Direct Research Journal of Education and Vocational Studies

Vol. 7(1), Pp. 27-33, March 2025,

https://journals.directresearchpublisher.org/index.php/drjevs

Research Article
ISSN: 2734-2174

Arousing and sustaining senior secondary school Students' interest in Mathematics in Aba north local Government area of Abia State Nigeria

Rosemary Nchelem George

[1]Department of Mathematics/Statistics, Ignatius Ajuru University of Education Port Harcourt, Rivers State Nigeria.
Author Email: nchelemgeorge@gmail.com

ABSTRACT

This study investigated arousing and sustaining senior secondary school students' interest in Mathematics. Four research questions and four null hypotheses were answered and tested at .05 significant level respectively. This study employed the descriptive survey research design. Three hundred and fifty (350) s students were sampled from a population of one thousand seven hundred and three (1,703) public senior secondary one (SS1) students in Aba North Local Government Area of Abia State, Nigeria. The purposive sampling technique was used for the sampling. The instrument that was used to collect the data for the study was a researcher structured questionnaire named "Students' Interest in Mathematics Questionnaire" (SIMQ). The instrument was rated on a four-point Likert scale with a criterion mean of 2.5. Face and content validity of the instrument was ascertained. Crombach alpha method was used to obtain an internal consistency of 0.86. Mean, standard deviation and independent sample t-test were used for analysis. The result showed that senior secondary students disagreed that they have an interest in the learning of Mathematics. The result also showed that some of the strategies that can be employed by teachers to arouse of students in the learning of Mathematics are mixed modes of assessment, cooperative learning, strategic questioning, games and puzzles. Strategies that can be employed to motivate students in the learning of Mathematics are creating cohesive learning environment, use of technology in classroom, inducing friendly competition, and boosting of students' confidence by the teacher. All the tested hypotheses showed that there was no significant difference in the responses of the male and female students in all the variables considered. It was therefore recommended that Mathematics teachers should endeavor to use strategies that have the capacity to arouse, sustain and motivate students' interest in the learning of Mathematics.

Keywords: *Mathematics, Interest, Arouse, Sustain, Motivate, Student*

Article information
Received 7 February 2025
Accepted 7 March 2025
Published 10 March 2025
DOI: https://doi.org/10.26765/DRJEVS507012849

Citation: George, R. N. (2025). Arousing and sustaining senior secondary school Students' interest in Mathematics in Aba north local Government area of Abia State Nigeria. Direct *Research Journal of Education and Vocational Studies*. Vol. 7(1), Pp. 27-33. This article is published under the terms of the Creative Commons Attribution License 4.0.

INTRODUCTION

Mathematics is the precursor and the queen of science and technology. It is a tool that is employed in modern societal development. The subject is important for the development of critical thinking and everyday activity of man. George et al. (2022) posited that Mathematics has played a lot of vital roles in the development of man and society. One of objectives of teaching Mathematics in schools is to develop the three learning domains (cognitive, affective and psychomotor) in students. The cognitive domain has to do with the intellectual skills of students which include recall and recognition of specific facts, procedural patterns and concepts. The affective domain of students has to do with emotions, attitudes, beliefs and values, which are assumed in the interactions which takes place during the teaching and learning of Mathematics. Iyalla and Kakraba (2022) opined that the affective domain of students in the study of Mathematics refers to students' emotions, attitudes, belief, values, motivations, interest and engagement towards Mathematics.

Many students have the perception that Mathematics is a difficult subject, some have phobia for it and some hate it. When students see Mathematics as boring, it simply leads to reduced or lack of interest in the subject. It is a fact that students have low interest in Mathematics. Most students have this belief that Mathematics has no relevance in their day to day activities and as such their interest is channelled to other subjects. Many students do not even see what the subject matter of Mathematics can offer. Owora and Chika (2019) stated that it is unfortunate that many Nigerian students do not have the required interest needed to study the subject successfully. Anigbo (2016) asserted that the incessant poor achievement in Mathematics in schools may be attributed to students' lack of interest to learn the subject.

