

Barriers in Teaching Learning Process of Mathematics at Secondary Level: A Quest for Quality Improvement

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Abstract Mathematics is critical and significant to recognize the computerized world and match with the newly developing information technology knowledge in and is penetrating everywhere in the world. Considering the interrelation of mathematics and science Bangladesh Education Policy, 2010 prioritize mathematics education. However, in spite of this understanding of its importance the overall performance of students in mathematics is unsatisfactory and the number of students in science discipline quality of education. The main focus of the research is to find out the existing barriers in teaching- learning process of mathematics of grade IX-X. The research questions are to reveal the major problems in the teaching- learning process of mathematics and propose possible solution in order to overcome these barriers. A mixed design approach (triangulation) was used to collect data from teacher and students involved in the teaching and learning of mathematics. It was found that the problems are multifaceted and accordingly the solutions require overall effort from all concerned stakeholders. The problems range from pedagogical, social, economic, administrative and policy aspect to attitude of students and teachers, competence of teacher, and the overall teaching learning process. I believe this study will have a contribution in endeavor of identifying some of the major factors which obstruct the teaching and learning of mathematics and thereby towards possible solution. It could be also used as an initial work for those who are interested to do further studies in this area.

Keywords: *teaching learning process, competence of teacher, attitude towards mathematics*

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1. Introduction

According to Francis Bacon "mathematics is the key of all sciences"[1]. Today's world largely depends on science, and science in turn depends on mathematics [2]. People grant it as a theoretical subject. But the truth is all the branches of mathematics were developed to meet the demand of day to day practical life [3]. Modern math, consisting of arithmetic, algebra and geometry has an important role in the field of education [4]. Mathematics has a vital role in the classroom not only because of direct application of the syllabus material but because of the reasoning processes the student can develop [5].

Several developed nations including USA realized the importance and their role as leaders in the world's economy which depend directly on the ability of education system to produce students who can compete in mathematics and science dominated industries of the future. They became conscious improving mathematics and science education has been the priority of the policymaking agenda [6]. Education policy, 2010 states that Mathematics is deeply interrelated to science and it should be prioritized [7].

Despite such importance now-a-days it is unfortunate that many students have erroneous impressions about Mathematics and dislike Mathematical activities; many seem to fear, even hate Mathematics [2]. Mathematical problems are problems within a science arising for a large part from this science itself or from other sciences whereas education problems are problems of life arising from changing needs, moods and whims of a changing society [8]. Banks (1964) and Ernest (1976) alleged that Mathematics more generally appears to be unpopular as a school subject cited in [9] and the number of students in science discipline is rapidly decreasing in Bangladesh [10].

Mathematics has become a nightmare for most of the students. Whatever the reasons, this is very alarming news for Bangladesh as knowledge of science and mathematics broadens the way to development and become a productive member of the contemporary global society. If this phenomenon continues, a time will come when good scientists and engineers will not be easily available in Bangladesh [2].

Although Bangladesh has experienced quantitative educational improvement the qualitative aspects of education have become a cause of government concern [11]. The quality of education is seriously questionable, which is the crying need now [12]. However the importance of quality education in nation building has

also been realized by several nations including Bangladesh. Teaching-learning activities have a great impact on students achievement, hence it is essential to investigate how effectively are being carried out in classroom [10]. Hilda Taba (1966) said, "Appropriate teaching strategy can lead the students to master the abstract and symbolic forms of thought much earlier and more systematically" [13]. Students learn much more effectively if the teaching-learning techniques meet their special needs.

This unfortunate situation indicates that there must be multifaceted challenges and barriers in teaching learning of mathematics in secondary level of Bangladesh. This study targets to assess the existing challenges and shed some lights on those loopholes.

2. Research Questions

1. What are the specific challenges and barriers in teaching learning process of mathematics?
2. What can be done to eradicate the barriers of teaching learning process of mathematics at secondary level?

3. Review of Related Literature

According to Snoeyink and Ertmer (2001) Teachers' face the challenges due to the barriers that exist can be classified as either external or internal barriers as cited in [14]. Hillage and Aston (2001) divided the barriers to participation of non-traditional learners into three groups: attitudinal barriers, physical and material barriers and structural barriers [15]. Noor and Majid (2009) recommended these four barriers as following: Situational, Attitudinal, Structural and Academic [16]. According to Western Cape Education Department, South Africa (WCED) barriers can broadly be divided into four groups: Societal Barriers, Systemic Barriers, Pedagogical Barriers and Medical Barriers [17].

