

## **The Relationship between Senior Secondary Students' Perception and Attitudes to Performance in Mathematics in Maiduguri Metropolitan, Borno State**

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### **Abstract**

Consistent failure in mathematics results in internal and external examinations continues to portray a cause of concerns. Among the many ways of solving the problem, require a re-examination of the attitudes and perception of the students about the subject. The study hence investigated the relationship between senior secondary students' perception and attitude to mathematics. A total of 390 students comprising SS1 students drawn from senior secondary schools participated in the study. The method of sampling is random sampling method. The instrument used was questionnaire of 20 items on perception and attitude to mathematics and a test administered on performance of the students in the schools. Data collected was analyzed using Pearson product correlation. The result of the analyses shows that there is significant relationship between perception and attitude to mathematics. The calculated Pearson product moment correlation are 0.80, 0.91, and 0.90, with 64%, 82.81% and 81%. Also the calculated  $t$  (11.39),  $t$  (18.76)  $t$  (17.64) at 0.05 level of significant was greater than the observed table value  $t$  (1.98). The study also reveals that parents who are educated send their children to private schools and perform better than those in Government schools and gender also play a significant role in the perception and attitude of the students to mathematics.

### **Introduction**

Mathematics is so much a part of the fabric of life that, to have a little or no understanding of it is serious intellectual handicap. It is a pursuit that is intensively rewarding in itself. Mathematics is making a big impact on our society. In the generation gone by, only Physicist and engineers had need for mathematics. Nowadays, the practice has changed dramatically. Any graduate of senior secondary school aspiring to study biology, economics, geography, sociology and even psychology drop mathematics at his/her period. Mathematics is the bed rock of science and technology which of course is one of the reasons why the government made it compulsory at primary and secondary school levels (Winifred, 1990).

Winifred (1990), stressed that mathematicians and scientists predicted moral and natural improvement of a man's world results from the

application of mathematics because Science can elevate on nature to its highest degree of perception. There has been always been an interest in the development of positive perception and attitude toward mathematics.

According to Kretch and Crutch (1975) attitude has some basic components, a belief of an emotional feeling and an action tendency, which interacts with several kinds of human or animal behavior to give the individual response or reaction to situations or events. These behaviors are characterize by belief, perceptions, opinions, prejudices and stereotypes which shows that it is the manifestation of learning has been taking place. An attitude is leaned oriented or disposition toward an object or situation which predicts a tendency to respond either favorably or unfavorably to a confusing situation.

Perception refers to the process whereby an individual becomes aware of events or objects in one's environment, in others to perceive is to

understand and become aware of the object one is hearing it, include the transformation of impression made upon one senses by the objective people or event (Ema, Ajaji, 2006). While attitude is a way an individual feels, thinks and is predisposed to act toward the aspect of his environment (Ani, 1982). This one may put toward the fact that the way the Nigerians feels, thinks and act toward mathematics greatly influence mathematics education in Nigeria.

Perception and attitude are phenomena or attribute that could positively or negatively input on student performance depending upon the students' intention, interest and capability to develop. This research intends to look at the relationship that exist between students perception and attitude for the purpose of making student develop positive perception and attitude to improve their performance in mathematics at every level of internal and external examination, and to derive out fears and belief that mathematics is very difficult subject (Likita, 2010).

### Statement of the Problem

Prior research findings (Ofo, 1986, Ani, 1982, Nwagu, 1991, Obodo, 1991 and Likita, 2010) have established that secondary school students have negative attitude and perception towards mathematics. There is dissatisfaction with the achievement of students in mathematics because of the poor results the students obtained in internal/ external examination, and as a result of students poor perception of mathematics, negative attitude to mathematics, hatred, fears or dislike of mathematics, lack of interest in mathematics and anxiety in mathematics. This research intends to find the relationship that exists between senior secondary student perception and attitude to their performance in mathematics.

### Objectives of the study

The objectives of this study are:-

- i) To determine the relationship that exists between students' perception and attitude to mathematics in our school.
- ii) To determine the relationship that exists between students' perception and

attitude to mathematics with parent educational background.

- iii) To guide or direct the students perception and attitudes towards their performance in mathematics by gender.

### Research Questions

1. What kind of relationship exists between students' perception and attitude to mathematics with regards to school type?
2. What kind of relationship exists between student perception and attitude to mathematics with their parent educational background?
3. What is the direction of student perception and attitude toward their performance in mathematics by gender?
4. What kind of relationship exist between student perception and attitude and the performances in mathematics?

### Methodology

This research is a descriptive survey design, so correlation object would be adopted. The research used correlation because the study seeks to determine the relationship between variables under study.

The target population for this study comprises all SSI in all schools in Maiduguri Metropolitan Council Area. Sample of six schools of the 31 schools were used. A total of 390 students would be randomly selected using simple random sampling technique of which 65 SSI students would represent each school.

