

CHAPTER I INTRODUCTION

1.1 Background

Education is one way to realize quality of society, especially preparing the excellent society for their competence. However, there are a lot of opinions the quality of education in Indonesia still low. As Irham Nasution (Waspada newspaper, February, 2nd 2012) from survey show that our education is far from the expectation, such as Education for All (EFA) Global Monitoring Report 2011, which had been launched by UNESCO, was in 65. Then, decreases to the 69 of 127 countries surveyed.

Nowdays, Mathematics is means the unity of knowledge, understanding, and human skill that are needed effectivelly in modren life. The expectation of graduate school that was critical, sistematical, reasonable, creative and cooperative.

There are some reasons concerning learning importance and mathematics mastery that is important for students. Mathematics belongs to development of other sciences. It also is relates to the problem solving in daily life. The mathematics usefulness in daily life such as counting of contents and weight, collecting, processing, presenting and interpreting data use calculators and computers. In addition, in order to be able to follow further mathematics, to help the understanding of other subjects such as physics, chemistry, architecture, pharmacy, geography, economics, and others. And no expectation to the students to think logical, critical, and practical, positive attitude and creative spirit.

A lot of articels in newspaper, internet and seminars. The opinion regarding efforts to improve quality of mathematics education today also there is no improvement. As the one told by Bahrul and Suhendra (2010:42) that :

"Sampai beberapa tahun yang lampau, pendidikan dianggap sebagai suatu sarana guna memberikan pembekalan keilmuan serta keterampilan dalam matematika yang dibutuhkan dalam penghidupan secara financial dan profesi semata. Akibatnya, kita dapat amati bahwa pada masa lampau – mungkin juga berjalan sampai sekarang pendidikan matematika sekolah dasar di Indonesia menekankan banyak sekali pada operasi bilangan."

Related with condition above that our mathematics education in primary till junior/senior level just think about numbers. Next, Bahrul dan Suhendra (2010:42) that:

“Persepsi bahwa matematika adalah kumpulan bilangan yang harus dioperasikan menyebabkan munculnya ketakwajaran dalam konteks matematika yang dibawa ke dalam kelas. Akibatnya, sering kita dengar soal matematika yang terlalu “dipaksakan”, contohnya soal tentang meminta anak menjumlahkan umur suatu planet dengan umur planet lain. Kemudian, keterampilan berhitung (mental, yaitu tanpa pensil dan kertas) menjadi segala – segalanya dalam pendidikan matematika kita dahulu. Kecepatan berhitung menjadi indicator utama kepiawaian seorang dalam matematika.”

Teaching and learning are two concepts that cannot be separated from others. Learning show what should be done as a lesson recipient (students), while teaching shows what should be done by teacher. So, learning is a process of interaction between teachers and students during teaching process. The successful of teaching process will be influenced by the ability of teacher to determine methods and tools is used teaching and also determined by interest of students.

The problem solving ability is low. It is caused some factors between students, teacher, learning method, or enviroment as related to another. That thing is as according to statement of Marjohan (2009:13) that : “ The characteristics conventional teaching is very evident the interaction teacher - students in the classroom. One of them is oauthoritatian apporoach. Therefore, the students must have received what teacher saying.”

In addition, mathematics achievement of students also is influenced by less participation students in classroom. That makes bloced students to solve this situation. The difficulties of most problem application in mathematics are not lies calculation, but rather than knowledge how to make clarify problem and can be solved.

Nowdays, mathematics expectation is facilities students can rediscover the formula by guide re-inventon. As mathematician discoverer, to find formula and theory in learning mathematics is problem solving very important. As stated Tran Vui (in Depdiknas: 2004: 9) Problem Solving is put forth as a major method and goal.

Mathematics content standard 2006 for all level education is stated that aims mathematics (in P4TK 2010:10) that the students should be able to:

- a. Understanding mathematics concepts
- b. Using reasoning
- c. Problem solving
- d. Communication of idea
- e. Respectful of using mathematics daily life

Furthermore, the importance of problem solving can also be seen in its role in learning. Stanic & Kilpatrick told McIntosh, R. & Jarret, D. (2000:8), share the role of problem solving as a context to a few things:

1. To justify the teaching of mathematics.
2. To attract students of the value of mathematics-related contents with real life issues.
3. To motivate students, arouse students' attention on the topic or procedure specialized in mathematics by providing contextual usability (inreal life).
4. For recreation, as a fun activity that breaks the atmosphere learning routine.
5. As an exercise, ability reinforcement concepts that have been taught directly (perhaps this role most often committed by us during this).

From content standard above, problem solving ability is the important role in learning mathematics and other subjects. The problem solving ability is needed everyone formaking decision. Therefore, mathematics teacher expected to teach prolem solving ability and mastery the concept, and include to reason critical, sistematical and creative. Indicators of problem solving ability divided into:

1. Understanding the problem
2. Arrange planning to solve problem
3. Implement the planning
4. Re – evaluate or verification all step that have been done

Problem solving process is not about calculation, but rather than on the knowledge to solve it. Another reason about the low of problem solving in mathematics of students and commonly for applicable for applied in process of learning is structural.

Thus, to teach mathematically is mediated problem solving, the teacher as instructional designer will need to arrange a series of problems that require mathematics modified responding. Then, the students develop fluency in the component mathematics skill whom he should be introduced to the next and more complex math mediated responding.

