



Relationship between Students' Interest and Academic Performance in Mathematics: A Study of Agogo State College

David Arhin^{1*} Emmanuel Gideon Yanney²

1. Student-Faculty of Educational Foundations; University of Cape Coast, Ghana

2. Tutor-Bia Lamplighter College of Education; Debiso, WN/R, Ghana

* E-mail of the corresponding author: arhindavid8@gmail.com

KEY WORDS

Students' interest, Academic performance, Mathematics, Relationship

ABSTRACT

The purpose of this study was to determine the relationship between student interest in mathematics and their academic performance using Agogo State College as study area in the Asante Akim North District. The descriptive survey design was used for the study. The study was carried out among SHS students of the school under study. The target population was 670. However, 200 students were sampled using proportionate stratified sampling. The instruments used for the study were questionnaire which was self-prepared and self-administered and secondary data (document review). The findings from the study showed that, most students do not have interest in mathematics; the students believe that mathematics has relevance in one's life and one's academics; and also high or strong relationship exists between students' interest in studying mathematics and academic performance and it is in a positive direction. It was recommended that, students should seek counseling on mathematics so as to increase their interest in studying mathematics whiles the curriculum developers should make the teaching and learning of mathematics practical and activity-oriented. More so, teachers should be motivated so that they may assist students in teaching and learning mathematics skills to increase students' interest in studying mathematics to foster high academic performance.

1. INTRODUCTION

Generally, Education has been averred to be a process of human enlightenment and empowerment for the achievement of a better quality of life that leads to develop harmonious personality and involves all aspects of intellectual, religious, moral and physical personality of an individual which is carried out in schools and colleges. These institutions prepare pupils for education or for occupation or for family life and so on (Mohamed & Aron, 2017). On the other hand, they explained that, mathematics in the real sense is a science of space and quantity that helps in solving the problems of life needing numeration and calculation. Mathematics provides opportunities for the intellectual gymnastic of the man's inherent powers. Teaching of Mathematics essentially helps the students in acquiring essential mathematics knowledge, skills, interests and attitudes. Mohamed & Aron (2017) also said that, academic achievement has become an index of child's future in this highly competitive world. Academic achievement has been one of the most important goals of the educational process. Achievement encompasses student ability and performance. It is multidimensional and intricately related to human growth and cognitive, emotional, social, and physical development. It also, reflects the whole child and not related to a single instance, but occurs across time and levels, through a student's life. Mathematics is not enough to impart theoretical learning; that learning must be put into practice. In all these, true learning is that which affects behaviour and whereby the learner makes practical use of his knowledge (Mohamed & Aron, 2017). They further explicated that, there is a common perception that mathematics is a very difficult subject. As much as possible students tend to avoid taking mathematics courses. Avoiding mathematics courses severely restricts student of certain vital qualities in the field of work, while students that study mathematics can easily work effectively when secure those jobs. However, it could be observed that, many people have realized the importance of mathematics, not only from the point of view of getting an academic qualification at school or college but is also a subject that prepares one for the future as well, irrespective of which walk of life one chooses to be a part of. In support of this, a study of mathematics is important because it is associated with more of academic and career opportunities and at the same time acts as one of the critical filters for entry into higher educational programmes and even in the world of work (Anamuah-Mensah, 2007). Thus, without sufficient knowledge in mathematics, one may not climb the academic ladder. In addition, he said that people who resort to learning a trade because of their inability to make the required grade for further studies end up using mathematics as an important tool for performing their duties in their work places. Anthony & Walshaw (2009), asserted that, the competence that is gained in the study of Mathematics is widely used in all spheres of human life. With this, it can be inferred that mathematics plays a key role in shaping how individuals deal with the various spheres of private, social, and civil life. This justifies the compulsion of the study of the subject by all students who go through basic and secondary education in most countries. Mathematics is therefore a core subject at these levels of education in Ghana. Anthony & Walshaw (2009) again observed that, in the contemporary times many students struggle with Mathematics and perform abysmally low in their final examinations in most jurisdictions. In Ghana, students' performance in Mathematics at the Senior High School has not been encouraging of late. Candidates are reported to exhibit poor understanding of Mathematical concepts and are unable to form the appropriate Mathematical models which could be tackled with the requisite skills. Ministry of Education [MOE] (2007), also observed that one of the general aims of teaching mathematics is to communicate effectively using symbols and explanations through logical reasoning. The study of mathematics also develops the power of logical thinking, accuracy and spatial awareness.

