

## CHAPTER I INTRODUCTION

### 1.1 Problem Background

Education is investment in human resources who have a long-term strategic value for the survival of human civilization in the world. As well as the presentation (Kunandar, 2011: 8)

Assessing the quality of a nation's human resources in general can be seen from the quality of the nation's education. History has proven that the progress and prosperity of a nation in the world is determined by the development in the field of education.

Therefore, almost all countries put education variable as something important and major in the context of nation building. Likewise, Indonesia put education as an important and major. It can be seen from the contents of the fourth paragraph of the Preamble of the 1945 Constitution which asserts that one of the national goals of Indonesia is the intellectual life of the nation.

The quality of education in Indonesia is considered by many people is still low. As shown by data from TIMSS (Trends in International Mathematics and Science Study) 2011 ([http://timss.bc.edu/timss2011/downloads/T11\\_IR\\_Mathematics\\_FullBook.pdf](http://timss.bc.edu/timss2011/downloads/T11_IR_Mathematics_FullBook.pdf)) that the achievement of mathematics education in Indonesia was ranked 38 out of 41 countries with score of 386 and far behind by other ASEAN countries such as Italy (score 498), Malaysia (score 440) and Thailand (score 427). This fact clearly shows that mathematics education in Indonesia is still disappointing. Thought, mathematics is a basic of all discipline science and very importing in daily life.

As proposed by Cockroft (in Abdurrahman, 2009: 253) that “Mathematics should be taught to students because of (1) is always used in life; (2) all fields of study require skills appropriate mathematics; (3) is a powerful means of

communication; (4) can be used to present information in a variety of ways; (5) improve the ability to think logically, accuracy, and awareness spatial; (6) provide satisfaction to solve business challenging problem.”

According Johnson and Myklebust in (Abdurrahman, 2009: 253) "Mathematics is a symbolic language to express the practical function relations of quantitative and spatial. And, the theoretical function is to facilitate thinking".

The evidence suggests, not least school students who still think math is a subject that create stress, making the mind confused, spend time and tend to just messing about with a formula that is not useful in life. Consequently, mathematics is seen as a science that does not need to be learned and can be ignored. In addition, it is also supported by the learning process in schools that still only oriented work practice questions only. Rare mathematics learning process directly linked to real life.

Meanwhile, according to the Palling (Abdurrahman, 2003: 252) the human ideas about mathematics vary, depending on experience and knowledge of each. Some say that the mathematical calculations only include add, minus, multiply, for; but others involve topics such as algebra, geometry, and trigonometry. Many also believe that mathematics includes everything associated with logical thinking.

This contradiction will certainly make the learning of mathematics be without meaning, so that students assume mathematics is unimportant. This of course will affect the result of the students' mathematics learning.

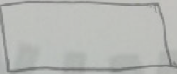
Furthermore Palling in (Abdurrahman, 2003: 252) argues that mathematics is a way to find answers to the problems facing humanity; a way to use the information, using knowledge of the count, and the most important is the thought in man itself in seeing and using relationships.

Therefore, be required to reinforcement the role of mathematics and mathematics education, which is about planning learning activities. Especially the

quality of teaching, each teacher of mathematics should be given training and the introduction of models, methods and approach to learning is good and right in order to achieve good results also learn mathematics.

From interviews conducted by researchers to Mrs. Siti Khadijah as a mathematics teacher SMP Negeri 11 Medan, obtained that student learning outcomes are still very low in math as a whole. In everyday students, only a few students were enthusiastic about math. Students are still less active in the learning process. They only hear the teacher lectures and do the problems without much criticism, comments or questions to the teacher. If they do not understand the teacher's explanations, they are reluctant to ask the teacher. This happens in almost every mathematical material including flat wake quadrilateral when students are given a problem, they have trouble writing it into the language of mathematics.

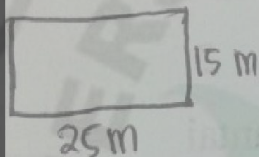
Luas lantai ruangan yang berbentuk persegi panjang adalah  $90 \text{ m}^2$ .  
 Perbandingan panjang dan lebar lantai ruangan tersebut adalah  $5 : 2$ .  
 Nyatakan dalam gambar dan model matematika! Hitunglah keliling lantai ruangan tersebut.

① Perbandingan  $5 : 2$    
 luas :  $90 \text{ m}^2$

Jawab : Keliling Persegi panjang .  
 $2p + 2l$   
 $= (2 \times 5) + (2 \times 2)$   
 $= 10 + 4$   
 $= 14 \text{ m}$

Pak Hadi akan membuat pagar di sekeliling kebun pisang yang berbentuk persegi panjang. Panjang kebun pisang tersebut 25 m, sedangkan lebarnya adalah 15 m.

- Gambarkan permasalahan tersebut
- Berdasarkan gambar, bagaimana cara menghitung panjang pagar yang akan dibuat Pak Hadi?



Jawab :  $P \times L$   
 $25 \text{ m} \times 15 \text{ m}$   
 $= 375 \text{ m}^2$

3. Pak Nasir mempunyai sawah yang berbentuk persegi dengan panjang sisinya adalah 60 m. Disekeliling sawah tersebut ditanami pohon jeruk dengan jarak antar pohon jeruk adalah 2 m. Pertanyaan:

- Data apa saja diperoleh dari permasalahan tersebut!
- Bagaimana cara mengetahui banyak pohon jeruk yang ditanam di sekeliling sawah tersebut!
- Hitung banyak pohon jeruk yang ditanam di sekeliling sawah tersebut!
- Periksa kembali hasil yang diperoleh pada pertanyaan c! Apakah banyak pohon jeruk yang ditanam disekeliling sawah tersebut adalah 120 pohon? Jelaskan!