Banks (2000) stated that teaching is a lively process in which a person shares information and ideas to make behavioral changes [18]. Learning is the process of assimilating information with a resultant change in behavior. Teaching-learning process is a planned interaction that promotes behavioral change that is not a result of maturation or coincidence. W. Huitt (1995) has developed a transactional model to categorize the variables that influence classroom teaching learning process [19]. Anderson (2005) and Hollingsworth (2003) stated that there were evidences of students in Year 8 mathematics classrooms experience little complex problem solving in the results from the Program for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) [20,21]. Stacey (2003) pronounced the average Australian lesson as constituting "a syndrome of shallow teaching, where students are asked to follow procedures without reasons" in repose to the TIMSS 1999 Video Study [22].

Factors that inhibit or prevent people from participating in activities are referred to as barriers, constraints, deterrents, impediments, or obstacles [23]. Bangladesh as a developing country is facing challenges in the way of its

progress and prosperity mainly struggling with the education sector [24].

Negative attitude of mathematics means having an aversion towards learning mathematics and using it in their daily life [25] and discouraging students from choosing mathematics as their major subjects. Hostile feelings and negative attitudes toward Mathematics and science, therefore, have a great influence on general behavior and values [9]. These feelings and attitude that sustain a dislike of Mathematics or hamper any interest in mathematics and are great barriers to the development of Mathematical literacy than any lack of particular concepts, skills, or thinking abilities' [26]. Brown et al. (1988) mentioned students believe that mathematics is important, difficult, and based on rules and Kenny and Silver (1997) mentioned that one out of every two students thinks that learning mathematics should be above all memorization as cited in [27]. Science and mathematics were often described as difficult subjects [28]. Therefore students hardly choose science streams [2,10].

Many students develop fear towards Mathematics due to their misunderstanding, non-understanding and failure during previous lessons [29]. Ma, and Kishor (1997) stated that mathematical anxiety is developed as a result of having a poor image of mathematics due to general lack of comfort in that someone might experience mathematical when required to perform [30]. Children with negative attitudes towards Mathematics have performance problems because they develop anxiety [31].

Mathematics has been largely neglected in practice [32]. The lack of connections to the use of mathematics and relevance in daily life or in relation to other sciences fosters low motivation and negative attitudes towards mathematics learning [33], and hence the feeling that why learn if it has no use prevails among most students [34]. Modern experts on child development and early childhood education firmly mentioned that there are differences in individual thinking and they advocate that learning should be related to students' own pace [35]. Mathematics must be very remarkable and interesting courses that can help the students solve the many problems they actually have to face [36]. If a problem is a realistic application using mathematics, then students can see the importance of the skill involved [37].

Often gender difference in attitudes about mathematics have been referred as one factor that has contributed to lower enrolments and less success of girls in compare to boys in mathematics courses [38,39,40]. A number of scholars (Burton 1979; Fennema, 1974; Fennema and Sherman 1976; Fox 1981; Jacobson, 1985) have noted that Mathematics is perceived as a male domain in various countries as cited in [9]. Gavin (1997) showed women are clustered in the life-sciences with far fewer in physical sciences, mathematics, and engineering and computer science as cited in [41]. Girls described parents who boasted about their daughters' studies in science because of the status of science and mathematics as 'difficult subjects' [28].

According to Goodrum, D., Hackling, M., and Rennie, L. (2001), teachers are the most important factors to improve students' learning; therefore, teachers may play a vital role in helping their students' understanding [42]. Teachers must have access to continuous professional development through in-service programs, short term seminars and

workshops [9] but in Bangladesh low percentage of teachers received training [2]. It is hard to look forward to motivated and creative teacher who is forced to join teaching profession unwillingly [9]. The problem of shortage of teachers has also been identified as the major problems in effective teaching learning [43]. It may affect number of issues especially in students' enrollment, students' performance and graduate output in the discipline of science and mathematics [44].

Private coaching centers, some involving satellite branches around the country and franchises, have proliferated so much that they are regarded as "parallel school system" [45]. The poor working conditions, low salary, low social acceptance of the profession by the society and other additional factors are forcing qualified and competent teachers to leave the teaching profession and look for other occupations, which is contributing to the steady decline of the quality of education [9]. The rest lives on private tuition. Teachers get substantial extra income from these activities [45]. The report describe also that it is indispensable to take extra help from classroom teachers, even the best student on a private fee basis outside school hours to pass the SSC and HSC examination.

Mathematics textbooks do not satisfy the requirements of the students and the teachers of different levels; as a result, the inevitable consequence is that students go for collecting the guidebooks, just for cramming the solutions [2]. Even the best teachers feel challenge as there are an excessive number of specified learning outcomes and the textbooks contain a maximum amount of information [45]. The content of text books emphasizes rote memorization of factual information. The shortage of relevant, low-cost books for use inside and outside the school continues to create challenges to provide quality education for all [9].

