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Journal of Research in Psychology
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Research Article

Attitude of Nigerian Primary School Students towards Mathematics Subject

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Article History Submission: July 28, 2020 Revised: August 25, 2020 Accepted: August 26, 2020

ABSTRACT

Attitude is an affective variable that can affect the academic life of students significantly. In Nigeria, attitude in mathematics is among the factors influencing performance in math subject, especially among primary school students. The study aimed at identifying factors that indicate the student's negative attitude in math subject, the population of the study is 1,626 from 6 selected primary schools in Nasarawa Local Government Area Kano, Nigeria. A sample of 384 respondents was selected using the Krejcie and Morgan table. A Mathematics Attitude Questionnaire (MAQ) was completed by the respondents. It measures the students affect, behaviour and cognitive aspects. The data collected were analyzed using the statistical package for social science (SPSS). The results show the respondents experience a negative attitude in math subject. It is recommended that parents and teachers need to provide supportive measures for changing the students' attitude. This is because the math performance of students will remain poor if their negative attitude is not addressed, thus limiting their career.

Keywords: Attitude in Mathematics; Mathematics anxiety, Poor Performance.

Abbreviations: NIL

10.31580/jrp.v2i2.1568

INTRODUCTION

Mathematics (math) is an important subject and learning math is part of our everyday life because it helps to develop and train the mind right from childhood (Suleiman, Rameli, & Ado, 2002). Unfortunately, learning math is seen as a terrible subject in the minds of some learners (Allen, 2011). It is a known fact that some primary school students are experiencing a negative attitude toward the math subject (Hambee, 1990; Marhayani, Chang, & Naaranoja, 2019; Raccanello, Brondino, Moè, Stupnisky, & Lichtenfeld, 2018; Yeo, Tan, & Lew, 2015; Zakaria, Zain, Ahmad, & Erlina, 2012). Despite the importance attached to math subject as an academic discipline that students need in the society as explained by Nigeria's National Policy on Education, mathematics is still perceived as a difficult subject for some students in primary schools in Nigeria (Aliyu Garba, Ismail, Osman, & Rameli, 2019).

Attitude is an important variable considered as the contributing factor leading to students' poor performance in math and its dislike. It is seen as the evaluation of aspects including idea, knowledge or any issue which will be unfavourable or favourable toward an aspect (Branscombe & Baron, 2017; Petkova, 2015). Attitude is important in human lives, thus it is part of daily activities which people love, adore, disagree, agree, abhor, argue oppose etc. All these are some evaluation of responses

toward an action. Bohner and Dickel (2011) described attitude as an evaluation of any thought or object and it comprised anything that an individual may hold in his mind. Researchers on math education made some investigations in trying to explore students' attitude and its relationship with their performance in math subject (Adediwura & Tayo, 2007). However, there are limited studies among primary school students in Nigeria.

Attitude in math is seen as a cause for the success in learning math and it is also considered as a mother of behaviour. In the process of learning, positive attitude results in positive outcome which is otherwise in a negative attitude (Schwarz & Bohner, 2001). Some research studies indicated that the attitude of students toward math subject is a factor that influence the overall student's achievement in math. Nigerian students have a negative attitude towards learning math subject. This attitude could be characterized by how they feel about the subject. Many students in Nigeria have a negative attitude towards maths by perceiving it to be a difficult and abstract subject (Garba & Musa, 2019; Ntibi & Edoho, 2017; Salman, Yahaya, & Adewara, 2011). Jain (2014) explained that a student's attitude is a guide to an individual's behaviour and it affects an individual's behaviour negatively or positively. Attitude can impact some changes in the student's educational system and their entire life. Development of a negative attitude by students towards a subject could manifest undesirable outcomes. Tezer and Karasel (2010) explained that a negative attitude toward mathematics can influence student's achievement in mathematics which could lead to a decline in studying mathematics in the future Chow (2011).

In this work, the level of attitude in mathematics among primary school students in Nassarawa local government Kano, Nigeria was determined. Also, the factors responsible for negative attitude in mathematics among the students were determined. The research questions were

I. What is the level of attitude in mathematics among primary school children in Nasarawa Local Government, Kano Nigeria?

