received by its citizens. The countries that benefit the most are those that have a well educated population. Not only most of the countries need to be well educated in such traditional fields as languages, history, religions, but also in the scientific and technical disciplines that characterize the 21st century. Science and technology has become an integral part of the blood stream of modern civilization and is the major driving force for economic growth and development (Khan, 1995). Mathematics serves in many of the branches of science. This relationship is explained by (Herbert, 1978) who views mathematics as the 'Queen and Servant" of the sciences. The importance of mathematical knowledge in understanding engineering and technical education studies cannot be over emphasized. It is common knowledge that mathematics and science is one of the major requirements for admission into engineering and technical education programmes in Nigeria

and elsewhere. The classroom practitioners, notably the professional teachers of science and even non-science teachers believe that no student can make a head way in science and technology without a basic knowledge of mathematics and according to (Taylor, 1970) fewer people seem to be aware that mathematics carries the main burden in all of scientific reasoning and is the core of the major theories of physical science. (Okereke, 2006) stated that mathematics is the science of things that have a pattern of regularity and logical order of finding and exploring the regularity. Mathematics is the foundation of science and technology and the functional role of mathematics to science and technology is multifarious, that no area of science, technology and business enterprise escapes its application. Besides its importance it is observed that mathematics is one of the most poorly taught, widely hated and abysmally understood subject in elementary schools. Students particularly girls run away from the subject. (Okereke, 2006) further attributed students' poor performance to factors such as the society view that mathematics is difficult, shortage of qualified teachers, lack of mathematics laboratory and lack of attractiveness and novelty in teaching method. The obvious question is whether students' failure to learn mathematics can be ascribed to problems of curriculum,

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problem of teaching, or the student, or perhaps the combination of these (Carnine, 1997). (Kajuru, 2006) also opines several variables ranging from the learners themselves, the teachers, the textbooks, the curricula, school environment to have been responsible for students' poor achievement in school mathematics. Parents and government are in total agreement that their huge investment on education is not yielding the desired dividend. Mathematics teachers also complain that students' performs poorly in the subject at both internal and external examination. The annual releases of West African Examination Council (WAEC) justified this.

Table 1. Mathematics West African Examinations Council (WAEC) Result for Students' Achievement in May/June, 1992-2007

Year	Total No. of Candidate	Credit A1-C6 (%)	Pass P7-P8 (%)	Fail F9 (%)
1992	353,009	22.9	40.6	35.97
1993	491,755	10.8	43.1	47.4
1994	518,118	16.1	41.5	44.0
1995	462,273	16.5	40.22	43.3
1996	514,342	10.0	37.1	52.9
1997	616,923	7.65	26.18	66.16
1998	635,686	9.63	25.01	65.36
1999	756,680	18.25	28.08	53.66
2000	530,074	32.79	31.09	36.12
2001	1,023,103	37.53	31.76	30.71
2002	908,235	34.06	33.95	31.98
2003	926,212	36.91	35.11	23.74
2004	8,326,898	34.52	28.22	34.74
2005	1,054,853	38.20	25.36	34.41
2006	1,181,515	41.73	31.55	25.13
2007	1,249,028	46.75	26.72	24.24

Source: [16]

Statement of the Problem

The way mathematics is taught in Nigeria is not producing the desired effects due to some problems associated with classroom practice. Poor academic performance has been observed in school subjects must especially mathematics among secondary school students. This can all be justified by the dismal results exhibited by students in national examinations such as (WAEC, 2007). (Aremu, 2000) stresses that academic failure is not only frustrating to the students and the parents, its effects are equally grave on the society in terms of dearth of manpower in all spheres of the economy and politics. (Jones *et al*., 2007) stated that there are many possible reasons as to why students fail in mathematics, but most of the reasons are related to curriculum and methods of teaching rather than the students' lack of capacity to learn. For learning in general, (Granström, 2006) shows that different teaching approaches in classrooms influence the outcomes for students in different ways. Therefore, the problem of this study is the perception teachers' of the causes of students' poor academic performance in Kebbi state secondary schools.

