



# A STUDY ON PROBLEMS FACED BY THE STUDENTS ON LEARNING MATHEMATICS IN HIGHER SECONDARY SCHOOL IN LUNGLEI

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## Abstract

*The rapid changes of the education system and delivery method give a huge impact to students. This situation requires students to learn effectively and in a more self-directed manner (Winters, Greene & Costich, 2008). To achieve this, students need to be trained on how to enhance their skills to choose the most appropriate learning strategy (Azevedo & Cornley, 2004). If not done right, it will affect the students' motivation to learn and eventually might lose their interest to learn the said subject. Motivating students to be receptive is also an important aspects of mathematics instruction. Thus, motivation is essential for an individual to successfully face challenges in academic settings. Behaviors that are related to academic motivation such as the desire to do difficult tasks and stay longer in difficult situations will be the determinant for students' ability in facing daily school life challenges.*

*The present aims to bring out the real problems in mathematics faced by the students of Higher Secondary School in Lunglei city so that the students' problems could be tackled in a systematic manner that would benefit the teacher, students and parents all together. This study shows logical explanation on identifying the real problems and challenges of the students in learning mathematics and how teachers and parents have a great impact on a child learning.*

**Keywords:** *Mathematics Problem, Secondary School, Students, Teachers, Lunglei*

## INTRODUCTION

Mathematics is the science that deals with the logic of shape, quantity and arrangement. Mathematics, in its pure and applied forms, is the exact opposite of lifeless. However, it is still considered as one of the most difficult core subjects by most of the students in Higher Secondary School in Lunglei.

This negative thinking can be due to many factors that hinder mathematics learning. It is difficult to find out where the problem really lies as the students and the teachers blame each other's. Besides being perceived as a tough subject, problems in mathematics learning has also been related to the lack of regulation skills among students in learning math. To get a better picture of the hindering elements in students' learning, this study was therefore conducted to explore the challenges, obstacles and difficulties experienced by the students in the process of mathematics learning.

The teaching and learning of mathematics, like any other subject, requires both the teacher and learner to communicate effectively. Mathematics has always been given special attention in school as the nature of the subject is related to many other fields and disciplines. Moreover, students' mathematics achievement has often been the focus and is seen as a critical global issue in many countries. Self-regulation in learning is related to the 21<sup>st</sup> century of learning competency (Wolters, 2010) thus students who are not regulated will face difficulty to overcome the obstructions or challenges they face while learning.

## **RATIONALE OF THE STUDY**

Many students have a fear in the subject Mathematics. They are unable to understand the basic concept of Mathematics and their technique due to various reasons. The problems that occur in the process of learning Mathematics are relatively less in case of other subjects. Hence, for many students Mathematics become a very tough subject and consequently try to avoid the subject. To prevent it from becoming boring and to make it interesting a teacher teaches various subjects. Although this problem is not unique to mathematics, it is widespread due to its lecture-style method of teaching. It is seen that most of the mathematics teachers are not aware of alternate simple methods of teaching Mathematics and different skills of solving the same problems.

Due to its overly reliant on testing and on class quizzes as a way of measuring progress Mathematics soon becomes associated with testing which leads to the students feeling a lack of motivation in the subject and eventually enjoys it less. If a student feels a lack of motivation in the subject, he will not study for the test and quickly will come to regard himself as poor at mathematics. This becomes a vicious circle, with the student becoming alienated. Hence, there is a need to study in detail the problems faced by the students in learning Mathematics.

Students face different types of problem while learning mathematics. Memory problems are a common source of frustration by students who do poorly in mathematics, due to its requirement of a great deal of memorization regarding logical steps, sequences, and number orders, those with bad memories often find themselves at a loss when it comes to completing even the simplest mathematical functions. Solving complex mathematical problems requires prolonged, sustained concentration, and the ability to focus for long periods of time will inevitably prove detrimental. Anxiety related to the particular task itself is also a common problem encountered by students in mathematics. Due to poor performance in the past or excessive

pressure put on students to perform well students often develop phobias, or unexplained fears while learning mathematics.

The first and foremost important thing in solving the student's mathematical problem is the role of a teacher. Learning the students' needs and problems at the root and trying to help them understand mathematical problems using simple language, models, examples etc. Devoting more time for his students as more students are likely to have more problems in mathematics compared to other subjects is one of the important role of a good teacher. Besides taking normal classes, he should also spend valuable time with his subjects in solving their mathematical problems. Developing a good relation and interaction with his students will also help towards solving students problems in mathematics.

