CHAPTER I

INTRODUCTION

1.1. Research Background

The quality of a nation is determined by the quality of national education itself. Currently, the quality of education in Indonesia is still low. Evidenced by the date of Education for All Global Monitoring Report 2011 that released by the United Nation Education scientific and Culture Organization (UNESCO) annually, Indonesia occupy 69th rank in education among 127 countries. (Azhar, 2014). Another fact indicates the low quality of Indonesia's education based on the results of follow TIMSS (Trends in International Mathematics and Science Study) in 1999 involving thousands of Indonesian students to get an overview of the capabilities of Indonesian students. In TIMSS 1999, Indonesia achievement is less satisfactory. In science Indonesia occupy 32nd rank out of 38 countries. In TIMSS 2003, Indonesia occupies 37th rank out of 46 countries. Also in 2007 Indonesia occupies 35th rank out of 49 countries. In this regard, Indonesia achievement is below Brunei Darussalam and Singapore as neighboring states. (Litbang Kemdikbud, 2011).

The low quality of education in Indonesia is generally caused by the effectiveness and teaching effeciency, standardization of education, poor quality of infrastructure, less of teachers' welfare, low student achievement, less of equal opportunity of education, less of relevance of education to the needs, the high cost of education. (Dwiwahyuni, 2011). For prospective teachers, the main centers of attention to improving the quality of education independently are low student learning outcomes and learning effectiveness. The most important things is teachers should pay attention to the characteristics of the material to be taught and then choose the appropriate learning models that can improve learning effectiveness and student learning outcome.

In senior high school, the chemistry is considered as a difficult subject even creepy. Chemistry is also regarded as an abstract lesson, filled with confused concepts and difficult matter (Ibraheem, 2011). Not surprisingly, most students

are not interested to learn. Generally, students give up even before studying chemistry. Less interesting of the students has direct impact on student learning outcome. As proof when I was in school where PPLT implemented, most students learning outcomes below minimum completeness criteria (KKM). The KKM in Senior High School 1 Matauli Pandan is 77. From 236 students of class XI, in first daily examination only 96 students (40,67%) can achieve KKM and in mid semester examination about 105 students (44.49%) can achieve KKM. In other words, the percentage of students who can achieve KKM is not more than 50%. Another school, in Senior High School I Rantau Selatan, the KKM is equal to 70. Based on interviews with teachers of chemistry in there, the number of student can achieve KKM is about 35% out of 280 students in class XI science.

From observation in Senior High School I Rantau Selatan, low student's achievement related to how the teachers present lessons. Teachers have less variation in presenting the subject matter. Learning activities always begin with greetings, apperception, material explanations, exercises and giving home assignments. Everything is done by teachers without involving students directly. Sometimes teachers also provide media in learning activities, but students just listen to it. Learning activities like that make student become passive, less interaction and collaboration with other students. Supposedly, the teacher is demand for creative in implementing a learning model that allows students to active, interact and collaborate with each other and also can achieve the goal as expected. The learning model should effective appropriate with the subject being taught in improving student achievement (Purtadi, 2012).

One of model learning that allow student become more active is Problem Based Learning (PBL). In PBL, guided by teacher students develop critical thinking, problem solving and collaborative skills as they identify problem, formulate hypotheses, conduct data seaches, perform experiment, formulate solution and determine the best of solution to the problems (Surif, et.all, 2013). PBL is model which centers on student, develops active learning, problem solving skills and field knowledge, and is based on understanding and problem solving. In

the classroom where using PBL is used, students take much more responsibility for their own learning progressively (Akinoglu and Tando, 2006).

PBL also can improve student achievement is higher than the individual learning (Dewi, 2013). It is also proved by research that was conducted by Jefri (2013), obtained percentage of student learning outcomes improvement is 79.7% using the model PBL on the subject of colloids. Research conducted by Batubara (2013), the percentage of student learning outcomes improvement is 51.781% on the subject of the reaction rate using the model PBL. And a recent study by Fitri (2014) obtained the percentage of student learning outcomes improvement using PBL on the subject of the redox reaction is 75.12%.

Nowadays, teachers only measure learning outcomes in cognitive aspect. Cognitive is not the only object of assessment of learning outcomes. Actually, teachers is not only measure learning outcomes in cognitive aspect but affective is too. The reason is our national education has objectives to develop the potential of students to be the faithful human to the God, have a certain character, healthy, bookish, capable, creative, autonomous, and being the democratic and responsibilty citizen (Deputi Menteri Sekretaris Negara Bidang Perundangundangan, 2003). It show the quality of character education is very important to be improved.

Beside active, teamwork character includes to character that belong to the student. It's important to measure it to know the development of student's affective. So the result of learning outcome involve cognitive and affective. To improve teamwork character, teachers must be able to create an atmosphere of cooperative learning. In the cooperative learning classroom, student work together to attain group goals that cannot be obtained by working alone. In this classroom structure, student discuss the subject matter, help one another learn, and provide encouragement for members og the group (Johnson, Johnson & Holubec, 1986).