Many studies (Finn and Voekl, 1992; Glass, Cahen, Smith and Filby, 1982; Robinson, 1990) indicate that reduced class sizes have a great impact in the progress of student achievement as cited in [9]. Overcrowding in classroom has pernicious effect on the quality of teaching learning achievements [45]. Though education policy recommended to maintain teacher student ratio into 1:30 in 2010 [7], often classes are crammed with 100 or more students [45]. Large class affects the interaction between the teacher and the students [9].

All students learn at different paces, and particularly among young people, it takes time and practice for formal Math procedures to make practical sense [9]. Lack of motivation in mathematics has been proven as great barrier in high schools of United States [46]. Studies (Kasten & Howe, 1988 and Thomas, 2000) have shown a strong correlation between the lack of motivation and rising number of at risk students in mathematics as cited in [47]. Since students in a class differ in different perspective such as level of mastery, economic background, cultural background etc, and each student should be treated according to their individual need [9].

Students learn much more by touching, seeing and smelling and testing than by just listening [48]. Therefore use of teaching aids can be a great help to aid students learning. Patricia (1985) said teaching methods are important but the use of teaching aids plays a significant role as it influence students learning as well as achievement as cited in [49]. Use of teaching aids is

required to make teaching learning activities more relevant.

Different strategies and teaching methods should be used and individual plan should be adapted to meet the student's requirements [9]. But the existing method of teaching in schools is much more traditional and less activity based, which is highly dependent on the performance of the teacher only [49]. No group discussion, question answer or any other interactive teaching learning which is being practiced in the class [50]. As [51] reported that teachers are prejudice to teach the same things in the same way they were taught when they had been students.

According to [9] mathematics by its very nature requires a lot of exercises and practices in order to master it. Available research shows that homework facilitates achievement and attitudes of students, especially if teachers provide their feedback [52]. Marking home works need due attention, care should be taken not to make many big crosses which affect the self-esteem of the students, and comments which provide guidance and encouragement are likely to help the children in making better progress [53].

4. Conceptual Framework

The conceptual framework adopted for this study was drawn from theories proposed by Hillage and Aston (2001), Noor and Majid (2009) and mostly WCED (2011) which is shown in the following figure.

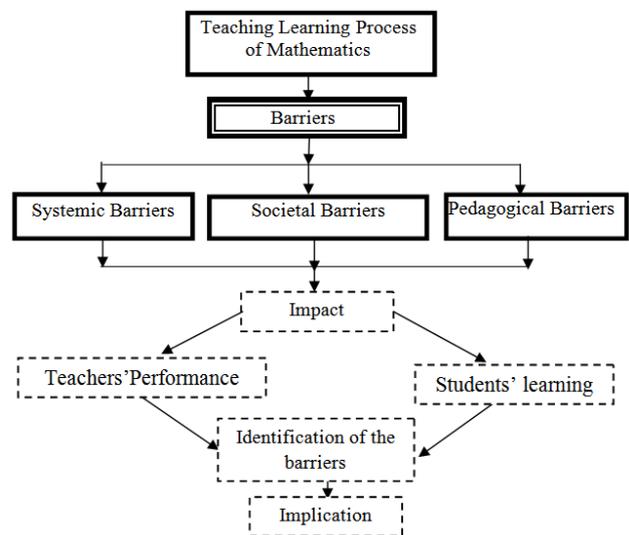


Figure 1. Conceptual Framework [Source: Author, 2011.]

5. Research Methodology

Mixed-method design is a way to arise with creative alternatives to traditional or more analytical ways to visualize and execute evaluation [54] which is used in this study to inspect the barriers of the teaching and learning process of Mathematics intensely with a triangulation of instruments.

Six Schools were selected by purposive sampling. 20 students from different streams and of both sexes were selected by random sampling. The school administration

arranged a class room and students were brought to this class in their free period as not to miss their classes. A questionnaire consisting of a total of 19 questions with some sub questions were used to collect data from the students. Classroom observation was conducted eight times in which two of them were conducted prior to the administration of the questioners FGD and the six remaining were done later. 4 groups (total 10 teachers) of teachers who are teaching mathematics in secondary level were invited for the Focus Group Discussion. Three teacher groups were available for FGD including 9 teachers and due to unavailability of teachers in a rural

school 1 teacher from one school were offered for the Interview.

