

Students' Perception of Factors Influencing Teaching and Learning of Mathematics in Senior Secondary Schools in Maiduguri Metropolis, Borno State, Nigeria

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Abstract

This study examined students' perception of factors influencing teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis of Borno State, Nigeria. The objectives of the study were to determine the extent to which students perceived: qualification, method of teaching, instructional materials and attitude of both teachers and students influence the teaching and learning of mathematics in senior secondary schools. The study used a sample of 1500 males and 1100 females students from six selected senior secondary schools in Maiduguri Metropolis, Borno State, Nigeria. The instrument used for data collection was a self-developed questionnaire measuring students' perception of factors influencing teaching and learning of mathematics. It had a reliability index of 0.81. To analyze the data collected, the research questions were answered using descriptive statistics such as simple frequency, mean and standard deviation. The results indicated that qualification of mathematics teachers, teaching method, and instructional materials were highly perceived by students as important determinants of their success in learning. Also, students' attitude towards mathematics teaching and learning was an important factor in the performance of students. Based on the results of this study, it was recommended that: There is need to improve the quality of mathematics teachers. Government of Borno State should embark on serious in-service training of mathematics teachers to equip them with skills for teaching mathematics in secondary schools. Also there is need for mathematics teachers to try and understand the perceptions of their students and try to adopt instructional strategies that whatever student perceived as easy would really turn out to be easy and whatever is difficult may be properly addressed to motivate and encourage students to see the need in learning mathematics and improve their performance.

Keywords: Students' perception, Teachers' qualification, Teaching method, Mathematics teaching, Mathematics learning

1. Introduction

Perception is the way people judge others with whom they are in contact. A person's attitude to an idea or object determines what the person thinks, feels and how the person would like to behave towards that idea or object. Therefore, the students' perception of their teachers qualification could influence their attitude towards learning mathematics or any other school subject. Students more often than not, judge their teachers in such areas as the teachers knowledge of the subject matter, communication, ability and the choice of appropriate teaching method. A teacher who is rated high on these indices in the perception of the students is likely to enjoy the confidence, respect and admiration of his/her students and vice versa.

The way students perceive a subject determines their success or failure in that subject. Some students perceive mathematics as no go area because of the negative impression passed down to them by the past generations who had bad experience with unqualified mathematics teachers; that mathematics is the most difficult subject in the school, it is not meant for every body, not everybody passes it, it is meant for those with special talent, some were born to do mathematics while others were not (Audu, 1995). On hearing all these negative expressions before school age or getting admission into school, the child psychologically develops fear for the subject and comes to the lesson with these bad notions which dis-associate learning patterns which are impossible to build upon. It has done a lot of harm to the teaching and learning of mathematics. Ale (1989) coined the term "math phobia" for the condition that these bad notions lead to. That is, fear followed by low productivity and consequently leads to low achievement in mathematics. For this reason, this paper which is based on a study, examined the extent to which students perceived factors like teachers qualification, method of teaching, instructional materials and students' attitude towards mathematics as factors that influence the teaching and learning of mathematics in Maiduguri Metropolis, Borno State. The aim is to educate the new incoming generations on the likely variables perceived to be affecting teaching and learning of mathematics resulting to the persistent rate of failure in the subject.

2. Review of Related Literature

The way students perceive a teacher or a subject determines their success or failure in that subject. Some students today perceived mathematics as no go area because of the negative impressions passed down to them by

the past generation who had bad experience with unqualified mathematics teachers which is still in circulation: that mathematics is the most difficult subjects in the school, it is not meant for everybody, not everybody passes it, it is meant for those with special talent (Audu, 1995). On hearing all these negative expression since before school age or getting admission into school, the child psychologically develops fear for the subject and come to the lesson with these notion and if confronted with any mathematical problem solving will quickly conceptualized him/her self: I cannot do any difficult task, it is not meant for people like me, accepting defeat since before trying which disassociate learning pattern which are impossible to build upon. Therefore, the hierarchy needs of both teachers and students should be met to motivate both for better performance.

According to Maslow, teachers should do everything possible to help students satisfy their deficiency because an inner motivation for knowledge will not develop until these basic needs are met. He observed that teachers are not always able to intervene in student's life to the extent necessary to fulfill deficiency needs, but suggested that, teachers instead are in a position to provide a classroom conducive for learning,, that could fulfill deficiency needs, especially in mathematics, a subject which if not passed with credit, no student could be given admission into any tertiary institution. He concluded that, teachers and primarily parents, as much as possible should help and encourage their children in meeting deficiency needs, which consequently could enhance effective teaching and learning of all subjects.