Interest can be defined as a subjective feeling of curiosity over something. The interest one has in a particular thing is a feeling manifested in an activity (Usman, 2010). To have interest in something means to have a strong feeling of curiosity, enthusiasm, and engagement towards a particular activity, subject, or topic. For students to have interest in Mathematics, it then means that they have the zeal or passion to learn the subject. It means they should derive pleasure and satisfaction from studying Mathematics. Edward (2023) opined that interest and motivation work hand in hand. This is because motivation is the drive or force that propels an individual to participate in a given activity. A student that have interest in Mathematics should actively participate and invest time and effort in the learning of the subject. When students do not feel fulfilled and happy when engaged with Mathematics, it indicates lack of interest. Anyanwu (2022) opined that interest can be diverse and varied, ranging from hobbies, sports, creative pursuits to academic subjects, professional fields and personal development activities. The interest of academic subjects is very crucial in education since the level of interest can mar or improve students' achievement in the subjects. It therefore lies in the onus of the Mathematics teacher who is the implementer of the Mathematics curriculum to devise strategies which can be put into practice to arouse students' interest in the subject. To arouse students' interest in Mathematics learning means to spark or generate their curiosity, enthusiasm, and passion for learning Mathematics. It involves creating an engaging and motivating environment that makes Mathematics enjoyable, relevant, and meaningful to students' lives. By arousing students' interest in Mathematics learning, motivation, confidence and overall academic achievements in the subject can be increased. Arousing students' interest in Mathematics learning is crucial for their academic success and lifelong appreciation of Mathematics.

Some ways to arouse students' interest in Mathematics learning include the following

1. Making the teaching of Mathematics relevant by connecting Mathematics to real-life scenarios, careers or current happenings.
2. Engaging students in hands-on activities such as puzzles, math games and projects
3. Use of narratives or story telling by sharing historical anecdotes, Mathematics related myths or personal experiences.
4. Mathematics club activities and excursions
5. Visualization of mathematical concepts via multiple representation modes by utilizing graphs, charts, diagrams, videos, technology
6. Foster creativity by encouraging students to create math-inspired art, music, or writing.
7. Invite guest speakers and host mathematically inclined educators and professional to mentor students.

Arousing students' interest is one side of the coin. Graves (2020) stated that when interest of students' is aroused, it declines soonest if other set of strategies are not put in place to sustain the aroused interest. Interest as defined by Owara and Chika (2019) is a motivation drive or force that propels an individual in a particular direction. However, it means that for a person to be interested in a particular task or subject, an element of willingness is involved. A student is said to be interested when he/she is willingly engaging in Mathematical activities. According to Okigbo and Okere (2011), the low interest of students in Mathematics emanates from anxiety and fear, and this is expressed from their faces in Mathematics classes. The errors students make are largely as a result of deficits in teachers teaching strategies (Anaduaka, 2011).

Teaching strategy is a major cause of lack of interest and poor achievement in Mathematics at all levels of education. The strategies adopted by the teachers do not

sustain the development of student's interest in Mathematics. For instance, the lecture instructional strategy is teacher centred. The teacher begins the class by reviewing, then teaches the new lesson and finally gives a take-home assignment. This will be boring and will diminish students' interest in Mathematics because the students' at that point are just passive learners and not active learners. Involving students in relevant Mathematics activities in and outside the class, making it fun can sustain the students' interest in Mathematics.

The development of any nation lies in her ability for strategies that can arouse the interest of the students to love and embrace Mathematics, science and technology. Engaging students into Mathematics clubs can offer them opportunity to practically study mathematical principles and theorems. It can promote mathematical discussion and debate among the students and also aim to be a platform for people to communicate their mathematical interest. The activities of Mathematics club could help students develop interest, attitude of hard work and love for Mathematics. Students will not only learn new things, but will apply their previous knowledge from school to solve challenging problems. Mathematics is a subject full of creativity and opportunity that many students enjoy. The state of today's world is the emphasis of technological and scientific development. Mathematics could provide an opportunity for students to try their hands on activities that could aid outside their Mathematics classes, thus, bridging the gap between theory and practice. However, a learner learns better if the interest is sustained. The poor alarming state of Mathematics education in schools as revealed by the student's dismal performance in public examination such as SSCE and JAMB calls for an urgent need to constantly seek ways of improving the teaching and learning of Mathematics. Such efforts could be geared towards evolving new strategies and total transformation of the Mathematics education programme.

Teachers often develop instructional strategies that they thought is appropriate for teaching each topic in their lessons, with the aim of attaining the desired change of behaviours of learners, but fail to realize the instructional strategy can be patterned in a way that will stimulate learners' interest to achieve effective learning outcome. Ukobizaba et al., 2019) posited that Mathematics is a difficult subject and student's needs motivation to learn them. This research therefore is aimed to investigate strategies needed to arouse and sustain the interest in Mathematics education in senior secondary school levels.