6. Discussion of Findings:

For generating a detailed picture of the existing barriers of teaching learning activities, the study was conducted from Observation checklist to investigate the phenomena, Questionnaire to testify students' perspectives and FGD of teachers to identify the reason. The results of gathered data were presented, interpreted and analyzed:

Table 1. Some Findings Based on Students' Response to Questionnaire

No.	Barriers	Yes	No	In some ways
Systematic Barriers				
1	The contents of the Math textbooks regarding the level of mastery	82.4%	17.6%	-
2	The contents of the Mathematics regarding their relevancy to the daily life	26.1%	46%	27.9%
3	The continuity of the contents from the previous grade VIII	63.1%	36.9%	-
4	High teacher student ratio affects learning of mathematics	84.7%	15.3%	-
5	Students' view about having mathematics coaching or private tutor	91.9%	8.1%	-
Societal Barriers				
6	Students' attitude to Mathematics as an important subject	94.6%	5.4%	-
7	Students' view of liking Mathematics	58.6%	41.4%	-
10	Subject difficulty according to students view	81.9%	18.1%	-
11	Students' attitude towards gender difference in mathematics achievements	53.2%	46.8%	-
12	Students' comparison of boys and girls Mathematics achievement			
12.1	Boys are better at mathematics achievement	81.4%	18.6%	-
12.2	Girls are better at mathematics achievement	18.4%	81.6%	-
13	Attitude towards maths have influence on decision of choosing stream	62.2%	37.8%	-
14	Students' Achievement of other subjects is better than mathematics	30.6%	26.1%	43.3%
15	Students' response about their parents encouraging to learn Mathematics	79.3%	20.7%	-
Pedagogical Barriers				
16.1	Teacher usually starts lessons start doing math in board directly	70.3%	29.7%	-
16.2	Mathematics class teacher usually starts lessons start by giving motivation or by explaining phenomena or history of mathematics	6.3%	93.7%	-
16.3	Mathematics class teacher usually starts lessons start by asking questions	23.4%	76.6%	-
17	Teacher use additional teaching aid materials while teaching Mathematics	11.7%	88.3%	
18	Teacher gives homework regularly	18.9%	36%	45.1%
19	Students do homework and assignments regularly	68.5%	31.5%	
20	Whether students ask teacher to repeat it or help further, if they fail to understand mathematics	45.9%	54.1%	
21	Mathematics teachers apply corporal or emotional punishment	67.6%	32.4%	
22	Punishment given by teachers leads the students to dislike the subjects.	81.9%	18.1%	

Source: Author, 2011.

6.1. Identification of the 'Systematic Barriers'

6.1.1. Teacher Related

From the observation it is found less than half mathematics teachers having mathematics background is available in secondary level but majority was given training. Some teachers who are actually from other background have to teach mathematics and maximum math teacher have to teach other subjects like physics, chemistry, social science, religion and physical education class as there is shortage of teachers. More than half teachers agreed with the fact that all teachers are not having sufficient training and therefore quality of education failing to upgrade for all these barriers. FGD shows that shortage of teachers is a great barrier to

teaching learning process as [44] entails. Lack of trained, qualified and subject wise teacher is one of the major problems of mathematics at secondary level in similar ways [55] and [2] findings.

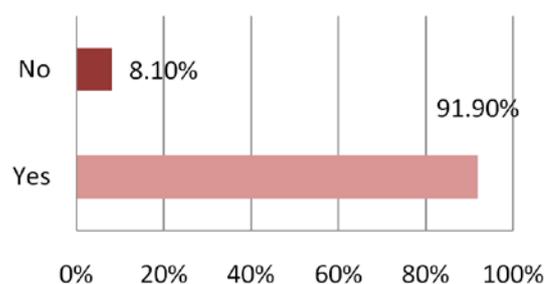


Figure 2. Students' having Mathematic Coaching or Tuition [Source: Author, 2011]

6.1.2. Tuition Related

Findings of the questionnaire indicates most of the students are dependent on home tutors or coaching centers and the prime reason for such dependency is that they do not get a clear understanding of the concepts from the subject teacher. Some teachers referred private coaching or tuition as an education business system, and believe that this dependency badly crash and misguide their mathematics learning in various ways in FGD. It is also disclosed that in spite of knowing this, the poor economic condition and insufficient salary force maximum teachers to be a home tutor or run a coaching center himself. This is certainly a tough barrier teaching-learning process of mathematic since [2] and [45] found in their research that the increasing dependency on private tuition or coaching and an economic imbalance of both students and teacher.

6.1.3. Teaching Material

Although there were some disagreements but from the questionnaire most students found believing that the contents included in their mathematics textbooks are within the level of mastery. In FGD majority teachers have disagreement with the fact and believe that mathematics textbooks are lack adequate mathematics and do not possess balance in chapters, therefore inevitable consequence is that students go for collecting the guidebooks, just for cramming the solutions in way similar to [2] findings. More than half students mentioned that there exists continuity in the contents of mathematics they are learning at present with the contents of their previous grade. But a good number of students denied it. Findings of [51] and [45] were also about problems with textbooks.