Objectives of the Study

The objectives of this study are to:

1. Finding out the perception of teachers on students' poor academic performance and teachers' qualifications.
2. Determine the perception of teachers on students' poor academic performance and teachers' method of teaching.
3. Investigate the differences (if any) among teachers' perception on students' environment and students' poor academic performance.

Research Questions

Based on the above objectives, the following questions are formulated for answering:

1. Do mathematics teachers' qualifications affect their teaching?
2. What is the perception of teachers on students' poor academic performance and teachers' method of teaching?
3. What is teachers' perception on students' environment and students' poor performance?

MATERIALS AND METHODS

Research Design

This study adopted a descriptive survey design aimed at investigating teachers' perception of the causes of students' poor academic performance in Kebbi state secondary schools. This is because the researchers are interested in determining the influence of the independent variables on the dependent variable without manipulating any of the variables. (Best and Kerlinger, 1985) have stressed that survey design is a useful scientific tool to employ when one is interested in the opinions and attitudes as well as the relationship of these opinions to the respondents behaviour.

Population and Sample for the Study

The target population of this study comprises all the secondary school mathematics teachers in Kebbi state. There are four hundred and twenty eight (428) secondary schools with the sum total of two thousand one hundred and fifty seven (2,157) mathematics teachers within the state, in which 1,393 are males and 764 are females. The statistics were supplied by the State Secondary Education Management Board (SSEMB). For the sake of convenience in conducting the research for this study, the researchers adopted a purposive sampling technique in selecting the schools from which the sample was drawn. A sample of 120 mathematics teachers were randomly selected from 40 public and private secondary schools within the state. The sample comprised 65 male and 55 female mathematics teachers. The study was carried out in October 2014.

Instrumentation

The instrument used in gathering data for this study was a self developed close ended questionnaire named Mathematics Teachers' Questionnaire (MTQ). It was design to elicit information from teachers on their perceptions of the causes of students' poor academic performance in Kebbi state secondary schools. The research questions served as the controlling factor in preparing the questionnaire, this was to ensure that the items in the questionnaire reflect on the research questions of the study. The questionnaire contains 30 items and it is made up of two sections. Section A was design to elicit information on the demographic data of the respondents while section B was design to elicit information on teachers' perception of the causes of students' poor academic performance in Kebbi state secondary schools. The instrument is based on four point modified likert scale of strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD) with weighting ranging from 4 to 1 for positively cued items and vice versa for negatively cued items.

Table 2. Mean and S. D. Scores of Respondents' Opinions on the Influence of Mathematics Teachers' on their Qualifications on their Teaching

S/N	Variables	Frequency and Percentage Responses				N	$\bar{X}$	S. D.	Remarks
		SA	A	D	SD				
1	I have acquired adequate training to teach mathematics in senior secondary school.	49 (40.8)	26 (21.7)	22 (18.3)	23 (19.2)	120	3.07	0.738	Accepted
2	Mathematics teachers are competent and have mastery of the subject.	41 (34.2)	34 (28.3)	29 (24.2)	16 (13.3)	120	3.33	0.721	Accepted
3	Teacher's qualification is an important factor in teaching mathematics.	46 (38.3)	39 (32.5)	16 (13.3)	19 (15.8)	120	2.95	0.786	Accepted
4	The higher your qualification the better your teaching.	40 (33.3)	37 (30.8)	23 (19.2)	20 (16.7)	120	3.75	0.551	Accepted
5	Inadequate teaching skill.	37 (30.8)	42 (35.0)	26 (21.7)	15 (12.5)	120	3.24	0.659	Accepted
6	Most teachers do not have adequate knowledge of their subject matter.	49 (16.7)	20 (16.7)	24 (20.0)	27 (22.5)	120	2.87	0.653	Accepted
7	Lack of quality of teachers has an adverse effect on the poor academic performance of students.	41 (34.2)	31 (25.8)	30 (25.0)	18 (15.0)	120	3.72	0.561	Accepted
8	Seminars, workshop, in-service course are not organized for teachers.	45 (37.5)	36 (30.0)	22 (18.3)	17 (14.2)	120	3.67	0.546	Accepted
9	Teacher's extreme dependence on textbooks can lead to poor academic performance.	21 (17.5)	34 (28.3)	36 (30)	29 (24.2)	120	3.32	0.854	Accepted
10	Poor status of teachers with economic stress has drained the motivation of the teachers.	34 (28.3)	31 (25.8)	29 (24.2)	26 (21.7)	120	3.93	0.576	Accepted

