The Impact of Students' Attitude on their Performance in Mathematics: The Case of Secondary schools in Babessi Sub-Division

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Abstract
the persistent under-achievement in Mathematics has warranted further research to determine the place of attitude in students 'academic performance in this subject. The attitude of students in Mathematics is a factor that is known to influence their learning and performance. This paper sets out to investigate students' attitude on their performance in Mathematics. We adopted a descriptive survey design to carry out the studies. The target population comprised all forms five students in government secondary (grammar) schools Babessi sub-division. Purposive sampling was used to select the type of school, and random samplings were used in selecting the schools and students. We used questionnaires to collect data from 138 students from the four selected schools. Both descriptive and inferential statistics were used to analyse the data. From the findings, we concluded that students' attitudes have a significant effect on their performance in Mathematics. The poor performance of students in the Mock results for the 2017/2018 academic year (with a 14% pass)testify that most students in secondary schools in Babessi sub-division probably have a negative attitude towards Mathematics. Also, the students' performance in Mathematics could be attributed to other intervening variables like teaching methods and the use of teaching aids in the subject. However, we recommended the necessity for teachers to promote learning habits that develop good attitudes thus enhancing the good performance of students' in the subject.

Background of the Study

It is regrettable that the more students stay away from Mathematics lessons the moretheyperform poorly in examinations requiring mathematical competences. For instance, the General Certificate of Education result booklet for 2017 testifies the high rate of failures in Mathematics. Concerns about failures in Mathematics are not only limited to the Anglo-Saxon sub-system of education in Cameroon, but these extend worldwide (Mohamed &Waheed, 2011; Turner &Meyer 2009). With this, one is tempted to think that very little effort is made to demystify the subject and emphasize its importance to students.It has also been realized that many students have developed negative attitudes towards Mathematics. This observation is probably inferred from the experiences of mass failures year in year out. However, the success of learning Mathematics as a subject is contingent on a myriad of factors like school culture, classroom practices and students' attitude (Shenkel, 2009).

In Cameroon, Mathematics is studied in both Anglophone and Francophone sub-systems of education. However, in the Anglophone sub-system most especially, the subject is compulsory at the first cycle of the Secondary School which to an extent influences the attitude of students towards the subject (Ngalim, 2014). This is testified by the fact that some students sit in for the subject probably because it is mandatory and they need to avoid sanctions. Most students who opt for academic careers oriented towards liberal Arts tend to undermine the invaluable role of Mathematics in their future careers. This is probably because they approach the subject with prejudices that instil fear (Wilkins, 2004; Ngalim, 2017).

Students' attitude towards Mathematics may arise from past experiences comprising both cognitive and affective domains. The cognitive domain relates to a person's knowledge and beliefs while from the affective domain refers to a person's feelings and emotions about Mathematics. This indicates that this study is conceptually limited to the affective domain (Adero, 2004; Hannula, 2002). It is widely claimed that negative attitudes and myth of Mathematics are widespread among the students especially in developing countries

(Ngalim, 2014). According to Ngalim, many students posit fear towards Mathematics and feel powerless in the presence of mathematical ideas. They regard Mathematics as "difficult, cold, abstract and in many cultures largely masculine" (Ernest, 2004, p. 802; Furighetti &Perkhonen, 2002; Eshun, 2004). The attitude of most students in secondary schools towards Mathematics reveals that Mathematics is an elitist science reserved for the chosen Pythagoreans. In this context, Mathematics is Aristocratic in character.

Another widely negative attitude towards Mathematics is sexism. Here, Mathematics is believed to be a dominant male subject (Eshun, 2004; Ernest 2004). Parents and significant others have a strong influence on students' attitudes towards Mathematics (Tobias, 1993). According to Ernest (2004), views about Mathematics have a significant influence on the way students get involved in the study of the subject. One of the origins of students' attitude towards Mathematics is the individual life experiences that each student brings to Mathematics learning. These experiences influence the way the students are motivated and get engaged in Mathematics lessons. On the other hand, there are contextual factors which those students of the same class share with each other. These are; the teacher's personality, the quality of teaching, support materials, interest in Mathematics, self-confidence and general proficiency in the subject. All these shared experiences among the students influence their attitudes on the learning of Mathematics (Georgiou et al., 2007; Flores, 2007; Zan &Martino, 2008; Karin et al., 2017).