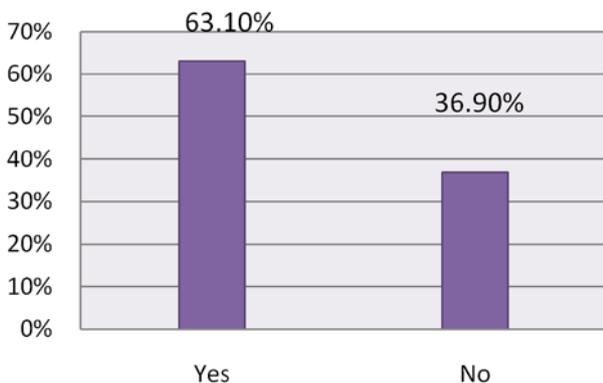


Figure 3. Continuity in the contents of mathematics with previous grade. Source: Author, 2011

6.1.4. Physical Facilities of Classroom

In most cases classroom observation gave strong evidence of high teacher student ratio. Moreover most of the students mentioned in the questionnaire that high teacher student ratio in the class hinders students' mathematics learning and it acts as a barrier for better understanding of the subject. FGD findings show that most cases the number of students is so large in the class that it becomes hard to focus and teacher fails to pay attention to all the students, as a result the weakness and problems of mathematics remain unsolved in similar way [55] and [2] findings.

6.2. Identification of the 'Societal Barriers'

6.2.1. Attitude towards Mathematics

Although most of the students in this sample group regard mathematics as an important subject, but many of them do not at all like this subject at all in questionnaire. The reasons for disliking the subjects mentioned by the students were dissatisfactory results; lack of interest to the subject and in some cases complicacy with the subject contents. According to teachers in FGD there are negative attitude towards mathematics relating fear of mathematics, examination system, and memorization. This can be regard as barrier as in same findings of Brown et al. (1988) mentioned students believe that mathematics is important, difficult, and based on rules and Kenny and Silver (1997) mentioned that one out of every two students think that learning mathematics should be above all memorization as cited in [27]. Questionnaire findings show that students attitude towards mathematics have a great influence on their decision making of choosing streams. However, it is also found that most of the parents encourage their child to learn mathematics which is similar to [51] findings but contradictory to [2] findings.

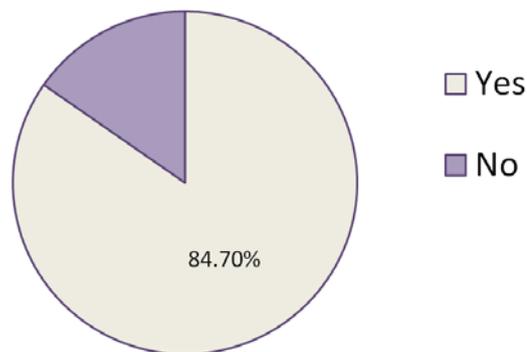


Figure 4. Students' response about high teacher student ratio. Source: Author, 2011

6.2.2. Mathematical Anxiety

most of the students unveiled in questionnaire that mathematics seems a difficult subject than other subjects in similar way to [2], [34] and [9] findings as it needed full concentration, more practice, and still a small mistake at any steps pays full marks. Most students mentioned that their poor result of mathematics creates lots of anxiety. Teachers' view also indicate this fact as barrier in similar way [2] found students' anxiety about getting zero if they solved their problems in different way or through other method than those followed by teachers. Teachers mentioned the lack of good mathematics teachers at the primary level is responsible in developing fearful attitude towards mathematics as [2].