2.1 Students' Perception of Mathematics Teachers' Qualifications

Tayo (2007) investigated the relationship/effect of students' perception of teachers' knowledge of subject matter, attitude to work and teaching skills on students' academic performance. The population consisted of senior secondary three (SSIII) students in the south west Nigeria senior secondary schools. The study sample consisted of 1600 purposively selected SSS III students from the selected senior secondary school. A questionnaire with four sections was developed and administered to the subject. The data collected were analyzed using simple percentage, Person Product Moment Correlation and Chi – square statistics to test the three hypotheses generated in the study. The result showed that students' perception of teachers knowledge of subject matter, attitude to work have a significant effect on students' performance.

Etuk, Afangideh and Uya (2013) conducted a study on students' perception of teachers' characteristics and their attitude towards teaching of mathematics in Oron Education Zone, Nigeria. The study sought to find out the relationship between how students perceive their teachers in respect of knowledge of mathematics content, communication ability, use of appropriate teaching strategies and teachers' classroom management skills and students' attitude towards learning of mathematics. The population of the study comprised all the second year students in senior secondary schools in Oron Education Zone. The study sample consisted of 640 students selected through cluster and simple random sampling techniques. Two instruments- Students' perception of teachers' characteristics questionnaire and students' attitude towards mathematics questionnaire were developed and administered to the respondents. A trial test of 50 students using split-half reliability test was carried out which yielded reliability coefficients of respondents. Data collected were analyzed by frequency counts, percentages; mean scores and tabulation. The findings revealed that some teachers were the bedrock of some students' low academic performance in mathematics due to their ineffectiveness at work and students' lack of interest due to poor background in the subject. Also it was found that in Nigerian high schools, many students were not studying the courses they intended to; due to the negative attitude they earlier formed against mathematics.

Olaleye (2010) investigated the perception of students on teachers' characteristics to students' academic performance. The study was carried out in Osun state senior secondary schools. A population of 1600 purposively selected SSS III students from 16 rural and urban schools were used for the study. Questionnaire tagged teachers' characteristics and students' academic performance was to elicit information from students. Data collected were analyzed using percentage and Person Product Moment Correlation, Coefficients. The findings showed that there was a significant relationship between teachers' characteristics on students' academic performance.

2.2 Students' Perception of Mathematics Teaching Method

Ampadu (2012) examined students' perception of their teachers' teaching methods on how it impacted on their learning experiences. The sample of the study involved 258 students from 12 junior high school (12-14 years) who were randomly selected to complete a semi-structured questionnaire. The study revealed that students' perception of their teachers' teaching varies as the results established that both teacher – centred and student – centred teaching approach were used by mathematics teachers. The results of the study revealed that teachers' action and inaction impact positively or negatively on students' learning experience as the majority of the respondents reported that their learning experiences are to a larger extent controlled by the teacher.

Asikhia (2010) conducted a study on students' and teachers' perception of the causes of poor academic performance in Ogun State secondary schools, Nigeria. The study had a targeted population consisting of all

(SSII) students in Ogun State. That is 135 (SSII) students and 50 teachers were selected from five (5) secondary schools for the study through stratified random sampling. The instrument used for data collection was a self-designed questionnaire on the perception of students' poor academic performance. The data obtained were analyzed using frequency count and chi-square statistical analysis. Findings showed that teachers' qualification and students' environment did not influence students' performance but teachers' method of teaching influence performance. In addition, some of the factors of poor academic achievement identified were motivational orientation, self – esteem, emotional problem, study habits, teacher consultation and poor interpersonal relationship.

2.3 Students' Perception of Mathematics Instructional Materials

Teaching aids or instructional materials include all physical resources that may be employed in instructions whereby students learn with the aid of objects rather than by reading books or listening to the teacher only. The role of physical experience in concept materials gives children the experience that enables them to form their ideas. However, when they lack such concrete materials, like teaching aids, their comprehension is greatly hindered (Durati, 2005).

