



# **The Perception of Teachers on the Causes and Effects of Mathematics Phobia Among Secondary School Students in Gboko Local Government Area of Benue State**

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## **ABSTRACT**

The study examined the perception of teachers on the causes and effects of mathematics phobia among secondary school students in Gboko Local Government Area of Benue State. Descriptive research design was adopted for the study. Simple random sampling techniques was used to sample one hundred and seven (107) respondents from the seven secondary schools in the Local Government. Self-constructed questionnaire titled "Teacher's Perception on the Causes and Effects of Mathematics Phobia among Secondary School Students (TPCEMPSSS) was used to collect data from the respondents. The instrument was structured on four Likert Scale of Strongly Agree (SA=4 points), Agree (A=3 points), Disagree (D=2 point) and Strongly Disagree (SD=1 points). The mean score and standard deviation was used to answer the research question. Any item with a mean score of 2.50 and above were accepted and the Chi-square ( $\chi^2$ ) statistical method was used to test the general null hypotheses at 0.05 level of significant. The study revealed the teachers' perception is that majority of the secondary school students in the Local Government develop phobia towards mathematics for just no causes which invariably affects their studies habits in mathematics and negatively affects their performance in mathematics. The study also indicates the teachers' perception is that mathematics phobia has effect on secondary school students in the Local Government.

**Key words:** Teachers, Perception, Mathematics Phobia, Students.

## **Introduction**

Mathematics is a universal, utilitarian subject that is needed for everyone in their life. It is an integral part of the curriculum throughout the countries in the world. It is an interdisciplinary language and tool that is considered as one of the fundamentals in the formal educational system (Roy, 2011). Mathematics is the means of sharpening the individual's mind, shaping his reasoning ability and developing his personality, hence, its immense contribution to the general and basic education of the people of the world (Asiedu-Addo and Yidana, 2000). Mathematics is an essential requirement in every field of intellectual endeavor and human development to cope with the challenges of life of which one of the challenges is mathematics phobia (Ihechukwu & Ugwuegbulam, 2016).

Phobia is viewed as a mental health disorder in students and it is on the students' performance and their interest in mathematics. According to Femihafiz et al., (2022), Phobia can be seen as a type of anxiety disorder or a mental illness that makes someone very worried about event issues that affects their life. It involves an extreme fear of something or irrational fear of a specific situation, activity and object or that leads to compelling desire to avoid it (American Psychiatric Association, 2013). The term 'phobia' according to Arem (2010) is abstracted from the Greek word "phobos" meaning fear, panic fear, or terror (extremely fear). In the simple terms, the meaning of phobia is "fear". Mathematics phobia is regarded as mathematics weakness in students that deals with psychological dimension of learning (Olaniyan and Salman, 2015). Roy (2011) defined phobia as learned emotional responses and it causes frequent severe and intense anxiety. The mathematics phobia is classified into two types as general and specific arithmophobia or numerophobia. General arithmophobia is the fear of all numbers that can seriously affect the ability of the students to do or attend to mathematic problems. Mathematics phobia can occur due to different causes. As concluded by Ihechukwu, and Ugwuegbulam (2016), lack of different aspects related to teaching learning like: good teacher-student relationship, use of students-centered/innovative approach of teaching, counseling, positive attitude towards mathematics, improved mathematics curriculum, breaking down topics into units, application of ICTs in teaching mathematics etc, can cause mathematics phobia. According to Foley, et al., (2017), mathematics anxiety is learned not from personal experience but from parents and teachers. (Stadler & Walitza, 2021) view that, young persons are more susceptible to their immediate surroundings than adults, and they have less resources and past experiences to cope with stressful occurrences (Stadler & Walitza, 2021). As a consequence of their sentiments of insecurity, students are more impacted by stressful events. Individual, family, or parental-related risk and resilience variables impact the amount and capacity of children and adolescents to cope (Stadler & Walitza, 2021). Across the country people sees that mathematics is frequently considered as difficult. Phobia problems plague millions of students, according to the Child's Mental Health Report (2018), and hinder them from realizing their full potential. Phobia is a gateway disorder that may lead to despair, school