Parents should also be responsible and helpful to their children's education especially in mathematics subject. They should devote more time, spend more money if necessary and teach them at home if they are capable as the role of parents towards the student's mathematics problems cannot be neglected and all the blame cannot fall to the teacher.

For many years, the science students of higher secondary school in Lunglei had a bad results with many failing Mathematics every year. This leads to many students refusing to take Science subject for their further studies. Even if some who opt for Science subject prefer to drop Mathematics and choose some alternative option. Therefore, the investigator believes that it is crucial to know the reason behind this dilemma and find out the exact problems why most students struggle with Mathematics. Hence, the present study is taken up.

#### **STATEMENT OF THE PROBLEM:**

The present study is entitled as "Problems faced by the students on learning Mathematics in Higher Secondary School in Lunglei".

**OPERATIONAL DEFINITION OF THE TERMS:** Operational definitions for the present study is given below –

- 1) **Mathematics problem:** In the present study, problem can be from the students, teachers and parents. Student's problem includes lack of interest, feeling sleepy and bored, lack of focus, forgetfulness, carelessness, laziness and poor time management. Student's problem from the teachers includes scolding students, irregular and boring teacher, language barrier, teaching too fast and bad explanation of the subject. Student's problem from the parents includes lack of financial support, high expectation, tends to compare their child to others and given less study time.
- 2) **Secondary school:** The secondary include class XI – class XII students.

- 3) **Students:** In the present study, students refer to students studying class XI and XII at higher secondary school.
- 4) **Teacher:** The teacher who teaches Mathematics full time or part time at higher level after completing the master degree with training.
- 5) **Lunglei:** Lunglei is a town, situated in the southern-central part of Mizoram.

**OBJECTIVES OF THE STUDY:** The objectives of the study are given below:-

1. To identify the main problem of the students learning mathematics subject in Higher Secondary School in Lunglei.
2. To understand which characters of the students hinders the learning of Mathematics the most.
3. To compare those challenges that the students faced which hinders the learning of Mathematics in the students based on their gender.
4. To explore parental participation and support towards the students in learning of mathematics subject in Higher Secondary School in Lunglei.
5. To compare parental participation and support towards the students in learning of mathematics subject in Higher Secondary School in Lunglei in relation to their educational level.
6. To investigate the influence of a teacher on a students in learning Mathematics.

**HYPOTHESIS OF THE STUDY :-**

- 1) There exists different self-regulation factors that hinders the learning of Mathematics among the students in Higher Secondary school in Lunglei in relation to their gender.
- 2) There exists significant difference on parental support and expectations towards the students learning Mathematics in Higher Secondary School in Lunglei in relation to their educational level.

**DELIMITATION OF THE STUDY:**

Due to time limitation and the ongoing pandemic, the present study is confined to two(2) higher secondary schools in Lunglei city only.

**REVIEW OF RELATED LITERATURE**

**Singh and Srivastava (1983):** investigated the impact of parents' literacy on the academic achievement on a sample of 85 first grade and 80 fifth grade students of Punjab in India. Students' scores on an achievement test were taken as measures of academic achievement of the students. The findings indicated that parent's literacy had a positive relationship with the younger students' academic achievement.

**Dickson, Brown and Gibson** (1984) assert that many specialized terms have an essential and rightful place in mathematics and it is necessary that they are incorporated into the learning of the subject.

**Tui**, (1987), **Yee**, (1987): Study report the psychological aspect of female students with special reference to mathematics subject has been matter of investigation in the past reporting that high mathematics anxiety is associated with low mathematics achievement. Teacher's quality supported by training and experience plays important role in success of education.

**Cherian** (1992): investigated the relationship between parental education and academic achievement of 369 boys and 652 girls whose ages range from 13 to 17 years of Transkei in South Africa. The marks obtained by the pupils in the class were aggregated as the criterion measure of academic achievement of the students. Findings revealed significant effect of parental education on academic achievement of their children.

**Desai** (1999): Study reveals teachers short comings and identified as the major problem in effecting teaching and learning.

**Robertson** (2000): Study reports how students' performance in mathematics subject has been investigated through bilateral surveys in two European Countries.

