

A Comprehensive Study on Math Fears in Bangladeshi Students: Problems and Solution

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ABSTRACT

Mathematics is one of the most used subjects in the world. In Bangladesh, it is introduced here at the primary level and its inclusion continues till the secondary level of education. A student has to study this subject as a compulsory subject for ten years of education. However, after ten years' education of math, most of the students fail in mathematics. Even if they pass, they get very poor marks. The purpose of this study is to examine the views of math fears in Bangladeshi students including primary level to University. This study is qualitative measure. Researcher has taken interview and opinion from the students, parent's teachers individually. The article seeks to examine the disposition of mathematics fear. It studies about the fear of mathematics, its causes, symptoms and ways to overcome regarding the school level students. The suggestions would be presented at the end of the paper for best practices to alleviate students' math fear after findings the actual problems.

Keyword: Mathematics, Math Fear, Education, Parents, Faculty

1. Introduction:

Mathematics is a branch of science that began with the history of humanity. At first, it came to light with basic counting, simple addition and subtraction problems. The development of civilization science and technology, mathematics appears to be the most developed branch of science. This is because the universe is written in a mathematical language and all kinds of information needs to mathematics. Mathematics has taken part largely in human life and in science, the important given to teaching of mathematics increases as well. At every step of teaching from pre-school to university, and also in many exams such as SBS, LYS, YGS, ALES, mathematics appears and math questions take place. The aim of the mathematics teaching can be summarized as follows: 'To enable person to learn math knowledge and skills required for daily life, have the way of thinking that analyses events in the problem-solving approach, to teach him to solve. Math fear becomes one of the major concerns for educators around the world. Only very few people have positive experiences about Mathematics and it indicates that majority have negative experiences with Mathematics. Defining Math fear is as an emotional state that makes people panic towards Mathematics. Math fear can happen in the time of solving Mathematical problems or even reading a cash register receipt. Math fears people try to avoid Mathematical task as they have less confidence about Mathematics; and less practice makes Math fears individuals weak and later. Mathematics becomes a great burden to them. Many studies done show that in our country and around the world, the students do not love math course, their math anxiety is high or attitudes towards math courses are not in expected level. Some reasons are that math is a difficult course, the course curriculum is heavy, exam questions are difficult or students are not interested enough

in math and they don't study enough as well. Because of thinking not to be successful and so they try to keep off it. As cyclic, the fear brings the failure and this failure triggers fear as well.

2 Literature Review:

Dursun and Dede (2004) gathered under ten titles the factors affecting the math's success: Sex, parents' training level, socioeconomic level, teacher qualifications, the teaching strategies and techniques applied, school's physical possibilities, the curriculum, multi-disciplined working and good listening course and mathematical intelligence [1]. When factors affecting the math success are examined in general, they can be listed as the student's cognitive and auditory characteristics, the course curriculum, teacher, attitudes and fear towards math course, family and society. In these, the math fear is that the most remarkable. Most people avoid the math courses throughout his educational life and are afraid of math courses. The level of fear has also increased as these fears pushed them to failure.

Math fear is defined by Gren (1999) that they are even afraid of idea that has to be involved in mathematics [2]. According to Ufuktepe (2009), math fear is that he is tensed, stressed, afraid the disruption of his thinking process during the solution process of mathematical problems in daily life and in calculation by numbers and shapes [3]. This fear is an important factor affecting the development and emergence of people's math skills (Civelek, Meder and Tüzen, 2003) [4].

Byrd (1982) collects the factors, which cause math fear and anxiety under the title's personality, situational and personal reasons [5]. The factors related to mathematics education such as the mathematics terms with the teaching methods and techniques used in mathematics education can be considered in the situational reasons. Factors with psychological and emotional character traits of individuals are organized in personality reasons. Individual's sex, age, status of success, family's education status and socio-economic levels can be considered as personal reasons that cause math fear and anxiety. The relationship between math anxiety and math teaching methods has been the subject of many studies (Bohuslav, 1980; Bulhman and Young, 1982; Genshaft and Naglieri, 1987; Newstead, 1998) [13]. According to the results of this research, math courses taught by using the traditional methods and an educational mentality detached from daily life cause math fear and anxiety. Many researchers who investigated math fear or anxiety have examined the relationship between sex and math anxiety.

Fulkerson (1984), Abed and Alkhateeb (2001), in their studies, have found that math anxiety levels of male students are higher than female students [14]. However, some studies indicated that female students have math anxiety/fear more than male students (Betz, 1978; Tobias, 1980; Dew, Galassi ve Galassi, 1983; Lusier, 1986; Bowd ve Brady, 2003) [12,15].

