

CAPTER I INTRODUCTION

1.1. Background

The key of national development in Indonesia is clearly related with education. The development of sciences and technology nowadays also contributes to the quality of human resources and education itself. Education is a long process and need time to produce effect or result according to what we suppose to have. But, we have to face the same problem of education in Indonesia. In the most of teaching and learning process, students are failed to develop their thinking ability. One of the subject which is needed to be attended is mathematics.

Mathematics is one of the most important subjects that provide several vital skills to the learners. Whole of the skills that produced from mathematics including the ability to identify and analyze patterns, logic and critical thinking skills, ability to see relationships and also problem solving skills. All of these skills were contributed well to the learning outcomes of the learners. This is the reason why mathematics has a structure and a strong and clear linkage between concepts as to enable a student has skill to think rationally and is one of the principal subjects taught begin elementary until university (Depdiknas, 2005).

Two international researches conducted to demonstrate the ability of mastery in mathematics learning showed that Indonesian student capability still in the low level. Based on data of UNESCO datashows Indonesia ranked mathematics 36 out of 49 countries in Trends International Mathematics and Science Study (TIMSS) in 2007 (IBE, 2011: 25). Meanwhile in test of PISA (Programme for International Student Assessments) in 2012, 15-year old Indonesian students score poorly in PISA tests and are ranked at the second bottom for mathematics, that ranked 65 out of 66 countries (OECD, 2013). This suggests that the improvement of mathematics education in schools need to be considered by various parties, including government, education observers and by teachers as the perpetrator of education itself.

Based on the observation of researcher at SMP Negeri 28 Medan, student's interest in learning mathematics is relatively less. There's still the difficulty of teachers for explaining the abstract of mathematics which result in the student learning activities are less enjoyable. Most teachers still rely on the lecture method that students are easily bored, less active and less excited. The learning process mostly happened in conventional way. Teacher directly deliver the matters and dominate the class rather than students. These way of teacher to teach is still not appropriate to students' interest and needs. As a result, students were bored to study, inactive and their result of math test scores is still low.

It is clearly seen from the average result of students' mid odd semester examination in class VII is 63 which is still under KKM (minimum criteria) that is 75. And almost 84% students got score under 75 in mathematics score. It needs to be concerned well according to better quality of education and make better national development comes true since mathematics is one of very important and crucial to life according to the previous explanation. Because it cannot deny that students' learning outcomes in a school also contributes to the main whole summary of quality education in Indonesia too.

According to the objectives of mathematics education, then a teacher should design and implement various learning strategy which suitable to students' interest and skill also level of students' development to take benefits from many sources and learning media such that effectivity of learning process is arised. Learning model is clearly one of the most important thing to teacher teach in class professionally and brings the objectives of learning mathematics (mathematics education) to the reality. According to Cooper (in Trianto, 2009: 14), a teacher is person charged with the responsibility of helping others to learn and to behave in new different ways. It means teacher's ability to create interesting learning process which related to learning model which used is very crucial to be had.

From many learning models, problem-based learning (PBL) is one learning model that often used. Problem-based learning model is a very precise method to improve problem-solving abilities in students. One alternative learning model which enable develop of students' thinking skills (reasoning, communication, and

connections) in problem solving is problem-based learning. Supported by the statement Ratumanan (in Trianto, 2009: 92):

“Problem-based learning is an effective approach to teaching higher-order thinking processes. This learning helps students to process information that is already finished in his head and compose their own knowledge about the social world and its surroundings. Learning is suitable to develop basic knowledge and complex.”

In the application of PBL, students are learning in group to solve problems and tell their argumentation about problems in learning mathematics. It requires teacher to motivate and guide the lesson activity by using students' activity sheet and other medias. Meanwhile student teams achievement division (STAD) as cooperative learning is appeared with the similar form of learning in group which PBL has too. According to Slavin (in Trianto,2011:68).

“STAD cooperative learning model is a learning model that uses small groups consisting of 4 or 5 members in heterogeneous groups, both gender, race, ethnicity, or ability in one group, students use academic worksheet, and then helping students to master each lesson through questioning or discussion antarsesama group members.”

