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## ATTITUDE AND ACHIEVEMENT OF SECOND YEAR MATHEMATICS EDUCATION STUDENTS IN KANO UNIVERSITY OF SCIENCE AND TECHNOLOGY, WUDIL

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### ARTICLE INFO

### ABSTRACT

#### Keywords:

Mathematics, Students  
Attitude, Student  
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*The role that attitude plays in learning mathematics cannot be over emphasized. This study was aimed towards establishing a link between students' attitude and mathematics achievement. The population for the study consisted of all 446 students in in the department while the sample used in the study was made up of all the 63-mathematics education level 200 students (2016/2017) session of Kano University of Science and Technology. Students Attitude Survey Questionnaire developed by kaput center, university of Massachusetts was used alongside level 200 (1<sup>st</sup> and 2<sup>nd</sup> Semester) examination results and PPmr was used to analyze the data generated. The study showed a significant relationship between students' attitude and achievement in mathematics. It also unveiled a no significant relationship between students with low and high attitude in their academic performance. It was recommended that teachers/lecturers should endeavor to raise the students' interest so as to have the required positive attitude among them.*

### BACKGROUND

The importance of mathematics in Nation building is no longer in doubt. This is due to the fact that all technological developments revolve around strong and reliable mathematics foundation (Isa, 2017). Indeed, almost all mathematics educators in Nigeria such as Ibrahim and Likita (2017), highlighted the importance of the subject to nation building. In fact, Aguele and Usman (2007) believed that "this important position occupied by the subject in the school curricula is borne out of the role of mathematics in scientific and technological development, a sine qua non in National building".

However, in spite of the role of the subject in nation building, students' performance in public examinations leaves much to be desired (Akubuiro & Joshua, 2004). Kano State students' mathematics performance in the

senior secondary schools examination conducted by the West African Examination Council (WAEC) and the National Examination Council (NECO) continue to deteriorate over the years. For example, in 2002 only 24.3% and 18.6% of Kano state students who sat for WAEC and NECO examinations respectively had a pass and above in mathematics. Similarly, in 2003 35.9% and 17.1% of the students had a pass and above in WAEC and NECO examinations respectively (KERD, 2005). This poor performance is attributed to many factors which include: Students interest (Isa, 2017) as well as students' attitude (Farooq & Shah, 2008).

According to Collin English Dictionary, attitude is simply the way one thinks or feels about something. Sherma viewed attitudes as central to our perception of or actions toward all our activities within our social environment.

Akinleke and Omowunmi (2017) saw attitude as “a stable tendency to respond either positively, negatively or indecisively to a person, thing, situation or object”. Warren in the dictionary of psychology defined attitude as “the specific mental disposition towards an incoming (or arising) experience, whereby that experience is modified or a condition of readiness for certain type of activity”.

Dewith et al. (2013) quoted Klein (1985) as saying that “one’s attitude towards mathematics influenced its perceived usefulness and one’s confidence as well as one’s persistence in the subject. In the same vein, Farooq and Shah (2008) argued that attitude towards mathematics is essential in the teaching and learning process. This is why mathematics should try to arouse students interest (which will lead to having positive attitude) before, during and after lessons.

Wikipedia defines academic achievement as the way students, teachers or schools achieved their short or long term educational objectives. For example, cumulative grade point average (CGPA) and successful completion of degree represents academic achievement.

Mensah, Okyere and Kwanchie (2013) believed that people form attitudes fundamentally through experiences. Such experiences may include classical and operant conditioning plus observational learning. By this, it follows that mathematics teachers’ attitude towards the subject plus the students is essential in having students to develop positive attitude towards mathematics.

Farooq and Shah (2008) among others believed that attitude can also be gender related. Infact there is a school of thought that suggests mathematics is male domain. This assertion has drawn considerable attention. To researchers like Sundqvist of Lulea University of Technology, there are three (3) possibilities in this regards: mathematics as female, male and neutral. Whatever positions one take on gender and students attitude, the fact remains that teaching methods could play a significant difference. For example, Bishop(1994), Abbas (2000) and Gerdes (2004) believed that teaching mathematics using

ethnomathematics ideas and practices could enhance learning which finally leads to higher achievement. Isa (2010) found a significant difference in the performance in favour of male students but his finding was against that of Kurumeh (2006).

Mensah, Okyere and Kuranchie(2013) asserted that both students conceptions and attitudes are critical factors in mathematics teaching and learning process. They went further to suggest that there is a strong and fundamental link between students’ conceptions and attitudes towards mathematics. They argued that many students consider the subject as “procedural and rule oriented”. This conception of the subject is not of any help to the students. Thus, students’ attitude is important in mathematics teaching and learning process.

#### **Purpose of the Study**

This study was purposely conducted to find out the relationship between students attitude and their achievement among level 200, (2016/2017 session) mathematics education students in Kano University of Science and Technology Wudil.

