CHAPTER 1

INTRODUCTION

1.1 The Background of the Research

The most important thing to increase nation's progress is human resource. Indonesia is categorized as a developing country and the quality of National Education is moving an international standard Education has a very wide meaning and reach all aspects of human life. With education, people have advantages that humans have the ability to solve various problems and difficulties of life. Therefore, the position of education is a builder, shaper, and human development. Globalization requires people to have adequate education in order to compete. Unfortunately, Indonesia is still confronted with the facts about the low quality of education in Indonesia, among these: (1)Every minute, four children out of school; (2)54% of teachers do not have sufficient qualifications to teach; (3)34% shortage of school teachers; (4)Uneven distribution of teachers; (5)Education Development Index (EDI) is at 69th position out of 127 countries. (UNESCO, 2011)

The quality of education is an indicator for development rate of the country, and therefore the development in education sector is a key for the development of the nation. Unfortunately, the quality of education in Indonesia is still low. It caused by learning quality is not optimal. This is shown by the low student learning outcomes in senior high school, especially in chemistry. Generally, in SMA Panca Budi Medan, there are many students who failed the examination. They have value lower than KKM that decided by school, it is about 60%, where KKM in this school is 75 It caused by the method of teacher and student's activity. Based on that percentage of average value shown that teaching of chemistry was not maximal yet to get a good result. Therefore still needed the improvement to minimize the percentage of students number who have value that lower that KKM which is have been decided by the school.

Nowadays, our government is actively encouraging the education in Indonesia. It is recognized that education in Indonesia is lagging far behind if we compare with developed countries in the world. One of the government's effort that we can see is curriculum development become curriculum of 2013. This curriculum requires active students. The curriculum is not only oriented on knowledge, but also on the affective and psychomotor. If the students shows good learning achievement (cognitive, affective and psychomotor) it means that the education process is success. But when student show bad learning achievement, affective and psychomotor, it means that the education process has failed. It's mean that this curriculum will require teachers to measure student's character, things that were never done, especially in SMA Panca Budi Medan

Teaching activities in schools are part of the general educational activities, which automatically increases the quality of the students towards the better. Student success in understanding and mastering the material provided. The more students who can reach the level of understanding and mastery of the material the higher success of teaching. Learning model recommended in the 2013 curriculum is problem-based learning, project based learning and discovery learning. With these models is expected an increasing of student's learning outcomes, whether cognitive, affective and psychomotor.

In the learning process, teachers are required to encourage students to learn actively so learning become meaningful to students. In line with (Slameto, 2003) argues that: "In the process of teaching and learning, teacher should be create a lot of student activity in the thinking and doing. Learning activity that do by students themselves, the impression will not go away, but thought, processed and then released again in a different form. Or students will ask, ask opinions, raises discussion with teachers. So students can run the command, carry out a task, make charts, diagrams, and the essence of the lesson presented by the teacher. When students become active, then they have a knowledge/ science well."

Learning chemistry will be meaningful to the student, if the learning is done in accordance with student's initial knowledge. From the beginning of knowledge, teachers provide materials/ learning resources that correspond to the basic competencies desired, then conditioned with the guidance of the teacher to make students active in constructing their own knowledge. Learning will be meaningful if teachers relate new knowledge with experience who has owned one of the important factors in learning chemistry.

Description above reinforce the researchers to conclude learning strategy in this model is one less variable trigger low student's learning outcomes. In an effort to improve student learning outcomes, required innovation in learning chemistry. One step that can be done by the teacher as mentor learners is to choose the right learning model. The use of a less precise model of learning can lead to be bored, lack of understanding of the material, and finally may decrease the motivation of participants in the study.

The main problem in learning in formal education (schools) is the low absorptive capacity of learners. This is evident from the result of student's learning is very low. Achievement is certainly the result of learning conditions that are conventional and don't make the students aware of participants, how to actually learn it. In other words, the learning process is still dominated by the teacher and not provide access for students to develop independently through discovery in the process of thinking (Trianto, 2010). To solve the problems in teaching and learning, teachers must have a teaching strategy among other such as CTL (Contextual Teaching and Learning), PBL (Problem Based Learning), each other model.

Chemistry is one of those subjects that has a very close relationship between the concepts with their application in everyday life. This means that the learning is not enough just to teach chemistry conceptually, but students also need to understand how to use the concept significantly.

The matter of solubility and solubility product is one of the lesson in senior high school chemistry class XI. Topic solubility and solubility product

includes definition and unit of solubility, Constanta of solubility product (ksp), the relationship between solubility (s) and Constanta of solubility product (ksp), the effect of common ion toward solubility, solubility and pH, pH and solubility of base, pH and solubility of salts, and precipitation reaction. Solubility and solubility product is a concept that adequately represent the abstract of chemistry lesson so that this subject is difficult to be understood by students.