**Attwood**, (2001); **Brodie**, (2004); **Maree**, (1997); **Moyana**, (1996); **Murray**, (1997); **Malcolm et al.**, (2000) : have suggested that achievement in mathematics in secondary schools is influenced by a number of variables. These variables include learners' abilities, attitudes and perceptions, family and socio-economic status, parent and peer influences, school related variables such as poor learning environment, learning cultures, past racial discrimination and low expectations by principals and teachers.

According to **Singh et al.** (2002) many of variables that hinders learning of Mathematics are home and family-related and thus are difficult to change and beyond control of educators. Such factors alone cannot account for the lack of mathematics achievement and persistent differences among traditionally disadvantaged learners. In particular these explanations fail to account for intra-group achievement differences and the success of some South African disadvantaged learners in spite of these background factors. Some well-achieving disadvantaged learners come from the same communities and share similar socio - economic backgrounds, schools and classrooms.

**Niss (2003):** A mathematical competency is defined as “a clearly recognizable and distinct, major constituent of mathematical competence”. Thus, a mathematical competency is a component of mathematical competence, a specific skills such as problem solving or reasoning.

**Karande and Kulkarni, (2005):** Studies reveals that how poor school performance not only result in the child having a low self-esteem, but also causes significant stress to the parents.

**Agarwal (2005), Anon (2005):** Study reveals the important of curriculum reform through changes in evaluation process in effective teaching learning process is evidenced by such study. Thus, improving mathematics and science education has been the priority of the policymaking agenda.

**Tella (2007):** investigated the impact of motivation on academic achievement in Mathematics. The participants of the study were 450 secondary school students of both sexes drawn from ten schools of Ibadan. Data were collected by employing achievement test in mathematics as a measure of academic achievement. The results revealed significant differences in the academic achievement of male and female students. Male students were found to have better achievement in mathematics.

**Sarsani and Ravi (2010):** investigated achievement in mathematics of secondary school students in relation to selected variables. The sample of the study consisted of 480 boys and girls, drawn from the various private and government high school high school of Warangal city in Andhra Pradesh. Data was collected by administering scholastic achievement test of mathematics to the sample. The findings indicated significant differences between the mathematics scholastic achievement of the boys and girls. The results also showed the girls were higher achievers than boys.

**Sharma and Tahari (2011)** investigated the influence of parental education, parental occupation and family size on science achievement of the secondary school students in western Uttar Pradesh in India. 1500 students were selected as a sample for the study and data was collected through a questionnaire that assessed personal information and science achievement test developed by the researchers themselves. The results indicated that family variables including parental education had significant relationship with the achievement of their children. Hence, it could be concluded that the gender and geographical area in which the student live and are exposed may influence academic success of the students at all levels of education. Gender, locale and parental education have direct influence on the academic achievement of the students.

**Tata (2013):** made his study in Nigeria and came out with findings that, students’ negative attitude towards mathematics, fear of mathematics, inadequate qualified teachers and inadequate teaching materials were some of the causes of poor performances in mathematics. Developing positive attitude,

motivation and proper guidance towards mathematics and provision of relevant teaching materials could make students perform better in mathematics.

**Sa'ad TU, Adamu A and Sadiq AM** (2014): claimed that both education and human life do not effectively function without the knowledge of mathematics. Most of the mathematics teacher do not even make the teaching of mathematics practical and exciting. They are not competent enough to teach mathematics dynamically, which leads to negative attitude among pupils implying improper guidance by the teachers as well.

**Sharma B, Lauano FJ, Narayan S, Anjag A, Kumar B and Raj J** (2018): The shortage of teachers in STEM disciplines is attributed to poor achievement in mathematics at senior secondary grades since very few students are able to qualify for such courses. Most of these elite students who qualify and graduate prefer joining the private sector rather than teaching, contemplating better pay scale, and faster promotion chances, the trend shared by other countries in the South Pacific region.

**Naiker M, Sharma B, Wakeling L, Johnson JB, Mani J, Kumar B, et al** (2020): Despite the highly decorated and recognized importance of mathematics and the fact that it is the prerequisite for most of the subject, poor achievement and lack of interest in mathematics among students remains as an issue of concerns in schools, colleges and universities in developed and developing countries alike.