Statement of the problem

Students' have low interest in Mathematics and perform poorly in the subject. This is as a result of teachers' teaching method, low understanding Mathematics concept, lack of instructional material for effective teaching. The annual senior secondary certificate examinations showed that performance of students in Mathematics is generally poor. Students find it difficult to make meaning in the learning of Mathematics which they see as abstract, difficult and uninteresting. The poor performance of senior secondary students have been of great concern among Mathematics teachers, school administrators, parents and the general public because Mathematics, science and technology are the wheels of a progressive society. It is therefore perceived that teachers need to develop instructional strategies that will increase the interest of student in learning Mathematics. Therefore, this study intends to investigate strategies in arousing and sustaining the interest of students in Mathematics education in senior secondary school levels.

Aim and objectives of the study

The aim of the study was to investigate the strategies of arousing and sustaining students' interest in Mathematics education in senior secondary school. The specific objectives were to:

1. Determine senior secondary students' interest in the learning of Mathematics.
2. Ascertain the strategies used for arousing senior secondary students' interest in Mathematics.
3. Ascertain the strategies used for sustaining senior secondary students' interest in Mathematics.
4. Determine the various ways senior secondary students can be motivated to develop interest in Mathematics.

Research questions

The following research questions guided the study.

1. What is senior secondary students' interest profile in learning Mathematics?
2. What instructional strategies can be used to arouse senior secondary students' interest in Mathematics?
3. What instructional strategies can be used to sustain senior secondary students' interest in Mathematics?
4. How can senior secondary students be motivated to develop interest in Mathematics?

Hypotheses

The following hypotheses were tested at 0.05 significant level.

Ho_1: There is no significant difference in the mean response of the male and female students on senior secondary students' interest profile in learning Mathematics.

Ho_2: There is no significant difference in the mean response of the male and female students on the

instructional strategies that can be used to arouse senior secondary students' interest in Mathematics.

Ho_3: There is no significant difference in the mean response of the male and female students on the instructional strategies that can be used to sustain senior secondary students' interest in Mathematics.

Ho_4: There is no significant difference in the mean response of the male and female students on the various ways senior secondary students can be motivated to develop interest in Mathematics.

METHODOLOGY

This study employed the descriptive survey research design. The study consist of one thousand seven hundred and three (1,703) public senior secondary one (SS1) students in Aba North Local Government Area of Abia State, Nigeria. Purposive sampling technique was used to draw a sample of three hundred and fifty (350) senior secondary one (SS1) students from the population of the study. The instrument that was used to collect the data for the study was a researcher structured questionnaire named "Students' Interest in Mathematics Questionnaire" (SIMQ). The instrument was made up of two sections namely, A and B. Section A was made up of the demographic information of the respondents. Section B was made up of 20 items rated on a modified 4-point Likert scale of Strongly Agree (SA=4), Agree (A=3), Disagree (SD=2) and Strongly Disagree (SD=1). The items of the instrument addressed the four objectives. Items 1-5 address objective one, items 6-10 addressed objective two, items 11-15 addressed objective three, and items 16-20 addressed objective four. The criterion mean for SIMQ was 2.5. Three experts in Mathematics education validated the instrument. The face and content validity were carried out by the experts. Corrections pointed out by the Mathematics educators were used to improve the instrument before usage. Crombach alpha method was used to ascertain the internal consistency of the instrument. A reliability index of 0.86 was established for SIMQ. The instrument was administered by the researcher with the help of two research assistants. It was administered on a face to face mode and returned fully on the same day after completion to avoid loss of instruments. The mean and standard deviation were used to answer the research questions, while the t-test statistic was used to test the hypotheses at 0.05 level of significance.

RESULTS

Research question one: What is senior secondary students' interest profile in the learning of Mathematics?

Table 1 shows the mean responses of senior secondary students on the interest profile in learning Mathematics. From Table 1, it can be deduced that students disagreed with items 1, 2, 4 and 5 because the mean responses of these items were below the criterion mean of 2.5 as stated in the study. Students agreed with item 3 because the mean responses of item 3 is above the criterion mean of 2.5.

Research question two: What instructional strategies can be used to arouse senior secondary students' interest in Mathematics?