II. What are the factors responsible for negative attitude in mathematics among primary school children in Nasarwa Local Government Kano Nigeria?

LITERATURE REVIEW

Student's confidence towards math subject greatly determines how positive or negative he/she is with it. Attitude has been defined as the organization of behavioural tendencies and beliefs which an individual can hold towards some certain groups, symbols, events or objects (Hogg & Vaughan, 2010; Ntibi & Edoho, 2017). Student's attitude can be negative or positive, dislike or like, favourable or unfavourable degree of affect that is associated with a certain subject.

Students attitude in math could be seen as the tendency to engage or avoid, like or dislike, confidence in math subject and the belief that a student can or cannot perform the math tasks (Mazana, Montero, & Casmir, 2018). Attitude of students towards maths shows a disposition towards an aspect of the maths subject which is acquired by a student through his experience and beliefs (Niepel et al., 2018). A review of literature by (Subia, Salangsang, & Medrano, 2018) on attitude of students towards maths explained the variable as a dislike or like for maths, while others explained this variable as the ability, beliefs, and the usefulness of Maths (Deieso & Fraser, 2018; Yesilyurt, 2014). According to Davadas & Lay, (2018), attitude in Maths is seen as a negative or positive emotional disposition in Maths. Considering the student's attitude in Maths, if negative attitude is developed, it is reflected by the fact that a student is liable to avoid anything related to calculation (Lipnevich, Preckel, & Krumm, 2016). Attitudes have a strong effect on the student's behaviour which assist in predicting and understanding their behaviour in a wide range.

According to Khan & Khadija, (2019) the factors that are responsible for a negative attitude in maths can be related to the student's poor performance. A frequent poor performance in maths manifests to a negative attitude, emotions and avoidance of the subject. The avoidance behaviour can as well cause undesirable outcome in maths which may lead to emotional problems (Krinzinger et al., 2010). A student that develops a negative attitude toward his/her math subject will be unable to build and maintain an interpersonal relationship between his teachers and peer group, lack of ability in learning and display an unhappy mood most of the time. The emotions a student expressed during solving mathematics is related to his/her achievements, the most notable and usual negative emotions expressed by children include frustration, distress and tension (Else-Quest, Hyde, & Hejmadi, 2008)

METHODOLOGY

This study employs a cross-sectional and quantitative research approach to determine the level of attitude in math among primary five school students in Nassarawa local government in Kano state Nigeria. The population of the study is 1,626 from 6 selected primary schools. A sample of 384 respondents was selected using the Krejcie and Morgan table. Mathematics Attitude Questionnaire (MAQ) was adapted for data collection. MAQ is designed to measure the attitude of students toward learning math subject and is comprised of 29 items and three sub-constructs which include affective, behaviour and cognitive aspects (Mazana et al., 2018). The sample of the study includes primary 5 students selected from 6 schools in Nasarawa L.G.A which are chosen by a stratified sampling method.

Theoretical Framework

The study is based on the ABC Model of attitude (Eagly & Chaiken, 1993, Van den Berg et al. 2006). This model was chosen because it provides a very important theoretical framework for math attitude measures. The ABC Model of attitude explained that attitude comprises of three components namely Affective, Behavior and Cognitive components. Affective is an emotional component that comprises of feelings and emotions that are related to the student's math learning. Behaviour component is the action that comprises of predisposition to act or behave in a certain manner toward the math subject. The cognitive component is a mental component which entails the beliefs and perception students can hold toward their attitude in math learning. The ABC Model proposed that these three components (affect, behaviour and cognitive) must be present before an attitude can exist

RESEARCH FINDINGS

Responding to the research objective of the present study, which is purposely designed to identify the level of attitude among primary school students in Nigeria, descriptive statistics such as the standard deviation, mean, percentage and the frequencies were used in the process of analyzing the data. The MAQ which was used as the attitude measure in this study has three factors. Affective is the first factor (factor 1) and it has 11 items, Behavior is the second factor (factor 2) with 7 items and cognitive is the third factor (factor 3) with 11 items

Descriptive statistics for MAQ Factor one

The descriptive statistics for factor 1 (Affect) are shown in Table 1.