failure, suicide, and drug misuse if left untreated. Because students are often relatively young when phobia hits, they learn to suffer in quiet from an early age. According to (Ghandour, & Blumberg, 2018) Worry, problems with ambiguity, an excessively reactive reaction to perceived dangers (including freezing), and avoidance are the characteristics of mathematics phobia. Some students avoid or become extremely terrified of school topics, events or items that arouse their phobias, while others respond with wrath and terror. This conduct is sometimes misinterpreted as fury or disagreement. Few instructors identify the considerable suffering suffered by secondary school students with phobias or social anxiety disorder, and their issues may be ascribed to "shyness". (Salman, 2015) stated that many secondary school students are unaware that their unreasonable emotions might be the consequence of a curable ailment rather than a character failing. Considering the relevance attached to the study of mathematics with respect to its contributions in scientific, Technological and Economic development of a nation, mathematics phobia has the possibility of causing poor performance in mathematics and overall academic accomplishment of children.

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### **Purpose of the Study**

The main purpose of this study was to find out the perception of teachers on the causes and effects of mathematics phobia among secondary school students. Specifically, the study sought to ascertain;

1. Teachers' perceived causes of mathematics phobia among secondary school students.
2. The perception of Teachers on the effects of mathematics phobia on secondary school students.

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### **Research Questions**

The following questions were asked to guide this study:

1. What is the perception of teachers on the causes of mathematics phobia among secondary school students?
2. What is the perception of teachers on the effects of mathematics phobia among secondary school students?

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### **Research Hypothesis**

The hypothesis was formulated and tested at 0.05 level of significance;

**H<sub>01</sub>:** Mathematics phobia has no significant effects on secondary school students

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### **Methodology**

This study employed the survey design. The study was carryout in Gboko Local Government Area of Benue State in Nigeria. A simple random sampling was used to select seven (7) secondary schools in Gboko Local Government Area for the study. These seven (7) secondary schools was randomly selected from the fifty-five (55) secondary schools from the four zones of the Local Government Area, seven schools were selected using the hat-and draw sampling methods to avoid biases and to enhance a true representation of the entire school population in the area. The choices of the schools were based on the fact that they have mathematics lessons. The total number of sample and sampling size of 107 teachers were considered for this study. A self-structure questionnaire titled Teacher's Perception on the Causes and Effects of the Mathematics Phobia among Secondary School Students (TPCEMPSSS) was administered to gather information's from the secondary school mathematics teachers in the Local Government. The researcher traveled to the selected schools and seeks permission to the principals of the selected schools for access to carry out the research. Questionnaires were administered to the respondents by the researcher. The respondents were guided throughout the exercise and responses were collected back at the end. The research questions were answered using descriptive statistics of mean and standard deviation while Chi-square ( $\chi^2$ ) was used to test the hypotheses at 0.05 level of significance.

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### **Result**

#### **Research Question One**

What is the perception of teachers on the causes of mathematics phobia among secondary school students?

**Table 1: Mean and standard deviation of the perception of teachers on the causes of mathematics phobia among secondary school students**

S/No	Items	N	Mean	SD	Remark
1	I believe that students run away from mathematics because of the mathematics teacher	107	2.81	1.028	Accepted
2	I believe students run away from mathematics because of the abstracts nature of mathematics	107	3.06	1.008	Accepted
3	I believe that students lost interest in mathematics because of their inability to solve mathematical problem	107	3.41	0.789	Accepted
	Total	107	3.09	0.942	Accepted

The result from table 1 indicates that the mean for item 1 to 3 are 2.81, 3.06 and 3.41 with standard deviation of 1.028, 1.008 and 0.789 respectively. These results also show that all the 3 items were above the bench mark of 2.50, this implies that all the questions rated as possible causes of mathematic phobia among the secondary school students in Gboko local government area were accepted. Hence the total grand mean score was 3.09 with the standard deviation of 0.942 which is greater than criterion mean of 2.50. Therefore, this result shows that the mathematics teachers agreed with the statements which state that students run away from mathematics because of the mathematics teacher, students run away from mathematics because of the abstracts nature of mathematics, and students lost interest in mathematics because of their inability to solve mathematical problem are the causes of mathematics phobia among secondary students in Gboko local government area of Benue state.