Despite the importance of mathematics in human development, many studies have shown that students in senior high schools are not very much interested in mathematics due to their discernment of the subject. For example, it was affirmed that, perceptions and beliefs about mathematics originate from past experiences; comprising both cognitive and affective dimensions (Aguilar, Rosas & Zavaleta, 2012). From my point of view mathematics relates to a person's knowledge, beliefs, and other intellectual symbols while from an affective province it can denote to a person's attitudes, feelings and emotions about mathematics. Mathematics can also be understood broadly to include all visual, verbal representations, metaphorical images and associations, beliefs, attitudes and feelings related to mathematics and mathematics learning experiences. However, it is widely claimed that negative perceptions and myths of mathematics are widespread among students, especially in the developing countries (Gadanidis, 2012). Many students are scared of mathematics and feel powerless in the presence of mathematical ideas. Through my personal experience, persons regard Mathematics as "difficult, cold, abstract, and in many cultures, largely masculine". Even scientists and engineers whose jobs are related to mathematics often harbour an image of mathematics as a well-stocked warehouse from which to select ready-to-use formulae, theorems and results to advance their own theories. This study has become relevant since mathematics education is a priority for the Government of Ghana. More so, Senior High School education is a determinant of the academic success of students at the tertiary level. Students' perceived relevance of mathematics affects how they perform in the other related-subjects. Despite, the poor performance of students in the West African Senior High School Examination (WASSCE) due to several factors, researchers have not devoted much attention to students perceived relevance of the subject in the district of study.

1.1 Literature Review

1.1.1 Students' Interest Level in the Studying of Mathematics

The explanation and prediction of academics achievement is an important area of research in educational psychology. The prevalence of research efforts in this area reflects the fact many decisions reached in the modern educational system are based upon predictions of school success such decisions includes choosing the optimal time for entering school selecting the appropriate type of school or academic track, been accepted at certain college or university or the choice of a particular field of study. Because these decisions can greatly influence the life of a young person, a period of careful consideration of often precedes the final decision. Parents and students often seek counselling. Moreover, the students should train and exposed to various problem solving skills as a supportive technique to reinforce the learning of the subject mathematics so as to bring about a better teaching and learning process in the classroom. Hence it is suggested from the findings that interest in Mathematics and academic achievement of high school level students should be motivated and made genius in the schools for success of the effective classroom (Mohamed & Aron, 2017). Another study was to identify factors and conditions that motivated and encouraged students towards the math class and the factors that made this class an attractive and lovely one. To do this end, questionnaires consisting of 15 questions were distributed among 85 math teachers working in schools of Zahedan. Having collected and reviewed these questionnaires, it was shown that doing activity in math class (activity of students while teaching) and previous math teachers' behaviours have had much impact on encouraging the students towards mathematics (Khayati & Payan, 2014).

1.1.2 Relevance of Mathematics in Life and Academics

Mosvold (2005), Mathematics and Statistics are crucial and used in almost every domain of human world such as Industry, Commerce, Physics, Chemistry, Economics, Biology, Psychology, Astronomy, Engineering, Medicine and many more, hence application of mathematics is quite extensive. Similarly, Statistics is the area of mathematics we use to explore and try to explain the uncertain world in which we live. We are all familiar with the use of statistics in opinion polls and market research, but it is also central to the manufacture and testing of many products. Therefore, it can be established that mathematics is one of the important subjects which increase one's ability to logical thinking, problem solving and reasoning. In today's era of globalization, mathematics is one of the primary elements and proved very useful in the field of business. Business organizations are using mathematics in the field of accounting (viz financial accounting, cost accounting, corporate accounting, management accounting). For this, it has been averred that, being an era where skill development and innovations are highly regarded, the more mathematical we are in our approach, the more successful we will be (Mosvold, 2005). He also asserted that, the truth is math is all around us. As a matter of fact, some call it an inescapable quotient that we simply just can't get through life without. As such we need it to comprehend the amount of taxes we owe, how much we earn, follow a new recipe and the kind of deals we are getting ourselves into on a day to day basis.

