

CHAPTER I

INTRODUCTION

1.1 Background

Education in Indonesia is under the spotlight because of the quality of education in Indonesia is still low, it can be seen from the low achievement of students generally. Beside of that, According to UNESCO in 2007, Indonesia rank at education is 62 among 130 countries in the world. Education Development Index (EDI) of Indonesia is 0.935 lower than Malaysia (0.945) and Brunei Darussalam (0.965).

The low of student's achievement is caused by the lack of student's interest to learn. In learning process, students do not push to develop their ability to think, but student instructed only memorizing information without comprehending its application in daily life (Sanjaya, 2010).

According to Sadirman (2006: 94), interest is fundamental motivation appliance for someone to try, included to learning. So, if student feels to be challenged and have big interest to studying chemistry, hence students will be impelled at conducive condition in order able to channel their interest and try to eliminate the hinder factors. In another word, can be said interest plays as a motivator in student engagement and learning (Subramaniam, 2009).

So, can be concluded if student's interest are still low causing students' achievement decrease, so how to increase student's interest should be found to make more interesting and effective learning.

Chemistry is recognized as one of difficult subjects to learn by students, this is because understanding of chemistry is based on assigning meaning to the unseen and the intangible. It contains many concepts which are difficult to be understood by students as it relates to chemical reactions, calculation (stoichiometry) and some abstract concepts.

Based on the observation and the experience of researcher on teaching experience program in SMA N 2 Lintongnihuta, chemistry becomes difficult to understand because students not interest with chemistry themselves. It is seen

from the results of pure value of daily exam (UH 2) on academic year 2014/2015 from two classes that not optimal or still under KKM, the average value of class XI Science-1 is 66.46, the highest is 100 and the lowest is 33; the average value of class XI Science-2 is 51.75, the highest is 85 and the lowest is 20 with KKM is 75 (Data was gotten from the direct observation during teaching experience program).

One of chemistry materials that are assumed as interesting topic for students is colloidal system but it will be difficult to understand if the teachers cannot find the appropriate learning model, method, and media to teach that topic. Colloidal system is one of topic in chemistry which most of materials are comprehending concepts that needed to be understood. Because learning of Colloidal system only learns about the comprehending of concept without any application make students feel bored. Beside of that, many teachers tend to use lectures method which make the learning process very monotonous and boring.

Learning chemistry in school is less precise if only pay attention on product without considering the process that takes place in every learning. Because chemistry is contained of two aspects, product and process. Chemistry as product includes the collection of knowledge such as facts, concepts, and principle. While chemistry as process includes attitude and skill that had by students to obtain and develop of the knowledge of chemistry. But, many of teachers only pay attention on the product. It happens due to the lack of teaching variation of teaching models that are used by teachers in high school makes the role of students in learning process is still passive, most of learning is still dominated by the teacher (teacher-centered), so non-cognitive skills are less honed.

In order to increase student's achievement in learning and get interesting in chemistry not only in product aspect, but also in process aspect, students are demanded really understand and active during teaching and learning process. This condition can be made by teacher. Using a suitable learning model, student can be directed to be active during lesson. Learning model is a kind ways that helps and support teacher and student in teaching-learning. The present of learning model in

class is useful because can change the class condition from monotone and boring become interesting and fun for both of teacher and student. In this research, researcher develops the Discovery learning model in learning process by integrated with experiment.

Discovery learning encompasses an instructional model and strategies that focus on active, hands-on learning opportunities for students (Dewey, 1916/1997; Piaget, 1954, 1973). Bicknell-Holmes and Hoffman (2000) describe the three main attributes of discovery learning as 1) exploring and problem solving to create, integrate, and generalize knowledge, 2) student driven, interest-based activities in which the student determines the sequence and frequency, and 3) activities to encourage integration of new knowledge into the learner's existing knowledge base.

Experiment is the concept of "learning by doing" (Bruner, 1990) is certainly not new; however, allowing the student to learn by doing within the classroom context is a departure from traditional methods. In this context, experiment is important components of education to make students to gain experience. Learning with experiments provides effective teaching by engaging the student's desire to learn. Since students remember only a fraction of what they hear but a majority of what they actively do, Senge (1990) reasoned that personal involvement would help to get students engaged with the subject matter.

Several study using Discovery learning model had been done by some previous researcher, they are: Teddy Alfra Siagian (2013) states that the implementation of guided discovery learning using interactive media can improve student's achievement and interest, with the gain of student's achievement is 54.48 % and student's interest is 50.90 %, in which the both gains of student's achievement and interest are medium or can be said still not optimal. Beside of that, the gain of the research from Nur Qomariyah had gotten 57.5% (medium).

Some study using Experiment method also had been done by some researcher, they are: Hidayat Kusuma (2013) states that the implementation of Learning Cycle Model with Experimental Method can increase student's achievement with the gain of student's achievement are 67.9 % (medium). Beside

of that, the gain of the research from Monica Cahyani Ratri with title The Implementation of CTL Model using Laboratory Media had gotten 75.1% (High).

Based on the description above, can be seen that the using of discovery learning model still not optimal (the gain is still medium) to increase student's achievement and interest. So, the researcher is interested to combine Discovery learning model with Experiment method on conducting the educational research with the aim to know the effectiveness of discovery learning model combine with experiment method. Therefore, the researcher conduct the study with the title **“The Effectiveness of Discovery Learning Model Integrated With Experiment To Increase Student's Achievement On Learning Colloidal System “.**

1.2 Problem Identification

Based on the background above, can be identified some problems such as:

1. The quality of education in Indonesia is still low.
2. Teachers tend to use lecture method which make the learning process very monotonous and boring.
3. Student's interest are still low causing students' achievement decrease, so that how to increase student's interest should be found.
4. The lack of variation in model of teaching that is used by teachers makes the role of students in learning process is still passive.
5. Colloidal system is the topic that only learns about the comprehending of concept without any application so that students feel bored.

1.3 Problem Limitation

Problem limitation of this research as follows:

1. The model that is used in this research is discovery learning model that integrated with experiment to increase student's achievement at second semester in academic year 2014/2015.
2. The subject is chemistry with colloidal system as the material in teaching and learning.

3. The student's achievement to be measured in this study is cognitive aspect of level C1, C2, C3.
4. The research investigates student's achievement, and interest.

1.4 Problem Formulation

The problem formulation of this research includes:

1. Does the discovery learning model that integrated with experiment give higher significant difference of student's achievement compared with discovery learning model without experiment method on the teaching of colloidal system?
2. Does the discovery learning model that integrated with experiment give higher significant difference of student's interest compared with discovery learning model without experiment method on the teaching of colloidal system?
3. Is there a significant correlation between student's interest and the increasing of student's achievement?

1.5 Research Objective

The objectives of this research are conducted to know:

1. The comparison of student's achievement in studying colloidal system who have learning with discovery learning model that integrated with experiment and student who have learning with discovery learning model without experiment method.
2. The comparison of student's interest in studying colloidal system who have learning with discovery learning model that integrated with experiment and student who have learning with discovery learning model without experiment method.
3. The correlation between student's interest and the increasing of student's achievement.

1.6 Research Benefit

The expected benefits of this research are:

1. As information for teachers about discovery learning as model of teaching to improve student's achievement in chemistry.
2. Produce an innovative learning model that can enhance student's achievement, and interest optimally.
3. For education, as an input to improve the learning process and improve the quality of education in school.