In the study done by Yenilmez and Özbey (2006) there has been stated a correlation between parents' education level and math anxiety. Accordingly, there is signified that the students whom mothers graduated from elementary school have more anxiety in math course than the students whom mothers graduated from university. Similarly, it expressed that students whose fathers graduated from elementary, middle or high school, have more math anxiety than the students whom fathers graduated from university. The researches above examined have showed that elementary schools students' math fear is influenced by numerous variables. Therefore, the current study, in addition to all of these, it is aimed to determine the effect of parents and teachers on math fears of elementary school students.

3. The objectives of the Study:

Broad Objective:

- The main purpose of this study is to conclude why students are getting fears on math and objectives of the experiential investigation of this research are to study and discover the actual causes of students' fear in learning math at all level and to analyze them in order to find out the solution
- An experimental investigation of the likings and disliking of students; beliefs, mentalities, experiences, achievements of teachers, attitudes of guardians, teaching learning environments, and teaching techniques,

were considered as all these factors are related. The results of the discovery can change the teaching learning situation positively and students can be successful in learning and remove fears on Math.

Specific Objectives:

- To know how students feel good to learn mathematics
- To justify the actual reason why students getting uncomfortable to learn math
- To analyze students quality and proper weakness on math

Research question:

- What are the main reasons on math fear for Bangladeshi students?
- Why do they fail in the subject of mathematics?
- How does it influence their learning and result?

4. Methodology:

The methodology of this article is mainly descriptive. In this paper, the researcher has been adopted mainly the desk study method to search the different aspects of fear of mathematics. It is based on the review of the published and unpublished literatures from different sources including worldwide web. Different recent articles and the research report related to the mathematics fear were reviewed thoroughly to describe the different aspects of mathematics fear. The related books on theory of mathematics fear are also reviewed to some extent. Apart from this four main techniques of the survey method.

- a. Questionnaire survey from students
- b. Interview from students and guardian
- c. Observation of student mentality during exam
- d. Opinion from teacher

Types of research and elements: The types of research are descriptive. To investigate into a problem or situation this provides insights to the researcher. The research is meant to provide details where a small amount of information exists. It may use a variety of methods such as trial studies, interviews, experiments or other tactics for the purpose of gaining information. The elements of this research are students, faculty, staff, guardian and higher authority for selected institution.

5. Mathematics:

Simply put, Mathematics is a discipline which deals with the logic of quantity and shape and arrangement. Moreover, it is the underlying structure of the world, which we see in patterns, shapes, quantities and intelligent guesses. Math when presented in the classroom or in a textbook is often a formal, precise, and disciplined step by step progression to a logical conclusion.

5.1 Importance of Mathematics

Students usually ask "*why is math important?*" Mathematics is essential to our world, so its knowledge is transferable to many situations. Engineering, Science, and Technology contribute to great inventions in the world, with all experts in all those fields having outstanding math skills. The importance of mathematics is not only crucial for scientists or engineers, but it helps develop skills, such as analyzing data, seeking evidence, recognizing patterns every day. It gives a chance to people have a better way of understanding or interpreting information. Learning using numbers in the right way will help you think critically and creatively every day and you don't need to ask help with math problems. No matter industry or field, the importance of math applies to all career fields. That's why it's so tremendously important to learn numbers and calculations at school or university because sooner or later you would see how many areas of your life require this knowledge

5.2 Math Fear:

Mathematics, for many students, is no less furious than a demon. Many students feel sleepy as soon as they open the Mathematics book. Their score in mathematics is very less. They just give up saying that they can't do it. Unfortunately, math avoidance leads to less competency, exposure and math practice, leaving students more anxious and mathematically unprepared to realize learning goals. This results in Math fear. Math fear may be a feeling of tension, apprehension, or fear that interferes with math performance. An individual with math fear doesn't necessarily lack ability in mathematics; rather, s/he can't perform to her/his full potential thanks to the interfering symptoms of anxiety.

5.3 Causes of math fear

Math fear, to some researchers, is gained not from personal experience but from parents and teachers. When parents with high math anxiety try to help their children with their homework, they unintentionally convey the idea that math is difficult and anxiety-provoking.

Students often develop math phobia in schools, as a result of learning from teachers who are themselves suffering from math phobia. Such teachers usually fall back to teaching exclusively from the textbook, relying on memorizing facts, and employing only drill and practice to reinforce the lesson. Research confirms that the pressure of examinations and tests and risk of public embarrassment are the main sources of unproductive tension among many students. Three practices that are part of the normal mathematics classroom and cause great anxiety in many students are imposed authority, dissemination and time deadlines. Math is typically taught as a right and wrong subject. Teachers expect a fixed answer from the students and sometimes this rigidity is so high that students have no freedom to express in their own way. This leads to the rote method of learning which has been proven outdated by psychologists. Some of the vital causes are given below.