Table 3. Mean and S. D. Scores of Respondents' Opinions on the Influence of Mathematics Teachers' on their Teaching Methods

S/N	Variables	Frequency and Percentage Responses				N	$\bar{X}$	S. D.	Remarks
		SA	A	D	SD				
11	The best way to teach mathematics is by demonstration and Lecture method.	37 (30.8)	42 (35.0)	15 (12.5)	26 (21.7)	120	3.17	0.738	Accepted
12	Inquiry/discovery method should be used in teaching math.	49 (40.8)	20 (16.7)	24 (20.0)	27 (22.5)	120	3.73	0.721	Accepted
13	The use of computer is very necessary in teaching mathematics.	41 (34.2)	31 (25.8)	30 (25.0)	18 (15.0)	120	2.84	0.796	Accepted
14	Teachers are not innovative in methodology.	45 (37.5)	36 (30.0)	17 (14.2)	22 (18.3)	120	2.67	0.825	Accepted
15	Teachers are not dedicated to their teaching subjects.	49 (40.8)	27 (22.5)	24 (20.0)	20 (16.7)	120	3.15	0.739	Accepted
16	Inadequate supervision of the inspectors in secondary schools.	34 (28.3)	31 (25.8)	29 (24.2)	26 (21.7)	120	3.48	0.659	Accepted
17	There are no adequate textbooks in schools.	46 (38.3)	39 (32.5)	16 (13.3)	19 (15.8)	120	3.55	0.546	Accepted
18	Large number of students accommodated in a classroom makes the teacher not to have classroom Management.	40 (33.3)	37 (30.8)	23 (19.2)	20 (16.7)	120	3.64	0.546	Accepted
19	Instructional materials are not provided for the teachers to use in teaching various subjects.	37 (30.8)	42 (35.0)	26 (21.7)	15 (12.5)	120	3.58	0.754	Accepted
20	Teachers do not plan their lesson adequately.	21 (17.5)	29 (24.2)	36 (30.0)	34 (28.3)	120	2.87	0.960	Accepted

Table 4. Mean and Standard Deviation Scores of Respondents' Opinions on the Influence of Mathematics Teachers' on their Perception of Students' Environment

S/N	Variables	Frequency and Percentage Responses				N	$\overline{X}$	S. D.	Remarks
		SA	A	D	SD				
21	I will be motivated to teach better if the classroom is well ventilated.	41 (34.2)	34 (28.3)	29 (24.2)	16 (13.3)	120	2.76	0.943	Accepted
22	I can teach well in any type of environment.	21 (17.5)	34 (28.3)	36 (30.0)	29 (24.2)	120	1.94	0.947	Rejected
23	I will be motivated better if good furniture is made available and the environment airy.	40 (33.3)	37 (30.8)	23 (19.2)	20 (16.7)	120	3.16	0.637	Accepted
24	There are no motivation/incentives for mathematics teachers.	37 (30.8)	42 (35.0)	26 (21.7)	15 (12.5)	120	2.93	1.141	Accepted
25	A better salary and allowances will motivate me to teach better.	49 (40.8)	20 (16.7)	24 (20.0)	27 (22.5)	120	3.89	0.557	Accepted
26	Most students' background /environment do not stimulate learning or studies.	39 (32.5)	27 (22.5)	31 (25.8)	23 (19.2)	120	1.43	0.856	Rejected
27	Peer groups influence students.	45 (37.5)	36 (30.0)	22 (18.3)	17 (14.2)	120	3.09	0.765	Accepted
28	Students have negative attitude towards mathematics.	46 (38.3)	39 (32.5)	19 (15.8)	16 (13.4)	120	3.27	0.781	Accepted
29	Divorce among parents affects the academic performance of students.	34 (28.3)	31 (25.8)	29 (24.2)	26 (21.7)	120	1.38	0.991	Rejected
30	Level of the parents' education affects their children academic performance.	41 (34.2)	31 (25.8)	30 (25.0)	18 (15.0)	120	3.45	0.675	Accepted

To arrive at a decision, any item that is positively worded which has a mean score of 2.0 and above is taken as accepted while an item with a mean less than 2.0 is rejected. For the negatively worded items the reverse is the case.

