

## CHAPTER I INTRODUCTION

### 1.1 Background

Indonesia is a developing country which is still in development proses. In supporting this development, Indonesia needs qualified human resources besides natural resources. Efforts to create and enhance these resources is through education.

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. Indonesia is categorized as a developing country and the quality of National Education is moving an international standard. Changes and improvements continue to be made for the sake of improvement, both systemic as well as the infrastructure. But in reality the quality of education in Indonesia is still low and it can be said concerning. As has been reported by the UNDP (United National Development Program) that the HDI (Human Development Index) in 2007 Indonesia was ranked at 111 out of 177 countries in the world (Malik, 2009).

One of the problems facing our education is the problem of lack of learning. In the process of learning, children are less encouraged to develop the ability to think (Sanjaya, 2007). The learning process in the classroom geared to the child's ability to memorize information. The learning process is still giving teachers domination and does not provide access for students to develop their independence through discovery and student's thinking process. Students simply memorize concepts and less able to use these concepts if encountered in real life problems related to its concept (Trianto, 2008).

In fact, chemistry learning process today is shown by the teaching style of teacher that always drilling students to memorizing the concepts without accompanied by the concepts understanding, with the reason to achieve the final exam target ( Hadiat, 1994 ). Besides that, might be teacher difficult to communicating the subject by using interactive model in teaching learning

process. It is expected that professional teacher has to be able to make chemistry more relevant, enjoyable, easy and meaningful to students ( Sola, 2007 ).

Success of teaching learning process is determined by the model that teacher used to teach the students. Model of teaching can help the teachers to understand capacity of student's thinking and level of student's difficulty ( Montelone, *et all.*2008 ). Teaching process is more meaningful when learning is not one direction so that it will increase relationship between the students and teachers, follow the student. The teachers must give opportunity to the students to thinking process, to ask, to develop creative attitude when it is go on and to "discovery" a new things ( Wilson, *et all.*2009 ).

The data obtained from national examination showed that average of student's achievement in mathematic and natural science are still below national standard given by the government. For example, the average achievement of the Senior High Schools students in Physics is 4.00, while other subjects were 5.00 ( <http://www.mediaindo.co.id/newsprint>). Furthermore, the average student's achievement in Chemistry from the Indonesia national Examination ( UN ) were obtained successively in 2005 was 6.26, in 2006 was 6.22, in 2007 was 7.13 and in 2008 was 7.34 ( <http://puspendik.com/hasil2008/rata08/index.htm>). These achievement is categorized as in medium achievement. The student's achievement in Chemistry are presented earlier possible caused by the in learning process faced by the students.

Difficulties in studying chemistry students also due to the characteristics of different chemistry concepts of science. Chemistry contains a count, a fact that should be remembered, specialized vocabulary, laws linking one idea to another idea that should be understood and chemical knowledge to be applied in everyday life. Chemistry students in learning with all its potentials should be trained to discover new ideas to construct a creative new facts (Mahmudin, 2009).

Chemistry is one of interesting subject for Senior High School if the teacher could teach chemistry in good model and method. To help students understand chemistry concepts and allows teachers to teach these concepts requires a learning model and method that directly relate to the subject matter

context of actual experience in everyday life. Therefore, choosing the right teaching model is very important to teacher and apply it by suitable method. This is the reason of the research proposal has been set up to investigate the best teaching model that combine with method in teaching of colloid. Learning cycle model with experimental method is chosen to be applied for the teaching colloid as they are assumed to attract student's attention in the teaching and learning of chemistry.

Learning Cycle is a model student-centered learning (student centered), a series of activities stages (phases) are organized in such a way that students can master the competencies that must be achieved in the way of learning to play an active role. Besides constructivism contains sides, in this study also contained self-reliance and group learning.

Laboratory experiment are key rules to improve the students ability and skills in teaching of chemistry. Laboratory experiment known as a practicum, is compulsory for many topics in chemistry as it is known that theoretical aspect has to be proven by experimental work in the laboratory. It is known in chemistry that a laboratory experiment could be used to improve the students ability and skills in chemistry. This is the reason that practicum has to be included for many topics in chemistry subjects for it is known that theoretical aspect has to be supported and proven by the experimental work in the laboratory. Experimental method give the real world to the students in teaching and learning process. Teaching colloid with learning cycle model with experimental method believes can increase students achievement.