Table 2 shows the mean responses of senior secondary students on the instructional strategies that can be used to generate students' interest in Mathematics. From the (Table 2), it can be deduced that students disagreed with only item 10 because the mean of item 10 is below the criterion mean of 2.5 as stated in the study. Students on the other hand agreed with items 6, 7, 8 and 9 because the mean responses of items 6, 7, 8 and 9 are above the criterion mean of 2.5.

Research question three: What instructional strategies can be used to sustain senior secondary students' interest in Mathematics?

Table 3 shows the mean responses of senior secondary students on the instructional strategies that can be used to sustain students' interest in Mathematics. From Table 3, it can be deduced that students did not disagree with any item but rather agreed with all the items 11, 12, 13, 14 and 15. The mean responses of all items in this sub section are above the criterion mean of 2.5.

Research question four: How can senior secondary students be motivated to develop interest in Mathematics?

Table 4 shows the mean responses of senior secondary students on ways students can be motivated to develop interest in Mathematics. From (Table 4), it can be deduced that students did not disagree with any item but rather agreed with all the items 16, 17, 18, 19 and 20. The mean responses of all items in this sub section are above the criterion mean of 2.5.

Ho_1: There is no significant difference in the mean response of the male and female students on the senior secondary students' interest profile in learning Mathematics.

Table 5 shows the t-test analysis of the mean responses of the male and the female students on the interest profile in learning Mathematics. The analysis in (Table 5) indicated that there was no significant difference in the mean response of the male and female students on the interest profile in learning Mathematics. The significant difference was revealed as the t-cal = 1.27 < t-crit =1.96 at 0.05 significant level and 348 df. H_{01} was therefore retained.

Table 1: Mean and standard deviation of senior secondary students' interest profile in the learning of mathematics.

ITEMS	Meann = 350	SD	Decision
I like mathematics since elementary school	1.68	0.53	Disagree
I am excited to attend mathematics classes	2.01	0.79	Disagree
I do mathematics exercises without teachers' guidance	2.60	1.25	Agree
I understand mathematics lessons easily	1.74	0.97	Disagree
I am confident with my own ability and effort in studying mathematics	1.28	0.64	Disagree
Grand Mean	**1.86**	**0.82**	**Disagree**

Criterion Mean = 2.5

Table 2: Mean and standard deviation on instructional strategies used to generate students' interest in mathematics.

ITEMS	Mean n = 350	SD	Decision
Mixed modes of assessment (homework, quiz)	2.96	0.73	Agree
Cooperative learning	3.04	0.52	Agree
Games and puzzles	3.51	1.08	Agree
Encouraging collaboration and competition	2.66	0.79	Agree
Strategic questioning	1.62	0.65	Disagree
Grand Mean	2.76	0.88	Agree

Criterion Mean = 2.5

Table 3: Mean and standard deviation on instructional strategies used to sustain senior secondary students' interest in mathematics.

ITEMS	Mean n = 350	SD	Decision
Reinforcement and Reward	3.25	0.63	Agreed
Formation of mathematical club	2.78	0.91	Agreed
Teachers' methodology	2.54	0.78	Agreed
Use of instructional materials	3.08	1.01	Agreed
Implementation of tasks that promote reasoning and problem-solving	2.91	0.85	Agreed
Grand Mean	2.91	0.93	Agreed

Criterion Mean = 2.5

Table 4: Mean and standard deviation on ways students can be motivated to develop interest in mathematics.

ITEMS	Mean n = 350	SD	Decision
Creating cohesive learning environment	3.83	0.83	Agreed
Using technology in classroom	3.45	0.75	Agreed
Induce friendly competition	2.69	1.21	Agreed
Mathematics should be enthusiastic while teaching	2.70	1.07	Agreed
Teachers should help boost students' confidence	3.53	0.64	Agreed
Grand Mean	**2.84**	**0.77**	**Agreed**

Criterion Mean = 2.5

Table 5: t-test analysis on the mean response of the male and female student's interest profile in the learning of mathematics.

Gender	n	Mean	SD	Df	Sig. Level	t_{cal}	t_{cri}	Decision
Male	146	1.60	0.58	348	0.05	1.27	1.96	NS
Female	204	2.12	1.21					

*NS =Not Significant

Ho_2: There is no significant difference in the mean response of the male and female students on the instructional strategies that can be used to generate senior secondary students' interest in Mathematics.