It means in STAD, students are given an opportunity to work in heterogene and small team to solve a problem together. STAD expected students to rise up ideas and activity in class. The objectives in this learning model is solve the problems together in group and increase students' activity in class. To get the objectives of learning, interesting learning media is needed when execute this model. Students' activity sheet and power point media are used to rise students' activity and brave to deliver their ideas, variation, motivation and interest in learning mathematics.

From outer seen that STAD seems like similar in PBL, since both of them have type of learning in group and student centered learning. Clearly, it brings question which one give the better effect to learning outcomes, whether PBL or STAD. Even more, is there any possibility that both of learning model, in this case PBL and STAD, will produces same result to students' learning outcomes because of the form. This becomes a confusion to researcher.

Based on those descriptions above, researcher comes with any doubts whether both of learning models in this case are: PBL and cooperative learning type of STAD, give different result toward students' learning outcomes. Based on the general description above, then the researcher has interested to do research entitled "The Comparison of Students' Learning Outcomes on The Topic of Linear Equation in One Variable by Using Problem – Based Learning (PBL) Model and Student Teams Achievement Division (STAD) in Grade VII SMP Negeri 28 Medan."

1.2. Problem Identification

Based on the background above can be identified the problem as follows:

1. The conventional way is often used in SMP Negeri 28 Medan such that students were bored to study mathematics.
2. Most of learning process is dominated by teacher and students are less active when studying mathematics in class.
3. The average of students' mid odd semester examination of mathematics in SMP Negeri 28 Medan for class VII is 63, it means the score is under KKM.
4. Learning model is still not appropriate to students' interest and needs so that students' learning outcomes is still in low level.
5. Problem – based learning model and cooperative type of STAD has similar form of learning in group gives confusion whether it produces different result.

1.3. Problem Limitation

Based on the limitation scope of research location, research time and the research variable causes this study is limited in the scope as follows:

1. Students' learning outcomes on the topic of linear system in one variable for Class VII in SMP Negeri 28 Medan for Odd Semester 2015/2016.
2. The learning activities for this study are given by using problem – based learning and student teams achievement division.

1.4. Problem Formulation

Based on the background above, the problems are formulated as: “Is students’ mathematics learning outcomes which taught by using problem – based learning model higher than mathematics learning outcomes of students which taught by using student teams achievement division in grade VII SMP Negeri 28 Medan?”

1.5. Research Objectives

The objectives of the research are as follows:

1. To compare the differences of students’ mathematics learning outcomes which taught by using problem – based learning model and student teams achievement division in grade VII SMP Negeri 28 Medan.
2. To determine whether students’ mathematics learning outcomes which taught by using problem – based learning model is higher than mathematics learning outcomes of students which taught by using student teams achievement division in grade VII SMP Negeri 28 Medan.

1.6. Research Benefits

This research is expected will give the benefits as follows:

1. For students, helping them to increase their learning outcomes of mathematics and interest to learn mathematics.
2. For teachers, opening their insight and variety about developing teaching well especially in using learning model in class.
3. For school, increasing the quality of school caused by the increasing of students’ learning outcomes and teacher activities.
4. For researcher or advanced researcher, improving their insight, ability, information and experience in increasing the competency as teacher student.

1.7. Operational Definitions

In order to avoid the differences of clarity meaning about important terms contained in this research, the operational definitions will be noted as following :

1. Learning outcomes are the statements of what a learner is expected to know, understand or able to do at the end of a module and of how that learning will be demonstrated.
2. PBL is one of model that make active learning is occurred. PBL is a student centered approach that organizes curriculum and instruction around carefully crafted “ill-structured” and real-world problems situations. Learning is active rather than passive, integrated rather than fragmented, and connected rather than disjointed.
3. Student Teams Achievement Division (STAD) is such Cooperation Learning teaching method which provides a cooperative learning environment which fosters learner activity, joint acquisition of content and mutual explaining.