Table 1 Descriptive Statistics on Affective (MAQ) Factor 1

ITEM No.	Statement	Response				Mean (SD)	Level
		Strongly Disagree	Disagree	Agree	Strongly Agree		
		f/%	f/%	f/%	f/%		
1	I am happier in my math class than in other classes	90 (23.4)	72 (18.8)	100 (26.0)	122 (31.8)	2.66 (1.154)	Moderate
2	I am comfortable answering questions in my math class	106 (27.6)	143 (37.2)	55 (14.3)	79 (20.6)	2.28 (1.082)	Moderate
3	I get a great deal of satisfaction out of solving math	77 (20.1)	86 (22.4)	80 (20.8)	141 (36.7)	2.74 (1.153)	Moderate
4	I like to solve new problems in math	79 (20.6)	84 (21.9)	84 (21.9)	136 (35.4)	2.72 (1.152)	Moderate

5	I usually enjoy studying math in school	89 (23.2)	106 (27.6)	63 (16.4)	126 (32.8)	2.59 (1.169)	Moderate
6	I am can solve mathematics without much difficulty	95 (24.7)	91 (23.7)	61 (15.9)	137 (35.7)	2.63 (1.203)	Moderate
7	I am always confused in my mathematics class	176 (45.8)	82 (21.4)	43 (11.2)	83 (21.6)	2.09 (1.196)	Moderate
8	I expect to do well in my mathematics classes	91 (23.7)	77 (20.1)	55 (14.3)	160 (41.7)	2.74 (1.227)	Moderate
9	Math does not scare me at all	77 (20.1)	70 (18.2)	72 (18.8)	164 (42.7)	2.84 (1.181)	Moderate
10	Studying math makes me feel nervous	206 (53.6)	59 (15.4)	60 (15.6)	59 (15.4)	1.93 (1.143)	Low
11	I am usually uncomfortable in my math class	176 (45.8)	67 (17.4)	62 (16.1)	79 (20.6)	2.11 (1.197)	Moderate
	Overall					**2.73 (0.466)**	**Moderate**

The overall mean score as given by Table 1 is 2.73, SD is 0.466, the highest mean score is 2.84 with SD of 1.181 with the statement "Mathematics does not scare me at all". The second highest is the statement "I expect to do well in my math classes" with mean of 2.74 and SD of 1.227 as well as the statement "I get a great deal of satisfaction out of solving maths" with mean of 2.74 and SD of 1.153. The statement "I like to solve new problems in mathematics" has a mean of 2.72 and SD of 1.152, it is then followed by the statement" I am happier in maths class than in any other class" with mean of 2.66 and SD of 1.154. "I am able to solve mathematics without much difficulty" has a mean of 2.63 with SD of 1.203 while the statement "I usually enjoy studying mathematics in school" has a mean of 2.59 with SD 1.169. The Statement "I am comfortable answering questions in maths class" has a mean of 2.28 with SD of 1.082 and the statement "I am always uncomfortable in my maths class" has a mean of 2.11 and SD of 1.197. The second-lowest is the statement "I am always confused in my mathematics class" with a mean score of 2.09 and SD 1.196 and the lowest mean is 1.93 with SD of 1.143 on the statement" Studying mathematics makes me feel nervous". The total mean score for factor 1 of affect is moderate among the primary school students.

Descriptive Statistics on MAQ Factor two

The descriptive statistics for factor two (Behaviour) are shown in Table 2.