Previous studies related to the attitudes of students establish a strong correlation between the positive attitude of students and their good performance in Mathematics (Tezer & Karasel 2010; Ponte et al., 1991). The above studies revealed that students' positive attitude towards Mathematics served as an added impetus for them to learn Mathematics. What the studies fail to address is whether the attitude is solely a reliable factor for good performance in Mathematics. We agree with the fact that good attitudes could be developed to enhance good performance in Mathematics. At the same time, we also think that some students with positive attitudes are still found wanting in Mathematics. This study intends to cover the gap by emphasizing the teacher's sensitivity to a blend of attitude and aptitude.

Statement of Problem

The high rate of absences experienced in Mathematics lessons in secondary school probably reveal the negative attitude students' have towards the subject. Considering the high rate of failures in Mathematics exams (GCE result booklet for the 2016/2017 academic year), one is tempted to think that very little effort is made to demystify the subject and emphasize its importance to students.Despite the usefulness of Mathematics in everyday life and in other subjects, careers, and professions, many students do not portray a positive attitude towards this subject. Several reasons have been advanced for this. It is therefore important to know what students think concerning the subject as this is likely to influence their performance (Dianne, 2011). Pedagogy that is intended to improve students' academic performance needs to be information for teachers to exploit in the teaching of subjects that could be described as an endangered species. Therefore, an insight into the attitude of learners towards Mathematics experiences could improve on the use of innovative skills in teaching it (Anthony &Walshaw, 2009).Thus, this article intends to study the students' attitude towards Mathematics and its effects on their academic performance.

Purpose of the study

This paper seeks to investigate the extent to which students' attitude towards Mathematics affecttheir academic performance in the subject.

Research Question

To what extent does a student's attitude towards Mathematics affect his/her performance in the subject?

Research Hypotheses

Ho: There is no significant relationship between a student's attitude towards Mathematics and his/her performance in the subject.

Ha: There is a significant relationship between a student's attitude towards Mathematics and his/her performance in the subject.

The significance of the Study

This study seeks to providefindings that are exploitable by students, teachers and the school administrators. It is meant to contribute to the advancement of knowledge about the factors affecting performance in Mathematics in secondary school. It also formulates different strategies aimed at fostering and enhancing student's attitudes and interest.This study enables teachers to understand that student's attitude plays a key role in their performance in Mathematics. With this, teachers are expected to employ teaching hacksthat build positive attitudes towards the subject in question. The use of a variety of teaching methods and strategies depend largely on the teacher's architectural skills and his /her knowledge of the students. School administrators are expected to sponsor seminars, workshops, and conferences that enhance the knowledge of the teachers in both subject content and pedagogy. Pedagogy in the teaching profession is not limited to teaching, but it extends to theories related to teachings like a child and developmental psychology, sociology of education, philosophy of education, counselling skills and the deontology of the teaching profession.

Justification of the study

The importance of mathematical skills as initially indicated cannot be overemphasized**.** This studytherefore deconstructs phobias and myths surrounding mathematical knowledge. This approach is of capital importance because Mathematics is not reserved for the elites of Geometry. Mathematical knowledge is a human right that requires a democratic approach in the dissemination of the knowledge. An attitude is cultural. Therefore, the teaching practices of a teacher can cultivate positive mathematical attitudes in students. In this perspective, Dewey's conception of cultural naturalism in the teaching-learning process provides a pedagogic platform to realize this objective (1966).