### Research Question Two

What is the perception of teachers on the effects of mathematics phobia among secondary school students?

**Table 2: The mean and standard deviation of the perception of teachers on the effects of mathematics phobia among secondary school students**

S/No	Items	N	Mean	SD	Remark
4	The fear of mathematics has lower the performance of students in the subject	107	3.66	0.565	Accepted
5	The fear of mathematics has reduced the students' ability to focus on the tasks-focused goals of mathematics computation	107	3.52	0.620	Accepted
6	The fear of mathematics has limit the students' ability to produce quality answers to mathematical tasks	107	3.36	0.770	Accepted
	Total	107	3.51	0.652	Accepted

The result from table 2 indicate that the mean for item 4 to 6 are 3.66, 3.52 and 3.36 with standard deviation of 0.565, 0.620 and 0.770 respectively, these results also shows that all the 3 items which are item 4 to 6 were above the bench mark of 2.50, this implies that all the questions rated as possible effects of mathematic phobia among the secondary school students in Gboko local government area were accepted. Hence the total grand mean score was 3.51 with the standard deviation of 0.652 which is greater than criterion mean of 2.50. Therefore this result shows that the mathematics teachers agreed with the statements which state that the fear of mathematics has lower the performance of students in the subject, the fear of mathematics has reduced the students' ability to focus on the tasks-focused goals of mathematics computation, and the fear of mathematics has limited the students' ability to produce quality answers to mathematical tasks is the effects of mathematics phobia among secondary school students in Gboko local government area of Benue state.

### Hypothesis One

Mathematics phobia has no significant effects on secondary school students.

**Table 3: Chi-square statistics for the perception of teachers on the causes and effects of mathematics phobia among secondary school students**

Chi-square	Degree of freedom	Asymp. Significance	Decision
103.854 <sup>a</sup>	3	0.000	Rejected

The result from table 3 indicate the p-value is 0.000 is less than 0.05. Hence the null hypothesis which states that mathematics phobia has no significant effects on secondary school students is rejected. This implies that mathematics phobia has effects on secondary school students in Gboko local government area of Benue state.

## Discussion of Findings

The result from table 1 revealed that the teachers' perception is that majority of the secondary school students in Gboko Local Government Area develop phobia towards mathematics for just no cause which invariably affect their studies habit in mathematics and negatively affects their academic performance in mathematics. This commensurate Hornigold (2015) who was recounting from experience remarked that one's Involvement in the marking of mathematics in the WASSCE is enough to get any one sorrowful at the state of mathematics in secondary schools. He stated that candidates would even submit their answer scripts without writing anything in them; some merely recopy the questions; while a high percentage of those who try to write something are mostly involve in cheating.

The result from table 1 indicates that the mean for item 1 to 3 are 2.81, 3.06 and 3.41 with standard deviation of 1.028, 1.008 and 0.789 respectively. These results also show that all the 3 items were above the bench mark of 2.50, this implies that all the questions rated as possible causes of mathematic phobia among the secondary school students in Gboko local government area were accepted. Hence the total grand mean score was 3.09 with the standard deviation of 0.942 which is greater than criterion mean of 2.50. Therefore, this result shows that the mathematics teachers agreed with the statements which state that students run away from mathematics because of the mathematics teacher, students run away from mathematics because of the abstracts nature of mathematics, and students lost interest in mathematics because of their inability to solve mathematical problem are the causes of mathematics phobia among secondary students in Gboko local government area of Benue state. This finding agreed with the finding of Kunwa (2020) who found that mathematics phobia exists among students, which are characterized into negative perception of the students towards mathematics and others. The main causes of mathematics phobia include test and examination, individuals, teachers, parents, peers and nature of mathematics. The finding also agree with the finding of Ihechukwu, Ugwuegbulam (2016) who revealed that there are other factors, teacher's method of teaching, teacher-students relationship, and use of abusive words on students as the causes of mathematics phobia among students.

