

CHAPTER I

INTRODUCTION

1.1 Background

The quality of human resources (HR) is very influential in promoting the progress of the nation. Human resources progress accompanied by advanced science will increase the nation's progress. For increasing the human resources' quality, government should improve the education's quality. Education is not only about an obligation but also necessity. Education can improve the human's quality. In other words, the human resources' quality depends on education's quality.

According to John Dewey, the education's goal is the growth that directed towards sustainable growth by environmental interactions. Environment always challenging and changing because learning is an act that interacts with environment (H.A.R Tilaar, 2004).

Education is very important in human life because education can improve the human skill through the learning process. The education's progress will influence the nation's progress. Educational progress in Indonesia is rapidly in which requires all parties able to face the globalization's competition. Education is a leading role in shaping the human resources' quality. Based on the educational function for improving the skill and shaping the character and dignified civilization to educate the nation with the aim to improve the ability of students to being an individual noble, knowledgeable, creative, independent and be democratic citizens and responsible.

Indonesian government has provided a large expenditure budget for improving our education. This is caused that the nation's development must be accompanied by the human quality development. The education's quality depends largely on the teacher's quality who guides the learning process.

According Tirtaharaja (2005) the elements includes in education, such as:

1. Student
2. Teacher
3. Educative interaction, there is interaction between teacher and student
4. Educational goals

Teaching and learning activities is the main of education process. There is reciprocal interaction between teacher and student and we can call as educative interaction. Generally, teachers' efforts to create a suitable situation so that the interaction between students and environmental in order to achieve specified learning goals.

In the teaching and learning activities teacher has a vital role. The democratic teacher will be more use discovery method to educate student in order to be able to think for themselves on their own responsibility. Teacher will be more priority the learning process like formulating the aim of seeking material to solve the problem. Mastery of learning is a vital tool for student to continue their lesson.

Instead, the authoritarian teacher will be likely to use the conventional method and forces the student only for listening and receiving the information without given the opportunity to think and solve the problem by their's own mind. The authoritarian teacher more priority the learning's outcomes than the process. (Sudjana, 2009)

Generally, teaching and learning activities still predominantly using direct instruction methods so that less varied and students tend to get bored in receiving learning because teacher-centered learning process. Teachers considered a storehouse of knowledge, so that assessed act authoritarian and dominate the class, while students only passive act which only mimic the

pattern or the teacher step in solving the problem and when students not understand so forced to get a bad value. (Ruseffendi, 1974).

In direct instruction method, the learning process sign by lectures with explanation and division of exercises. This method is considered as the main causes of low student interest in learning and value. Therefore, teacher needed the learning model that can improve student's interest and value in learning.

Chemistry is the study of the events that took place in the universe such as matter and change. Chemistry is the central science because all science is concerned with the chemical. Chemistry is one of the subjects to be feared and considered difficult by students. Generally, student difficult to learn chemistry because not really understand the concept.

Chemistry has many abstract concepts and student must understand the concept at the short time so that make chemistry more difficult for students. Student tends to memorize the concept than actively seeking information to improve the understanding of chemical concepts (Sanjaya, 2008)

Students' difficulties in understanding the chemistry concepts often cause the assumption that the chemistry is very difficult. Chemistry learning more emphasis on scientific proceed skills and critical thinking skills. Students' difficulties in chemistry learning because they are afraid with chemistry so that they got bad value (Butarbutar, 2007).

For student, chemistry is a bored lesson and they ignored this lesson because the learning process is very theoretical and teacher use conventional method. Generally, teacher only gives the explanation, asks student to read the handbook and memorizes the information in learning process. In teaching and learning process, teacher must be a motivator and facilitator. Teacher must be able to stimulate students' ability, activity, and creativity,

and provide facilities to the students in the learning process so that the dynamics of chemical and simplify the learning process.

Learning interest is a high tendency and fervency for something where students are happy to follow the teaching and learning activities.

In the learning process, interest is a very important aspect because

1. Interest can foster the students' spirit in learning process
2. Interest is a choice for the type of activities which students wish to follow
3. Interest is a clue to the behavior(Rusyan,1989).

The characteristics of student who have a high interest seen from

1. Persistence of student in working the task
2. Not easy to be hopeless when encountering difficulties in the learning process
3. More excited to work independently (Sardiman, 2003)

In the teaching and learning process, there are two important aspects, such as learning's model and media because both of them closely related. Choice a learning model will effect to type of learning's media (Arsyad,2011). Formulation appropriate learning media will be increase student interest in learning so that improve student learning outcomes.

The low students' achievement and interest in chemistry learning demands teacher must use an appropriate learning strategy and model. Learning strategy is an art and knowledge to create a maximal learning so that can achieve the effectively and efficient goals. Learning strategy not only centered on procedure and activity.

In research that will be conducted, the subject to be discussed is a colloidal system. Colloidal system is a matter that requires students' understanding because there are many concepts. Colloidal system relate to

our daily life so that student must seeking directly and they understand the lesson. Because of it, teacher needs a learning strategy for increasing students' interest and achievement in chemistry learning. A strategy that can use for facilitating and training students' creativity during the process of an understanding concept is Process Oriented Guided Inquiry Learning (POGIL).

POGIL is one of learning strategy that centered on process' ability with inquiry approach; consist of exploration, discovery, and application. POGIL is a learning process based on constructivist principles which enable students to learn through group interaction in problem solving. POGIL can use structured exercises, group exercises where students are given a task or problem and guide through the steps needed to solve the problem (Erik and Derrik, 2010).