Scope and Delimitation of the Study

Geographically, this study has been carried out in Babessi Sub Division. Babessi Sub Division is one of the three Sub Divisions that make up Ngoketunjia Division of the North -West Region of Cameroon. It is located along the Bamenda- Kumbo stretch of the ring road, about 73km from Bamenda town. It is made up of four villages namely; Babessi, Bangolan, Baba 1 and Babungo; with Babessi being the sub divisional headquarter. Content-wise, this study is limited to the impact student's attitude have on their performance in Mathematics. Students inform Five of Secondary Grammar Schools in the four villages that make up Babessi sub-division were sampled for the study. This choice is justified by the fact that it is an examination class where students are evaluated on the entire Secondary School Mathematics curriculum. The assumption here isthat students in all Secondary Schools in Babessi Sub-division have equal chances, privileges, opportunities, and facilities in the study of Mathematics.

Definitions of Key Terms

The main concepts in this study are attitude, academic performance, and Mathematics. First, attitude reveals everyone's ability to express feelings or emotions as to love, hate, like, dislike, favour, oppose, agree, disagree, argue and persuade (Furighetti &Perkhonen, 2002).These are also referred to as inclinations and predispositions

that guide an individual's behaviour and persuade him/her to an action that can be evaluated as either positive or negative (Rubinstein, 1986). An attitude develops and changes with time (Rubinstein , 1986). This definition clarifies the fact that attitudes are potentials that evolve. They are dynamic and not stagnant. Positive or negative attitudes are not innate. This is optimistic to the pedagogic practice because each and every student has equal chances/ privileges of developing positive attitudes in subjects like Mathematics. However, the degree and the length of time the attitude takes to occur may differ. Attitude is a predisposition or a tendency to respond positively or negatively towards a certain idea, object, person or situation. It is rather dynamic than static in character (Ngalim, 2018). Also, attitude is a psychological orientation developed because of one's experiences, which influences how a person views situations, objects or people, and how he/she appropriately responds to them. The response may be positive or negative; favorable or unfavorable; neutral or ambivalent.Following the components of attitude, research suggests that there are three of them. These are the cognitive, the affective and the behavioural components (Mohameed&Waheed, 2011). The cognitive component of attitude is what the individual thinks or believes about the object. For instance, a student might think that Mathematics is a very difficult subject. The affective aspect refers to the feelings or emotions of the individual associated with his/her attitude towards the object. For example, the approaches, methods of teaching and classroom management and teacher-student relationships in Mathematics lessons may evoke the feeling of fear in the student. The behavioural component is the tendency to respond in a certain way to the object. An example is a student choosing to run away or escape from Mathematics classes. Hence the cognitive, affective and behavioural components of attitude are interrelated and inter-connected.Performance measures the aspect of behaviour that can be observed at a specific period. To determine performance, a performance test is conducted. Performance refers to a type of mental test in which the student is asked to do something rather than to say something. Academic performance of a student, however, can be regarded as the observable and measurable behaviour of a student in a particular situation. For example, in scientific studies, students' academic performance consists of their scores at any time obtained from a teacher made test, first term examination, mid-semester test and so on (Ngworgu, 2015). Therefore, we can equate academic performance with the observed behaviour or expectation of achieving a specific statement of educational intention or outcome.

The theoretical framework on the formation of attitude

The main theories in this study are behavioural theories that explain the process in the formation of positive attitudes.Research has shown that the formation of attitude is experiential. People form attitudes through their experiences in life. Social psychology explains how attitudes are formed using three major learning theories which are classical conditioning, operant conditioning, and observational learning. However, we shall exploit the first two theories. The first theory to explain the formation of positive attitudes in Mathematics was propounded by Ivan Pavlov. This is the theory of classical conditioning, which refers to the procedure for modifying behaviour in which repeated pairing of a conditioned stimulus with an unconditioned stimulus leads to the development of a conditioned response (McLeod 2018a). Classical conditioning entails neutral stimuli that naturally elicits a response. Hence, students attitude about Mathematics is formed according to how they are conditioned or how their experiences in Mathematics condition them. Classical conditioning can be used to bring about attitude change by creating positive emotional reactions to an object, person or event by associating positive feelings with the target object. In this case, the teacher's management of the students' successes and failures in a Mathematics lesson influences his/her attitude. The intervals in the use of praise and blame greatly affect a students' attitude in Mathematics. Also, the classroom practices and the activities of the teacher as well as those requested by the teacher for the students to do probably affect their attitude towards the subject taught.