Table 6 shows the t-test analysis of the mean responses of the male and the female students on the instructional strategies that can be used to generate students' interest in Mathematics. The analysis in (Table 6) indicated that there was no significant difference in the mean response of the male and female students on the instructional strategies used to generate students' interest in Mathematics. The significant difference was revealed as the t-cal = 1.52 < t-crit =1.96 at 0.05 significant level and 348 df. H_{02} was therefore retained.

Ho_3: There is no significant in the mean response of the male and female students on the instructional strategies that can be used to sustain senior secondary students' interest in Mathematics.

Table 6: t-test analysis on the mean response of the male and female students on instructional strategies used to generate students' interest in mathematics.

Gender	n	Mean	SD	Df	Sig. Level	t_{cal}	t_{cri}	Decision
Male	146	2.52	0.95	348	0.05	1.52	1.96	NS
Female	204	3.06	0.73					

*NS =Not Significant

Table 7: t-test analysis on the mean response of the male and female students on instructional strategies used to sustain senior secondary students' interest in mathematics.

Gender	N	Mean	SD	Df	Sig. Level	t_{cal}	t_{cri}	Decision
Male	146	3.28	0.83	348	0.05	1.36	1.96	NS
Female	204	2.54	1.75					

*NS =Not Significant

Table 8: t-test analysis on the mean response of the male and female students on the various ways students can be motivated to develop interest in mathematics.

Gender	N	Mean	SD	Df	Sig. Level	t_{cal}	t_{cri}	Decision
Male	146	2.95	0.58	348	0.05	0.82	1.96	NS
Female	204	2.73	1.21					

*NS =Not Significant

Table 7 shows the t-test analysis of the mean responses of the male and the female students on the instructional strategies used to sustain senior secondary students' interest in Mathematics. The analysis in T(able 7) indicated that there was no significant difference in the mean response of the male and female students on the mean responses of the male and the female students on the instructional strategies used to sustain senior secondary students' interest in Mathematics. The significant difference was revealed as the t-cal = 1.36 < t-crit =1.96 at 0.05 significant level and 348 df. H_{03} was therefore retained.

Ho_4: There is no significant difference in the mean response of the male and female students on the various ways senior secondary students can be motivated to develop interest in Mathematics.

Table 8 shows the t-test analysis of the mean responses of the male and the female students on the various way students can be motivated to develop interest in Mathematics. The analysis in (Table 8) indicated that there was no significant difference in the mean response of the male and female students on the mean responses of the male and the female students on the various way students can be motivated to develop interest in Mathematics. The significant difference was revealed as the t-cal = 0.82 < t-crit =1.96 at 0.05 significant level and 348 df. H_{04} was therefore retained.

DISCUSSION

Table 1 shows the mean responses of senior secondary students on the interest profile in learning Mathematics. From (Table 1), it can be deduced that students disagreed with items 1, 2, 4 and 5 because the mean responses of these items were below the criterion mean of 2.5 as stated in the study. Students agreed with item 3 because the mean responses of item 3 is above the criterion mean of 2.5. This result is in agreement with the finding of Aziz (2021) which showed that the interest profile of students in the learning of Mathematics is low. When subjected to statistical test, the result indicated that there was no significant difference in the mean response of the male and female students on the interest profile in learning Mathematics. The significant difference was revealed as the t-cal = 1.27 < t-crit =1.96 at 0.05 significant level and 348 df. H_{01} was therefore retained. This result agrees with the result of Ugbepe and Yalunde (2020) whose result showed that there was no significant difference in the mean responses of the male and female students.

The result also showed that students disagreed with only item 10 because the mean of item 10 is below the criterion mean of 2.5 as stated in the study. Students on the other hand agreed with items 6, 7, 8 and 9 because the mean responses of items 6, 7, 8 and 9 are above the criterion mean of 2.5. When subjected to statistical analysis, the result showed that there was no significant difference in the mean response of the male and female students on the instructional strategies used to generate students' interest in Mathematics. The significant difference was revealed as the t-cal = 1.52 < t-crit =1.96 at 0.05 significant level and 348 df. H_{02} was therefore retained. This result is in agreement with result of Hellen (2021), Eben (2020) whose finding revealed that there was no significant difference in the mean responses of the male and female students in the instructional strategies that can be used to arouse students' interest in the leaning of Mathematics.