## METHODOLOGY OF THE STUDY

**Method of Study:** Descriptive method of research was adopted in the present study.

**Population of the study:** The population includes all the Science students making Mathematics as a core subject in higher secondary schools in Lunglei.

**Sample of the study:** The sample consisted of two Higher Secondary Schools in Lunglei – Government Higher Secondary School and Baptist Higher Secondary School, Serkawn which had around 200 students taking Mathematics subject. Stratified random sampling method was employed. 100 students were taken from each of the schools.

**Tools and techniques used for data collection:** Close-ended Questionnaire were used for data collection.

**Procedures of data collection:** The investigator took permission from the Principal of both Higher Secondary Schools. The data was collected under the peaceful classroom situation. Questionnaires were

explained before distribution among the students and the same was collected after the students responded so that it would be analyzed accordingly.

**Procedures of data analysis:** The investigator used appropriate Statistical techniques for present study. The data collected for the study was examined carefully. Data collected was tabulated taking overall frequency and according to gender too. Figures and tables were drawn for better understanding.

## MAJOR FINDINGS:

The major findings of the present study in relation to the objectives of the study are as given as follows :

1. In relation to objective No. 1: to identify the main problem of the students learning mathematics subject in Higher Secondary School in Lunglei .

- i) It is found out that majority of the students are just lazy to do math exercises/task. Students do not revise their lessons regularly which leads to having problems in learning mathematics.
- ii) There are many students who perceived mathematics as too difficult even before attempting first. This means that many students even before they started studying, they already made up their mind about the subject and this made them eager to concentrate and lose their interest in the subject at an early stage.
- iii) The students also have difficulty in the nature of mathematics as majority of them finds too many formulas and topics to cover hinder their learning mathematics

2. In relation to objective No.2: To understand which characters of the students hinders the learning of Mathematics the most.

- i) In the present study, the students finds difficulty in doing mathematics without the help of others. There cannot be friends or teacher to help them all the time so majority of the students has problems in learning mathematics.
- ii) It has also been found that students have assessment pressure especially during year end examination.

3. In relation to Objective No.3: To compare those challenges that the students faced which hinders the learning of Mathematics in the students based on their gender.

- i). The present study shows that the problems and challenges faced by both the gender are almost the same in most of the theme.
- ii) The problems face by both the gender that has more or less same frequencies are lazy to do math revision/exercise/task, perceived math as too difficult, always careless while doing math exercise, assessment pressure, difficulty in doing math exercise without help from others. Both the gender have problems with teachers being too serious while teaching and show no sense of humour, teaching too fast and not explaining difficult questions.



iii)the present study also shows similar frequencies on the problems faced by the students on pressure from parents/family showing that both gender have parents/family not good in mathematics, not a good listener but still have high expectation.

iv)It has been found that more problems occurs in female students being more sleepy while learning Math, more problems with irregular teachers than the male students.

v)A huge difference occurs between the gender on pressure from parents/family where the female feel more forced to do math exercise than the male. A problem also occur more on the male students not receiving financial support to buy reference books than the female students.

4.In relation to objective No.4: To explore parental participation and support towards the students in learning of mathematics subject in Higher Secondary School in Lunglei.

i) In the present study, the respondents have many problems in learning mathematics from their parents/family as many parents/family were not good in math to help teach their children at home but still have high expectation. Many students may feel stress because of these high expectation from their parents/family.

ii)The parents/family were also claimed that they were a bad listener and does not listen to their child' problems. As mathematics needs a lot of hours to study, students have problems in learning math as their parents/family do not give them enough time to study.

1. In relation to objective No.5: To compare parental participation and support towards the students in learning of mathematics subject in Higher Secondary School in Lunglei in relation to their educational level.

i)The students in higher secondary school needs extra knowledge in every subjects as this stage is an important ladder for their future. Our present studies show many parents/family do not give their children financial support to buy reference book.

ii) It was found that many students were not given enough time to study mathematics which can hinder their learning to a great extend as topic in mathematics in higher secondary school is very vast.

2. In relation to objective No.6: To investigate the influence of a teacher on a students in learning Mathematics.

i)In the present study, teachers were found to be too serious while teaching and very fierce showing even a mathematics teacher need to crack jokes and be funny for the students to be interested in the said subject.

ii)In the present study, it has been found that teachers do not explain clearly the difficult questions which hampers the students in their learning. So the teachers needs to take more time and repeat their explanation especially on difficult questions.