#### **Research Objectives**

The major objective of the research was to investigate the link between attitude and achievement of 2<sup>nd</sup> year mathematics education students of Kano University of Science and Technology Wudil. Therefore, the specific objectives were to;

- i- Determine the relationship between attitude and achievement of mathematics education students in Kano University of Science and Technology, Wudil
- ii- Determine the relationship between students with low and high attitude in relation to their mathematics achievement.

#### **Research Questions**

- i-To what extent does the attitude affects the academic achievement of 2<sup>nd</sup> year mathematics education students in Kano University of Science and Technology, Wudil?
- ii- What is the relationship in mathematics achievement between 2<sup>nd</sup> year students with low and those with high attitude in Kano University of Science and Technology, Wudil?

**Research Hypotheses**

The following hypotheses guided the study  
 1. There is no significant relationship in students’ attitude and achievement in mathematics.  
 2. There is no significant relationship in the mean academic achievement score between students with low and high attitudes towards mathematics.

**METHODOLOGY**

**Research Design**

Ex post facto design was used in this study. This research design is a quasi-experimental study that examines how an independent variable presented to the participant prior to the study affects the dependent variable. In other words, it is an after – the fact research in which the investigation starts after the fact has occurred with little or no interference from the researcher(s). In this study, the students’ results (1<sup>st</sup> and 2<sup>nd</sup> Semester level 200 mathematics courses results) already exist.

**Population**

The population consisted of all 446 Mathematics Education Students in Kano University of Science and Technology ,Wudil2016/2017 academic session.

**Sample**

The sample consisted of all the 63 level 200 mathematics education students as at 2016/2017 session. The sample is made up 33 and 30 male and female students respectively.

**Instrument for the study**

The data used in the study came primarily from two (2) sources namely:

a) 2016/2017 senate approved 1<sup>st</sup> and 2<sup>nd</sup> semester examination results of level 200 mathematics education students in Kano University of Science and Technology, wudil, Nigeria.

b) Student Attitude Survey Questionnaire (SASQ) developed by Kaput center, University of Massachussettes.

The SAS questionnaire contained 27 questions and was based on five point Likert Scale, each of the 27 questions were measured for 0 to 4 for strongly Disagree, Disagree, Undecided, Agree and Strongly Agreed. Thus, the instrument has a score within the range of 0 to 108. By adding the score of the respondent, a total was obtained. Respondents with a score of 55 and above are considered to have positive attitude while those with 54 and below are considered to have negative attitude.

**Validity of the Instruments**

a) In line with the university’s quality assurance measures all semester examination papers, result and booklets were subjected to internal and external moderations. This shows that the question papers and results were validated by experts in mathematics and mathematics education. In other words, the face and content validity were assured.

b) The Students Attitude Survey Questionnaire (SASQ) is an internationally accepted tool for measuring students’ attitude in mathematics classrooms. The instrument was subjected to content face, concurrent and predictive validity tests.

**Data Analysis**

The data collected was analyzed using Pearson Product Moment Correlation (PPMr).

**RESULTS AND DISCUSSION**

The Primary aim of this study was to determine the effect of students’ attitude on their mathematics achievement. The data collected were analyzed using PPMr with the following results:-

Ho, :- there is no significant relationship in students’ attitude and achievement in mathematics.

Table 1: Summary of the PPMr between Students Attitude and Achievement in mathematics.

Group	N	$\bar{X}$	SD	Df	R	P
Score	63	25.62	21.36	124	0.27	0.16
Attitude	63	48.11	12.60			

From table 1, the test of the hypothesis at 95% (0.05 significance level) confidence level showed  $r=0.27$ . This means that at the 0.05 significance level, a significant difference exist between attitude and achievement in mathematics. In other words  $r > P$ -value ( $0.27 > 0.16$ ). Thus the null hypothesis is rejected. Meaning that a significant relationship existed

between students' attitude and achievement in mathematics. This results is in line with the findings of Farooq and Shah (2008), as well as Ajayi, Lawani and Adeyanju (2011).

$H_{02}$ : There is no significant relationship in academic achievement between students with low and high attitude towards mathematics.

Table 2: Summary of the PPMr between students with Low and High Attitude

Group	N	$\bar{X}$	SD	Df	R	P
Low Attitude	30	38.17	12.34	61	0.33	0.25
High Attitude	33	56.57	2.87			

From table 2 above, the test of the hypothesis at 95% (0.05 significance) confidence level showed  $r=0.33$  value of while the P- value is 0.25. That is to say  $r < P$  ( $0.33 > 0.25$ ). Thus the null hypothesis is retained. This implies that there is no significant relationship in achievement between students with low and high attitude towards mathematics. This finding is in line with that of Dewitt(2000), Farooq and Shah(2008) and Mensah,Okyere and Kwanchie( 2013).

**CONCLUSION AND RECOMMENDATION**

This study revealed that there is a significant relationship between students attitude and mathematics achievement. Similarly, a no

significant relationship was observed between students with low and high attitude.

It is therefore essential that for mathematics teachers/lecturers to strive to arouse students' interest in their lessons.This will in turn, lead to more positive attitude towards the subject. The higher or more positive attitude the better the chances of improved achievement.

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