1.1.3 Relationships that exist between Students' Interest and Academic performance in Mathematics

A study investigated the impact of motivation on students' school academic achievement in mathematics in secondary schools using motivation measuring instrument and achievement test in mathematics. Six hypotheses were tested for significant at 0.05 margin of error using t-test and analysis of variance (ANOVA) Results showed that gender difference and Parents Income were significant when impact of motivation on academic achievement was compared in male and female students. Also other result indicates significant difference when extent of motivation was taken as variable of interest on academic achievement in mathematics based on the degree of their motivation (Kalpana & Malathi, 2019). Similarly, Long (2019) conducted a study with primary aim of examining a possible association between interest and mathematics performance among Malaysian students in a technology-enhanced learning environment. In the study, Mathematics Interest Inventory was administered to 40 students to measure students' interest towards mathematics, while a mathematics test was used to measure students' mathematics performance. Results of the descriptive statistical analyses revealed that the students were relatively interested in mathematics. Correlational analyses showed that interest was not significantly correlated to mathematics performance among the students. Nevertheless, a significant relationship between interest and mathematics performance was found among students who had lower mathematics performance. The findings of this study pointed to the importance of igniting interest among students with lower mathematics performance given its strong link to mathematics performance (Long, 2019).

1.2 Problem statement

A literature review of studies conducted on interest in mathematics studied the influence of learning style, intelligence and classroom climate on process outcomes in mathematics (Aruna *et al.*, 2004 as cited in Mohamed & Aron, 2017). Another researcher attempted to determine whether or not any relationship exists between mathematics problem performance and field dependent-independent learning style, logical reasoning ability, mental, age, gender and academic level and compared the problem solving strategies employed by advanced notices and experts in mathematics (Edwards, 2002). The review of the studies mentioned above revealed that, no study was undertaken on interest in mathematics and academic achievement of high school students except few studies. But the intermediate stage was found at risk in terms of activity based learning it is felt that, there is a dire necessity to study the interest in mathematics of high school students in relation to academic achievement. A comprehensive review on the education system that reveal Mathematics, next to English is the subject which students find most difficult (Awanta, 2009). Awanta opined that, the proportion of students who encounter difficulties in learning Mathematics increases from primary level onwards and that, the quality of Mathematics education directly affects learning in other scientific disciplines, hence influencing the development of human resources in the field. From the

observation of Awanta (2009), this is necessary in a developing country such as Ghana, where every citizen needs to become mathematically literate. Similarly, Anamuah-Mensah, Mireku, & AsabereAmeyaw (2004) posited that, effective and sound mathematics education is fundamental in the academic upbringing of every child. It is therefore pragmatic that Senior High School students perform well in mathematics since it is central to having high-quality education in Ghana. However, there has been a recurring low achievement of Senior High School students in the West African Senior Secondary Certificate Examination (WASSCE) lately. Students' interest in the study of Mathematics is crucial in the determination of their performance in the subject. To tackle the nonperformance of students in mathematics in the West African Examination requires a critical investigation into the underlying factors. To the best of my knowledge, not enough studies have been done on the subject in Ghana, hence the need to investigate into the subject. It is upon this backdrop that I sought to study the relationship between student's interest in mathematics and their academic performance in some selected senior high schools.

1.3 Purpose and research questions

The general objective of the study is to determine the relationship between student interest and academic performance in mathematics using Agogo State College as study area in the Asante Akim North District.

Specifically, the following questions were formulated to guide the study.

1. What is the interest level of students in the learning of mathematics?
2. What are students' opinions on the relevance of mathematics in life and academics?
3. Is there a relationship between student's interest in studying mathematics and their academic performance?

1.4 Significance of the study

The findings of this study would enhance better strategies and measures for promoting student understanding and participation in mathematics related fields. The findings of this study might inform the extent of the influences of parents and teachers in shaping students' interest level in mathematics. This information can be used to promote positive influence while attempting to avoid the negative influences of these sources. It would help to understand better the roles of parents and teachers in the shaping of students' images of mathematics. This knowledge may also help to enhance better curriculum planning and teacher development programmes. In addition, the findings of the study would be of much benefit to policy makers and the Ghana Education Service since it intends to contribute to knowledge on perceived relevance of Mathematics by students. This research material would further serve as a reference document for students and future researchers. Lastly, this study would recommend areas in the study of Mathematics that need further research.