Cooperative learning is a solution to increase teamwork character among students in learning activities. One example of cooperative learning is the STAD. STAD is one of the many strategies in cooperative learning, which helps promote collaboration and self-regulating learning skills. The reason for the selection of

STAD is good interaction among students, improve positive attitude toward the subject, better self-esteem, interpersonal skills Increased (Khan, 2011). Expected with the implementation of STAD not only improve student's achievement in cognitive but also student teamwork character.

STAD also can increase student achievement. Based on the previous research STAD can increase student learning outcome. Result of research Pradiyanti (2013) prove the effectiveness of STAD. The pretest of cognitive learning result is 41 and the post test is 86. This mean STAD gives a positive effect on learning activity. Using the STAD had researched by Hakimitriyuza (2014) she said that resulted student achievement was improved where the percentage of increasing student achievement about 79% by implementing STAD. According to Anggraini (2014) in her thesis, the mean of student's chemistry achievement that taught by cooperative learning STAD type multimedia based on computer is 86, 67%.

The researcher chooses the buffer solution as learning material. Buffer solution is studied in even semester of class XI. The material of the buffer solution contains many complex concepts and calculation that require problem-solving process. Many students struggle to learn it, especially if taught by direct instruction. Selection of model of learning appropriate with the characteristic of material is important to overcome the problem faced by students. PBL model integrated with STAD is appropriate when applied to this material. This model engages students to solve problems through the stages of scientific methods so that students can learn the knowledge related to the problem and can increase student activity and teamwork character.

Based on the background described, researcher interest to do the research by integrating the PBL with STAD. Previous studies distinguish between the model PBL and STAD although both have the objectives to increase student achievement. Research carried out by integrating PBL and STAD expected can improve student learning outcomes, include achievement in cognitive, student activity and teamwork character of students in the learning process with the title: **"The Implementation of Problem Based Learning (PBL) Model Integrated**

with Student Team Achievement Division (STAD) to Increase Student's Outcomes in Learning Buffer Solution at Senior High School Class XI Academic Year 2014/2015".

1.2. Problem Identification

Based on the background described above, then obtained that:

1. Why the quality of education in Indonesia stiil low?
2. As a prospective teacher what is a major concern to improve the quality of education?
3. Why is the student's achievement in learning chemistry still low?
4. Less variation in implementation of model of learning that appropriate with learning material characteristic
5. How to increase student's achievement in learning chemistry?
6. Why the teacher only measure cognitive aspect as student achievement?

1.3. Scope of Research

To focus on the problem, so the scope of this research are:

1. The teaching models were PBL integrated with STAD in experimental class I and STAD in experimental class II
2. The subject taught in this research was chemistry on buffer solution topic
3. In this research learning outcome to be measured including student's achievement and student's active and teamwork character
4. The research object was student Class XI in Senior High School I Rantau Selatan

1.4. Problem Formulation

Based on the background described above, then the problem can be formulated as follows:

1. Is the student's achievement that taught by PBL model integrated with STAD significant higher than taught by STAD?

2. Is the student's active character that taught by PBL model integrated with STAD significant higher than taught by STAD?

3. Is the student's teamwork character that taught by PBL model integrated with STAD significant higher than taught by STAD?

4. Is there significant correlation between student's active and teamwork character with student's achievement?

1.5. Research Objective

The research objectives are:

1. To investigate whether the student's achievement that taught by PBL model integrated with STAD is significant higher than taught by STAD

2. To investigate whether the student's active character that taught by PBL model integrated with STAD is significant higher than taught by STAD

3. To investigate whether the student's teamwork character that taught by PBL model integrated with STAD is significant higher than taught by STAD

4. To investigate the significant correlation between student's active and teamwork character with student's achievement

1.6. Reserach Benefit

This study is expected to provide benefits, especially for chemistry teachers, students and also for the other researcher about how to improve learning through implementation of PBL model integrated with STAD to improve student's learning outcome in buffer solution. The expected benefits of this research are generally described as follows:

1. For chemistry teacher, give alternative learning model to improve student learning outcome and develop student's activity and teamwork character in learning process

2. For student, give chance to have different experience in learning due to implementation PBL model integrated with STAD, so can increase

understanding and showed by higher student's learning outcome. Student can optimalized student's active and teamwork character.

3. For researcher, give new experience when apply PBL model integrated with STAD in learning process. In addition, the result of the study are expected to be a reference for firther research.

1.7.   Operational Definition

There are some operational definition in this research "The Implementation of PBL Model Integrated with STAD in Learning Buffer Solution Senior High School I Rantau Selatan Class XI Academic Year 2014/2015". Those are:

1. PBL model is series of learning activities that emphasize to the process of solving problem scientifically (Sanjaya, 2008).

2. STAD is the simplest cooperative learning model is developed by Robert slavin at all from John Hopkins University (Lie, 2008).

3. Buffer solution is a topic in XI grade at even semester discuss about composition of buffer solution, working principle of buffer solution, pH calculation in buffer solution and the function of buffer solution.

4. Learning outcome is a change in behavior as a result of learning in a broader sense includes the areas of cognitive, affective and psychomotor (Sudjana, 2005).

5. Active character is used as an indicator of the desire or motivation of students to learn (Hakim, 2014).

6. Teamwork is an effort in people or a group of human to reach one or some purposes (Baron, 2000).