The second theory is the Operant Conditioning of B.F. Skinner. It is a form of learning in which a response is made in anticipation to a stimulus. In operant conditioning, reinforcement increases the likelihood that behaviours will be repeated (Mcleod, 2018b). Behaviours that are followed by positive consequences are reinforced and are more likely to be repeated thanbehaviours and attitudes that are followed by negative

consequences (McLeod, 2018b). Operant conditioning requires the use of reinforcement and punishment. In bringing about attitude change, operant conditioning can be used to strengthen desirable attitudes and weaken undesirable ones. A case in point is one in whicha student is rewarded for his/her brilliant performance in Mathematics' exercises or assignments.In the context of this reinforcement, the student realizes that Mathematics is of great essence to him/her and this gives an added impetusto work hard in the subject. Conversely, if teachers resort to statements like Mathematics is for the strong, dull students cannot study Mathematics, Mathematics is a gift from God, We areborn with Mathematics, some people do not need to waste their time, Mathematics is for the elite class of Geometricians, Mathematics is for the initiated few, not everyone can pass in Mathematics, whereas students are making efforts to learn the subject, negative attitudes may be developed. Also, the hacking strategies of teaching might develop in students positive attitudes towards Mathematics. For instance, in bias to action, the teacher gives obstacles for students to overcome. With failures in the exercises, teachers do not curse or punish the students but exploit the errors, especially those committed by slow learners, as great learning opportunities for all students(Maxwell, 2007). Also, a positive reinforcement creates room for the formation of positive attitudes in Mathematics (McLeod, 2018b; Ngalim, 2018). Thus, teachers need to modify the behaviour of their students toward the subject by reinforcing their actions.

Research Methodology

This study adopted a descriptive survey design. The views and opinions of students relevant to the study were examined. A descriptive survey method is often used to study people's feelings and attitudes about specific aspects (Ngworgu, 2015; Tabachnick & Fidell, 2013). Therefore, it was relevant to this study as attitudes could not be directly measured or observed but could be inferred from certain cues which depicted the implicit nature of students' characteristics (Bohner&Wanke, 2002). Also, the research was aimed at capturing some of the students' beliefs, which signified attitudes towards Mathematics. The study was completed using the ex-post facto research design. This means the variables under investigation were already in existence before the commencement of the entire study. None of them were created as the case with experimental research. The combination of these already existing variables permitted the researcher to obtain useful information through some well-conceived and constructed research instrument. The data was obtained using student questionnaires representing the various themes. The students' responses were organized and analyzed both descriptively and inferentially according to the research themes.Geographically, this research was carried out in Babessi Sub-division. Babessi. The subdivision is one of the three Sub-divisions that make up Ngoketunjia Division of the North -West Region of Cameroon. It is located along the Bamenda- Kumbo stretch of the ring road, about 73km from Bamenda town. It is made up of four villages namely; Babessi, Bangolan, Baba I and Babungo; with Babessi being the Sub-divisional headquarter. The place was particularly selected due to a continued dismal performance in Mathematics compared to other subjects.

The population of this study consisted of forms five students in Secondary Grammar Schools in Babessi Sub-division. The forms five students were particularly targeted since at that level; they had been exposed to the greater extent of the Mathematics syllabus which could have developed and stabilized their interest towards the subject with time. Also, they could predict where they would range as far as performance in the subject is concerned. Also, the students at this level are expected to write an end of course certificate examination in which they are evaluated on the entire Mathematics syllabus which they have been exposed to for their five years of secondary education. The target population for this study was distributed as shown on the table below.