- Incapability to solve mathematics problems
- Lack of relationships between a teacher and a student
- Inability to solve too much home assignment
- Weak teaching technique and weak mathematics background
- Teachers' insistent, stressful and irritating characteristics
- Not to comprehend mathematics in class
- Not to be child-friendly teaching environment
- Mathematics learning difficulty
- Community Influence
- Low self esteem
- Lack of analogies
- Unable to solve mathematical tasks
- Use of abusive words by teacher
- Negative attitude towards mathematics
- Not able to solve mathematics problem in time

6. Findings based on Survey: Researcher has surveyed on students/ guardian/ teacher where total number of population is 500 and sample size is 100 by randomly. University students: 23, HSC students: 20, SSC students: 30, JSC students= 15, Primary Students: 05, Teacher: 11, Gurdian: 06

Teacher student relationship is the main causes of math fear

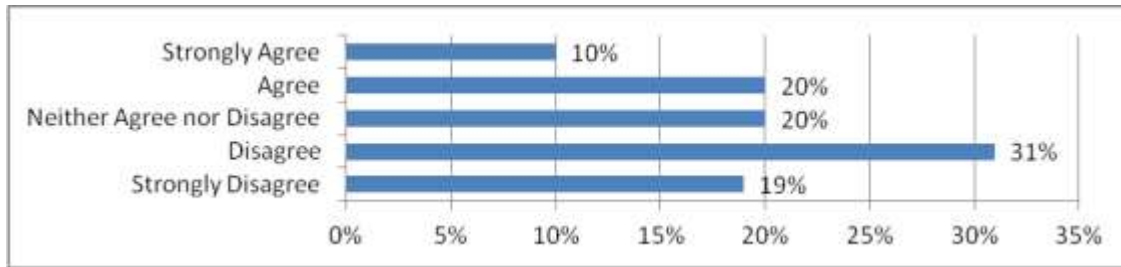


Chart- 1: Teacher student relationship is the main causes of math fear

Course curriculum should be updated

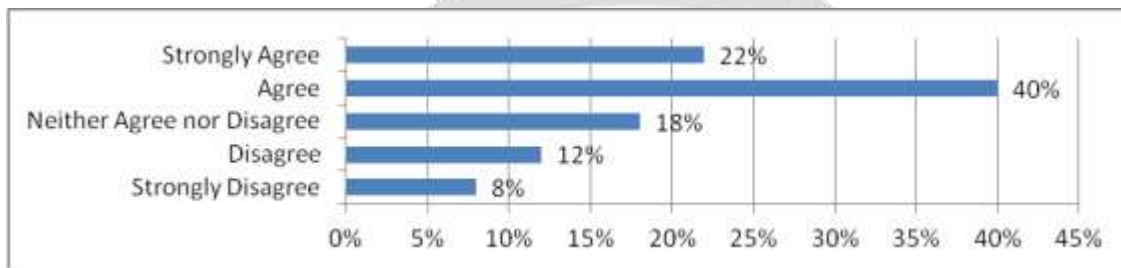


Chart- 2: Course curriculum should be updated

Lack of more practices is the vital reason of math phobia.

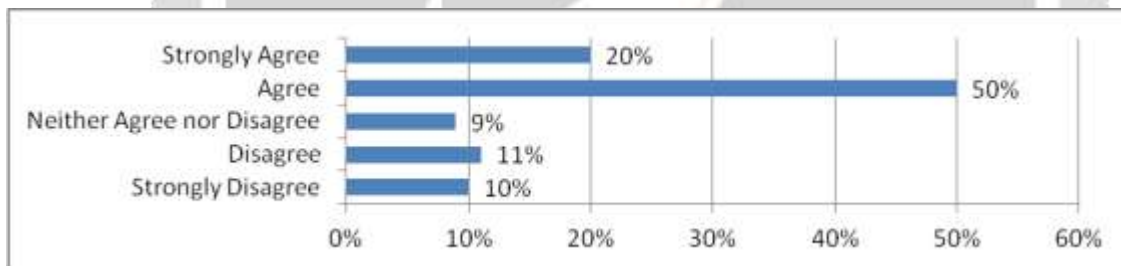


Chart- 3: Lack of more practices is the vital reason of math phobia.

Weak teaching techniques make the gap between teacher and student.

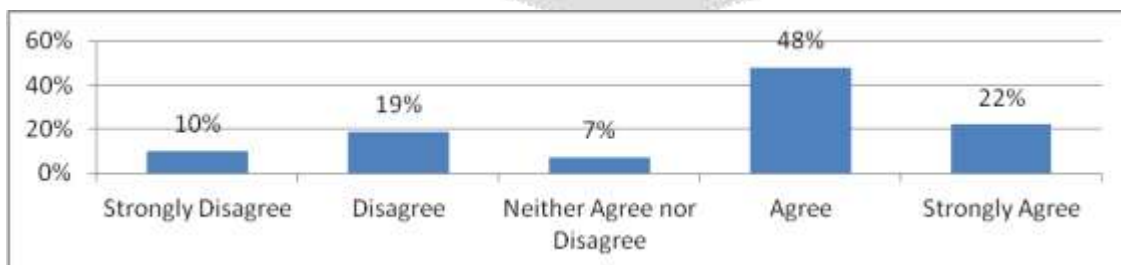


Chart- 4: Weak teaching techniques make the gap between teacher and student.