Validity and Reliability of the Instrument

The instrument was validated by experts at the Faculty of Science Education, Ahmadu Bello University Zaria and underwent a series of scrutiny before being considered suitable for use. A test-retest method was employed in establishing reliability for the instrument. By means of Pearson product moment correlation a reliability coefficient of 0.73 was achieved. This reliability coefficient showed that the instrument was reliable for use.

Method of Data Analysis

The data obtained from the study were statistically analyzed using mean and standard deviation.

RESULTS

Research Question 1

From the table above, Table 2 indicates that all the items i.e. item 1-10 are positively worded with mean scores of 3.07, 3.33, 2.95, 3.75, 3.24, 2.87, 3.72, 3.67, 3.32 and 2.93 respectively were all above the cut-off point and were all accepted. This shows that, qualification of mathematics teachers is necessary in teaching and learning of mathematics.

Research Question 2

Table 3 above also shows that all the items i.e. item 11-20 are positively worded with mean scores of 3.17, 3.73, 2.84, 2.67, 3.15, 3.48, 3.55, 3.64, 3.58 and 2.87 respectively were all above the cut-off point and were all accepted. This indicates that all the above methods that mathematics teachers adopt in teaching mathematics matters a lot.

Research Question 3

From Table 4 above, items 21, 23, 24, 25, 27, 28 and 30 have mean score of 2.76, 3.16, 2.93, 3.89, 3.09, 3.27 and 3.45 respectively and are above the cut-off point and were accepted. This indicates that mathematics teachers perceive that students environment influence their academic performance. Likewise items 22, 26 and 29 were negatively worded having a mean score of 1.94, 1.43 and 1.38 respectively were below the cut-off point and were rejected.

DISCUSSION

The finding on Table 1 showed that qualification of mathematics teachers is necessary in teaching and learning of mathematics. This is in line with the finding of [17] who reported that students' poor academic performance is influenced by teachers' qualification. For the result of table 2, it showed that methods that mathematics teachers adopt in teaching mathematics matters a lot i.e. teachers perceive that teaching method influence students' academic performance.

This is supported by (Ajayi, 1988) who opine that the fallen level of academic achievement is attributable to teachers' non-use of herbal reinforcement strategy. Also the finding of this study is in line with that of (Ohuche, 1990) who stated that achieved curriculum indicates students' level of understanding of mathematics, which is determined by quality of the mathematics teacher and his teaching methods. Finally, for research question 3, it indicates that some mathematics teachers perceive that students environment influence their academic performance while some disagree on the influence of students' environment on their academic performance; this may be because they perceive other factors as more influential to students' poor academic performance than students' environment. (Isangedigh, 1988) agree that students' environment promote poor academic performance. (Aremu and Oluwole, 2001) submit that some of the factors of poor academic achievement are motivational orientations, self-esteem, emotional problems, study habits, teacher consultation and poor interpersonal relationships.

Conclusion

The main contribution of this study provided the empirical evidences to show that students' performance in mathematics depends on the teachers' qualification and methods of teaching; and the socio-economic background of the student. Therefore, from the findings of this study, one can safely state that qualifications of teachers', teachers' method of teaching and students environment play a significant role in the acquisition and achievement in mathematics.

Recommendations

Based on the findings of this study, the researchers make the following recommendations:

- Teachers should make mathematics teaching interesting to their students.
- Government should provide adequate instructional materials and qualified mathematics teachers so as to remove frustration in the learning process.
- Parents should make sure they complement teachers' efforts in school by monitoring and supervising their children's academic activities in order to enhance mathematics achievement.
- Extensive training, seminars and workshops should be organized for mathematics teachers of secondary schools on how to employ different teaching method in the classrooms for the success of their students.

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