The research would use twenty items questionnaire on perception and attitude to mathematics based on interest/like, hate/fear and dislike of mathematics using four likert scales.

Pearson product moment correlation coefficient and simple percentage was used to find out the relationships that exist between perception and attitude in the research questions formulated at 0.05 level of significance.

### Result and Discussion

Research question I.

1. What kind of relationship exists between student perception and attitude to mathematics with school type?

**Table1.** Summary of the relationship between strongly agree and strongly disagree of the schools.

Responses	Schools	percentage
SD	1500	75
SA	500	25
Total	2000	100

The data from the questionnaire relationship between senior secondary students perception and attitude to mathematics clearly indicate that the strongly agreed (SA) of the sample expressed a less significant positive attitude. The sample of the strongly disagree (SD) of the senior secondary schools sample was 500. This indicates that positive attitude and perception to mathematics attracts low performance, it shows that positive attitude and perception improve academic performance in mathematics.

Research question II.

2. What kind of relationship exists between students' perception and attitude to mathematics with their parent educational background?

**Table 2.** Summary of parents educational background.

School	Highest qualification 1st Degree	Lower qualification
A	40 (53.33%)	Dip, HND 5 (6.67%)
B	22 (29.33%)	HND 10 (13.33 %)
C	28 (37.33 %)	HND 10 (13.33 %)
D	20 (26.67%)	HND 1st Degree 10 (13.33%)
E	1st Degree 40 (53.33%)	2nd Degree 5 (6.67%)
F	Dip (27) 36 %	Dip 5 (6.67%)

The table above shows that parents who value education send their children to private schools and those with very low qualification send their children to government schools and it is assumed here that those educated parents encourage their children to have positive perception and attitude to mathematics. The calculated ppmc of the private schools are 0.91 and 0.90 with 82.81% and 81%.

Research question III.

3. What is the direction of student perception and attitude toward their performance toward mathematics by gender?

**Table 3.** Summary of the relationship between senior secondary school perception and attitude and performance in mathematics with regard to gender of strongly agree (SA) and strongly disagree (SD) of the sample schools?

Sex	Responses	Percentage
Male	SD 548	27.4
Female	SA 1452	72.6

The table above clearly indicates that the strongly disagree of the sample expressed a negative perception and attitude to mathematics with 548 (27.41%) for boys, while strongly agree have a positive perception for girls with 1452 (72.6%) which indicates that positive perception and attitude of girls to mathematics attracts higher performance while boys strongly disagree of perception and attitude to mathematics attracts low performance. Therefore, one will conclude that there is a relationship between senior secondary student perception and attitude to mathematics with regard to gender.

Research question IV.

4. What kind of relationship exists between student perception and attitude and their performance in mathematics?

**Table 4.** Summary of the Pearson product moment correlation (ppmc) statistics of the relationship between senior secondary school perception and attitude to mathematics of the three schools.

Attitude	$\sum x = 1902$	$\sum x^2 = 67100$	$\sum XY = 57803$	$r = 0.80$	$t = 11.39$
Test Scores	$\sum y = 1795$	$\sum y^2 = 55342$		64%	

Attitude	$\sum x = 3132$	$\sum x^2 = 160548$	$\sum XY = 31.44$	$r = 0.90$	$t = 17.64$
Test Scores	$\sum y = 2794$	$\sum y^2 = 132934$		81%	

Attitude	$\sum x = 3082$	$\sum x^2 = 157248$	$\sum XY = 139.76$	$r = 0.91$	$t = 18.76$
Test Scores	$\sum y = 7744$	$\sum y^2 = 128054$		82.81%	

The calculated ppmc of the three schools are 0.80, 0.91, and 0.90 with 64%, 82.81%, and 81%. Also calculated  $t$  (11.39),  $t$  (18.76),  $t$  (17.64) shows that the relationship that exist is a very strong positive relationship and the coefficient of deformation shows that there is a relationship between senior secondary student perception and attitude to the performance in mathematics.

### Conclusion

The study reveals that the relationship that exists between perceptual attitudes is very strong and positive to mathematics. Also, there exist appositve weak mind and very strong positive relationship perception and attitude to mathematics. The ppmc calculated were 0.80, 0.91, and 0.90 with 64%, 82.81% and 81%. Also the calculated  $t$  (11.39)  $t$ (18.76), and  $t$ (17.64) at 0.05 level of significance were greater than the observed value  $t$  (1.98), which shows that it is a very strong negative relationship.

### Recommendations

1. Parents should encourage their children to develop positive attitude to mathematics and not to discourage them by telling them that mathematics is very difficult.
2. Teachers need to improve their method of teaching by using different instructional materials so as to encourage the students to develop positive perception and attitude.
3. Government should provide the students with necessary instructional materials; employ trained and qualified teachers so as to encourage the students to build positive attitude and perception to mathematics.

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