The series of learning activities in POGIL learning strategy involves the student's ability to seek and investigate systematically and critically, logically and analytically, so that students are able to draw their own conclusions invention with confidence and maximum (Moog and Spencer, 1999).

Several study using POGIL strategy had been done by some previous researcher, they are: Silvia Elastari Matondang (2014) states process oriented guided inquiry strategy learning by using powerpoint can improve the students' achievement, with the gain of students' achievement is 78%, the gain of the research from Sri Wahyuna Saragih is 72%, and from Tukma Sari is 84%.

The selection of the media is not (and will never) is something that is completely right. The election was not a stand-alone business, which can be completed within a period of time, irrespective of the instructional process. Exercise is a good, or even a high-quality education, combining tricks and science (Anderson, 1994).

Worksheets media can be an alternative that can be used in the learning process because can be used at this stage of an understanding the concept (convey new concepts) as well as an understanding the concept (continued from planting concept) because worksheets are arranged to guide students in learning the lesson topic. At the stage of understanding the concept of worksheets used to learn the knowledge of a topic that has been studied previously.

In addition, the needed improvement in the way teachers teach chemistry lesson is to apply the lesson study. Lesson study is an activity that develops professionalism of teachers where teachers are open lesson with the teacher manages other colleagues as an observer, so that the teachers share teaching experiences.

The lesson study process involves teachers in small discussion groups with activities, among others, is discussed plan teaching and learning, teaching, observe the learning process and conduct discussions after learning to do a variety of learning to do a variety of improvements for the next process (Dini Prihartini, 2011).

From the initial observation that researchers do when doing PPL that most of the students of class XI Science at SMAN 1 Berastagi is less interested in the chemistry lesson. Generally, the students assume the chemical is a difficult subject because it is abstract, difficult to apply in everyday life as well as difficult to connect the formula and count. This is why students are ill-prepared to study the chemistry so that student learning outcomes are still under KKM standards.

Colloid is one of the chemicals subject matter learned in class XI more emphasis on mastery of concepts. From the above problems can be concluded that students' difficulties in understanding the concept being taught is influenced by several factors: the way teachers teach, model and instructional media used.

The reason the researcher chose POGIL strategy with worksheet media based on lesson study are POGIL can increase students' skill, students' collaboration in groupwork, focus on the process oriented of student during teaching and learning activities, worksheet media as the simple media and guidance for student on teaching colloidal system, lesson study can improve teacher's professionalism, by using lesson study teacher can fix the shortage in the learning process at the next meeting.

Based on this background, researchers interested in conducting research with the title:

“The Implementation Of Pogil Strategy With Worksheet Media To Increase Student’s Interest And Achievement In Teaching Colloidal System Based On Lesson Study”

1.2 Problem Identification

Based on the description of the background, some of the problems that can be identified are as follows:

1. The Quality of Education is still low
2. Lack of the application of Learning strategy and media in learning activity.
3. Teacher find difficulties in providing interest learning strategy and media in chemistry learning
4. Student’s ininterest and achievement are still low

1.3 Problem Limitation

Many of the problems associated with the low learning outcomes and student interest. For those reasons, researchers need to limit the issues to be studied in order to achieve the expected goals of research,

1. The study was conducted in SMAN 2 Medan, SMAN 3 Medan, and SMA Swasta Raksana North Sumatra and restrictions on class XI Science 2014/2015
2. The subject material is Colloidal System
3. Results of study subjects as chemistry student cognitive and affective aspects of student learning as the affective aspect through observation sheet.

1.4 Problem Formulation

Based on the background of the problem, problem identification and problem definition as mentioned above, then made the formulation of the problem

1. Is the students' achievement is taught by using POGIL learning using worksheets media-based lesson study is higher than students taught by using direct instruction?
2. Is the students' interest is taught by using POGIL learning with worksheet media-based lesson study higher than students taught by using direct instruction?
3. Is there any effect learning interest caused by using POGIL learning strategies worksheets media based on lesson study to students' achievement in teaching colloidal system?

1.5 Research Objectives

The general objectives of this research was to investigate the Influence POGIL Strategy with Worksheet Media to Increase students' interest and students' achievement in Colloid Learning Based Lesson Study.

The specific objectives of this research were to investigate:

1. To know whether the students' achievement is taught by using POGIL learning using worksheets media-based lesson study is higher than students taught by using direct instruction.

2. To know whether students' interest is taught by using POGIL learning with worksheet media-based lesson study higher than students taught by using direct instruction?
3. To know whether any effect learning interest caused by using POGIL learning strategies worksheets media based on lesson study to students' achievement in teaching colloidal system.

1.6 Research Significances

The expected benefits of this research is

1. Students: to train students to be more active, creative, and able to collaborate in study groups to solve chemical problems.
2. Teacher: as input on how to design strategies POGIL as an innovative teaching model in chemistry teaching in schools.
3. Schools: can help create a strategy guide and a good instructional media in teaching and learning activities in other subjects.
4. Researchers: expected to be input or information for teachers on instructional strategies POGIL on student learning outcomes.

1.7 Operational Definition

The Operational definition in this study are:

1. Process Oriented Guided Inquiry Learning (POGIL) is a learning strategy like guided inquiry learning and focus to the process oriented.
2. Lesson study is a process in which a teacher constantly tries to improve teaching techniques by working together with other teachers to verify and criticize different teaching techniques.
3. Learning media can be interpreted as a tool in the learning process and used to stimulate thoughts, feelings, abilities or skills of students so that the motivation in the learning process.

4. Worksheet media is one of learning media used in the learning process. Worksheet is able to present the teaching materials are accompanied by exercises and evaluations that much.



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