Disinterest of students to chemistry subject either caused to ignorance of students about the usefulness of the material being studied chemistry in daily life. In addition, because of the way teachers teach focuses on books.

A wide range of innovative learning strategies that are considered the development of student's cognitive abilities and independence. One model is Problem Based Learning (PBL). Where PBL is a learning model that engages students to solve a problem through the stages of the scientific method so that students can learn the knowledge related to the problem and have skills to solve problems. Objectives to be achieved by the problem based learning is a student's ability to think critically, analysts, systematic and logical to look for an alternative solution through the exploration of the empirical data in order to develop a scientific attitude (Sanjaya, 2008). So the learning goals expected to be achieved, which is to improve student learning outcomes and develop a scientific attitude in students.

Model of Problem Based Learning begins with a problem, then students deepen their knowledge about what they already know and what they need to know to solve the problem. This is supported by (Duch in Riyanto, 2010) states that: "Problem-based learning is a learning model that exposes learners to the challenge of 'learning to learn'. Students actively work together in groups to seek solutions of problems. The problem is as a reference for students to formulate, analyze, and solve it. Problem Based Leaning model is intended to develop students' critical thinking, analytical, and to find and use appropriate resources for learning."

Based on result of research conducted by Napitupulu (2013), student's achievement are taught with a problem-based learning model is significantly better than the learning outcomes of students with not using problem-based learning model that indicated the proportion of the value of p (sig (2-tailed) = 0.00 (value of p> 0.05). This is in line with research conducted by Sitorus (2011). The average score of student learning outcomes without Problem Based Learning method amounted to 28.00 (with a standard deviation of 8.29 average standard error 1.40). These results increased after the Problem Based Learning method with average learning outcomes become 52.52 (with a standard deviation of 11.64 and a standard deviation of 1.97 on average). Student learning outcomes with the Problem Based Learning method is better compares with the results of learning without a Problem Based Learning Methods. It also prove by Hasni in her research, student learning outcomes are taught using problem based learning model higher with average pretest = 22.25 and an average post test = 61.25 rather than student learning outcomes are taught by direct instruction with an average pretest = 18.5 and average post test = 36.13. This shows that the application of PBL models have a significant influence on learning outcomes of students to the concept of chemical reaction rate.

In the learning of problem based learning students are required to undertake the process of solving problems presented by digging out as much. This experience is indispensable in everyday of life where the growth of mindset and work patterns of a person depends on how he positioned himself in the study. Problem Based Learning is learning using a real problem (the fact) that is presented at the beginning of learning. First step is understanding of the problem so that the necessary reasoning abilities, and then probed for known solutions to these problems. While the role of the teacher is asking problems, provide encouragement, motivation, and providing teaching materials, as well as providing the necessary facilities learners in the process of reasoning. In addition, teachers also provide support in an effort to improve the findings and intellectual development of students.

Based on main problems above, the research was did with the title **"The Influence of Problem Based Learning to Increase Student's Achievement and Student's Character of Cooperation and Responsibility on the Teaching of Solubility and Solubility Product in Senior High School".**

1.2 Problem Identification

a. Is the quality of education in Indonesia still low?
b. Is student's achievement in learning chemistry still low?
c. Does teachers measure the character of students?
d. Does teachers use less variation of learning model?
e. Is the learning process still dominated by teacher?

1.3 Problem limitation

Based on the identification problem above, there is a wide scope of issues, so this research is limited to know the following :

1. This research will be conducted at the Senior High School (SHS) class XI using 2013 curriculum, semester 2 T.A. 2013/2014
2. The subject material that will be taught is solubility and solubility product
3. Teaching model that will be applied in this research is problem based learning model
4. The character that will be measured in this study are cooperation and responsibility
5. Student's achievement that will be measured in this study is the cognitive aspect of C1, C2, C3 and C4 level
6. Student's character will be measured using observation sheet and questioners

1.4. Problem Formulation

As for the formulation of the problems in this research are:

1. Is student's achievement who had been learnt by using problem based learning model higher than student's achievement who had been learnt by using direct instruction?
2. How many average percentage of student's cooperation character that can be developed by applying problem based learning model?
3. How many average percentage of student's responsibility character that can be developed by applying problem based learning model?

1.5. Research Objective

1. The results comparisons of student's achievement who had been learnt by using problem based learning method with using direct instruction
2. The average percentage of student's cooperation character that developed by applying problem based learning model
3. The average percentage of student's responsibility character that developed by applying problem based learning model

1.6. Research Benefit

This research is expected as follows:

1. Can provide guidelines for teachers of science, especially chemistry teachers to use problem based learning model in learning process that can improve student's achievement.
2. Can change student's paradigm that chemistry isn't a difficult subject, so it can improve their motivation to learn and also the understanding about solubility and solubility product
3. Can provide inputs for next researcher to do similar research in the future