Table 1: Target population of the study

	Number of Students		
Name of schools	**Boys**	**Girls**	**TOTAL**
GBHS Babessi	34	41	75
GBHS Bangolan	10	06	16
GHS Baba I	13	25	38
GHS Babungo	27	39	66
GHS Vemngang	24	31	55
GBSS Mambim	04	04	08
GSS Komue	01	08	09
GSS Vengo	07	11	18
GSS Papiakum	03	03	06
GSS Kefeung	01	03	04
GSS Kaketuloh-Wushi	02	02	04
TOTAL	**126**	**173**	**299**

Source: Divisional Delegation of Secondary Education for Ngoketunjia. Enrolment Statistics for the 2017/2018 Academic Year

The sample of this study comprised 138 students drawn from a total population of 299 students. The 138-sample size was the representative sample of the study because according to Tabachnick and Fidell (2013), the formula for calculating the sample size for social science study in which generalization will be made is the Rule of Tumb. This was calculated as follows.

Sample size $N \geq 50 + 8m$, where m is the number of indicator variable.

$N \geq 50 + 8(4)$

$N \geq 82$

Thus, the sample size of 138 is greater than 82 which is an appropriate representative of the population of the study. The sample size of the population was distributed as seen on the table below.

Table 2: Sample population

	Number of Students		
Name of schools	**Boys**	**Girls**	**TOTAL**
GBHS Babessi	34	29	63
GHS Babungo	17	18	35
GHS Baba I	10	25	35
GBSS Mambim	02	03	05
TOTAL	**63**	**75**	**138**

Sampling Technique

The simple random sampling was used to select four government schools from amongst the eleven government schools which were in operation within Babessi Sub-division at the time of this study. The simple random sampling is a method of selecting a sample from a population with all the members having equal chances to be selected. The names of the eleven government schools were written on pieces of papers and folded. They were then dropped in a bowl and shuffled. Later on, the researcher used a five-year-old child to pick four pieces of papers, and the names of the required schools were now recorded by the researcher. From the four selected government schools, the total sample size for the study was also obtained through simple random sampling. YES and NO was written on separate pieces of papers, folded and put in a bag. It was then shuffled, and the students were asked to pick out the papers from the bag. Those who picked YES were given the questionnaire to fill, and those who picked NO were left out. This process was repeated until a sample size of 138 was gotten from the four randomly selected schools.

We collected data using a questionnaire. Questionnaires were the most preferred compared to other methods since it was the most appropriate method of dealing with large sample size. The questionnaire was constructed by the researcher made up of 17 closed-ended items excluding demographic information to which respondents were expected to choose answers from the options by giving a tick to the answer they found most appropriate to them. The items on sections B to D were constructed on a 4-point Likert scale with SA, A, SD and D as response options. The validation of the instrument ensured accuracy, relevance, and appropriateness in the items. Validity was also determined through piloting or pre – testing. The instrument was administered in a school with the same status as the sampled schools, but which was excluded in the final study.

A pilot test was done to establish the reliability of the instrument. Piloting was done in different schools apart from the sampled ones. The schools were of the same level or status in terms of facilities and performance. When the responses for the various schools were compared, it showed some degree of consistency. Alternatively, a test – retest was also used to estimate the degree to which the same result could be obtained in a repeated trial. One school was used to obtain responses from one instrument but at different times.

The difference in time was two weeks. The responses to the two set of the trial test were analysed, and the reliability was calculated using Spearman Rank Coefficient(r). The calculated value stood at 0.9 implying that there was a strong correlation between the test and re-test process. This showed that the instrument was highly reliable.

Table 3: Return Rate of Questionnaire

Name of school	Administered	Returned	Returned Rate
GBHS Babessi	63	63	100%
GHS Baba I	35	35	100%
GHS Babungo	35	35	100%
GBSS Mambim	05	05	100%
TOTAL	**138**	**138**	**100%**

The collected data were checked, read, revised and marked. Grouping and coding were done according to the themes or variables considered for the research which reflected the objectives. The data were first captured in a statistical package for social sciences (SPSS) from where analysis was done for all schools. This was meant to ease the process of comparing the factors — the method of analysis involved both descriptive and inferential statistics. In descriptive statistics, tables with frequencies, percentages and pie charts were used. In inferential statistics, the Pearson Product Moment Correlation test at 0.01 level of significance was used to test the hypotheses.