Negative attitude towards mathematics makes the difficulties to solve the equation

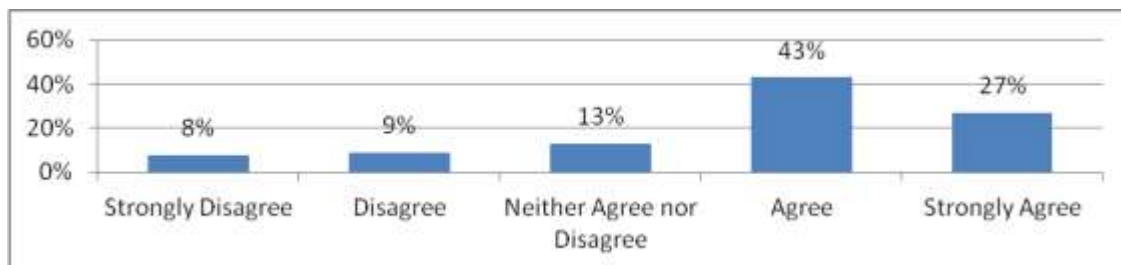


Chart- 5: Negative attitude towards mathematics makes the difficulties to solve the equation

Teachers' insistent, stressful and irritating characteristics discourage the student to learn Math.

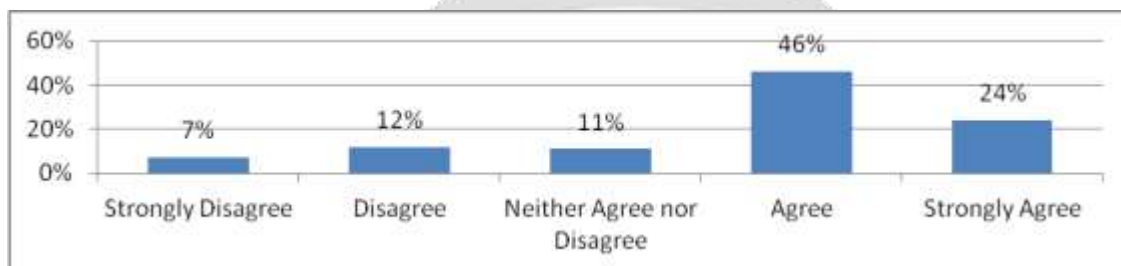


Chart- 6: Teachers' insistent, stressful and irritating characteristics discourage the student to learn Math.

7. The probable solution to overcome Math Fear

As it is well known that there is a triangle- teacher-student- parent- for the success of education, the role of each is important to eradicate math fear from students. What teachers can do? A very important factor in motivating children to study math is that the teacher stay positive and enthusiastic about math.

Secondly, the teacher should not put down the wrong answer. Because they actually help our brains grow. Tests are important but they should not be the last goal. The true goals of mathematics should be to prepare students to face real-life problems with maths as a weapon. Teachers should not present math as an unlearn able, difficult subject because it is NOT that. It should be shown to children that math is a CREATIVE subject. Students are often far more motivated if they're given open-ended problems to unravel. Students are more motivated once they realize where all maths is required. Researcher has found by his study some of the remedies how to overcome the math fear or phobia are given below.

- Emphasize the child's sense of intelligence and skill in mathematics learning
- Create a helpful environment for learning mathematics
- Use of innovative and contemporary teaching approaches
- Develop and maintain close student-teacher relationship
- Motivate students to treat mathematics positively
- Encourage the child to tackle in mathematics
- Explain the child about positive uses of mathematics
- Familiarize the child into mathematics teaching aids
- Use of modern facilities, devices, and tools
- Use of ICT in teaching learning situation
- Make enough and effective practice of mathematics.
- Make mathematics teaching fun with games and puzzles
- Avoid to compare the child's abilities to others
- Increase the use of instructional materials in teaching

8. CONCLUSIONS

In this research, Researcher has studied and observed several factors related to the learning of mathematics by students at all level in Bangladesh. In addition, Researcher also tried to learn about teaching methods, teaching learning materials, classroom situations, learners' expectations and guardians' expectations and a few other things related to them. Researcher believes that if the students just follow the remedies, math fear or phobia would be overcome. So, the mathematics teachers and parents especially need to understand the causes and effects of mathematics phobia as well as the ways to help students to overcome it. The students' support system from home and school should be increased to develop positive attitude towards mathematics

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