Adeluku (2012) investigated the influence of instructional materials in teaching and learning of Mathematics in senior secondary schools in Cross River State. A two group pre-test post- test quasi-experimental design was adopted for the study. One research question and one hypothesis were formulated to guide the study. A total of 100 senior secondary one (SSI) mathematics students were selected from five (5) schools in Yankur Local Government Area of Cross River State through simple random sampling and stratified random sampling techniques. Fifty SSI students (experimental group) were taught with instructional materials and another forty (control group) were taught without instructional materials. A validated mathematics achievement test was used to gather data for the study and split –half was carried out using the Person Product Moment Correlation Coefficients to obtain the reliability coefficient of 0.67. Independent t-test was used to test the hypothesis at 0.05 significant levels while the Person Product Moment Correlation Coefficient was used to test the hypothesis at the 0.05 levels of significance. The study revealed that students taught with instructional materials performed significantly better than those taught without instructional materials and also that the use of instructional materials generally improved students' understanding of concepts and led to high academic achievements.

Maruff and Amos (2011) examined the effect of using standardized and improvised instructional materials on academic achievement of secondary school mathematics students in Oyo State, Nigeria. The research design adopted was quasi-experimental using pre-test post -test non-randomized control group. Purposive sampling was used to obtain a sample of three co-educational secondary schools. Each school provided one SSIII class for the study. Two instruments were used in the study, the mathematics achievement test to measure students' achievement and teachers' instructional guide to train the teachers in the experimental groups. The instrument was pilot tested to ascertain reliability. The reliability coefficient was 0.76. Three hypotheses were formulated and tested at the 0.05 level of significance. Data were analyzed using ANOVA and ANCOVA. Findings revealed that there was a significant difference in the achievement of students taught using standard instructional materials, those taught with improvised instructional materials and those in the conventional instruction. Thus, the students taught with improvised instructional materials obtained the highest achievement score at post- test ($F=74.94$), followed by those with standard instructional materials ($F=63.07$), while the control group scored the lowest ($F=39.89$). Also, there was no significant effect of gender on students' achievement in mathematics. Finally, there were no significant interaction effects of treatment and gender on students' achievement in mathematics. The researcher concluded that the utilization of improvised instructional materials promote and enhance effective teaching –learning process, thus, mathematics teachers should be encouraged to use them in their lessons.

Oluwale (2010) examine the effect of mathematic instructional materials on the learning and teaching of mathematics as well the effect of these instructional materials on the academic performance of some secondary school students in Isolo Local Government Area of Lagos State. A well designed and simple questionnaire was distributed to mathematics teacher in these selected schools to accurately evaluate the effect of instructional materials on the application of learning mathematics in secondary schools in Nigeria. The researcher adopted the survey research design with a sample of 20 teachers and eighty (80) students selected randomly. A questionnaire was used to collect the data. The findings after testing hypothesis, three indicate that there was significant positive difference in the performance of secondary school students in mathematics when they were taught the subject with instructional materials in the teaching and learning of mathematics, obviously improves the performance of the students.

3. Objective of the Study

The objectives of the study were to determine the extent to which students perceive:

- i. qualification of teachers as a factor that influences teaching and learning of mathematics in senior

- ii. secondary schools in Maiduguri Metropolis, Borno State, methods of teaching as a factor that influences teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis, Borno State,
- iii. instructional materials as a factor that influence teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis, Borno State, and
- iv. attitude as a factor that influences teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis, Borno State.

4. Research Questions

This study answered the following questions:

- i. To what extent do students perceive qualification of teachers as a factor that influences teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis, Borno State?
- ii. To what extent do students perceive methods of teaching as a factor that influences teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis, Borno State?
- iii. To what extent do students perceive instructional materials as a factor that influence teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis, Borno State?
- iv. To what extent do students perceive attitude as a factor that influences teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis, Borno State?

5. Scope of the Study

This study was concerned with students' perception of factors that influence teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis of Borno State. It was concerned with the following variables such as teachers' academic qualifications, method of teaching, use of instructional materials, and attitude of students towards the teaching and learning of mathematics. What students perceive will influence the learning process positively or negatively. That is, how students observe or perceive their teachers' teaching method, use of instructional materials, through communication and competency influence this learning process.

6. Methodology

6.1 Population and Sample

The target population for this study comprises all the senior secondary school two students (SSII) in six out of the twelve senior secondary schools in Maiduguri Metropolis of

Borno State which totaled to two thousand six hundred (2600), consisting of 1500 males and 1100 females and 45 mathematics teachers with 36 male and 9 female teachers. The selection of six senior secondary schools was based on their years of establishment to stand as a representative of the twelve senior secondary schools. The six sampled schools consisted of two male and female, schools each and two co-educational senior secondary schools with the total of one thousand and ninety three students (764 males and 347 females).