## DISCUSSION

Studying and learning mathematics help a child to learn and think creatively and critically. Science, technology and engineering are very much a necessity in this modern world which cannot thrive without having a solid mathematics foundation. Students with continuously low performance in

mathematics may eventually lose their interest and refuse to learn further (Schraw et al. 2001). This is a severe problem. Negative attitude towards mathematics seems to be a source of challenges in learning mathematics. When students have such attitude towards mathematics, they will start perceiving mathematics as a very hard subject and very confusing to learn, they will quickly lose their interest and motivation to learn this subject. This finding is aligned with the study conducted by Gomez-Chacon (2000) which found that the emergence of negative attitudes and behaviors towards mathematics are the factors that contribute to the failure in mathematics.

In the aspects of teacher, teachers behaviors, practices and characteristics can be the main factors that obstruct the learning of mathematics and lose their motivation to study the subject. Teacher competencies relate to the quality of mathematics learning and students achievement. Many students feel scared and are unwilling to learn when the teacher is too fierce and have an unpleasant characteristics. As a result, many students are afraid to ask questions and have problems in learning mathematics. While Blomeke and Delaney(2012) states that teachers competency consist of cognitive abilities, professional knowledge and affective motivational characteristics: professional beliefs ,motivation and self-regulation. Additionally, low self-regulation skills in dealing with the challenges mentioned by the students faced difficulties in regulating their learning (Perry, Phillips & Dowler, 2004; Winne, 2005).

The learning of mathematics is also greatly influenced by parents and family as indicated by the findings of this study. Families often encounter problem-solving situations that require the instantiation of considerable mathematical knowledge and practice (Goldman & Booker, 2009). Research on mathematics in the home consistently shows that families often draw on distinctive funds of knowledge that include an array of information, skills, and strategies that can be qualitatively different to, but equally effective as, the mathematical knowledge that children are taught in school ( Baker, Street & Tomlin, 2003; Gonzalez, Moll & Amanti, 2005). There is no doubt that parents or teachers set certain expectations on students' mathematics achievement to motivate their children to learn mathematics. But the finding of this study indicated high expectation by the parents and family create problems in learning mathematics. It should also be noticed that too high expectations will lead to fear and avoidance from mathematics which indicated that the expectation contributes to negative self-esteem of students ( Arem, 2003).

Assessment in mathematics can also make the goals for learning real to students and indicate to students what to learn. Today a wide range of different assessment formats and purposes exists. Throughout the world, various forms of assessment are employed to elicit information that can be used to inform decisions about mathematics education at the individual, institutional, and national levels. Many scholars have claimed that assessment should be used primarily to improve learning (Black and William 2012: Hattie and Timperley 2007; niss 1993 : van den Heuvel- Panhuizen and Becker 2003). But assessment pressure in mathematics have created problems in students learning as found in the present study. Moreover, lack of skills in understanding mathematical symbols, formulas, concepts and representations are also the problems experienced by students in mastering mathematics subject. This situation consequently leads students to

experience anxiety (Ho& Hyun, 2011). Negative feelings and stressful situations can also interfere to different degrees with success in mathematical tasks (Ashcraft and Kirk,2001; Maloney and Beilock, 2012; Vukovic et al., 2013).

## CONCLUSION

Based on the findings gathered from the study, the following conclusion can be made that laziness and pressure are the main problems faced by the students in learning mathematics in higher secondary school in Lunglei. Teachers and parents/family needs to encourage and motivate the students to work harder. Pressure can come from teacher, school or parents/family members who have high expectations for students to excel in mathematics. Additionally, examination pressure can also contribute to students' losing their interest in studying mathematics. Therefore, all members including the student's needs to have a good combination and mechanism to control and minimize the pressure.

Parents and teachers should not put too much emphasis on getting excellent results in examination such that it makes the students experiencing worry and fear. However, it should be done to some extend by using the fear appeal elements in a better way. The use of fear appeal elements on student evaluation is believed can motivate the students to learn harder especially for less hardworking students. This can be done when teachers or parents executing it together with the explanation on the significance of evaluation for the students' future education and career prospect (Putwain & Roberts, 2009).

In addition, the teachers can conduct essay and fun quiz with prizes which can boost students' motivation to study mathematics. Teachers need to make sure that their students see the value of each mathematical task or activity assigned to them.

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