Presentation of findings

The above sub-section examines the research design and methodology. In this sub-section, the presentation of the findings follows the objective of investigating the correlation between the students' attitude towards Mathematics and their academic performance in the subject.

Students' Attitude towards Mathematics

Table 4: Items on students' attitude towards Mathematics

S/N	Items	Response option			
		S A	**A**	**D**	**SD**
1.	The time allocated for Mathematics should be increased.	63 (45.7%)	38 (27.5%)	18 (13.0%)	19 (13.8%)
2.	For students to pass Mathematics, they should develop a positive attitude towards the subject.	74 (53.6%)	50 (36.2%)	6 (4.4%)	8 (5.8%)
3.	Mathematics has greater application to life outside classroom than other subjects.	43 (31.2%)	54 (39.1%)	25 (18.1%)	16 (11.6%)
4.	Mathematics is the greatest nightmare for students in our school.	28 (20.3%)	45 (32.6%)	30 (21.7%)	35 (25.4%)
5.	Understanding Mathematics does not necessary require practice.	11 (8.0%)	15 (10.9%)	27 (19.6%)	85 (61.6%)
6.	It is normal to fail Mathematics.	25 (18.1%)	26 (18.6%)	26 (18.8%)	55 (39.9%)

Figure 1

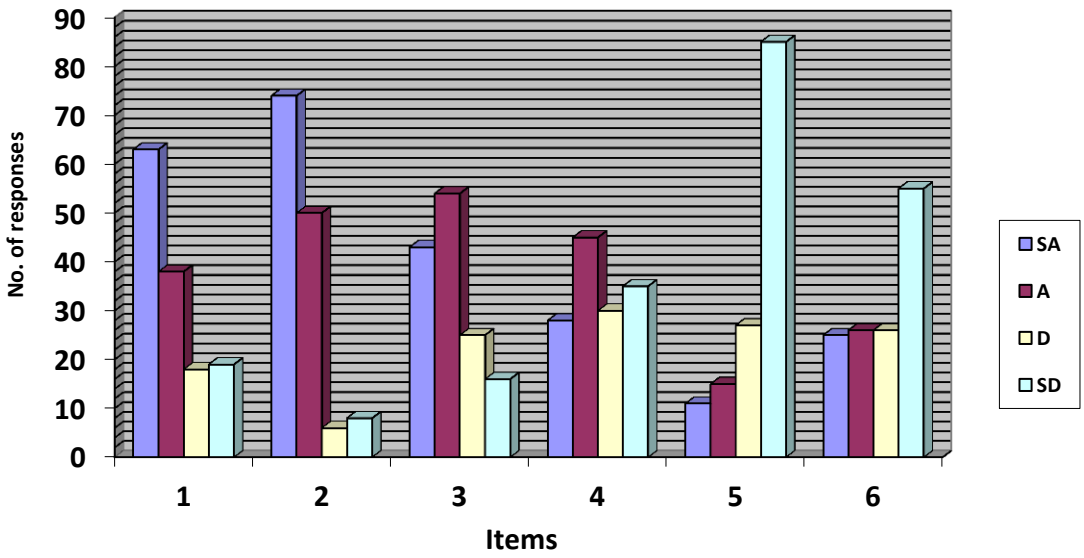

Figure 1: Students' responses on attitudes towards Mathematics

From the table and figure above, 63(45.7%) and 38(27.5%) of the students strongly agreed and agreed respectively that the time allocated for Mathematics should be increased. On the other hand, 18(13.0%) and 19(13.8%) disagreed and strongly disagreed respectively.Concerning students developing a positive attitude towards Mathematics to be able to succeed in Mathematics, 74(53.6%) and 50(36.2%) strongly agreed and agreed respectively while 6(4.4%) and 8(5.8%) disagreed and strongly disagreed.43(31.2%) and 54(39.1%) strongly agreed and agreed respectively that mathematics has greater application to life outside classroom than another subject while 25(18.1%) and 16(11.6%) disagreed and strongly disagreed respectively. About

Mathematics being the greatest nightmare to students, 28(20.3%) and 45(32.6%) strongly agreed and agreed respectively whereas 30(21.7%) and 35(25.4%) disagreed and strongly disagreed to this item.11(8.0%) and 15(10.9%) strongly agreed and agreed respectively that understanding mathematics does not require practice meanwhile 27(19.6%) and 85(61.6%) disagreed and strongly disagreed respectively. Finally, 25(18.1%) and 26(18.8%) of the students strongly agreed and agreed respectively that it is normal to fail mathematics whereas 26(18.8%) and 55(39.9%) disagreed and strongly disagreed.