2. METHODS

2.1 Design

I adopted a descriptive survey for this study. The descriptive survey design is a type of design that can be explained as the process of gathering data in order to answer research questions or test hypothesis which concerns the existing status of a phenomenon (Leedy & Ormrod, 2005). This design is ideal because, it is quite easier to cater for the weaknesses as mentioned above.

2.2 Target population and sampling

The population of the study would comprise of all second year students of Agogo State College in Asante Akim North District. The enrolment was given as 670. However, for the purpose of convenience and also to ensure a more detailed study of the elements involved, I used a sample size of 200 respondents from the population of 670 stated. Cohen (2004) established that 30% is a true representative of a population under study as the individuals participating in the study possess most of the characteristics present in the group under study. The study sample was selected from the population using multi-stage sampling. First stage, I used convenient sampling procedure to select the school within the district. On the second stage, proportionate stratified sampling technique was used to sample the students with programme of study as strata.

2.3 Instrumentation

Questionnaire was used for the study because it is effective for collecting data from a large number of people within short possible time (Amedahe & Asamoah-Gyimah, 2014). The questionnaire was divided into two sections (A and B). Section A elicited information on the interest level of students in the learning of mathematics while Section B elicited information on student's opinion on the relevance of mathematics in life and academics. The questionnaire was made up of predominantly close ended items on a four-point Likert type of scale ranging from strongly agree, agree, disagree and strongly disagree. The questionnaires did not ask for any identifying information from the respondents, thus, throughout the survey respondents were assured of confidentiality and anonymity. And so, the instruments were pre-tested to again check the reliability of the instruments. This enabled the study to clarify all ambiguous questions, identified possible challenges likely to be encountered in the actual exercise and how to address them. The Cronbach alpha coefficient was computed to be .75. In order to determine validity, the instrument was given to our supervisor who is an expert in the field to cross check if the items are well constructed.

2.4 Data collection procedure

Formal permission was secured from appropriate authorities prior to the data collection exercise. The instruments were self-administered. Ethical consideration was well adhered to in the study. Before the questionnaires were administered to respondents, they were assured of confidentiality and anonymity of all information. Respondents' informed consent was also elicited. Also, respondents' voluntary consent to participate was elicited. They were also giving the opportunity to withdraw from the study if they so wish.

2.5 Data processing and analysis procedure

Data to answer research question 1 was analyzed using mean and standard deviation. This statistical tool was used because; I sought to examine the level of interest of students in mathematics. In the same way, data to answer research question 2 were analyzed using frequencies and percentages. Data to answer research question 3 were analyzed using Pearson Product Moment correlation coefficient. This statistical procedure was used because I was interested to find out the relationship between students' interest level of studying Mathematics and their performance. The analyses were done using four point-scales thus Strongly Agree, Agree, Strongly Disagree and Disagree which was coded as Strongly Agree (SA) =4, Agree (A) =3, Disagree (D) =2 and Strongly Disagree (SD) =1 however, strongly agree and agree were put together as „agree“ and strongly disagree and disagree as „disagree“ in analyzing data to answer research question 2. At the end of the data collection, data were coded and keyed on SPSS version 26.0, for analysis and discussion.

3. ANALYSIS AND DISCUSSION OF RESULTS

Research question 1: What is the interest level of students in the learning of mathematics? Responses were solicited from 200 students. Respondent's responses concerning of finding out the interest level of students in the learning of mathematics are presented in Table 1.

Table 1: Interest Level of Students in the Learning of Mathematics

SN	Statement	Mean	SD
1	I make myself prepared for the math subject.	2.36	.820
2	I listen attentively to the lecture of my math teacher	2.30	1.022
3	I actively participate in the discussion, answering exercises and/or clarifying things I did not understand.	2.04	1.019
4	I want to get good grades on test, quizzes, assignment and projects.	3.08	.742
5	I get frustrated when the discussion is interrupted or the teacher is absent.	3.32	.714
6	I attend all math class throughout the term.	2.40	1.103
7	I do my assignment regularly.	2.35	.976
8	I study the lessons I missed if I was absent from the class	2.09	.950
9	I teach my classmates who do not understand some topics I do understand	2.10	1.029
10	I exert more effort when I do difficult assignments.	2.05	.976
Mean of Means/Average SD		2.41	.935

Source: Field Survey (Arhin & Yanney, 2020)

N = 200 (100%)