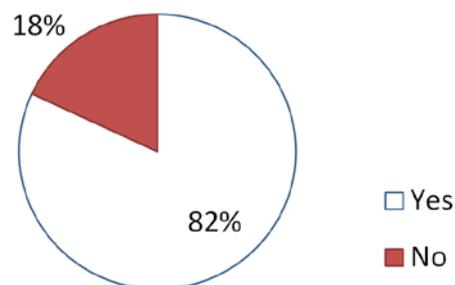


Figure 5. Mathematics is difficult or not. Source: Author, 2011

6.2.3. Perception of Irrelevance

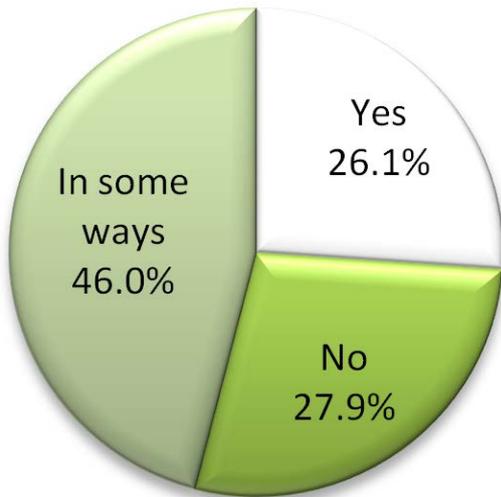


Figure 6. Contents are relevant to daily life. Source: Author, 2011

Another important finding of this study is that a from the questionnaire major number of students in the sample group do not find any relevancy in between the contents they learn in this subject and their day to day life activities.

During observation teacher also not found relating practical life with mathematics. This is certainly a strong barrier since [33] finds out in their research that the lack of connections to the use of mathematics and relevance in daily life or in relation to other sciences fosters low motivation and negative attitudes towards mathematics learning.

6.2.4. Gender Related

Though FGD and observation shows no evidence of gender differentiating, but findings of questionnaire revealed that there exists gender differentiating attitude toward mathematics among the students. Above half of the students believed that there is a difference between boys and girls in their mathematics achievement and among them most think boys are better as they have better achievement in mathematics, better mutual understanding with teachers and also have the ability to group work. [28] and [9] finds similar barrier.

6.3. Identification of the 'Pedagogical Barriers'

6.3.1. Motivation

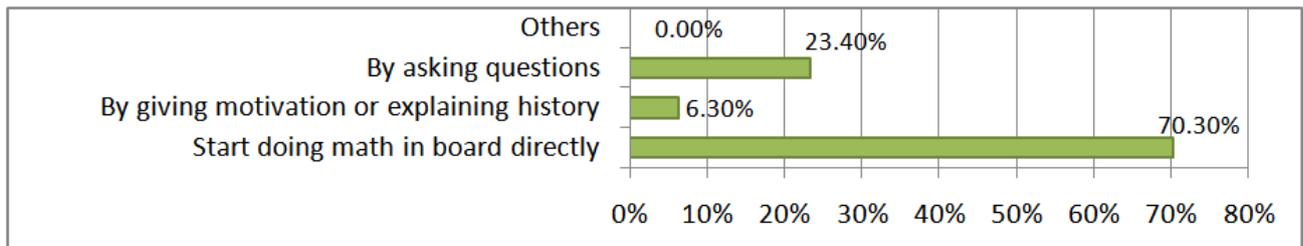


Figure 7. Students' response to Mathematics class teacher usually starts lessons [Source: Author, 2011]

Observation shows that most of the teachers do not start the class giving a proper motivation to the contents rather starts the class by directly writing on the board or asking

questions and only 6.3% students mentioned that their teachers give motivation.

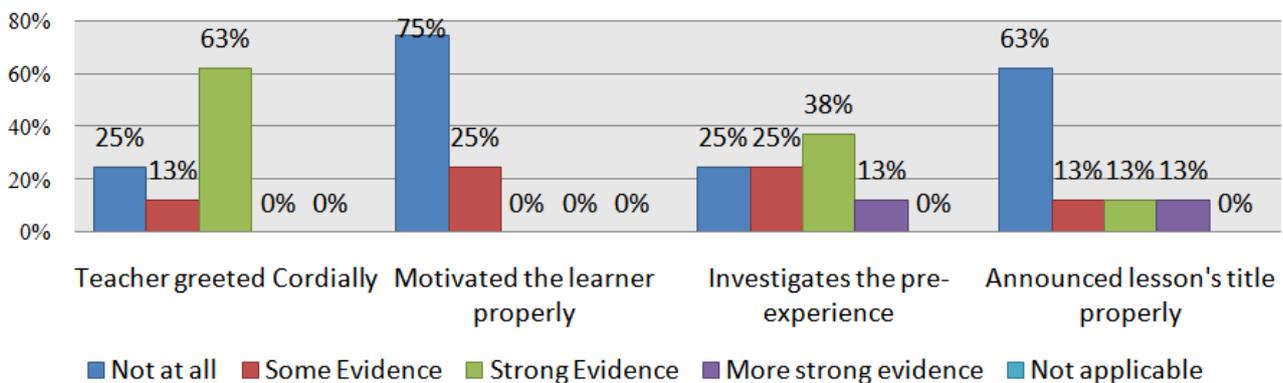


Figure 8. Motivation and Announcement of the Lesson [Source: Author, 2011]

During observation it neither was prominent that although the teachers seemed to be cordially greeting (62.5%) the students but most of them announce neither title of the lesson properly (62.5%) nor motivated students in a proper way to the lesson (75%).

teachers to give motivation which is similar to [55] and [2] findings.