The SSII students were considered appropriate for this study because they were in their fifth year in the secondary school and had acquainted and adapted themselves to the school environment. They have been studying mathematics as a school subject long enough to provide judgment about teachers' knowledge of communication, methods of teaching, use of instructional materials and attitude towards mathematics among them. SSIII students were engaged in preparation for the West African Senior School Certificate Examination (WASSCE) while (SSI) students were new to the school environment. Therefore, SSII students became the best population for this study. A sample of three hundred and thirty five (335) SSII students (193 male and 142 female) were randomly sought from the six senior secondary schools selected for study. One class of the SSII was picked out by ballot out of the total number of SSII classes from the schools selected for the study. The sample size of the 335 SSII students was adequate for this kind of study according to Kiajcle, Robert and Morgan (1970).

Table 1: Distribution of Population and Sample of Students in the Schools

| School | Students | | | | | |
|--------------|-------------|-------------|-------------|------------|------------|------------|
| | Population | | | Sample | | |
| | Male | Female | Total | Male | Female | Total |
| A | - | 400 | 400 | - | 52 | 52 |
| B | 220 | 50 | 270 | 28 | 6 | 34 |
| C | 480 | - | 480 | 61 | - | 61 |
| D | 400 | - | 400 | 52 | - | 52 |
| E | 400 | 20 | 420 | 52 | 3 | 55 |
| F | - | 630 | 630 | - | 81 | 81 |
| Total | 1500 | 1100 | 2600 | 193 | 142 | 335 |

6.2 Research Instrument

The instrument used in data collection for this study was questionnaire constructed on students' perception, of qualifications, method of teaching, use of instructional materials and attitudes as factors that influence teaching and learning of mathematics in senior secondary schools in Maiduguri Metropolis, Borno State. It consists of two sections: Section A was designed for collection of teachers bio-data which included: gender, teaching experience, qualifications such as Diploma, NCE, B.Sc., B.Ed. and M.Ed. Section B has 25 items constructed on students' perceptions of the four variables above on how each one influenced teaching and learning of mathematics. The instrument was designed on five points Likert types scale such that a respondent selects an opinion against a particular statement. The response categories were as follows: Strongly Agree 5, Agree 4, Undecided 3, Disagree 2, and Strongly Disagree 1.

Content validity of the research instruments was sought by distributing the draft copies of the questionnaire to experts in test construction for their critiques and suggestions. The comments of the experts were considered and modifications were incorporated into the final draft of the instrument. The reliability coefficient of the instrument was established using Cronbach alpha and its reliability coefficient of 0.81. Therefore, the questionnaire was reliable for gathering data for the study.

6.3 Procedure for Data Collection

After obtaining an introductory letter from the Head of Department of Education, University of Maiduguri, the researcher went to all the six senior secondary schools in Maiduguri Metropolis and solicited permission from each principal to use all mathematics teachers and senior secondary school two students (SSII) for the study. The researcher requested two mathematics teachers from each of the schools visited to serve as research assistants. The senior secondary school two students' (SSII) mathematics teachers from each of the schools selected received training on the use of the strategy appropriate for administering the questionnaire one week ahead of time. The following week, on arrival to each school the two research assistances collected the questionnaires and distributed it to the students and went round the class together with the researcher to ensure no sharing of views or opinions by the students, but help was rendered to those who could not read well. The researcher with the help of the two researcher assistants retrieved the completed questionnaires. The exercise lasted for a week.

6.4 Method of Data Analysis

For this study, the data collected was analyzed using descriptive statistics of mean and standard deviation and frequency. The mean and standard deviation was used to find out the extents to which the following variables; mathematics teachers' qualification, mathematics teachers' teaching method, mathematics instructional materials and attitude towards mathematics influence the teaching and learning mathematics in senior secondary schools in Maiduguri Metropolis, Borno State. The frequency and the mean values were used to draw the graph of normal curve to determine the value of respond to each variable under the natural curve. Frequency is against the vertical line called y-axis and mean vale against the horizontal line x-axis respectively. Descriptive statistics was used for describing and explaining observed events in their natural settings. That is, without any experimental treatment and control group. Therefore the use of descriptive becomes inevitable for the analysis of the data collected for this study.

7. Results

7.1 Research question one: To what extent do students perceive qualification as a factor that influence teaching and learning Mathematics?