The table presents the interest level of students in the learning of mathematics which were analyzed using 10 items. The level was measured in line with 2.50. From Table 1, the statement „I get frustrated when the discussion is interrupted or the teacher is absent“ was at the highest level with mean of 3.32 and a standard deviation of .714. This level was followed by statement „I want to get good grades on test, quizzes, assignment and projects“ which elicits a level mean of 3.08 and a standard deviation of .742. This implies that, students agreed to both statements. However, on whether students attend all math class throughout the term came third with a level mean of 2.40 standard deviation of 1.103. „I make myself prepared for the math subject“ occupied the next level with mean of 2.36 and standard deviation of .820 while „I do my assignment regularly“ marginally follows with mean of 2.35 and standard deviation of .976. More so, on the statement „I listen attentively to the lecture of my math teacher“ had a mean of 2.30 and a standard deviation of 1.022, followed by „I teach my classmates who do not understand some topics I do understand“ with a mean of 2.10 and a standard deviation of 1.029. On the issue of whether students study the lessons they missed if they absent themselves from the class marked the eighth level with mean of 2.09 and a standard deviation of .950 while the statement „I exert more effort when I do difficult assignments“ was next with mean of 2.05 and standard deviation of .976. „I actively participate in the discussion, answering exercises and/or clarifying things I did not understand“ occupied the tenth level with a mean of 2.04 and standard deviation of 1.019. This implies that students disagreed to the later eight statements discussed. Finally, there is a mean of means of 2.41 and standard deviation of .935 indicating an average level of interest of students in the learning of mathematics below 2.50. This implies on average that, students have negative interest in mathematics.

From Table 1, it was noticed that students get frustrated when the discussion is interrupted or the teacher is absent but want to get good grades on test, quizzes, assignment and projects. Again it was revealed that, students do not attend all math class throughout the term and do not prepare themselves for the math subject. The table also shows that, students do not do their assignment regularly and do not listen attentively to the lecture of math teacher. Again most students do not teach their classmates who do not understand some topics because they do not understand, students do not study the lessons they missed if they absent themselves from the class. The table further revealed that, students do not exert more effort when they are doing difficult assignments and also do not actively participate in the discussion, answering exercises and/or clarifying things they do not understand. This implies that, most students do not have interest in mathematics. The findings confirm study finding of Khayati & Payan (2014) who avowed that, doing activity in math class and preceding math teachers' behaviours have had much impact on inspiring the students towards mathematics. Moreover, the findings agree with the proposition that interest in Mathematics and academic achievement of high school level students should be motivated and made genius in the schools for success of the effective classroom (Mohamed & Aron, 2017).

Research question 2: What are students' opinions on the relevancy of mathematics in life and academics?

This research question sought to students' opinions on the relevance of mathematics in life and academics. To elicit these responses, respondents answered 10 items in this section. The results are presented in Table 2.

Table 2: Students' Opinions on the Relevancy of Mathematics in Life and Academics

SN	Statement	Agree N (%)	Disagree N (%)
1	New knowledge is created from already established structures.	170 (85)	30 (15)
2	It develops creativity, basing alternative and new ideas on established ones.	145 (73)	55 (27)
3	It emphasis the control of situations through its application.	130 (65)	70 (35)
4	Its full of fascinating ideas which seems to exist independently of human actions	165 (83)	35 (17)
5	It provides an understanding of the world around us.	150 (75)	50 (25)
6	It a secure subject dealing with routine procedures and established rules.	190 (95)	10 (05)
7	Its ideas and methods are testable and verifiable.	160 (80)	40 (20)
8	It develops rational thinking and logical argument	145 (73)	55 (27)
9	It is the basis that enables you to excel in the specialty of your choice	80 (40)	120 (60)
10	It makes you smarter	60 (30)	140 (70)

Source: Field Survey (Arhin & Yanney, 2020)

N = 200 (100%)

Table 2 shows that, majority (n=170, 85%) of the respondents agreed to the statement "New knowledge is created from already established structures". Again, most (n=145, 73%) of the respondents agreed that mathematics develops creativity, basing alternative and new ideas on established ones. The table further indicated that, majority (n=130, 65%) of the respondents agreed to the statement "It emphasis the control of situations through its application". Majority (n=165, 83%) of the respondents agreed that mathematics is full of fascinating ideas which seems to exist independently of human actions. Majority (n=150, 75%) of the respondents agreed that mathematics provides an understanding of the world around us whiles most

