CHAPTER I
INTRODUCTION

1.1 Background

Education is learning process that obtained by every human to make the human know, understand, and more mature, as well as able to make people more critical in thinking. Humans being are to educate and to be educated. The primary aim of education is sustain individual and societal improvement. Educational programs and policies play a pivotal role in social and individual progress. Social progress clearly indicates a general development in the community in terms of economic, social and cultural aspects (Turkkahraman, 2012). Thus, education has very important role in the progress of a nation because without education development of a nation is not going to happen.

Improving the quality of education is very important to be able compete in today's global era. Now, the era of globalization is characterized by advancement of science and technology as well as information. In that era, education institutions such as schools are required to be able to create human resources that competent and able to compete with other countries. Therefore, in the management and implementation of education, an educational institution must be always ready to adapt by observing the learning process that applied.

Student learn in many ways by seeing and hearing, reflecting and acting, reasoning logically and intuitively, memorizing and visualizing and drawing analogies and building mathematical models, steadily and in fits and strats. Teaching methods also very. Some instructors lecture, others demonstrate or discuss, some focus on principles and others on applications; some emphasize memory and other understanding. How much a given student learns in a class is governed in part by that student’s native ability and prior preparation but also by the compability of his or her learning style and the instructor’s teaching style (Felder and Silverman, 1998). So, from the opinion above it is clear that the success of a learning process depends on the student's learning style in mastering

the material and teaching style of the teacher in choosing and using models and learning media that appropriate and effective.

From the experience of researcher during observation in PPLT 2014 at SMAN 2 Lintongnihuta, teacher still use direct instruction model that make students less active in learning process and make the student's achievement in chemistry is low. Beside of that, this case also caused by the use of media that minim and limited that make students are less interested in following the teaching and learning process. Compared with the researcher apply during PPLT, by using Macromedia Flash in delivery the materials, students pay more attention and more enthusiastic in receiving learning. It can be seen in increasing the student achievement from UH-2 to UH-3. The average of UH-2 in class XI-MIA 1 is 51.75 and the average of UH-3 is 77.5. Similarly with the fact that researcher found at initial observation in SMAN 15 Medan, learning model that applied also used direct instruction model and the use of media still minim and limited that make the students are still low in chemistry learning outcomes. It can be seen from the results of daily exam with the KKM value of chemistry is 72, while the students that were able to achieve it only 30%.

Chemistry is one of the most important branches of science; it enables learners to understand what happened around them. Because chemistry topics are generally related to or based on the structure of matter, chemistry proves a difficult subject for many students (Sirhan, 2007). Many students view chemistry as one of the most difficult subjects to study at all levels of schooling. Learning chemistry places many demands on students and teachers that can seem insurmountable. Instructors display mathematical formulas, chemical symbols, and scientific measurements simultaneously to describe phenomena that are not readily apparent to students. Moreover, the concepts of chemistry are often seen as abstractions confined to the chemistry classroom and not applicable outside of school (Stieff and Wilensky, 2003). Therefore, required austerity of teachers in selecting appropriate teaching methods is one of the key success of learning process and break the assumption that chemical topics is difficult.

From the problems above, required a model of learning that can give interest and convenience for students in understanding the subject matter. One way that can be used to solve the problem above is using a model of learning that involves students and makes students actively in the learning process by using Guided Inquiry learning model. In guided inquiry method, teachers and learners play a crucial role in asking questions, developing answers and structuring of materials and cases. The usage of guided inquiry method is very important in transition from lecturing method to other teaching methods which are less and more clearly structured for alternative solutions. Guided inquiry activities help students to develop their individual responsibility, cognitive methods, report making, problem solving and understanding skills (Jack, 2013).

Colloid is one of chemistry matter that much discuss theory so required creativity of teachers in selecting a learning model to explain the material so that students are not difficult and saturate to understand the teacher's explanation. According to Zainuddin and Lailan (2007), the colloidal system is one of the topics in chemistry learning that contains concepts, where one side has an abstract concept and the other hand its application easy to find in everyday life. So, the colloidal material can be presented by inquiry learning model and showing the students about the process.