In FGD teachers stated that giving no motivation is a barrier as students find less interest and lack of enough time to prepare and even in the classroom restricts

6.3.2. Teaching Aid

Both student's response and observation data shows teachers used not at all teaching aids in the classroom except geometric tools sometimes in geometry class in similar way [12] findings. FGD findings show that

teachers cannot use teaching aids for the shortage of time to lesson plan, make and execute.

No teaching aid used	100%
Others	0%
Geometric tools	0%
Model	0%
Real Object	0%
Poster/Chart/Image	0%

Figure 9. Use of Teaching Aid. Source: Author, 2011

6.3.3. Teaching Methods

Observation gives strong evidence of teachers following the lecture or the question-answer method, instead of following modern teaching techniques. Peer learning, hands on activities or other modern teaching methods are not followed in the classroom to teach mathematics. Some other factors affecting teaching learning methods mentioned by the students includes classroom indiscipline, less tendency to do hands on activities in the classroom and less opportunity to practice. Findings show an agreement with the fact that mathematics teachers have been found to be very much dependant on the lecture method and extensively use this method and rarely follows other modern methods of teaching in similar way [50], [49] and [9] findings.

FGD results point up that most teachers announced that lack of sufficient time and overcrowded classrooms are the difficulties of using various teaching methods in the classroom are mainly short time of class schedule and overcrowded classroom.

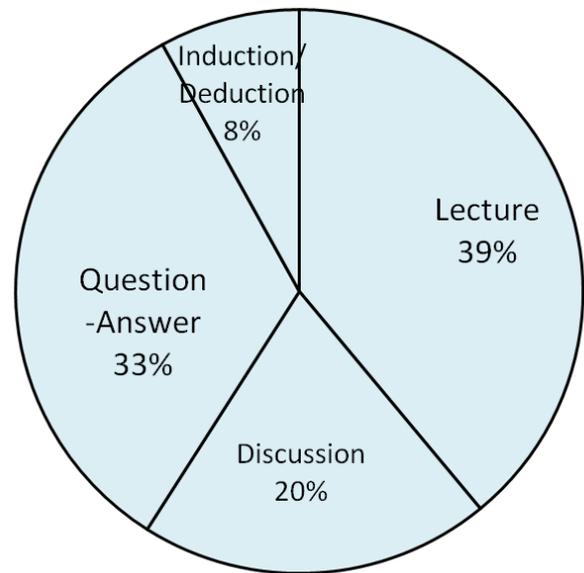


Figure 10. Teaching Methods. Source: Author, 2011

Table 2. Using appropriate methods and techniques

Observation Feature	Not at all	Some Evidence	Strong Evidence	More Strong Evidence	Not applicable
Method of teaching is appropriate	37.5%	37.5%	25%	0%	0%
Method attract learners to the lesson	50%	37.5%	12.5%	0%	0%
Teacher applies the method appropriately	50%	25%	12.5%	12.5%	0%
Teacher represents the lesson as a problem	37.5%	0%	62.5%	0%	0%
Teacher encourage to take hypothesis and collect data	37.5%	37.5%	25%	0%	0%
Learners judge the hypothesis and compared	62.5%	0%	37.5%	0%	0%
There is a scope to arrange group work	25%	0%	50%	25%	0%
Teacher arranges a group work	100%	00%	0%	0%	0%
The group work completed appropriately	0%	0%	0%	0%	100%
There are chances to demonstration method	25%	0%	37.5%	37.5%	0%
Teacher uses demonstration method	100%	0%	0%	0%	0%
Demonstration is completed successfully	0%	0%	0%	0%	100%
Teacher involves learners rational thinking	37.5%	37.5%	25%	0%	0%

Source: Author, 2011.