(n=190, 95%) of the respondents agreed to the statement that "It a secure subject dealing with routine procedures and established rules". Majority (n=160, 80%) of the respondents agreed that mathematics' ideas and methods are testable and verifiable. Majority (n=145, 73%) of the respondents agreed to the statement that „It develops rational thinking and logical argument". Majority (n=120, 60%) of the respondents disagreed the statement that "It is the basis that enables you to excel in the specialty of your choice". Finally, most (n=140, 70%) of the respondents also disagreed that mathematics makes you smarter.

However, some of the respondents had conflicting opinions on the issues that I was interested. Table 2 revealed that, minority (n=30, 15%) of the respondents disagreed to the statement "New knowledge is created from already established structures". Again, least (n=55, 27%) of the respondents disagreed that mathematics develops creativity, basing alternative and new ideas on established ones. The table further indicated that, minority (n=70, 35%) of the respondents disagreed to the statement "It emphasis the control of situations through its application". Minority (n=35, 17%) of the respondents disagreed that mathematics is full of fascinating ideas which seems to exist independently of human actions. More so, minority (n=50, 25%) of the respondents disagreed that mathematics provides an understanding of the world around us whiles as few as (n=10, 05%) of the respondents disagreed to the statement that "It a secure subject dealing with routine procedures and established rules". Minority (n=40, 20%) of the respondents disagreed that mathematics' ideas and methods are testable and verifiable. Again, minority (n=55, 27%) of the respondents disagreed to the statement that, it develops rational thinking and logical argument". Minority (n=80, 40%) of the respondents agreed the statement that "It is the

basis that enables you to excel in the specialty of your choice". Finally, least (n=60, 30%) of the respondents also agreed that mathematics makes you smarter.

From Table 2, it can be noticed that, the students are of the view that, new knowledge is created from already established structures. Again, the table further revealed that, the students are of the view that, mathematics emphasis the control of situations through its application. It was also revealed in this study that, mathematics is full of fascinating ideas which seems to exist independently of human actions, mathematics provides an understanding of the world around us, it is a secure subject dealing with routine procedures and established rules, mathematics' ideas and methods are testable and verifiable as well as mathematics develops rational thinking and logical argument. However, the table revealed that, mathematics is not the basis that enables you to excel in the specialty of your choice. Again the students are of the view that, mathematics does not make one smarter. The study therefore established that, the students believe that mathematics has relevance in one's life and one's academics. The findings in this study agree with assertion that, the key to the economic development of Ghana therefore depends on the development of a strong science, mathematics and technology base (Anamuah-Mensah, 2007).

Research question 3: Is there a relationship between student's interest in studying mathematics and their academic performance?

In finding out the relationship between student's interest in studying mathematics and their academic performance, the continuous assessment of students in previous semester were used. The data were analyzed with Pearson product moment correlation coefficient and are presented in Table 3.

Table 3: Pearson Product Moment Correlation Test for the Relationship between Students' Interest in studying Mathematics and their Academic performance

Variables		Academic performance
Student's Interest in studying mathematics	Pearson correlation	0.813
	Sig. (2-tailed)	0.002
	N	200

Source: Field Survey (Arhin & Yanney, 2020)

The results in the Table 3 show the relationship between students' interest and academic performance in studying mathematics. The table shows that, there is significant relationship between students' interest in studying mathematics and academic performance with significant value of 0.002 at 0.05 level. The correlation coefficient which show that there is significant relationship between students' interest in studying mathematics and academic performance is (r = .813). This implies that, there is high or strong relationship between students' interest and academic performance in studying mathematics and that, it is in a positive direction implying that, if there is increase in students' interest, there will be high academic performance in mathematics and if there is decrease in students' interest, there will be low academic performance in mathematics. The above findings correspond with the findings of a study by Long (2019) who pointed out that, igniting interest among students with lower mathematics achievements given its strong link to mathematics achievements. However, the findings contradict the finding from Kalpana & Malathi (2019) who indicates that, there is significant difference when extent of motivation was taken as variable of interest on academic achievement in mathematics based on the degree of their motivation.

4. CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of the study, it can be concluded that, with most students not having interest in mathematics, students' academic performance will be very low or poor which will in a long effect impede the nations' development and growth. The second finding could stimulate students' interest in the studying of mathematics and augment academic performance. Being aware of increase in students' interest yielding high academic performance in mathematics and vice versa, teachers will ensure that students' interest in mathematics is sustained. More so, students will intrinsically increase and sustain the interest in studying mathematics since the study revealed that, most students want to get good grades on test, quizzes, assignment and projects. I therefore recommend base on the findings that, Students should seek counseling on mathematics so as to increase their interest in studying mathematics. Teachers and educationalist should orient students to stimulate the interest in order to appreciate the studying mathematics. The curriculum developer should make the teaching and learning of mathematics practical and activity-oriented. Teachers should also adhere to the practical teaching and learning of mathematics for students to appreciate the relevance of mathematics in one's life and one's academics. Finally, teachers should be motivated so that they may assist students in teaching and learning mathematics' skills to increase students' interest in studying mathematics to foster high academic performance.

5. LIMITATIONS

According to Best & Kahn (2006), limitations are circumstances beyond the control of the researcher that will place restrictions on the conclusion of the study and its application. The results of this study could not be generalized due to the following set of reasons: The related literature which supported the study was more foreign than local so culture variations might influence the findings to some extent; and also it is not what people say that they always practice, hence students' favourable responses about their teachers' perceptions and attitudes may influence the results of the study. However, measures were put in place to mitigate the effect of the limitations.

References

- 1 - Aguilar, M. S., Rosas, A., & Zavaleta, J. G. M. (2012). *Twelveth international congress on mathematical education*. Seoul, Korea: COEX.
- 2 - Amedahe, F.K. & Asamoah-Gyimah, K. (2014). *Introduction to research methods in education*. Unpublished. Cape Coast: University Press.
- 3 - Anamuah-Mensah, J. (2007). *The Educational Reform and Science and Mathematics Education. A Keynote Address at the Stakeholders of Nuffic*. Practical Project Meeting.
- 4 - Anamuah-Mensah, J., Mereku, D. K. & Asabere-Ameyaw, A. (2004). *Ghanaian junior secondary school students' achievement in mathematics and science: Results from Ghana's participation in the 2003 trends in international mathematics and science study*. Accra: Ministry of Education Youth and Sports.
- 5 - Anthony, G., & Walshaw, M. (2009). Characteristics of effective teaching of mathematics: A view from the west. *Journal of Mathematics Education*, 2(2), 147-164.
- 6 - Awanta, E. K. (2009). Student's view of mathematics: A survey of junior and senior high schools in the Ashanti and Brong Ahafo Regions. *Institute of Economic Affairs, Accra. Ghana Policy Journal*, 3, 90-109.
- 7 - Best, J. W., & Kahn, J. V. (2006). *Research in education (7th ed.)*. Boston: Allyn and Boston Inc.
- 8 - Cohen, L. (2004). *Research methods in education (4th ed.)*. London; Routledge.
- 9 - Edwards, J. E. (2002). The validation study of the Joseph self-concept scale for children: dissertation abstracts international. *The Sciences and Engineering*, 62, 37-43.
- 10 - Gadanidis, G. (2012). *Why can't I be a mathematician?* New Brunswick, Canada: FLM Publishing Association, Fredericton,
- 11 - Kakutani, M. (2011). *Bill Clinton lays out his prescription for America's future*. The New York Times (No. 765), p. 23-30.
- 12 - Leedy, P. D., & Ormrod, J. E. (2005). *Practical research: Planning and design (8th ed.)*. Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
- 13 - Long, C. (2019). *Mathematics knowledge for teaching: How do we recognize this?* Proceedings of the Ninth National Congress of the Association for Mathematics Education of South Africa, Cape Town.
- 14 - Ministry of Education, Science and Sports [MOESS]. (2007). *Teaching mathematics using symbols and explanations through logical reasoning*. Accra: MOESS.
- 15 - Mohamed, I. B. & Aron, A. C. M. (2017). Interest in mathematics and academic achievement of high school students in Chennai district. *International Journal of Innovative Science and Research Technology*, 2(8), 260 – 265. Retrieved on 21/01/2020 from www.ijisrt.com
- 16 - Mosvold, R. (2005). *Mathematics in everyday life: A study of beliefs and actions*. Bergen: Department of Mathematics, University of Bergen.