

## CHAPTER I INTRODUCTION

### 1.1. Research Background

One part of the educational aspects of teaching is the interaction between the teacher and the students to gain teaching. According to cognitive theory assumes that the group is organizing learning aspects of cognitive and perception to gain an understanding (Al-Rasyidin and Nur, 2011: 32). While the definition of modern teaching in countries that have been developed that guide students in the teaching process. This definition suggests that active are students, who are teaching and teachers act as mentors responsible for directing students to better student's achievement particularly in view for.

Student's achievement is an indicator of teaching, meaning that the student's achievement it can be seen the development of a student after he received the practice of teaching. When examined on student's achievement in science lessons showed that the average value class is often the value of choices compared to the value of other subjects. Without realizing it, the teachers contributed to the factors that led to the impression among students that teacher (Haryono. 2013) forget that every student has a preliminary understanding. And other hand, as long as there are still many students who have difficulty in understanding and following the chemistry lesson. It is not independent of the material being studied in chemistry are more abstract. And based on my observation (2013) that was done in school MAN 2 Model Medan shows that student's achievement especially acid base solution, where there are students who have value lower than KKM, it is about 54% the value which is should get by student is about 75. Based on the data above shown that teaching chemistry was not maximal yet to get the good result.

The teaching process according to Piaget's actually composed of three stages, namely assimilation, accommodation, and equilibration (Suciati and Irawan, 2005:11). Assimilation process is the unification process new information into existing cognitive structures in the minds of students. The process of

accommodation is the cognitive structure adjustment to new situations. Equilibration is a continuous process of adjustment between assimilation and accommodation. At this stage of assimilation should be observed that the cognitive structures already present in the minds of students means students have prior knowledge, it must be adapted to the new information on the interaction between teachers and students.

If the student's prior knowledge is not in accordance with scientific reality, it is necessary to change the concept of the teaching process. Therefore, teachers need to use a learning model that can make it easier for students to understand and master the concept of truth (Ihsan dede, 2012).

The teaching model is appropriate in this case is Model of Teaching to Induce the Conceptual Change (M3PK) is a teaching model based on constructivism thought that knowledge was constructed in the minds of the students by the students themselves, so the most important task of a teacher is to induce student's initial concept and the concept of change (Tarigan, 1999).

And in the teaching process by applying Model of Teaching to Induce the Conceptual Change (M3PK) it will be the identification of the student's prior knowledge, structuring a concept or concepts change, evaluate the final draft remedial students and students who are capable of doing intuitive low by high-ability students so intuitive concept of the students is the development of student's prior knowledge and the concept of the end of the students became intelligible, plausible, and fruitful.

The success of Model of Teaching to Induce the Conceptual Change (M3PK) in teaching has been investigated them by Monalisa Perangin-agin (2013) is the mean of student's score in control class for posttest is 75.267 and percentage increasing is 59.6% and the mean of student's score in experiment for posttest is 85.733 and percentage increasing is 77.8%. Next, Puspita Handayani (2013) is the mean of student's score in control class for posttest is 68.83 and percentage increasing is 54.28% and the mean of student's score in experiment for posttest is 81.83 and percentage increasing 72.19%. And then, Jehan Asri S (2013) is the mean of student's score in control class for posttest is 86.25 and

percentage increasing 40.16% and the mean of student's score in experiment for posttest is 90.38 and percentage increasing 69%.

Based curriculum 2013 that aims to prepare Indonesian people that have the ability to live as individuals and citizens who believe, productive, creative, innovative, and affective and able to contribute to society, nation, state, and civilization of the world, so that students are required to develop a balance between spiritual attitudes and social development, curiosity, creativity, cooperation with intellectual and psychomotor abilities. (Regulation minister of education and culture No. 69 of 2013).

The theme of 2013 is generating curriculum Indonesian people are productive, creative, innovative, affective, through the strengthening of attitudes, skills, and knowledge are integrated. To achieve this goal, the implementation of the curriculum, teachers are required to professionally designing affective and meaningful learning (fun), organizing learning, choose the appropriate teaching approach, the teaching procedure and determine the competence and character formation of students effectively. (Mulyasa, 2013: 99)

The conventional method which is a way of explains information verbally to some listeners, this activity centered on the speaker and the communication that occurs in the same direction that often apply in the class. Many conventional teaching methods which use of teacher to present a subject matter that makes the students tend to be lazy to think and just listen without understand what was said by the teacher, this makes the students sleepy and bored quickly. Therefore, a teacher is required to be able to present the subject matter as interesting as possible, so that the students feel interest and creativity to be active in chemistry (Roestiyah, 2001)

Based on the description above, so that researcher are interested in doing research with title **“The effectiveness of teaching to induce the conceptual change (M3PK Simson Tarigan) to increase student's achievement and characters on teaching acid base solution”**.