Table 2 Descriptive Statistics on Behavior MAQ Factor Two

Item No.	Statement	Response				Mean (SD)	Level
		Strongly Disagree f/%	Disagree f/%	Agree f/%	Strongly Agree f/%		
12	The challenge of math appeals to me	36 (9.4)	24 (6.3)	36 (9.4)	288 (75.0)	3.50 (0.970)	High
13	I plan to take as much math as I can during my education	38 (9.9)	33 (8.6)	78 (20.3)	233 (60.7)	3.32 (0.996)	High
14	I am willing to take more than the required amount of math	90 (23.4)	117 (30.5)	55 (14.3)	122 (31.8)	2.54 (1.164)	High
15	I would rather have someone give me a solution to difficult math problem than to work it out for my self	150 (39.1)	63 (16.4)	78 (20.3)	93 (24.2)	2.30 (1.216)	Moderate
16	Once I started math exercise, I find it difficult to stop	93 (24.2)	95 (24.7)	60 (15.6)	136 (35.4)	2.62 (1.196)	Moderate
17	When a question is left unanswered in the math class I continue to think of it afterwards	95 (24.7)	81 (21.1)	77 (20.1)	131 (34.1)	2.64 (1.188)	Moderate
18	multiplication in math is very boring to me	200 (52.1)	38 (9.9)	50 (13.0)	95 (24.7)	2.10 (1.280)	Moderate
	Overall					**2.88 (0.486)**	**Moderate**

As shown in Table 2, the overall mean score for factor two (affect) is 2.88 and SD of 0.486. The statement that has the highest mean is "The challenge of math appeals to me" with a mean of 3.50 and SD of 0.970. The second-highest is the statement "I plan to take as much math as I can during my education" with a mean of 3.32 and SD of 0.996. The statement "When a question is left unanswered in the class I continue to think of it afterwards" has a mean of 2.64 and SD of 1.188. The statement "Once I started mathematical exercise I find it difficult to stop" has a mean of 2.62 and SD of 1.196. The statement "I am willing to take more than the required amount of math" has a mean of 2.54 and SD of 1.164. The second-lowest statement is "I would rather have someone give me the solution to a difficult math problem than to work it out for myself" having a mean of 2.30 and SD of 1.216 while the lowest statement is "multiplication in mathematics is boring to me" with mean of 2.10 and SD of 1.280.

The overall mean of the behaviour aspects among primary school students is at a moderate level.

Descriptive Statistics on MAQ Factor Three

The descriptive statistics for factor three (Cognitive) are shown in Table 3.

Table 3 Descriptive Statistics on Cognitive, MAQ Factor Three

Item No.	Statement	Responses				Mean (SD)	Level
		Strongly Disagree f/%	Disagree f/%	Agree f/%	Strongly Agree f/%		
19	Math is a very important subject	48 (12.5)	21 (5.5)	50 (13.0)	263 (68.5)	3.38 (1.050	High
20	Math teaches a student how to think	40 (10.4)	22 (5.7)	49 (12.8)	273 (71.1)	3.45 (0.995)	High
21	I want to develop my mathematical skills	21 (5.5)	22 (5.7)	73 (19.0)	268 (69.8)	3.53 (0.833)	High
22	Math is important in everyday life	39 (10.2)	27 (7.0)	63 (16.4)	253 (65.9)	3.39 (0.997)	High
23	Mathematics in secondary school will be very useful	32 (8.3)	25 (6.5)	53 (13.8)	274 (71.4)	3.48 (0.939)	High
24	I can think of many ways to use math outside the school	89 (23.2)	70 (18.2)	73 (19.0)	152 (39.6)	2.75 (1.203)	Moderate
25	Math in secondary school will be very useful	46 (12.0)	25 (6.5)	52 (13.5)	261 (68.0)	3.38 (1.042)	High
26	A good math background will help me in my future studies	34 (8.9)	31 (8.1)	64 (16.7)	255 (66.4)	3.41 (0.968)	High
27	The usefulness of math can be applied in an everyday life	44 (11.5)	48 (12.5)	62 (16.1)	230 (59.9)	3.24 (1.061)	High
28	With math, you can easily know and tell the time	27 (7.0)	25 (6.5)	87 (22.7)	245 (63.8)	3.43 0.894	High
29	Mathematics make me smatter	55 (14.3)	59 (15.4)	61 (15.9)	209 (54.4)	3.10 1.124	High
	Overall					**3.32 (0.577)**	**High**