6.3.4. Classroom Assessment

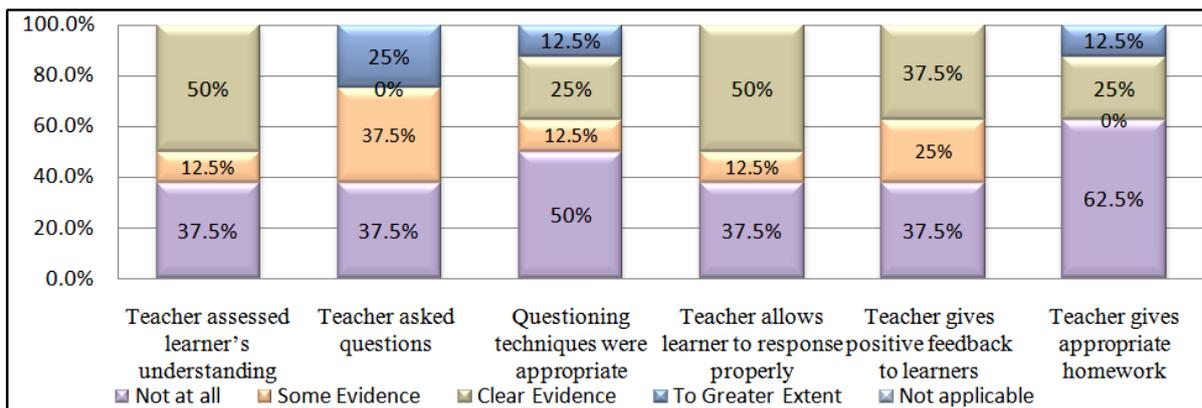


Figure 11. Percentage of evidence regarding facilitating Evaluation and Feedback. [Source: Author, 2011]

From the above analysis of data it is disclosed that 50% teachers assessed learners' understanding. 62.5% teachers preferred questioning the students to measure their understanding but in most cases questioning techniques were found improper and 37.5% teachers gave no feedback at all.

Though homework is an essential tool to foster students' learning most of the teachers found giving no homework and rests did not give proper feedback to homeworks found from the observation. On the contrary, most of the students claimed that they do their homeworks regularly. FGD findings show that most teachers stated that shortage of time, having no gap within class and overcrowded classroom facilitate problems of assessing student's Understandings and give home work as they are not able to give further corrections. Students were found to be not asking to repeat or help further, if they fail to understand mathematics during observation. Most teachers follow punishment practice whether it is physical or mental and this leads the student dislike the subject mathematics in the questionnaire survey. This is certainly a strong barrier that desist students clear their concept and hinders their learning of mathematics as [12], [9] and [49] findings.

7. Recommendations for Quality Improvement

All these barriers lead to declining of the quality of mathematics learning in Bangladesh and the improvement of the current situation is a must need for the betterment of the teaching learning process of mathematics. Therefore it is discussed in the FGD what can be done to wipe out the barriers that are affecting the teaching learning process of mathematics. Teachers were concern and gave specific suggestions for the quality improvement; such as- teacher should be recruiting with proper allocation of proper mathematics background especially in root level, the primary level. Teacher should be given appropriate respect and economic support. It will be better if teachers are employed in native place with adequate livelihood maintenance.

Must need to grow a positive attitude towards learning mathematics, specially students, teachers and parents need to change their inquisitive mentality. The 'pass-fail' examination system leads students toward mathematical anxiety. Teachers recommended bringing some change in this system like prior the knowledge achievements instead of prioritizing the results. Teaching material should be developed and textbook should compile more mathematical problems for practice or drill. Physical facilities and proper ratio of teacher students should be upgraded to progress the quality of teaching learning process of mathematics.

The preparation of text books requires involvement of more mathematics and a balanced curriculum. The NCTB should design a mechanism whereby teachers' opinions are included in the preparation of the syllabus and text books. Through this involvement problems related to syllabus such as less mathematics to drill, relevance to daily life of the, redundancy etc can be solved.

Societal barrier is the root of all barriers as it is an intrinsic barrier. Much is expected from teachers and

parents in overcoming negative attitude toward mathematics as it is hard or disliking mathematics which is becoming a major problem in the learning and understanding of the subject. Doing home works and getting appropriate feedbacks provides them with an opportunity to learn from their mistakes. So students have to develop the habit of doing their homeworks and assignments on regular basis, increase the involvement they can understand the subject matter more fully.

The commitment of parents to provide education for their children, their effort to fulfill school materials, their readiness to give ample time to their children and give support in every aspect is vital to accomplish the school objectives. Motivation and use of different methods can make teaching of mathematics more successful. If teaching is accompanied by teaching aid materials it gives the students a chance to visualize what they are learning and to associate it with things in their surroundings. Teacher should be given time for preparation and class size should be reduced to eliminate the pedagogical barrier.

8. Conclusion

Though there were some limitations of this study the endeavor of enlightening barriers of teaching learning process of mathematics was triumph over. Much evidence of factors that are affecting teaching learning process of mathematics is disclosed. Systematic, societal, pedagogical barriers are playing vital role in jamming teaching learning process directly or indirectly. As teaching learning process directly reflects the quality of education, these barriers distress the improvement of secondary education quality. Students lacking excellence in mathematics can lead agony of quality of secondary education as well as development of whole nation. In addition, this instrument can be used in further research to explore these barriers in the rural and urban sector and to enlighten the quality improvement.

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