Table 5: Descriptive Statistics on attitude

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Frequency	822	112.00	132.00	244.00	214.6813	37.50700
Valid N (listwise)	822					

Testing of Hypothesis

The Statistical Package for Social Sciences analytical software was used to test the hypotheses. The Pearson's Product Moment Correlation Coefficient was calculated. This shows the linear relationship between students on a four-point Likert scale, SA = 4, A = 3, D = 2 and SD = 1. This gave a quantitative grading on 24 in the first two hypotheses and on 20 in the last two hypotheses. The scores of the students were on 100. The Correlation Coefficient (r) was tested for significant different from zero within the population.

Testing Hypothesis

H_o: There is no significant relationship between students' attitude towards mathematics and their performance.

H_a: There is a significant relationship between students' attitudes towards mathematics and their performance.

Table 6: Correlations between the items on attitude and scores

		Items	Scores
Items	Pearson Correlation	1	.096**
	Sig. (2-tailed)		.000
	N	2677	2677
Scores	Pearson Correlation	.096**	1
	Sig. (2-tailed)	.000	
	N	2677	2677

****. Correlation is significant at the 0.01 level (2-tailed).**

The degree of linear relationship between students' attitude towards Mathematics and their performance is weak as the correlation coefficient(r)= 0.096. However, it still indicates a significant correlation. We, therefore, reject the null hypothesis (H_o), which states tha there is no significant relationship in the attitudes of students and their academic performance in Mathematics. On the other hand, we retain the alternative hypothesis (Ha), which holds that there is a significant correlation between the attitudes of students and the performance in

Mathematics. Form these; one tends to infer that a positive attitude enhances a better performance in Mathematics as opposed to a negative attitude.

Discussion of findings

The findings of this study are presented following the objective of investigating the correlation between the students' attitude in Mathematics and their academic performance in the subject. As indicated above, the test of the hypothesis indicates the rejection of the null hypothesis in favour of the alternative hypothesis. The significant correlation between the attitudes of students and their academic performance does not necessarily imply that studies in a subject like Mathematics rely only on attitude. This is because the correlation is not strong. Probably, a student's success in Mathematics requires a synthesis of attitude and aptitude. It is not because I have a good attitude towards Mathematics, that I am necessarily good at Mathematics. I need to have a disposition on which my attitude builds. At the same time, the findings confirmed previous studies carried by Ma and Kishor (1997). In a study of elementary and secondary school students, Ma and Kishor (1997) found that attitude towards Mathematics and performance in Mathematics was positively and reliably correlated but not strong. The correlation was not statistically significant.

However, the studies of Tezer & Karasel (2010) and those of (Maat & Zakaria 2010) reveal that there is a correlation between students' attitude and their performance in Mathematics. The correlation showed that a student with a positive attitude performs betterin Mathematics than one who does not. Students' beliefs and attitudes were found to either facilitate or inhibit learning. Students' attitudes, therefore, merit a lot of concern in the practice of education. The performance of activities that enhance the development of positive attitudes by students in the teaching of Mathematics is absolutely important. The attitudes students develop in a subject like Mathematics tend to be the roots of their personal qualities, which persist in adult life.When a student develops a good attitude towards Mathematics, he/she will definitely put in a great deal of effort to ensure higher achievements even if he/she finds the subject to be difficult. Positive attitudes in the subject may be developed with the use of different teaching techniques and strategies. Considering the behavioural theories of classical conditioning of Ivan Pavlov and Operant conditioning of B. F. Skinner, some hacking methods of teaching Mathematics to develop attitudes include exercises, repetition of exercises, praise, and blame.