The result for table 3 shows that the p-value is 0.000 less than 0.05 which implies that mathematics phobia has effects on secondary school students in Gboko local government area of Benue state. This finding agreed with the finding of Kunwa (2020) who found that mathematics phobia exists among students, which are characterized into negative perception of the students towards mathematics and others. The main causes of mathematics phobia include test and examination, individuals, teachers, parents, peers and nature of mathematics. The finding also agreed with the finding of Ihechukwu, Ugwuegbulam (2016) who revealed that there are other factors, teacher's method of teaching, teacher-student's relationship, use of abusive words on students as the causes of mathematics phobia among students which invariably affect their studies habit in mathematics and negatively affects their academic performance in mathematics.

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## Recommendation

The following recommendations are made based on the finding of the study 1.

1. Mathematics teachers should not overload mathematics tasks on secondary school students in order to avoid mathematics phobia
2. The school administrators should create mathematical workshop in the school for the students in order to improve mathematical study habits and skills to avoid phobia towards mathematics
3. The State Ministry of Education with help of the Federal Government should find a way of helping these secondary school students to overcome mathematics phobia
4. The school administrators should have employed professional mathematics teachers that would help the students develop positive attitude towards mathematics
5. The mathematics teachers with help of parents should also create ways of helping these students to overcome mathematics phobia

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## Suggestion for Further Studies

The following suggestions are proposed for further study;

1. A study should be carried out to examine the factors that causes mathematics phobia among secondary school students.
2. This study should be replicated in other local government in Benue state to examine the perception of teachers on the causes and effects of mathematics phobia among secondary school students.

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## Conclusion

The result has revealed the perception of teachers on the causes and effects of mathematics phobia among secondary school students in Gboko local government area of Benue state. It is good to have at least a little knowledge on the causes and effects of mathematics phobia among secondary school students. This knowledge would aid the Federal and state Ministry of education decision that would help the secondary school students to overcome mathematics phobia that exist among them. Further research would need to be under taken to examine the factors that causes mathematics phobia among secondary school students.

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## Reference

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th Ed.). Arlington, VA: Autho
- Arem, C. (2010). *Conquering Math Anxiety*, 3rd Ed. Belmont, CA: Brooks/Cole. pp. xxi. Retrieved May 19, 2021 from [www/http.mathematicphobia.edu.org](http://http.mathematicphobia.edu.org).
- Children's Mental Health Report (2081), Understanding Anxiety in Children and Teens.

- Foley, A. E., Herts, J. B., Borgonovi, Guerriero, S., Levine, S. C., & Beilock, S. L. (2017). The math anxiety-performance link: A global phenomenon. *Current Directions in Psychological Science*
- Foley, A. E., Herts, J. B., Borgonovi, Guerriero, S., Levine, S. C., & Beilock, S. L. (2017). The math anxiety-performance link: A global phenomenon. *Current Directions in Psychological Science*, 26, 52-58.
- Hornigold, J. (2015). Dyscalculia pocketbook. *Place of publication not identified: Management Pocketbooks*
- Ihechukwu, N. B. & Ugwuegbulam, O. C. (2016). Causes and solutions of mathematics phobia among secondary school students. *Journal of Humanities and Social Sciences*. 6(4) 172 –183
- Olaniyan, M. O. & Salman, M.F. (2015). Causes of mathematics phobia among senior school students: Empirical evidence from Nigeria. *The African Symposium* 15(1), 50-56
- Roy, A. (2011). *The enigma of creation and destruction*. Bloomington, IN: Author House
- Salman, W.D. (2015) Nonlinear Behavior of Reinforced concrete Contineering Research & Technologyn (IJERT), 4,2278-2281 <https://doi.org/10.17577/IJERTV4IS040460>. *Science*, 26, 52-58
- Stadle, C.; Walitza, S. Risikofaktorer (2021). Und Resilienz fur die kindliche Entwicklung in der COVID 19 Krise. *Inncovide-19 Ein virus Nimnit Einfluss aufnunsere psyche*.
- Kunwar Rajendra, (2020) Mathematics Phobia: Causes, Symptoms And Ways To Overcome [www.ijert.org](http://www.ijert.org) © 2020 IJCRT | Volume 8, Issue 8 August 2020 | ISSN: 2320-2882