- a. Panjang sisi = 60 m  
 Jarak antara pohon jeruk = 2 m
- b. Cara mengetahuinya adalah :  $\frac{60}{2}$   
 $= 30$  pohon jeruk
- c. Banyak pohon jeruk adalah :  $\frac{60}{2} = 30$  banyak pohon jeruk
- d. Tidak, karena banyaknya pohon jeruk adalah 30

Figure 1.1.the student's answer from initial test

This is in line with the test given to the student researcher VIII-7 at the school. Tests are given about quadrilateral they've learned in class VII. Many students still make mistakes such as not being able to apply their knowledge to solve problems. Following the conclusion of initial tests of students of class VIII-7:

**Table 1.1 Classical Completeness in Class VIII-7**

	$\geq 65$	$<65$	Classical Criteria
VIII-7	68.75%	31.25%	Incomplete

The class not meet the criteria of classical completeness in accordance with the said (Trianto, 2009: 241), a class is said to be completed in the classical if  $\geq 85\%$  which has absorption  $\geq 65$ . Researchers also made observations when the teacher teaches, the researchers saw that the student activity is still far from ideal.

the role of the teacher in the learning of mathematics in general is as follows.

- First, how the subject matter was given to students in accordance with the standard curriculum.
- Second, how p roses learning takes place by involving learners in full and active, in terms of the learning process that takes place fun.

Regarding the teaching methods used in schools, from the observation that be obtained mathematics learning activities during this is *teacher-oriented*. The use of this method resulted in students being passive and positioned students as listeners and receiver. As a result, students are not trained to think independently and creatively to solve problems.

Until today there are many teachers use direct learning where learning is centered on teachers and the lack of variety of learning that teachers do. This makes the students tend to be passive in the learning process. Students are only

accustomed to accept and memorize what is delivered by teachers without motivated to understand the mathematical concepts, students can only complete the exact same problem with sample questions given by the teacher.

From the descriptions above, it was concluded that in order to retain knowledge longer remain in the memory of the student, there should be a maximum of learning that involves student activities. It should teachers provide learning experiences that engage students in the subject matter accompanied landing guidance of a teacher.

One alternative to this problem is the Realistic Mathematics Education. Because this accordance with the character of Realistic Mathematics Education, namely mathematics learning of the problems that exist in everyday life, which comes from the experience of each student. This lesson also requires that students actively involved in learning. Actually, so many factors can to increase mathematics learning outcomes. There are internal and external factors. But in this case, writer only discuss about external factor that can to increase mathematics learning outcomes, namely is model realistic mathematics education

As Zainurie in (Soviawati, 2011: 81) "Mathematics is the realistic school math applied by placing realities and experiences of students as a starting point the point of learning. Problems realistically used as a source of the emergence of mathematical concepts or formal mathematical knowledge. "

Based on the description of the background, then writer interest to do a research with title "**Application Realistic Mathematics Education to Improve Mathematics Learning Outcomes on the Subject Quadrilateral in Grade VII SMP Negeri 11 Medan Academic Year 2014/2015**".

## **1.2 Problem Identification**

From the description of the background obtained by the identification of problems items, namely:

1. Mathematics learning outcomes is low
2. Learning methods are Often used is still centered on the teacher
3. Mathematic knowledge is not built from meaningful life context and relevant to student
4. Realistic Mathematics Education approach is not yet implied

## **1.3 Problem Limitation**

As described above, there are many problems that are identified, there needs to be more focus on the problem of restrictions. In this study the problems that Arise bounded on "Application Realistic Mathematics Education (RME) to Improve Mathematics Learning Outcomes on the Subject Quadrilateral in Grade VII SMP Negeri 11 Medan Academic Year 2014/2015".

## **1.4. Problem formulation**

Based on the background that have described above. The problem in this research is formulated as follows:

1. How the categories of realistic mathematics education process on the subject quadrilateral?
2. Is the mathematics learning outcomes will be increase by using realistic mathematics education on the subject quadrilateral in VII grade SMP Negeri 11 Medan academic year 2014/2015?
3. How the student learning activities of realistic mathematics education when applied on the subject quadrilateral in VII grade SMP Negeri 11 Medan academic year 2014/2015?

### **1.5. Research Objective**

Based on the problem formulation above, the purpose of this research are:

1. To know how the categories of realistic mathematics education process on the subject quadrilateral?
2. To know the increase of mathematics learning outcomes by using realistic mathematics education on the subject quadrilateral in VII grade SMP Negeri 11 Medan academic year 2014/2015?
3. To know how the learning activities of realistic mathematics education students when applied on the subject quadrilateral in VII grade of SMP Negeri 11 Medan academic year 2014/2015?

### **1.6. Benefits of Research**

1. For Students
  - a. It is expected students by the implement realistic mathematics learning can improve student's mathematics learning outcome.
  - b. It can raise motivation and interest of students in mathematics.
2. For teachers, it is expected to be input in the use of the approach varied in the pursuit of learning in the class room and can appeal relevant study for society in the next day.
3. For schools, it is expected to be used as input in policy innovations related Reviews their learning in schools to improve the quality of teaching mathematics.
4. For the authors, this study is expected to be a positive feedback in preparing themselves as prospective educators.
5. For other researchers, the study is expected be a medium for applying the approach of realistic in the learning process.



### 1.7. Operational Definition of Variables

In this study, there are two variables, namely:

1. The independent variables is realistic mathematics education which is treated in the classroom
2. The dependent variable is the learning outcomes achieved after treated. The intended learning outcomes is mastery students of the subject material sequence of numbers after being treated