From Table 3, it could be deduced that the overall mean score is 3.32 with SD of 0.577. The statement "I want to develop my mathematical skills" has the highest mean of 3.53 with SD of 0.833 and then followed by the second highest statement "Mathematics in secondary school will be very useful" which has a mean score of 3.48 and SD 0.939. The next is the statement "Math teaches a person how to think" with a mean score of 3.45 and SD of 0.995. The statement "With mathematics, you can know and tell the time" has a mean of 3.43 and SD of 0.894. The statement "A good math background will help me in my future studies" has a mean of 3.41 and SD of 0.968. "Math is important in everyday life" has a mean of 3.39 and SD of 0.997, followed by the statements "Math in secondary school will be very useful no matter what I decide to study in the future" with a mean score of 3.38 and SD of 1.042, "Math is an important subject" with a mean of 3.38 and SD of 1.050. The statement "The usefulness of mathematics can be applied in everyday life" has a mean of 3.24 and SD of 1.061, it is then followed by the second lowest statement "Mathematics make me smatter" which has a mean score of 3.10 and SD of 1.124. The lowest mean score is the statement "I can think of many ways to use mathematics outside the school" with 2.75 mean score and SD of 1.203. From the overall mean score of the MAQ factor 3, it can be deduced that the cognitive aspect of these primary school students is high.

DISCUSSIONS

The first factor titled "Affect" is the emotional component that measures the student's feelings and emotions related to the students' attitude in learning math subject. This entails a student's enjoyment towards math subject and self-confidence. This factor has a mean of 2.73 which shows a moderate level of attitude among the students. The second factor titled "behavior" which entails actions that display the student's attitude toward learning math, and it shows the extent a student is able or unable to perform a giving math task independently. This factor has a mean score of 2.88 which indicates a moderate level of behaviour in attitude towards math among the students. The third factor titled the "cognitive component" is the aspect that deals with knowledge and information a student is able to know on his/her his ability in solving problems in math and its usefulness. This factor has a mean score of 3.32 which shows a high level of attitude in math among the students in primary school.

The victory in learning math depends solely on the student's attitudes towards the subject (Deieso & Fraser, 2018). Attitude in math plays a very important role in learning and teaching process of math (Davadas & Lay, 2018). Attitude is the concept that is usually concerned with the students way of behaving, thinking and acting. It has an effect on the student, the immediate group of the student, teacher and also the whole school system, which are developed as a result of the student's experience in learning the subject (Lemu & Getahun, 2019). Findings of the present study is in accordance to the findings of an extensive literature that shows students attitude in math is very important at the primary level of education (Martino, 2019; Veresova & Mala, 2016). Students attitude in math is a contributing factor to the dislike and likes

of the math subject. A negative attitude toward the math subject creates a negative outcome and fear among students. Students exhibiting a negative attitude toward the mathematics subject leads to a repeated and frequent failures or experiencing some difficulties when confronted with some math tasks which may relatively become a permanent problem.

CONCLUSION AND RECOMMENDATION

Conclusively, in an attempt to change a student's attitude in math subject, there is a need for some supportive measures from the parents, teachers and the society as a whole. If student's negative attitudes are not addressed, there will be a limited future career among the students and their performance in math will be relatively low as well. Developing a positive attitude in math learning will lead a way for the students to succeed in their math and math-related subjects. This can be attained by having a good classroom organization, the academic task giving to the students should also be taking into consideration, a conducive learning environment and the teacher factor is important as well.

The current study explores the Nigerian primary school student's attitude in math, the researchers will like to make the following recommendations for future research. A cross-sectional study was conducted for this study, longitudinal research is recommended in future research, which will enable the researchers to properly investigate the respondents for a long time. It is also recommended that a similar study is needed among students in private schools in order to have a generalization of the findings.

Acknowledgement: This study was supported by a grant from Teaching Development Fund (Vot. No. R.J130000.7753.4J417)

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