Despite the strength of these approaches, they are seen to be limited to extrinsic methods of motivation. The absence of a strong correlation between the attitudes of students and academic performance in Mathematics probably explain the weakness of the behavioural theories. Learning cannot simply be reduced to good attitudes. There is no doubt that attitude is very important in the teaching-learning transaction. However, it is inseparable from the aptitude of the student. One's attitude is built on a foundation which is the aptitude. The performance of a student in Mathematics requires an aptitude, which makes reference to Dewey's theory of interest. Interest as the aptitude emphasizes the need for the teaching-learning transaction to recur to the intrinsic needs of the students (Dewey, 1966). The teacher's ability to link the subject matter and method lies in the teaching activities he /she carries within the intrinsic interest of the student (Ngalim, 2017). Therefore, it is not solely a student's aptitude that leads the student to perform well in Mathematics. Also, it is not only the student's attitude that ensures his/her good performance in Mathematics, but it is a blend of his/her aptitude and attitude. Following the retention of the alternative hypothesis of the study, the attitude of the student dominates the aptitude as far as performance is concerned. A good aptitude without a corresponding attitude towards Mathematics does not ensure good performance.

From the arguments above, it is important to develop good attitudes in students. The learning theories in this study guide us in attitude formation, and these could also be used to bring about attitude change towards Mathematics. For example, classical conditioning can be used to create positive emotional reactions to an object, person or event by associating positive feelings with the target object. Operant conditioning can be used to strengthen desirable attitudes and weaken undesirable ones. People can also change their attitudes after

observing the behaviour of others. Attitude change, therefore, requires determining factors driving the attitude and using that information to bring out the necessary change. That is, helping students to learn and bring out their best potentials. Continued attention should then be directed towards creating, developing and reinforcing positive attitudes towards the subject ((Maxwell, 2007). Therefore, student interaction and instructional styles should be carefully determined and supported by the teachers concerned.Teaching should not capitalize on cognitive abilities to the relative neglect of the emotional and behavioural aspects of learning (Rubinstein, 1986).

The findings from this study revealed that students' attitudes towards Mathematics influence their performance in the subject. The findings had the following implications for all the educational stakeholders. The school administrators, teachers, and parents should exploit the positive attitudes of students to create a strong inclination and culture of Mathematics. This is an appropriate way of demystifying the subject in secondary schools where the students score favourably like in other subjects.The curriculum designers and teachers should adequately articulate the usefulness and application of Mathematics in daily life so as to create students' positive attitudes towards the subject. However, curriculum design should take into consideration the fact that aptitude is invaluable in performance. Mathematical intelligence is not universally uniform. There are slow learners and fast learners in this subject.There is a need for a synthesis of attitude and aptitude.

Conclusion and recommendations

This study set out to inquire whether there is a correlation between the attitude of students towards Mathematics and their academic performance in the subject. To attain this objective, the scope of this paper was limited to the impact of the students' attitude towards Mathematics. However, the correlation between the attitudeof teachers and the performance of students in Mathematics could be very interesting and revealing. This suggests that an extensive similar study is done even in the same secondary schoolcompare the variable with a high significant effect on the performance of students. This study will provide a comprehensive report on the impact of attitudes on the performance of students in Mathematics. Teachers play a very crucial role in the dissemination of the knowledge.Based on the findings obtained, I recommend that pedagogic practices in Mathematics should give equal chances, opportunities and privileges to all learners irrespective of aptitude, sex, age, and language.The parents and teachers should explore other avenues to enhance student's positive attitudes towards Mathematics. The students should generally be motivated through persuasion, use of reinforcements and provision of learning resources — the use of well-designed learning strategies and feedback to fully engage the learners on how these strategies translate to improved performance. The mastery and adaptation of the content knowledge to the learners' level of understanding cater for individual differences. The teachers are expected to guide learners and monitor daily progress. This is possible through feedback generated from the exercises and other activities done.

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