Table 1: Students' Perception of the Qualification of Mathematics Teachers

| Qualification | N | Mean | SD | Std. Error Mean | Variance | Range |
|---------------------|-----|-------|------|-----------------|----------|-------|
| Students Perception | 335 | 20.08 | 3.85 | 0.43 | 14.84 | 24 |

Table 1 presents a mean and standard deviation distribution values of students' perception related to mathematics teachers' qualification as a factor that could affect teaching and learning encountered in senior secondary schools in Maiduguri Metropolis Borno State.

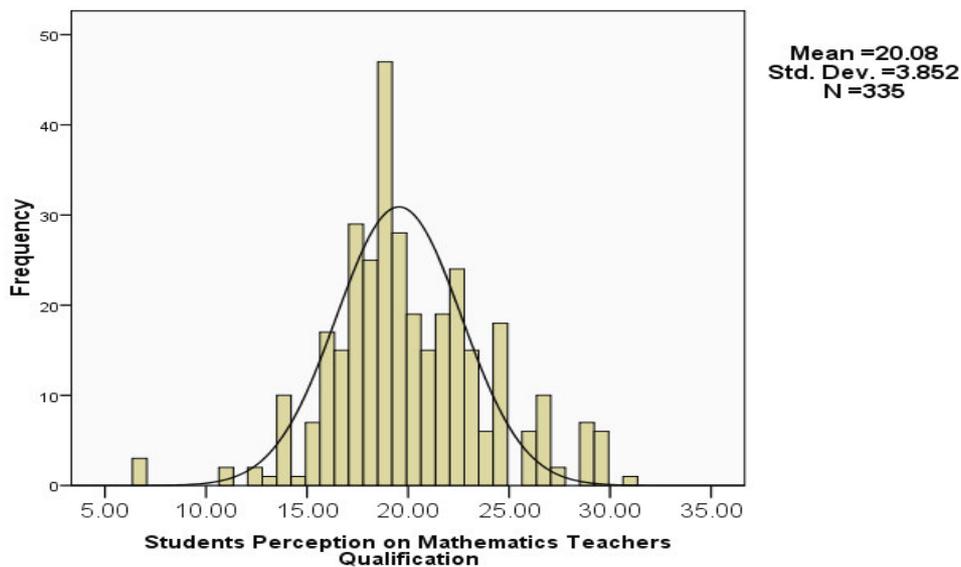


Fig.1: Normal Curve of Perception of Students' Responses on Qualification

Figure 1 revealed results of students' perception related to qualifications as a factor that influenced mathematics teaching and learning. The results showed that the perception of students' responses to the qualification as a factor in determining effective mathematical contents delivery were found to be normally distributed (N= 335, Mean= 20.08 and SD= 3.85) for mathematics students' perception of the qualifications of mathematics teachers. Consequently, the results indicated that the perception of students perceived that effective mathematics teaching usually occurred within the framework of the attainment of requisite and relevant mathematics teaching qualifications.

7.2 Research question two: To what extent do students' perceived methods of teaching as a factor that influence teaching and learning of mathematics?

Table 2: Students' Perception of the Methodology of Mathematics Teaching and Learning

| | N | Mean | SD | Std. Error | Variance | Range |
|----------------------|-----|-------|------|------------|----------|-------|
| Students' Perception | 335 | 15.24 | 5.05 | 0.28 | 25.52 | 20.67 |

Table 2 presents mean and standard deviation distribution values of students' perception related to mathematics teachers' methodology as a factor that could affect teaching and learning of mathematics encountered in senior secondary schools in Maiduguri Metropolis, Borno State.