In addition, to maximize the learning process it is necessary to use a media. Computer based media such as *Macromedia Flash* is the right media to display the visualization of learning. According to Tiarina and Julian (2013), Macromedia Flash is combination of learning concept with the audiovisual technology capable of generating new features that can be used in education. Macromedia Flash animation able to present abstract concepts clearly illustrated more attractive to students with a variety of animated images. In colloidal material, most of the concepts are abstract for example the difference between solution, colloids and suspensions, the Tyndall effect process, brown motion, coagulation, and so forth, so that it is necessary to use media such as Macromedia Flash that can clearly describe colloidal material.

Some research showed the effectiveness of guided inquiry learning model to improve student achievement. Research conducted by Kristanti (2011), *Pengaruh Penerapan Model Pembelajaran Inkuiri Terbimbing Terhadap Keterampilan Proses Sains dan Prestasi Belajar Siswa Kelas XI IPA SMA Negeri 1 Batu Pada Materi Koloid*, obtained student achievement that significant between student that taught by guided inquiry learning model than student that taught by conventional method, where student achievement that taught by guided inquiry learning model is higher 86.5% than student that taught by conventional method 82.6%. Purwati and Suyanti (2014), *The Influence of Guided Inquiry Learning Method with Macromedia Flash toward Student's Achievement in the Solubility and Solubility Product Topic,* obtained data of experimental class taught by guided inquiry learning methods with Macromedia Flash media can improve student achievement in higher category (0.78 ± 0.0940) and control class taught by conventional methods can improve student achievement in medium category (0.59 ± 0.1124), it can be concluded that the student achievement that were taught by guided inquiry learning methods with Macromedia Flash media is higher than the conventional method.

Based on the description, the researcher is interested to conduct a research with the title **"The Effectiveness of Guided Inquiry Learning Model With Macromedia Flash to Increase Student's Achievement on the Teaching Colloidal System in Senior High School".**

1.2 Problem Identification

With the background above identified some problem namely: 1) Whether chemistry teacher doesn't implement other learning models beside direct instruction model? 2) Do students consider that chemistry is less attractive and difficult to understand? 3) The use of learning media in teaching and learning process.

To reveal the things in the problem identified above, overall through this research is not yet possible. Some things in these problems are still limited because of limited time, funds, and facilities to support this research.

1.3 Problem Limitation

Problem limitations in this research are:

1. Material that be taught is about colloidal system in class XI science.
2. This study is measured the cognitive aspect.
3. Learning model that will be used is Guided Inquiry.
4. Learning media that will be used is macromedia flash.

1.4 Problem Formulation

Based on the problem limitation above, the problem formulation of this research are:

1. Is student's achievement that taught by guided inquiry learning model with macromedia flash significant higher than student's achievement that taught by direct instruction model in colloidal system topic?
2. What is the effectiveness of guided inquiry learning model with macromedia flash to increase student's achievement on the teaching colloidal system?
3. What is cognitive aspect that most improve by implementation of guided inquiry learning model with macromedia flash in colloidal system topic?

1.5 Research Objectives

The research objectives are as follows:

1. To determine whether there is significant higher of the student's achievement that taught by guided inquiry learning model with macromedia flash than student's achievement that taught by direct instruction model in colloidal system topic.
2. To investigate the effectiveness of guided inquiry learning model with macromedia flash in increasing student's achievement on the teaching colloidal system.
3. To know the cognitive aspect that most improve through the experiment class.

1.6 Research Benefits

After doing this research, the benefits that expected are:

1. As consideration for teacher to use guided inquiry learning model with macromedia flash in teaching and learning process in classroom to increase achievement of student.
2. Increase student achievement and help students to be more active in learning process.
3. For other researcher, as an input in doing research.

1.7 Operational Definition

The operational definitions in this research are:

1. Guided Inquiry Learning is a model where the teachers and learners play a crucial role in asking questions, developing answers and structuring of materials and cases. Guided inquiry activities help students to develop their individual responsibility, cognitive methods, report making, problem solving and understanding skills (Jack, 2013).
2. Macromedia Flash is a software that widely used by web professionals due to its impressive capabilities in multimedia displays, combining elements of text, graphics, animation, sound and interactivity for the user of internet animation program (Rahman et.al, 2008).
3. Student's achievement is an evidence of learning success or ability of students in conducting learning activities appropriate with the weight that reached (Winkel, 1997).