

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Education is the most important aspect in human life. Without education, human will not be able to survive and grow until their state of life today. One of the most prominent country in the world that emphasize education as the main pillar to grow is Japan. When the nuclear bomb hit Japan, the first thing that they did were rescuing teacher because they know that to build one big nation, the first thing to build was their education and its system. It shows how significant and important education for life. Education is the cornerstone for the nation's progress. Because, to build a great nation, we need great people and society, and to build great people and society, people need to learn how to become one holistic person, and the only way to learn how to become a holistic person is through education since education can lead to the changes of behavior. These changes of behavior involve the change of knowledge (cognitive) and skills (psychomotor) and also involve values and attitudes (affective) (Siregar & Nara, 2010, p. 3). As Romans 12 also tells us:

And be not conformed to this world, but be ye transformed by the renewing of your mind, that ye may prove what is that good, and acceptable, and perfect, will of God. -
Romans 12:2 (KJV)

From the passage we all know that changes of behavior that involve the change of knowledge, skills, and attitudes or in its word, renewing of your mind, is a demand from God. This is one thing that have to be done by human, so that we can know which one is good or bad, it means that we are granted with wisdom so that we can

use our knowledge properly and know where, when, why, and how we apply those knowledge that we have received.

The goal of Christian education itself is to guide the students to become the disciple of Jesus Christ that is responsible so they will be able to apply Christian values in their life (Van Brummelen, 1998, p. 19). That is why big changes of students cognitive, psychomotor and also affective must be based also on Christian values that emphasize on God's preeminence in their life so through the education that they took, they can learn how to become a holistic person, not just a holistic person but a holistic Christian person. Students need the help of their teachers to achieve this goal, not just ordinary teachers but what they need are Christian teachers. These Christian teachers have to be able to do their teaching activity based on the Christian philosophy. Now their job in hand is to try to develop a Christian approach on philosophy and also education (Knight G. R., 2006, p. 198). Because of that, in a teaching, a strong and solid cornerstone is needed in teaching the students so they can have a strong cornerstone with God in their life.

But, the falling of mankind to sin made everything become harder than before, full of constraints, and many mistakes. This disequilibrium makes all of the students did not get what they supposed to get through education. They just learn for nothing, they just learn to pass the standard grade and move on to the next grade after they finish school they do not know where they supposed to go next, should they go to work or should they go to the university to take higher education. Students forgot all the things that they have learned from elementary school to high school since what they teacher did for students is just spoon-feeding. They totally

forgot about the changes that they have to do in students' life which were cognitive, skills, and attitudes.

This is a big mistake in the education nowadays. Students are not supposed to only receive education to get higher grade and pass the exam, but every student must be able to have a basic ability that is strong and solid in every type of learning so they will be able to solve every problem that they faced by their own ability. This is the things that the students lacked very much especially in mathematics.

Mathematics always be and always been the most fearsome scourge for some students start from the elementary school until senior school, even until they are entering college life. The students always feel that it is so hard to do the problems their teacher gave to them because they do not understand how to solve the problems or which method that they have to use to solve those problems. This condition doesn't change in 12 years of studies, from elementary to secondary, without any concern and anticipation from mathematic teachers.

The researcher also found this phenomenon when the researcher was doing an observation in SMA XYZ. From the observation, the teachers just gave an explanation for students, whether students understand or not, they just kept teaching to finish the material on time and on target. It seems like they all had given up and just teach without taking any consideration on students' difficulties and inability to solve the problems. Teachers just gave less difficult problems for students to solve or the problems in their textbook. But if they were given slightly different problems from the usual problems that they had practiced, students were not able to solve it because they were only memorizing the method not study to understand the concept or method. They were not able to identify the problems and analyze the

concept that was needed to solve those problems. These things are the result of the lack of conceptual understanding.

When the researcher taught in the SMA XYZ, the researcher also found these phenomena. From the teaching and learning process and from the result of the learning activity in the math session, it seemed that the students lacked of conceptual understanding. The researcher could obtain this conclusion from low result that the students got from the quiz that they had done that showed how student lack of conceptual understanding. The problems that can be identified by the researcher in this research are these: (1) Students did not know what method that they have to use to solve different type of problem. (2) Students think less critically during teaching and learning process, (3) Students did not have ability to analyze the problems, (4) Students only memorize not understand, (5) Students did not try to explore other ways that can be used to solve the problems, (6) Students lack of conceptual understanding. From the problems that have been identified by the researcher, this research will focus on the problems: Students lack of conceptual understanding.

These situations of lack of conceptual understanding led to the inability of students to develop their skills and ability to interpret a problem, find a way to solve the problem, and solve a slightly different problem that still related to the problems that they have learned before even they have solved before. This condition is automatically make them lazy to think and to work and solve the problems. The researcher expected that the application of Problem-Based Learning (PBL) can give a solution to overcome this problem. Since problem-based learning is a teaching method that emphasize on the facts; the challenges in real life, high order of

thinking, the ability to solve problem (Tan, 2003, p. 23). This is also one of the purpose of the implementation of problem-based learning which is to develop students' ability to solve problem. This is also based on one of the characteristic of problem-based learning which is to help students engage in various metacognitive and social activities to become self-directed learners (Pierce & Jones, 1996). That is why the implementation of problem-based learning can help increase students' conceptual understanding.

1.2 Statement of Problems

Based on the explanation above, the statements of problems are:

- 1) Does the application of problem-based learning increase students' conceptual understanding in learning probability?
- 2) What is the effective way of applying problem-based learning in teaching probability?

1.3 Purpose of Research

- 1) To evaluate whether the application of Problem-based Learning can increase students' conceptual understanding in learning probability.
- 2) To find the effective way of applying Problem-based Learning to increase students' conceptual understanding in learning probability.

1.4 Benefits of the Research.

There are few benefits of this research, which are for:

1. Teachers

As additional resources for teacher to increase students' conceptual understanding in learning probability with the application of Problem-based Learning.

2. School

For one point of reference for school whether they will increase students' conceptual understanding in learning probability, one of the way is by the application of Problem-based Learning.

3. Development of Theory

As another reference to enrich the theory about conceptual understanding and also Problem-based Learning method.

4. Researcher

As another reference to apply Problem-based Learning and as a resource to increase students' conceptual understanding. As a stepping stone to continue the research with the same topic, reject this research, or give critique and advice for this research.

5. Students

To increase students' conceptual understanding in learning probability and to increase students' ability so they can improve to the higher order of thinking.

1.5 Definition of Terms

There are some terms that will be used frequently in this research, which are:

1. Problem-based Learning

Problem-based Learning is a teaching method where the main point of the method is the using of story problems for students to understand the material and the use of the material in real-life.

2. Conceptual Understanding

Conceptual understanding is the comprehension of an individual that enable students to named, describe, and apply a certain concept.

3. Probability

Probability is a topic for grade XI Social, in mathematic subject where the students will be challenged to count the probability of one event or more.

4. Grade XI Social Studies

Grade XI Social are the research subject who are based on Piaget's developmental stages, they should be in the fourth stage of developmental stages who are able to think more abstract, especially in learning mathematical concepts.