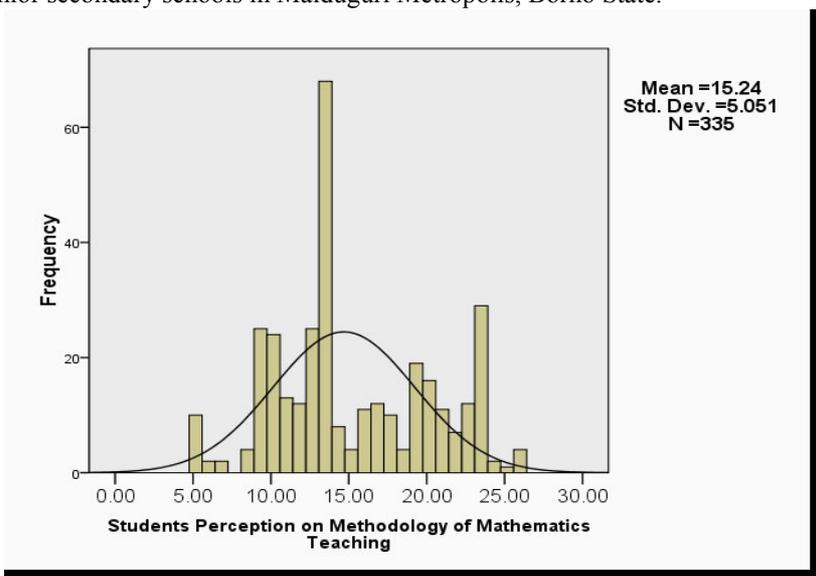


Fig.2: Normal Curve on the Perception of Students' Responses on Methodology

Figure 2 revealed results on students' perception related to methodology as a factor that influenced mathematics teaching and learning. It has been observed from the analysis that the results of the perception of

students' responses on the methods of teaching and learning mathematics showed that, project techniques, discussion method, questioning method and problem solving techniques all congregated to the respondents' opinion that the methods lead to an effective mathematics teaching and learning encounter. This was established from the normal curve distribution of students' responses on what they had perceived as effective methodology of mathematics teaching and learning in (Figure.2). The normality distribution curve has $N= 335$, $Mean= 20.08$ and $SD= 3.85$ for mathematics students' perception.

7.3 Research question three: To what extents do students' perceived instructional materials as a factor that influence teaching and learning of mathematics?

Table 3: Students' Perception of the Instructional Materials of Mathematics Teaching and Learning

| | N | Mean | SD | Std. Error | Variance | Range |
|----------------------|-----|-------|------|------------|----------|-------|
| Students' Perception | 335 | 18.08 | 3.95 | 0.22 | 15.56 | 17.17 |

Table 3 presents mean and standard deviation values of students' perception of mathematics instructional materials as a factor that could affect teaching and learning of mathematics encountered in senior secondary schools in Maiduguri Metropolis, Borno state.

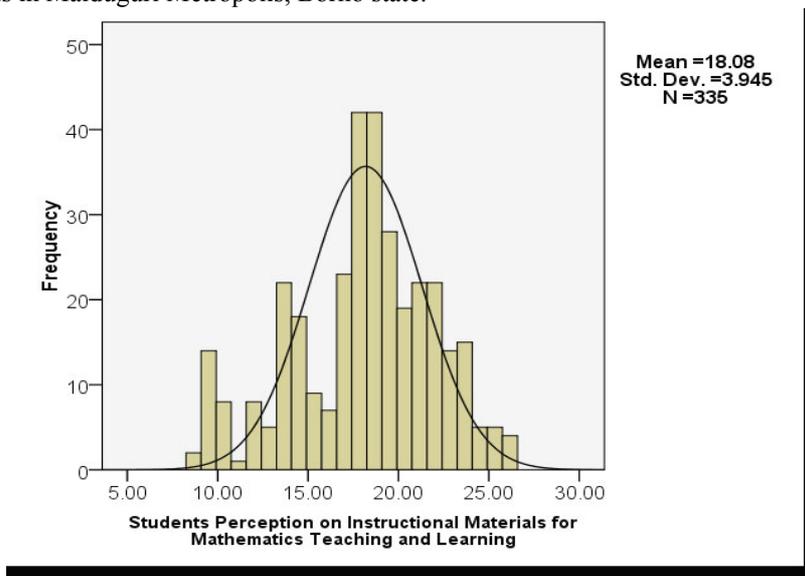


Fig.3: Normal Curve on the Perception of Students' Responses on Instructional Materials

The results in Figure 3 revealed that students' perception of instructional materials such as: visual aids like mathematical text presentation by the use of electronic devices (computers), audio-visual aids, like mathematical video projection and the use of concrete instructional materials like football pitch, and schools' farmland usually enhanced and lead to effective mathematics teaching and learning. This was affirmed by the normal curve distribution of mathematics teachers' and students' responses on instructional materials that really guided classroom mathematics teaching and learning (Figure 3). The normality distribution has $N= 335$, $Mean= 18.08$ and $SD= 3.95$ for mathematics students' perception on the effect of instructional materials.

7.4 Research question four: To what extent do students' perceive attitude as a factor that influence teaching and learning of mathematics?