Teaching of laboratory experiment had researched by ( Sihole and Situmorang, 2006 ) said that resulted of students achievement was improved by teaching of laboratory experiment because this teaching method taken longer recall than conventional method. The using of teaching method in learning of chemistry is very effective because students be able to to learn self from observation in experiment, so that able to improve student's achievement ( Hutasoit,2006). The activities of laboratory effective to take place if appropriate with this material ( Marlon, 2008).

Colloid is one subject that can engage students actively in the learning process because the subject matter is directly related to the problems faced by the students and the community at large. It is the learning matter that should be taught with experimental method. For that is the subject of colloid are expected to conform when using the Learning Cycle model with experimental method. It is expected that students are more interested in studying this material and are expected to improve student learning outcomes.

Several studies using the model of Learning Cycle has been done and can give better results than using conventional means. Melizar (2006) states that "Using Learning Cycle models can effectively improve student learning outcomes in subjects thermochemical at 17.81%." Nursyamsiah (2007) states that "The use of the learning cycle model on the subject of electrolyte and non-electrolyte solution has been to improve the quality of the chemical processes and learning outcomes of students". Handayani (2007) states "The application of learning cycle to improve student understanding on the subject of buffer solution." Abdulkadir (2013) states that "The use of the learning cycle model on the subject of trigonometry has been to improve the students achievement ." Ahmed (2012) state that " The study indicated that using the learning cycle reflects that there were greater effects on academic achievement of students taught with this model ." In the field of physics models have been studied Anzani (2008) which states that "the application of the learning cycle model of the material elasticity and vibration can improve high school students' learning outcomes.

Based on the background of the problems above, researcher interested in applying learning cycle model with experimental method in teaching of colloid in chemistry subject for senior high school students. So the research is titled **"Implementation of Learning Cycle Model With Experimental Method To Increase Senior High School Student's Achievement In Teaching of Colloid"**. The purpose of the research planning are to investigate the students achievement of learning cycle model with experimental method on the teaching of colloid, to determine the percentage number of student's experimental skills, and to determine the percentage of increasing student achievement teaching with

Learning Cycle model with experimental method. The study is conducted to SMA N 3 Medan by applying learning cycle model with experimental method for the teaching of colloid.

### **1.2 Problems Identification**

Identification of problems in this study are as follows:

1. Is chemistry student learning outcomes is low especially in the topic of Colloid?
2. Whether in the learning process, students are less encouraged to develop thinking skills, students asked to memorize the concepts and less able to use the concept in real life?
3. Whether low teacher competence in applying appropriate learning model resulted in the level of understanding and mastery of chemistry concepts of student is not optimal?

### **1.3 Problem Formulation**

The problems studied can be formulated as follows:

1. Is the students achievement who are taught by Learning Cycle Model with Experimental Method on the topic of colloid is higher than conventional learning?
2. How much the percentage number of student's experimental skills taught by Learning Cycle Model With Experimental Method?
3. How much the student's achievement increased taught by Learning Cycle Model With Experimental Method?

### **1.4 Problem Limitation**

The extent of the problem in this study:

1. The research is conducted by applying learning cycle model with experimental method
2. The study is conducted in SMA N 3 Medan academic year 2012/2013.
3. The material taught is Colloid.

### 1.5 Research Objectives

The objective of this study are:

1. To determine if the students achievement who are taught by the Learning Cycle Model With Experimental Method is higher than the students achievement taught by conventional methods on the topic of Colloid in SMA N 3 Medan academic year 2012/2013.
2. To determine the the percentage number of student's experimental skills taught by Learning Cycle Model With Experimental Method.
3. To determine the increasing percentage of student's achievement taught by Learning Cycle Model with Experimental method.

### 1.6 Benefits of Research

As for the benefits to be achieved from this research are:

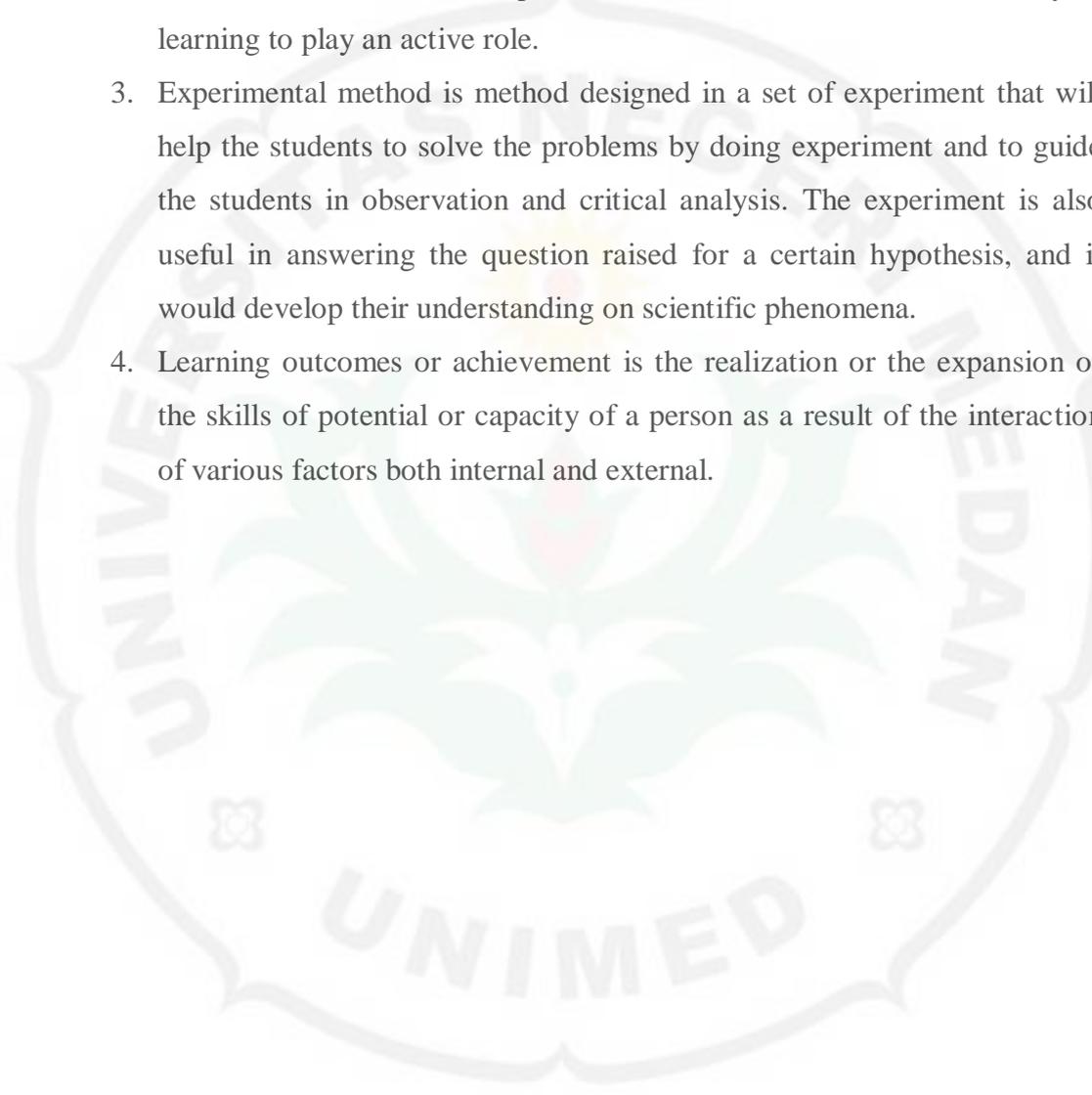
1. As consideration for teachers and prospective teachers to use the Learning Cycle models in teaching and learning.
2. In addition to the insights and experiences for prospective teachers in student learning in particular on the topic of Colloid.
3. As a matter of information for researchers, especially chemistry teachers in order to improve the quality of learning chemistry.

### 1.7 Operational Definition

1. Learning model is a conceptual framework that describes a systematic procedure in organizing learning experiences to achieve specific learning objectives, and serve as guidelines for the designers of learning and teachers in planning learning activities.
2. Learning Cycle (Learning Cycle) is one of the constructivist learning approach, which is a model student-centered learning (student centered), a series of stages that activity consists of 5 stages: stage generating interest (engagement), digging (Exploration), explain (explanation), application of the concept (elaboration), and evaluation are organized in such a way that

students can master the competencies that must be achieved in the way of learning to play an active role.

3. Experimental method is method designed in a set of experiment that will help the students to solve the problems by doing experiment and to guide the students in observation and critical analysis. The experiment is also useful in answering the question raised for a certain hypothesis, and it would develop their understanding on scientific phenomena.
4. Learning outcomes or achievement is the realization or the expansion of the skills of potential or capacity of a person as a result of the interaction of various factors both internal and external.



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