By existence is expected by structural practice approach is problem solving be better, one of subject at curved surfaced solids. Students less attention to the material that is explained by the teacher. It is also found in students' on SMP Negeri 1 Medan. Then, the students less understand how to solve it. This statement also supported by researcher direct interview result with mathematics teacher in SMP Negeri 1 Medan (**Mom Elliati Nasution**) April, 3rd 2012 in SMP Negeri 1 Medan stated that : "The students just memorizing the formula . By memorize the formula without understanding well and less practice is difficult to try the problem related in daily life". Teacher stated that the students have problems in learning the cylinder on subtopic which are already entered on a higher level, namely its application in daily life. The material is a continuation of the material they have learned at primary school level. However, as mentioned earlier, because the understanding of concepts in elementary school is still lack, so the students will into this subtopic in their junior high school back in trouble. Mom Elliati also teach mathematics in SMP Negeri 1 Medan express that about problem solving ability of students is less , it is caused only the students with high thinking level can using problem solving and another students cannot be done to solve it.

An approach can be done the teachers in learning process is contextual teaching and learning approach. The base philosophy of contextual teaching and learning as new alternative strategy is constructivism. Learning process in not only memorizing formula but also the experience. Therefore the students can

constructivism their knowledge. The teacher something to do a assist the students to get aimed or giving information by teacher.

The contextual is learning approach which learning in the school is related real situation. Then, the result learning easier is accepted and benefit if the students leave it the school. By Contextual teaching is related in real situation as learning source or material application.

According to statement above , a writer as researcher interested to write a tittle about: “ **THE DIFFERENCE OF STUDENTS’ PROBLEM SOLVING ABILITY USING CONTEXTUAL TEACHING AND LEARNING (CTL) AND DIRECT INSTRUCTION IN IX GRADE AT SMP NEGERI 1 MEDAN.** ”

1.2 Problem Identification

Based on brackground of problem, researcher identify various problems as follows:

1. Problem solving ability in mathematics of students is low. This situation is caused due to a lack of willingness of teacher to implement it.
2. Learning is not meaningful, means that the students can’t related a material into daily life
3. Less precisely learning approaches that used by teacher to deliver teaching materials.
4. The students have difficulty in problem solving mathematical because the understanding concept of the material is still lack.
5. The students have problems in learning the cylinder on sub topic which are already entered on a higher level, namely its application in daily life.

1.3 Limitation Problem

Making clearly and have mentioned identifying problem hence in this research is limited about the difference of students problem solving ability between Contextual Teaching and Learning (CTL) and direct instruction (DI) in IX grade at SMP Negeri 1 Medan.

1.4 Research Question

Based on the background of the issues, problems identification and limitation problem that has been stated above, then the problem in this study is formulated as follows:

1. Is there any difference problem solving ability between Contextual Teaching and Learning (CTL) approach and Direct Instruction(DI) in IX grade in at SMP Negeri 1 Medan.
2. What is the difference students activity in Contextual Teaching and Learning (CTL) and Direct Instruction (DI) about cylinder on subtopic IX grade at SMP Negeri 1 Medan Academic Year 2012/2013?
3. What is the difference teacher activity in Contextual Teaching and Learning (CTL) and Direct Instruction (DI) about cylinder on subtopic IX grade at SMP Negeri 1 Medan Academic Year 2012/2013?
4. What is students weakness of problem solving in cylinder subtopic after using contextual teaching and learning (CTL) and Direct Instruction (DI) IX grade at SMP Negeri 1 Medan Academic Year 2012/2013?

1.5 Research Objective

As for this purpose of research :

1. To know improve problem solving ability of students with using contextual teaching and learning (CTL) is better than Direct Instruction (DI) in IX grade at SMP Negeri 1 Medan.
2. To describe the students activity of mathematics learning by apply problem solving using Contextual Teaching and Learning (CTL) and Direct Instruction (DI) in IX grade at SMP Negeri 1 Medan Academic Year 2012/2013
3. To describe the teacher activity mathematics learning thoroughly applying problem solving using Contextual Teaching and Learning (CTL) and Direct Instruction (DI) on cylinder subtopic in IX grade at SMP Negeri 1 Medan Academic Year 2012/2013

4. To improve the students weakness of applying problem solving using contextual teaching and learning (CTL) and Direct Instruction (DI) on cylinder subtopic in IX grade at SMP Negeri 1 Medan Academic Year 2012/2013

1.6 Research Benefits

After do the research. The benefit which expected from this research is:

1. As component of information or input for teacher/ candidate teacher to be able to consider usage Contextual Learning is better study approach in process of study of mathematics
2. Learning became meaningful and fun for students
3. Input and information for the other researcher of the relationship with this problem of research

1.7 Operational Definition

1. Problem solving ability is ability of student how to solve the problem in mathematics with observe the process to find the solution based on the steps of problem solving as follows:
 - Understanding the problem
 - Arranging planning of problem solving
 - Implementing planning of problem solving
 - Evaluating problem solving that have done
2. Learning by Contextual teaching and learning (CTL) Approach is learning concept which helping a teacher make relation of learning material in real life situation and motivation to make relation between has belonging knowledge in daily life.”
3. Direct instruction is the learning process which teacher – oriented, less participant of student.