Table 4: Students' Perception of the Attitude toward Mathematics Teaching and learning

| | N | Mean | SD | Std. Error Mean | Variance | Range |
|----------------------|-----|-------|------|-----------------|----------|-------|
| Students' Perception | 335 | 17.34 | 3.34 | 0.18 | 11.15 | 16.17 |

Table 4 presents mean and standard deviation distribution values of students' perception of attitude as a factor that could affect teaching and learning of mathematics encountered in senior secondary school in Maiduguri Metropolis, Borno state.

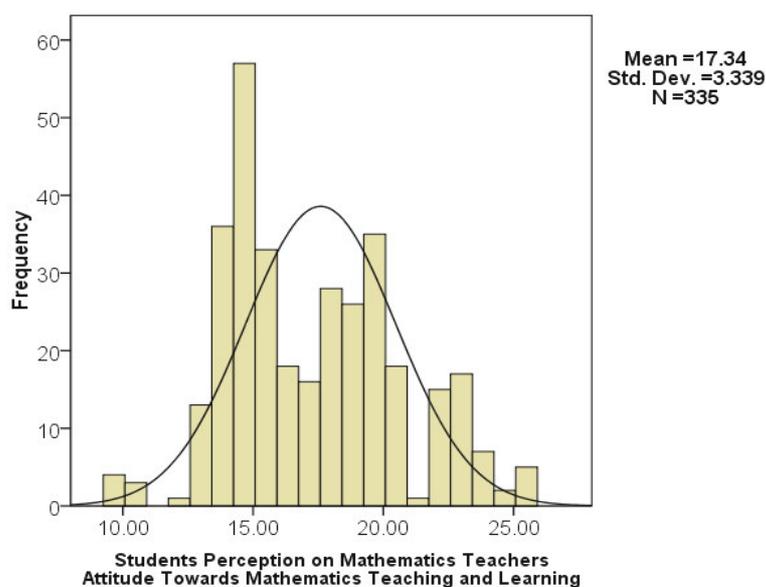


Fig. 4: Normal Curve on the Perception of Students' Responses on their Attitude towards Mathematics

Figure 4 revealed results on students' perception that related to attitude as a factor that could influence mathematics teaching and learning. The results indicated that many students believed that mathematics teaching and learning were for special set of students. Furthermore, mathematical abstraction usually discourages students from learning mathematics and creates misconception about mathematics that has no relationship with the social well-being of people. All the responses on the students' perception of the attitude as a factor affected mathematical contents delivery. This was established from the normal curve distribution in (Figure 4) with $N=335$, $Mean=17.34$ and $SD=3.34$ for students' perception of the attitude of mathematics teachers.

8. Summary of Findings

The following summary of findings of the study were derived from the results of the data analysis.

- i. The result revealed that the extent to which mathematics students perceived teachers' qualification as a factor is positive with mean and standard deviation of 20.08 and 3.85. This implied that, lack of qualified mathematics teachers has an adverse effect on students' academic performance.
- ii. The result revealed that, the extents to which mathematics students perceived teachers' methods of teaching as a factor is positive with mean and standard deviation of 15.24 and 5.05 for students. This implied that effective method of teaching mathematics is necessary if mathematics is to be taught well in the secondary schools.
- iii. The result revealed that the extent to which mathematics students perceive mathematics instructional materials as a factor is positive with mean and standard deviation of 3.31 and 3.95 for students. This implied that mathematics instructional materials are necessary and essential for effective teaching of mathematics.
- iv. The result revealed that, the extent to which mathematics students perceived attitude towards mathematics as a factor is positive with mean and standard deviation of 17.34 and 3.34 respectively. This implied that attitude towards mathematics needs to be properly addressed. This was because the findings of this study attested that the way students perceive a subject determine its failure or success.

9. Discussion of Findings

The finding of this study in respect to research question one revealed that mathematics teachers' and students' perception of qualification as one of the factors considered to have an adverse effect in teaching and learning of mathematics was in agreement by the majority of respondents. On the whole, it could be observed that the means and standard deviation on students' responses on teachers' qualification showed that most of the students do not have effective teaching of mathematics and that concurred with the finding of Soyibo (1986), Fakeye (2012) who investigated the extent to which teachers qualification and subject mastery could predict students' achievement in mathematics among senior secondary school students in Ibarapa in Oyo state and found that teachers' teaching qualification has an important relative contribution to students' academic achievement. The finding is not in agreement with Umar (2013) who examine the effect of teachers' qualification on performance in mathematics among senior secondary school students in Kaduna state and found that significant difference existed between students' performance on account of their teachers' qualification. The finding of Etuk, Afangideh and Uya

(2013), Abubakar (2013) and Adediwura (2007) found that lack of qualified mathematic teachers in most of the secondary schools is one of the most significant factors affecting the academic performance of students in the same vein, which is not far from the findings of this study. Therefore, the qualification of mathematics teachers was really an issue of utmost concern which needs to be looked into with serious concern by both Federal and State Government because the key to quality in our schools is the availability of well qualified and competent teachers.