## **1.2. Problem Identification**

Based on the background, the problems of study that identify are:

1. Do the student's understand to the materials especially acid base solution in chemistry topic at the senior high school still low?
2. Is the students' understanding of chemistry concepts is low because the chemical is considered an abstract lesson?
3. Is the teacher learning model does not used involve prior knowledge students?
4. Are the student's characters in the class to a subject matter less developing?

## **1.3. The Scope of Study**

Based on the problem identification, this research must have the scope of study, so that make the researcher does not extend the problem catch. There are the scopes of study in this research. They are:

1. The research is conducted at the Senior High School (SHS) class XI (superior) using 2013 curriculum, semester 2, T.A. 2013/2014.
2. The subject matter that observed in this research is Acid Base Solution.
3. Teaching method which is used in this research is M3PK and Conventional Method.
4. Student's characters that will be measured in this research are responsibility and activeness through observation sheet.
5. Student's achievement to be measured in this research is cognitive aspect of the level C1, C2, and C3



#### **1.4. The Problem Formulation**

Based on the background, the problems of study that identify are:

1. Is the student's achievement that has teaching use M3PK higher than student's achievement that has teaching use Conventional Method?
2. How many the percentages of student's responsibility character can develop through M3PK?
3. How many the percentages of student's activeness character can develop through M3PK?

#### **1.5. Research Objectives**

Based on the problem statement above, the objective these researches are:

1. Knowing the student's achievement which is use M3PK higher than student's achievement which is use Conventional Method on teaching acid base solution.
2. Determining percent the responsibility character can develop through M3PK on teaching acid base solution.
3. Determining percent the activeness character can develop through M3PK on teaching acid base solution.

#### **1.6. Research Benefits**

There are benefits from this research for researcher, teacher and reader.

The general benefit is to increase researcher's experience in teaching chemistry.

The specific research benefits are:

1. As a comparison for those who want to examine the M3PK.
2. As inputs to the writer as a potential chemical studies teachers in increasing student's achievement.
3. Giving motivate to the teachers of chemistry to choosing teaching methods are expected to provide more effectiveness teaching.
4. As an input for teachers to implement of M3PK in teaching.

## 1.7. Operational Definition

To get same perception and avoid the difference of interpretation of some terms in this research, it will be necessary to explain some terms that are used.

M3PK is one of teaching model used to induce conceptual change. In this model the conceptual change is focused on three main aspects. There are intelligibly, plausible and fruitful. Intelligibly is the concept has meaning or sense in student selves. Plausible means the students are convinced that the concept received is true and fruitful means that the concept provides a fruit for him or the other words said that the concept can be applied in daily life. (Tarigan, 2009)

Student's achievement is the abilities of students after they get their teaching experience and it's may take the form of a change in student's behavior in the cognitive aspects that can be measured by tests that is indicated by a score by the teacher.

Character education aims to improve the quality of the implementation and outcomes of schooling that leads to the achievement of character and character formation of students as a whole, integrated, and balanced in accordance competency standards.

Activeness is one of the characters of education that must be owned by students. Being active in learning means create the condition of active learning. Active learning is a process whereby students engage in activities, such as reading, writing, discussion, or problem solving that promote analysis, synthesis, and evaluation of the class content. And based on the KBBI responsibility is man's consciousness behavior or actions which are either intentional or unintentional. Responsibility also means doing his duty as a manifestation of consciousness. (Poerwadamita, 1991)

Acids and bases represent two of the most important classes of chemical compounds. Some of the properties of acids (such as their sour taste) and bases (bitterness) have been known to humans for hundreds of years even if their chemical explanations have not. The reactions of these substances are significant in many atmospheric and geological phenomena. In addition, acids and bases

control many of the physiological processes in the human body and can catalyze a variety of chemical reactions.

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