Table 3 shows the mean responses of senior secondary students on the instructional strategies that can be used to sustain students' interest in Mathematics. From (Table 3), it can be deduced that students did not disagree with any item but rather agreed with all the items 11, 12, 13, 14 and 15. The mean responses of all items in this sub section are above the criterion mean of 2.5. Table 7 shows the t-test analysis of the mean responses of the male and the female students on the instructional strategies used to sustain senior secondary students' interest in Mathematics. The analysis in (Table 7) indicated that there was no significant difference in the mean response of the male and female students on the mean responses of the male and the female students on the instructional strategies used to sustain senior secondary students' interest in Mathematics. The significant difference was revealed as the t-cal = 1.36 < t-crit =1.96 at 0.05 significant level and 348 df. H_{03} was therefore retained. This result is in line with the result of Omoniboma (2019), however, it disagrees with the result of (Echendu, 2017).

Table 4 shows the mean responses of senior secondary students on ways students can be motivated to develop interest in Mathematics. From (Table 4), it can be deduced that students did not disagree with any item but rather agreed with all the items 16, 17, 18, 19 and 20. The mean responses of all items in this sub section are above the criterion mean of 2.5.

Table 8 shows the t-test analysis of the mean responses of the male and the female students on the various way students can be motivated to develop interest in Mathematics. The analysis in (Table 8) indicated that there was no significant difference in the mean response of the male and female students on the mean responses of the male and the female students on the various way students can be motivated to develop interest in Mathematics. The significant difference was revealed as the t-cal = 0.82 < t-crit =1.96 at 0.05 significant level and 348 df. H_{04} was therefore retained.

Conclusion

Based on the results, this study concluded that the interest profile of students in the learning of Mathematics is low. There are instructional strategies that the Mathematics teacher can put in place to arouse the interest of students in the learning of Mathematics. There are also more instructional strategies that the Mathematics teachers can employ to sustain the aroused students' interest and also motivate them in the learning of Mathematics at the senior secondary school level.

Recommendations

It was recommended based on the results of the study that:

1. Mathematics teachers should ensure that students' interest profile in Mathematics is considered during classroom instruction.
2. Mathematics teachers should employ the relevant strategies to arouse senior secondary students' interest in Mathematics.
3. Mathematics teachers should put in the various identified instructional strategies to sustain senior secondary students' interest in the learning of Mathematics.
4. Students should be encouraged to have a positive inclination towards the motivation that teachers embark upon in the learning of Mathematics.

REFERENCES

Anigbo, L. C. (2016). Factors affecting students' interest in Mathematics in secondary schools in Ebugu State. *International Journal of Education and Evaluation, 2*(1), 22-28. www.iiardpub.org

Anyanwu, L. (2022). *Mathematics teaching and learning in schools.* Melford Press.

Eben, L.V. (2020). Effect of students' learning outcomes on the academic performance of secondary school students in Mathematics. *Journal of Science Education in Developing Areas, 3*(6),201-213.

Echendu, T. N. (2017). The implication of students' interest in the nation. Journal of Social Sciences, 6,(1), 67-80.

Edward, L. F. (2023). *Introduction to Mathematics education.* Tenth Mile Publishers.

George, K.S., Udo, R., & Peters, U.U. (2022). *Education and Mathematics boosting.* Mayfair Publications.

Graves, U.O. (2020). Optimization of students' interest and academic performance in Mathematics and sciences for sustainable national development. *Eurasia Journal of Education, 1,(*1), 27-39.

Hellen, G. (2021). Impact of students' interest profile on the academic performance of students in Mathematics in Rivers State. *Journal of Education and Development, 5*(2), 77-89.

Iyalla, I. O., & Kakraba, E. Q. (2022). Development of students'cognitive, affective, and psychomotor domains of learning in Mathematics. In N. Wonu & N.R. George (Eds.), Problem-solving and critical issues in Mathematics education, (pp.180-187). Ignatius Ajuru University Press.

Owora, N. O., & Chika, C. U. (2019). Strategies for arousing students' interest in Mathematics. Abacus (Mathematics Education Series), 44(1), 201-210. https://man-nigeria.org.ng

Ugbepe, S.D., & Yalunde, H. (2020). Students' performance in the learning of Mathematics at the private and public secondary school. *International Journal of Computational Mathematics, 1*(2), 119-126.

Ukobizaba, L., Uzochukwu, K.R., & Michael, P.P. (2019). Generating and sustaining students' interest in Mathematics. *Journal of Issues in Science and technology, 2*,31-47.