The findings of the study in respect to research question two reveals that teaching method has significant influence on students' academic performance in senior secondary mathematics in Maiduguri Metropolis, Borno State. This result agrees with Saritas and Akdemir (2009) who conducted a study on identifying factors affecting the mathematics achievement of students for better instructional design and found that instructional strategies and methods, teacher competence in mathematics and motivation or concentration were the three most influential factors that should be considered in the design decision. The finding underscores the submission made by Umoren (2001) in a research on the method of teaching like the ability of the teacher to impact knowledge so depends greatly on the methods he applies during-learning process. Where the method is defective the students' stands to lose as they hardly benefit from the lessons. It also underscores Adediwura and Tayo (2007) description of method of teaching as pattern to be followed in teaching/learning process to drive home appoint. Whether in formal or informal education, teaching method effectiveness makes for retention of learnt concept. The extent to which an instructional procedure is portended depends greatly upon its effective use by the instructor and the impression it leaves on the learner which is usually evident in their attitude as well as performance. The findings calls for Uya (2008) that for teachers to be able ensure order and enhance classroom learning, they have to possess necessary pedagogical skills which have to be systematic and methodical. They have to explore and make good use of their knowledge of instructional skills/strategies, whether the method adopted falls within the spectrum of mass or individualized instructional method. Esu (2003) opinion that teaching by its nature requires a variety of method to facilitate teaching and learning in the class and to develop the child's knowledge and understanding to the maximum is significant in this respect.

References

- Abubakar, B. (2013). Effort of teachers' qualification on students performance in mathematics among senior secondary schools in Kaduna State, unpublished dissertation, ABU Zaria.
- Adediwura, A.A & Tayo, B. (2007). Perception of teachers' knowledge, attitude and teaching skills as predictor of academic performance in Nigerian secondary school. *Academic Journal on Educational Research and Review*, 2(7),165-177.
- Adeluku, S.A (2012). The influence of instructional materials on academic performance of senior secondary school students in mathematics in Cross River State. *Global Journal of Educational Research*: 2(1).
- Ale, S. O. (1989). School mathematics in the 1990's some major problems for developing countries. Intervention at *Journal and Mathematics Education in Science and Technology* 20(5)
- Ampadu¹, E. (2012). Students' perceptions of their teachers' teaching of mathematics: the case of Ghana International online *Journal of Educational sciences*, 2012, 4(2) 351-388.
- Asikhia, O. A. (2010) Students' and teachers' perception of the causes of academic performance in Ogun state secondary schools, Nigeria. *European Journal of Social Sciences* 13(2).
- Etuk, N. Afangideh M.E. and Uya A.O. (2013) Students' Perception of Teachers' Characteristics and their attitude Towards Mathematics in Oron Education Zone, Nigeria. *International Education Studies*; 6(2) 2013. 1913-9020.
- Fakeye, D.O. (2012). Teachers' Qualification and Subject Mastery as Predictors of Achievement in Mathematics in Ibarapapa Division of Oyo State. University of Ibadan. Ibadan Nigeria.
- Kiajcle, Robert V, Morgan and Daryle, W. (1970) Determining sample size for research activities: Educational and Psychological Measurement; 30, 607-619.
- Maruff and Amos. (2011). Instructional Materials and Students' Academic Achievement in Mathematics: Some Policy Implication. *European Journal of Humanities and Social Sciences*.1(2) 2220-9425.
- Olaleye, F.O. (2012). Teachers' characteristics as predictor of academic performance of students in secondary school in Osun State – Nigeria. *Global Journal of HUMAN SOCIAL SCIENCE: Double Blend Capital Reviewed International Research Journal* :2249-4600X
- Soyibo, O. (1986). Relationship between Students' Learning Style and Academic Achievement. Study on High School Students' *Educational Psychology journal*.
- Umar, A. (2013). Effects of teachers' qualifications on performance in further mathematics among secondary school students. *mathematical theory and modeling*. 1(3) 2225-6522.